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ORIGINAL ARTICLES.

ORRHOTHERAPY IN DIPHTHERIA.[1]

Read before the Illinois State Medical Society, May, 1896.

BY E. FLETCHER INGALS, A.M., M.D.
CHICAGO.

As a result of the work of Pasteur and the numerous investigations which have followed in the same line, it is now generally believed by bacteriologists that many diseases, especially those which seldom affect individuals more than once, are self-limited by the formation within the blood of a product capable of destroying the toxic material that excites the disease, hence called antitoxin. In such diseases if life be prolonged until a sufficient quantity of the antitoxin has been developed the toxic agent is destroyed and recovery follows if no serious complications have arisen.

In diseases that can be communicated from man to animals and vice versa, such for example as rabies, anthrax and diphtheria, advantage has been taken of this fact by inoculating animals with the attenuated toxic principle in small but steadily increasing quantities until an antitoxin is developed in the blood in sufficient quantity to render the animal immune to the further pernicious effects of the contagium.

Behring enunciated the law that blood serum which had in this manner been rendered immune might be transferred to another individual with the effect of rendering the latter also immune, no matter how suscepticle he might be to the disease. Further investigations by Kitasato, Aronson, Roux and Behring have determined what animals have blood serum that produces the least ill effects when introduced into the human system, and how to render a small quantity of blood capable of producing immunity in a second individual. They have also discovered methods of preserving the serum and of measuring its strength and purity.

Diphtheritic poison has been introduced into animals, preferably into the horse, until immunity to its further effects has been obtained. The animal has then been bled, the blood allowed to separate and the serum preserved under the name of antitoxin.

Until recently the serum prepared by Aronson, Behring and the New York Health Department was of strength known as from 60 to 150 antitoxin units to the cubic centimeter, the different preparations being numbered 1, 2 and 3. Stronger preparations are now made; No. 4 representing 200 antitoxin units; No. 5, 300 units, and No. 6, 400 units to the cubic centimeter. These are obtained, not by concentration of weaker solutions, but directly from the animal that has been inoculated. The stronger preparations are considered quite as safe and are preferable on account of their smaller bulk which obviates to a considerable degree the pain caused by the large injections.

[1] See correspondence, page 49.

One thousand antitoxin units is considered the ordinary curative dose, but in severe cases or those not treated until the third day, 1,500 to 2,000 units are often employed, and sometimes these are repeated until altogether from 4,000 to 6,000 units are administered in a single case. The dose considered necessary for immunizing a healthy individual is about one-fourth the curative dose. The serum is administered by hypodermic injections, preferably in some part of the body where there is an abundance of loose cellular tissue, as at the lower angle of the scapula, in the gluteal region, and upon the abdominal or chest walls. Dr. Chantemesse (*New York Medical Record*, 1896) reports that he has had quite as good results when administering the antitoxin per rectum as by hypodermic injections.

It is generally believed that the earlier the injection is made the better the result; still the classification of cases by days to determine the prognosis and the size of the dose is at fault for there is much difference in individuals in the rapidity with which absorption of toxins takes place and in their resisting power to the poison; therefore, in some, injections made the fourth or fifth day might be quite as advantageous as those in others made on the first day, though the earlier the remedy is used the better the result that would commonly be expected. The rapidity of the accession, the general condition and the age of the patient are of more importance in determining the use of the serum, its dose, and the prognosis to be given than is the number of days since the onset of the disease.

Very little interest was manifested in the antitoxin treatment of diphtheria until 1894, after Roux had presented the subject to the International Congress of Hygiene at Buda-Pesth with the report of five hundred cases treated by this method. Since then many physicians and the health departments of cities and of national governments have employed the serum extensively in the treatment of this disease. Although no crucial experiments have been made to determine the value of diphtheria antitoxin yet the statistics obtained from many sources *seem* to prove that it is capable of greatly diminishing the mortality of this disease. In studying the literature of this subject I find the majority of reports have been from many physicians who have recorded only one or two cases. From a perusal of these one can not help suspecting that in many instances only the favorable cases have been recorded. The statistics of hospitals are probably more complete and accurate, but the statistics of Health Boards although more extensive are likely to be very inaccurate for many reasons.

In Dr. Foster's report, No. 7, of the accompanying various hospital reports and published records which I have obtained (see Table I), it was noted that all of the cases treated on the first day recovered; of those treated on the second day 9.3 per cent. died; of

those treated on the third day 20 per cent. died; of those treated on the fourth day 33 per cent. died.

The following points were noted in the report from the London Hospitals (No. 12): First, that there was a great reduction in mortality in cases treated on the first and second days by antitoxin, second a lowering in mortality in all ages to a point below that of any preceding year, and third a lowering of the mortality of laryngeal cases over the preceding year.

In a personal letter (report No. 13) received from Dr. Wm. M. Welch of Philadelphia regarding the statistics from the Municipal Hospital of that city, I find that the use of antitoxin was mainly limited to cases considered favorable that were admitted in the early stage of the disease, that is, somewhere from the first to the fourth day. In cases that were far advanced, many of which were in a hopeless condition or showed great malignancy when they were admitted to the hospital, the antitoxin was not employed and a large number of the cases which received the antitoxin in the early stages were not severe. Of 302 cases receiving antitoxin 51 or 16.8 per cent. were intubation cases; of the 404 cases which did not receive antitoxin 71 or 17.57 per cent. were intubation cases. Of the 51 intubation cases which received antitoxin 27 or 52.94 per cent. died, while of the 71 cases in which it was not received 40 or 56.33 per cent. died. The difference, therefore, in favor of antitoxin in intubation cases amounted to only 3.39 per cent. notwithstanding the greater malignancy of the disease in some of these. In this series of cases the antitoxin was given to those in which it is claimed to be most beneficial, and was not given to the worst cases. Had the antitoxin been given in alternate cases of this group half of the more serious cases that died without the serum would probably have died with it, or at least they would not have been counted against other methods and this series would therefore have shown a record for antitoxin considerably more unfavorable than it does now.

An analysis of these reports shows that Nos. 1, 2, 3, 4, 5, 6, 7, 9 and 14 are very favorable to the use of antitoxin, but the cases reported in No. 7 were made up from journals and as already stated many of the reports so obtained were open to the suspicion of not having been accompanied by the unfavorable reports which should have been published at the same time. The observations Nos. 10 and 11 are from the Boards of Health of large cities and are very unreliable for the reason that many physicians do not report cases of diphtheria at all until they fear the patient is going to die, whereas physicians who obtain antitoxin from the Board of Health would necessarily report nearly all cases where it is to be employed. It is therefore not at all improbable that the percentage of mortality as given for cases in which antitoxin was not used is two or three times larger than it should be. There are other reasons, well known to the profession, why statistics obtained from this source are peculiarly unreliable.

In observations Nos. 4, 5, 6 and 9 the mortality among patients treated by antitoxin is compared with that of patients not treated by antitoxin in previous years, and as has already been stated the mortality varies so greatly in different years, whatever the treatment, that very little information can be derived from such statistics. Observation No. 12 is

TABLE I.

No.	Place of observation.	Treated by Antitoxin.			Not treated by Antitoxin.			
		Date of Observation.	Number of cases.	Per cent. of Mortality.	Date of Observation.	Number of Cases.	Per cent. of Mortality.	References.
1 cf. 8	Kaiserin Friedrich Hospital	1894	308	13.2	1894	230	47.	New York Med. Record, 1895.
2	Trousseau Hospital	1894	230	14.7				"
3	Willard Parker Hospital	1894 to Apr. 1895	164	27.				"
4	Hospital for Children, Paris	1894	?	24.23	1890 to 1894		51.11	"
5	Trousseau Pavillon				1894	520	60.7	"
6	Germany—Hospitals and Private Practice, reported by Dr. Enlenberg	1894 and 1895	10,240	under 2 yrs. 21. 2 to 10, 8.8 over 10 yrs. 4.7	Previous to 1894		39. 15. 8.8	JOURNAL AMER. MED. ASS'N.
7	Collected from journals by Dr. Foster of Washington	To Febru'ry 1895.	2,740	18.5	Same period.	4,445	47.36	Phila. Medical News, 1895.
8	Berlin observations by Professor Behring	1895	5,800	9.6	1895	4,479	14.	JOURNAL AMER. MED. ASS'N.
9	Russia—Dr. Zabalatini	1895	109	12.8	Previous records.		48.	
10	New York—Dr. Louis Fisher	1895	200	15.				New York Med. Record, 1895.
	New York Board of Health	1895	225	15.				Health Report.
11	Chicago Board of Health	1895	629	6.12				British Medical Jour., Apr., 1896
12	Hospitals of London, Joint Report	1895	Laryngeal cases, 461	42.	1894	Laryngeal cases, 466	62.	JOURNAL AMER. MED. ASS'N and private letter.
13	Municipal Hospital, Philadelphia, reported by Dr. Wm. M. Welch	1895	302	28.14	1895	404	25.99	Jour. Laryngology, Apr., 1896.
14	Professor Von Ranke		103	18.	Previous 8 years.		35.	"
15	Mr. Lennox Browne, Northwestern Fever Hospital, London	1894	100	27.			27.	

favorable to the antitoxin treatment on its face but it will be observed that the cases treated by antitoxin were in 1895 and those not treated were in 1894. Behring's statistics, Observation No. 8, show that in Berlin diphtheria was very much less fatal in 1895 than in the previous years even when antitoxin was not employed, the ratio apparently being about 14 to 40 or 50. If a similar ratio were maintained in London for the two years of observation, No. 12 instead of being favorable to the antitoxin treatment is decidedly unfavorable; the same remark would apply to some of the other observations, where the comparison has been between different years. No. 15 can hardly be considered favorable.

As an immunizing agent it is claimed that one-fourth the curative dose is efficient and that the larger the dose given the longer the immunity, but that repeated small doses are even more effectual. The immunity is said to last from one week to thirty days. Out of ten thousand cases thus treated at Berlin only one contracted diphtheria. As reported in the Annual of the Universal Medical Sciences for

1892 Grancher of Paris stated that in a diphtheritic ward in Paris among 1,741 patients admitted there were 153 children that did not have diphtheria at the time, yet not one of these contracted the disease. This was before the days of antitoxin, and when it is remembered that the children were surrounded in the same ward by diphtheria these facts detract much from the credit given diphtheritic antitoxin as a prophylactic agent.

Several cases have been reported in which this treatment seems to have proven deleterious to the patient and some fatalities have already occurred. In the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION April 4, 1896, a fatal case is recorded in which a healthy child died within five minutes after the injection had been given to protect it from contagion. Another case with serious symptoms in which a prophylactic dose had been given is reported in the same JOURNAL April 18, and still another fatal case has just been reported from Berlin in which Dr. Langerhans lost his little child shortly after an immunizing injection. Nevertheless considering the large number of injections which have been given and the few reports of deleterious effects it must be admitted that there is but slight danger in using the remedy as a prophylactic.

There is some reason to believe that injurious effects follow its use in remedial doses in many instances but as has been claimed by those who favor the remedy, it is possible that the deleterious effects are often observed from the fact that serious cases that would otherwise have died before the development of sequelæ are saved and that naturally in these cases the unfavorable after-effects of the disease would be more numerous. As stated by Mr. Lennox Browne in his book on "Diphtheria and its Associates," 1895, the power of the serum to do good and per contra its capacity for inflicting injury is in proportion to the duration of the disease, in other words, to the degree of toxemia. He claims that a greater number of children have been found liable to attacks of cyanosis, necessitating a demand for the freer use of nervines and stimulants, also that complete recovery is found to be delayed and that unexpected fatal results at a late period are more frequent. In the joint report of the hospitals of London already quoted 3,040 cases treated in 1894 without antitoxin are compared with 2,182 cases treated in 1895 with antitoxin. These show the following complications:

TABLE II.

	Treated in 1894. Without Antitoxin.		Treated in 1895. With antitoxin.	
	Number of Cases.	Per cent.	Number of Cases.	Per cent.
Albuminuria	603	24.0	1,081	40.9
Nephritis	37	1.2	45	2.0
Paralysis	403	13.0	507	23.0
Pneumonia, lobar	11	.3	18	.8
Pneumonia, lobular	50	1.6	80	3.6
Relapse of diphtheria	28	.9	31	1.4

The above figures show a larger percentage of complications after the antitoxin treatment. The experience in these hospitals showed that by far the most frequent complication was a rash, usually urticarial, sometimes erythematous or having the appearance of scarlatina. A rash was observed in 45.9 per cent. of all cases. This was accompanied by fever in many cases, amounting to 29.6 per cent. of the patients presenting a rash. In some instances the rash persisted for many days, but usually it had run its course by the end of the third or fourth day. There were a a few instances of effusion into the joints and abscesses were found at the site of injection in 2.3 per cent. of the cases.

In an abstract from the discussion at the meeting of the British Medical Association 1895, reported in the *Journal of Laryngology*, April, 1896, Dr. Goodale gave the following statistics, based on his observation: Of 105 cases of diphtheria treated with antitoxin, 29 per cent. died; of 136 cases not so treated, 33 per cent. died; albumin was found in the urine of 53.3 per cent. of the cases treated by antitoxin, but only in 49.2 per cent. of the cases not so treated. Nephritis was not noted in any of the cases; paralysis followed diphtheria in 17 per cent. of the cases treated by antitoxin, and in only 14.7 of the cases treated by other methods. Prof. Von Ranke of Munich gave statistics of 163 cases treated by antitoxin in which there was not a single case of laryngeal stenosis. Dr. A. Baginsky of Berlin gave statistics of 525 cases treated by antitoxin in which there had been no laryngeal stenosis. Dr. C. V. Kahlden (JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, Oct. 19, 1895) reports that in numerous experiments on guinea pigs and rabbits that have been injected with very large doses of antitoxin for the body weight of the animal he was unable to find any evidence of nephritis in the animals that were killed after one or more injections.

The consensus of opinion of observers as to the symptoms manifested after curative doses of the antitoxin is that the temperature may be either reduced or rendered higher, though it appears that in the majority of cases it is rendered somewhat lower in the next twelve to twenty-four hours; the pulse is strengthened and the general condition appears to be improved in the same time; extension of the diphtheritic membrane to other parts is checked and the membrane commonly begins to loosen within twenty-four hours. The remedy, however, does not prevent suppuration of the cervical glands, does not prevent paralysis and does not favorably modify paralysis when it has once appeared.

Laboratory experiments have undoubtedly proven that antitoxin, when injected into guinea pigs that have been inoculated with large quantities of diphtheria toxin, saves their lives, and also that immunizing doses in these animals are not followed by bad results, but prevent contagion for a certain period.

The reports of clinical investigations taken as a whole are considerably in favor of the antitoxin treatment. There is still, however, much skepticism as to the efficacy of the remedy, based upon the fact that no crucial experiments have been reported. It is well known that the mortality in diphtheria varies from 10 to 75 per cent. in various epidemics or in different portions of the same epidemic, therefore accurate information can not possibly be obtained by comparing the death rate of any year with that of any preceding year, or even by comparing the death rate of one month with that of preceding or succeeding months. Until, in the large hospitals alternate cases are treated by antitoxin alone and by other methods we will have no certain information upon the subject. The report from the Municipal Hospital of Philadelphia approaches nearer a crucial test than any other that I have been able to find. It unfortunately shows a higher death rate with antitoxin than without it; even

though the antitoxin was given mostly to those cases which were considered to be especially favorable for its action and in extreme conditions it was withheld. Until more definite information is obtained conservative physicians may well be excused for declining to experiment upon their patients with this remedy. However, the wide belief that it does much good and the comparatively certain knowledge that it does but little harm suggests that our duty to our patients demands that when diphtheria exists we should administer the antitoxin if it is desired, but that at the same time we should use such other remedies as have been proven of most value in combating this disease; but we should hesitate to recommend it as a prophylactic agent.

Antitoxin certainly has not been proven a specific for diphtheria. In estimating its value it should not be forgotten that the bacteriologic diagnosis of this disease is not perfect; that in a large percentage of cases having diphtheritic membrane the Klebs-Löffler bacillus is not found and also that in a large percentage of perfectly healthy mouths a bacillus morphologically the same is present.

We believe that experimentation in the treatment of diphtheria by serum is in the right direction and we hope that the enthusiastic friends of orrhotherapy may be largely vindicated, yet we can not search far into the history of medicine to find that very many of the remedies now employed have in the beginning been lauded excessively, and that not a few of those that were formerly supposed to be extremely efficacious have been found to be practically worthless.

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THE OUTLOOK IN SERUM THERAPY.

Read before the Michigan State Medical Society, at Mt. Clemens, June 5, 1896.

BY CHARLES T. McCLINTOCK, PH.D., M.D.
ANN ARBOR, MICH.

A year ago, in a paper read before this Section, I stated that an average of the reports from serum treatment in diphtheria showed a reduction of 50 per cent. in mortality. I repeat this statement to-day with all confidence. Then we had reports from a few thousand cases, to-day from hundreds of thousands. With the profession at large there is no longer any question as to the value of this treatment. Here and there some belated traveler may be heard crying that we are on the wrong road, that trouble and disappointment alone await us. The observer whose opposition has attracted the widest attention in the past year is possibly Dr. Lenox Brown of London. Dr. Brown is a very able man, an authority on many subjects. He attacks the statistics, makes much of the harmful effects of the serum, and enters a general denial against all the claims of good. The best answer to Dr. Lenox Brown's objections is not a review of all the facts and figures, but the recently issued report of the Medical Superintendents of the Metropolitan Asylum's Board of London. This report covers some six thousand cases of diphtheria treated in these hospitals; in round numbers, 3,000 without and 3,000 with the serum treatment. Their conclusion is, that not less than 250 lives were saved in 1895 by the antitoxin that would have been lost under the old methods of treatment.

There have been some improvements in the production of serum that are worthy of note. A year ago, in a vial of 10 c.c. we thought we had a very good serum, if it contained 1,000 units. Now we have one containing 5,000 units, and I think it altogether probable that by the end of the year we can have a serum of such strength that a 10 c.c. bottle will hold 10,000 units. This is an important advance. To inject 10 c.c. of anything into a child is a heroic procedure. But the injection of 1 or 2 c.c. is quite another matter. Two c.c. of this stronger serum is a full curative dose for an average case; 7 minims is an immunizing dose. There are certain unpleasant complications, urticarias, rheumatic pains, etc., that not uncommonly follow serum injections. In general these are proportional to the amount of serum used. We expect to note a very great diminution in the annoying sequelæ from these stronger serums. Allow me to call your attention to a mistake which I believe many practitioners are making. They argue in this way. "Ten cubic centimeters can be injected without harm. Now if I can get a serum that contains from two to five times the antitoxic power of that I have been using, I will inject the same amount and will get control of the disease in proportion to the strength of the antitoxin." This, I believe, is mistaken reasoning. It is very well established that this serum is not directly antitoxic, *i. e.*, the serum that you give does not of itself destroy the poison. It in some way nourishes or stimulates the cells of the body, and they in turn destroy the toxin. It does not follow, either in theory or in practice, that you will get this needed stimulus better from 5,000 than from 1,000 units. In fact, in so far as I can judge, from a somewhat careful examination of many reports, Behring's original recommendation, 250 units for immunizing, 500 to 600 for mild cases, 1,000 for average, and 1,500 for severe cases, repeated as necessary, still give the best results. On theoretic grounds, I believe that even smaller doses repeated more frequently would give better results. Remember the toxin is not produced all at once, but continuously through the course of the disease, so long as the germs are growing.

The marvelous results obtained in diphtheria very naturally led to enthusiastic work in all microbic diseases. At first it seemed that the same methods could be applied and like results obtained in all of the communicable diseases. And yet, after an enormous amount of work done by careful and skillful investigators, the results obtained are very disappointing. Typhoid and cholera, tuberculosis and smallpox are still unconquered. Why is it that a method applicable to diphtheria will not give as good results when applied to tuberculosis or typhoid? They have similar causes; the germs in these diseases as well as in diphtheria or tetanus can be isolated, pure cultures grown, toxins produced. The chief reason for the failure, I believe, is in this. In an ordinary case of diphtheria there are relatively few germs, confined to a very limited surface. But these germs produce a large amount of a very virulent poison, so much that every tissue of the body may feel its harmful effect. In tetanus this condition is even more pronounced. The germs are confined to the neighborhood of the wound and are so few in number that the skilled bacteriologist must make repeated examinations, or cultures, to find them at all. And yet these few germs will in the average case produce sufficient poison to cause death. How does this compare with tuberculosis, for example? One estimate has it that in the last stages of this disease as many as four billions of the germs

are expectorated in a day. This, I take it, without claiming any exactness for the figures, is a far greater number of germs than is produced in the entire course of a case of diphtheria or tetanus. Yet in pure, unmixed, non-septic tuberculosis, the amount of toxin produced, measured by the temperature curve and general symptoms, is small. To illustrate: Here is a tetanus toxin grown in bouillon from an old and presumably weakened germ, with no attempts to increase its virulence. Of this one five-hundredth c.c. is fatal to guinea pigs. Here is the toxin from the tubercle germ, grown as carefully as can be. This has been concentrated to one-tenth of the original bulk, and yet it requires from 2 to 5 c.c. to kill a guinea pig. At the lowest estimate the tetanus toxin is 10,000 times as strong as that obtained from the tubercle germ. Conversely, it is probably a safe estimate to say that in the average fatal cases of these two diseases, there are a million times as many tubercle germs produced as in the case of tetanus. I believe I am justified in saying that in tetanus it is the toxin that kills, while in tuberculosis it is the germs. The old name consumption is correct, the disease is a literal eating up of the tissues by the germs. Bearing these things in mind, the success of the method in the one case, and its failure in the other can be understood. To cure tetanus we need an antitoxin, while for the cure of tuberculosis we must have a germicide. The antitoxins of tetanus and diphtheria are not germicidal. Such an agent is not needed; free the tissues from the harmful effects of the poisons and they will easily take care of the few germs present. But not so in tuberculosis. Neutralize or destroy all the toxin and you still have left in an advanced case, untold millions of germs, feeding on and literally eating up the tissues in which they are located. I would not say that the toxins in tuberculosis are of no importance, but in an uncomplicated case I think the toxin is relatively unimportant. In the work of the past year these theoretic conclusions have received some experimental proof. Pfeiffer and his assistants in the Berlin laboratory have shown that the blood serum of an animal or man immune to cholera, can help an animal infected with cholera germs, but it does so, not by destroying a toxin, but by killing the germs themselves. Further, that the direct germ-destroying power of this immunized serum is small. But that when injected into the infected animal it so stimulates, or assists the cells, that they or their soluble products can in turn destroy enormous numbers of germs. Pfeiffer illustrates this in the following manner: A drop of the immunized serum is placed in a test tube with a portion of a bouillon culture of the cholera germ. This is left at the body temperature. Exactly similar amounts of serum and culture are injected into the abdominal cavity of a susceptible animal. In another, control animal, an equal quantity of the germ culture is injected without the serum. After a given time the containers, the test tube and the abdominal cavity of the animals, are examined, both microscopically and by the plate method. It is found that a few germs have been killed by the drop of serum in the test tube, while in the animal receiving the mixture the most or all of the germs have been destroyed. In the control animal the germs have increased in number.

Note the exact similarity here, both in theory and in results, to that advocated by Dr. Vaughan and myself several years ago in explaining the action of the nucleins in the body. Results corresponding in general to the above have been obtained with typhoid. Results which go far to show that in these diseases at least curative effects are produced by germ-destroying rather than by antitoxic agents.

A BRIEF SURVEY OF THE VARIOUS SERUMS.

Erysipelas Serum for Malignant Tumors.—There have been a few, apparently well authenticated, cases where an intercurrent attack of erysipelas has markedly benefited, and in a few instances cured malignant neoplasms. Following this indication, several experimenters have inoculated the site of these tumors with the germs of erysipelas, but this procedure proved entirely too dangerous. Whatever the effect on the tumor the patient often died.

Coley then attempted the treatment of these tumors with the toxins of erysipelas. He claimed very favorable results, but in other hands the treatment, although still occasionally used, has not given satisfaction.

Emmerich and Scholl, the former a well-known bacteriologist, conceived the idea of preparing a serum that would antagonize the growth of these tumors. They injected sheep with carefully prepared virulent cultures of the erysipelas germs. These injections were continued for some time. The serum from the sheep was then used for injection into the neoplasms. In theory, they were not attempting to produce an antitoxin, in the sense that we understand that word. Their theory is practically the same that Klebs advances for his antiphthisin. A germ produces both toxic and antitoxic bodies. Although there has been no experimental proof of any such condition, the possibility of its truth seems to have impressed many of the German investigators. Klebs claims that he can take tuberculin and by chemic methods remove the poisonous substances and retain the curative ones. Emmerich and Scholl used the animal body for this purpose. It was to be a separating filter, the poisonous substances eliminated and the anti-poisons or toxins stored in the blood of the injected animal. By repeated injections, a large amount of these curative bodies could be stored in the blood and this in turn used for the treatment of disease in man. These authors believed that they had found a specific cancer (heilserum), and notwithstanding the failure of the remedy in the hands of Bruns, Czerny, Petersen, Reinebroth and others, they persist in asserting that the serum does cure, and in this they are supported by a few clinicians. Bruns thinks it probable that in case there is amelioration, it is not due to any specific action, but results from the fever induced, causing fatty degeneration, and cites numerous instances of neoplasms degenerating in other fevers, as in typhoid, meningitis, etc.

Other experimenters have injected extracts or suspensions of tumors into animals, and then used their serum for injections. There is little promise in this work. For the present, judgment must be suspended. Meanwhile, despite the enormous amount of work done in the past three years attempting to find the cause of these growths, it remains that for the cancerous diseases there is no cure and no palliation save narcotic sleep to the end.

Cholera.—Ferran, a pupil of Pasteur, in 1884 showed that guinea pigs could be made immune to cholera by the injection of gradually increasing doses of bouillon

containing cholera germs. He did not follow up this work in a scientific manner but immediately began injecting men. Large numbers submitted to his inoculations. In Spain 25,000 were injected in one year. He even advocated that wells should be infected with the germs, so that those drinking the water should be gradually immunized to the disease. He did not use pure cultures but grew them from feces of cholera patients. This was shortly after Pasteur's notable discoveries on vaccines. Ferran saw that the serum of men who had recovered from cholera had immunizing properties and he used this in treating other individuals. He had discovered the underlying principles in our present methods of serum-therapy. He made the fatal mistake of keeping his methods secret. Ferran's methods were dangerous, his results uncertain and his professional attitude deplorable.

Haffkine. another of Pasteur's pupils, in India, has continued this work of vaccinating against cholera, injecting 40,000 men last year.

Lazarus was the first to demonstrate that the serum of men who had recently recovered from this disease, would confer an immunity on guinea pigs, against the intra-peritoneal injection of cholera germs. Since that time many investigators have busied themselves with the problem of immunity and cure in this diseasy. There is at present a wordy discussion in progress as to whom belongs the priority for some of the principal discoveries. Pfeiffer of the Koch school in Berlin claims to have discovered a new ground for immunity. He finds it easy to immunize animals so that their serum can be used to protect other animals against the disease. But the interesting and important part of this work is the light thrown on the nature of these anti-bodies contained in the immunized serum. Pfeiffer finds that these anti-bodies have a specific action. For example, when a mixed culture containing the cholera germ along with various other species is subjected to this serum, the cholera germs alone are destroyed. Even when the mixture consists of morphologically related germs, the vibrios, the germs of cholera alone are attacked. He believes that in this we will have an entirely reliable proof of the presence of this germ that can be applied in diagnosis.

This serum can in the test tube destroy a certain number of germs and a far greater number in the body. By heating the serum to 60 degrees its ability to destroy germs in the test tube is taken away; but when injected into the body it still exerts its immunizing power and destroys the germs. His explanation for these facts is, that there is a sort of specific enzyme having two stages, an inactive and an active one. He compares these with glycogen and glucose. The serum does not contain the active substance, but a precursor of it. When this serum is injected into an animal the enzyme-like body becomes active, capable of destroying large number of germs. He finds that this immunized serum has no antitoxic action but is strongly germicidal. As to the chemic position of this body his results are negative. He thinks that he proves that it is not an albumin, as it resists peptic and pancreatic digestion; that it is not a nuclein, that it is not a peptone, albumose or salt, for when freed as far as possible from these substances, it still exerts its specific action.

Here we have a direct experimental proof of artificial immunity due to a germicidal action, not to an antitoxin, and we are probably justified in concluding that in natural immunity the same principle is true. The body protects itself by an ability to destroy the introduced germs. Pfeiffer does not think that the serum treatment will be of much value in well developed cases of cholera. We are getting nearer and nearer to an understanding of how the body defends itself from the attacks of disease germs. And when once we understand this, the hope is justified that we can lend assistance when there is need.

Anti-streptococcic Serum.—Puerperal fever, erysipelas and certain of the septicemias are due to streptococci. This class of germs often attacks the weakened tissues and modify and complicate such diseases as scarlet fever, measles, diphtheria, tuberculosis and broncho-pneumonia.

As soon as it became certain that serum treatment as practiced in diphtheria and tetanus was successful, a number of observers turned their attention to the diseases caused or complicated by the streptococci. It was easy to see that a serum that would successfully check the attacks of these germs would have a wide range of usefulness, far greater, indeed, than that for diphtheria.

To obtain an antitoxic serum was the problem. But there were difficulties in the way. At the outset, here are several varieties, possibly species of the germs. Suppose we obtain a serum antitoxic to the germ found in erysipelas. Will it have any effect on the germ found in puerperal fever? I may say that it has been shown that the serum of an animal made immune by the injection of the germs or toxin obtained from any one of these diseases, is antitoxic to the whole group of streptococci. So far as we know, one serum can be used against this whole class of diseases and complications. Another difficulty: The streptococci did not take kindly to our artificial nutrient media. We would isolate the germs from a case of erysipelas, for example. In the first culture we would have a moderate growth; in the next it would be feeble, and after a short time it would die out altogether. Even in our most recent cultures neither the germs nor their toxins were very virulent. For example, it required something like 15 c.c. of a bouillon culture of the germs to kill a half-grown rabbit. After a careful study of the question Marmorek was able to increase the virulence of the cultures in an almost incredible manner. He claims to have finally obtained cultures, by growing in a mixture of human blood serum and beef bouillon and alternately passing through animals, so virulent that one one-hundredth billion of a c.c. was fatal to rabbits. With these cultures he immunized his animals.

This serum has been extensively used in the hospitals of Paris in treating the streptococcus diseases. Puerperal fever has, fortunately, become so infrequent that it will require some time before sufficient experiments can be made to show the value of the serum. The most striking results obtained with the serum are reported for scarlet fever. While we are wholly ignorant of the organism causing scarlet fever, we are quite sure that many of the complications of the disease, the throat, ear, kidney and heart lesions are, in part at least, due to streptococci. The Paris clinicians report very favorable results from the treatment. Baginsky in Berlin reports on the treatment of fifty-seven cases with the serum supplied by Marmorek and Roux. He says that, owing to the small supply of the serum, he was not able to give in

most of his cases the dose recommended by Marmorek. The death rate was 14.6 per cent., while the average death rate from 1890 to 1895 in this hospital was 24.9 per cent. He believes that but little importance is to be attached to these figures, owing to the great variation in the mortality in this disease, and concludes, that he is unable to draw any conclusion from his experiments, except that the disease was no worse for the treatment and that he intends to continue its trial.

In measles, as in scarlet fever, we believe that the complications are for the most part due to streptococcus infection, and the serum should be equally efficacious here.

It seems to me, although I have seen no suggestions for such application, that the greatest field for usefulness for an anti-streptococcus serum would be in tuberculosis. For some years the belief has been growing that pure, uncomplicated, non-septic tuberculosis is relatively a mild, curable and often self-limited disease. It is the complications that kill in tuberculosis. Most of us will agree that when there is any benefit from the administration of creosote and its allies, it is due to the action on the septic processes and not on the disease itself. And not a few hold that the chief, though not the whole benefit of mountain climates, is the aseptic atmosphere. Most of you are probably familiar with the work published by Prudden last year, where he conclusively showed that for rabbits, at least, cavity formation in tuberculosis was almost entirely due to secondary streptococcus infection. Now, if with this serum we can hold in check the septic processes we will have half conquered the disease. Although the work with this serum is still in the experimental stage, the outlook is very promising.

Anti-tubercle Serum.—Maragliano, Boinet, Picq, Babes, Maffucci, Paquin and others have reported work in this line. Most of them claim good clinical results. But tuberculous patients under any treatment, and without any, often improve and occasionally get well. So that, whether with justice or not, the claims of these investigators have met with but little approval. In experimental animals the best results I have seen reported are a prolongation of life in guinea pigs from an average, for untreated animals of some fifty days, to ninety in the treated ones. No treatment yet devised, be it serum or anything else, can save a guinea pig when inoculated with tuberculosis. And while our experimental animals are far more susceptible to the inoculated disease than man, the profession at large will be slow to trust any remedy that can not give demonstrable results in animal experiments.

Anti-pneumonic Serum.—The work of the Klemperer brothers on the immunization of rabbits against pneumonia has been followed up by Emmerich and Fowitzky, Redner, and Foa and Carbone. It has been possible to immunize a rabbit so that it would withstand more than three hundred thousand times the fatal dose of the germs for an untreated animal. With serum taken from such highly immunized animals it is possible to save inoculated rabbits if the serum is given five hours or earlier after the infection. In rabbits pneumonia is often fatal in twenty-four hours. The duration of the immunity produced in rabbits is long. After three months they resist fatal doses of the germs. So far as I know, the successful immunization of larger animals capable of producing serum in quantities sufficient for the treatment of the disease in man has not yet been reported.

Anti-rabic Serum.—Following the general lines of procedure in this field, the Italian bacteriologists have produced a serum for the treatment of hydrophobia. Their experimental work seems to be convincing. They claim many advantages for this serum over the Pasteur method of vaccines. The claims are that results are more certain and the dangers of treatment lessened, and of even more importance, the serum keeps well and can be used anywhere by any practitioner.

Anti-venom.—Drs. Calamette of Paris and Fraser of Edinburgh seem to have succeeded in producing a very satisfactory serum for antagonizing snake poison. That animals could be immunized to these poisons was shown years ago by Dr. Sewell in Michigan University. It seems that the serum produced from the venom of any one of the serpents is antagonistic to the poison of the whole group.

Typhoid.—In general the statements I have made in regard to cholera are true for typhoid. Animals have been immunized and a protective action can be demonstrated, but clinically the results are not convincing. Here, as in cholera, a germicidal instead of antitoxic action is shown. But where in cholera there is a specific action against one germ, it seems that in typhoid the serum antagonizes all related germs, as the coli group. This is as we find it in the streptococci.

Syphilis.—It is well known that one attack of this disease confers an almost perfect immunity against subsequent infection. Attempts have been made to borrow this resisting power. The serum of persons who have recovered from the disease has been injected into those who have been recently infected. Again syphilitic nodules have been macerated and this material injected into animals and their serum in turn used for the treatment of the disease. Good results are claimed from the serum of animals that have been treated for some time with mercury and iodids.

Smallpox.—Practically the same experiments have been tried with smallpox, the serum of immune individuals being used. Again, the serum from vaccine heifers that have become refractory to the inoculation has been used in treatment. Thus far the results of this treatment in these two diseases have not been noteworthy.

Possibly the best thing I have to report in the line of serum-therapy is the continued growth of the belief that disease can be conquered; that knowing the cause and the methods of many disease processes, we can and will find preventative or curative measures.

THE USE OF ANTITOXIN IN THE TREATMENT OF DIPHTHERIA AND MEMBRANOUS CROUP.

WITH A COLLECTIVE REPORT OF ONE HUNDRED AND THIRTY-TWO CASES.

Read before the Indiana State Medical Society, May 29, 1896.

BY E. L. LARKINS, M.D.

TERRE HAUTE, IND.

During the year 1894, there were reported to the Board of Health at Terre Haute, Ind., 233 cases diagnosed as *diphtheria*. Of this number 102 were males and 131 females. There were 39 deaths recorded as

due to the disease. During the same period, 19 cases were reported to the Secretary of the County Board of Health, in the county outside of the city, of which number 9 were males and 10 females, with 6 deaths, making a total number of cases reported for the county 252, and the total number of deaths 45.

During the year 1895, there were reported for the city 182 cases, of which number 79 were males and 103 females, with 23 deaths. For the same period in the county outside of the city, 11 cases of which 7 were males and 4 females, with 6 deaths, making the total number for the county of 193 cases and 29 deaths. From Sept. 1, 1894 to April 1, 1895, there were reported 197 cases, of which 92 were males and 105 females. Of this number, 20 were fatal—9 males and 11 females.

From Sept. 1, 1896, to April 1, 1896, there were reported 150 cases, of which 62 were males and 88 females. In this period there were 21 deaths—12 males and 9 females.

Prior to Sept. 1, 1895, antitoxin had not been used except in a few cases. Since that time, it has been used by a majority of physicians in Terre Haute, and with a view of ascertaining as nearly as possible, the exact number of cases treated with it, with results, etc., I sent out a chart and find the total number to be 132, with 18 deaths, or 13.6 per cent., a summary of which is as follows:

SHOWING THE USE OF ANTITOXIN IN DIPHTHERIA AND MEMBRANOUS CROUP.

Number of cases reported, 132. Males, 61; females, 71.

Times used: 98 cases, one time; 25 cases, two times; 3 cases, three times; 4 cases, four times; 2 cases, six times.

Day of disease used: 21 cases, first day; 41 cases, second day; 24 cases, third day; 22 cases, fourth day; 8 cases, fifth day; 4 cases, sixth day; 10 cases, seventh day; 1 case, eighth day; 1 case, thirteenth day.

Age of each: 1 case 2 months, 1 case 5 months, 1 case 8 months, 1 case 10 months, 1 case 11 months, 7 cases 2 years, 16 cases 3 years, 13 cases 4 years, 18 cases 5 years. 14 cases 6 years, 13 cases 7 years, 16 cases 8 years, 3 cases 9 years, 10 cases 10 years, 3 cases 11 years, 3 cases 12 years, 1 case 14 years, 1 case 15 years, 2 cases 17 years, 1 case 27 years, 1 case 35 years, 1 case 50 years.

Number of cases of membranous croup, 8; times used in each case, from one to six; result, six recoveries and two deaths.

Number of immunizing injections given, twenty; result, immunity in all. In nearly every case no effort was made at isolation. No unfavorable symptoms reported.

Original location of disease and extension to other parts: Fauces in almost all cases, and tonsils principally; extension to larynx, 29 cases, 5 deaths; intubation 7 times, 3 deaths; extension to nares, 18 cases, 8 deaths; tracheotomy not reported.

Disease extended after injection in only one case, and in that the physician said he was not certain how long the child had been sick before he was called.

Death did not occur in any case where injection was used within the first forty-eight hours of the disease.

Did not notice any unfavorable effect of the injection.

Number of deaths, 18; within the first 24 hours in 14 cases, in 2 days in 2 cases, in 2 and 8 weeks in 2 cases.

Days of disease: 1 case 3 days, 4 cases 4 days, 6 cases 5 days, 3 cases 7 days, 1 case 8 days, 1 case 9 days.

Number of cases followed by sequelæ, 9; otorrhea in 1, nasopharyngeal paralysis in 6, aphonia and paralysis of right side of face and neck in 1, and paralysis of all voluntary muscles except of the head in 1. Recovery in all.

Thus we have the following table for the years:

	No. of Cases.	No. of Deaths.	Mortality Per cent.
1894	252	45	17.8
1895	193	29	15
Sept. 1, 1894 to April 1, 1895	197	20	10.1
Sept. 1, 1895 to April 1, 1896	150	21	14

Number treated with antitoxin from Sept. 1, 1895 to April 1, 1896—males 61, females 71; total 132, number of deaths 18, mortality, 13.6 per cent.

In the majority of cases only one injection was given to each patient, but in several it was repeated two or three times, and in two laryngeal cases six injections were administered, the cases being desperate and one eventually recovering.

It would appear from recent experience and a study of the literature upon the subject, that some of the deaths herein reported might possibly have been avoided had the remedy been vigorously pushed to its full therapeutic effect. It is the opinion of all observers that the earlier in an attack of diphtheria antitoxin is used, the better the results and consequently the greater the chances of recovery, and in an analysis of this collection of cases the statement is abundantly verified. In the 132 cases only one death is reported where the remedy was used within the first forty-eight hours of the disease, and in this case, there is doubt about the length of time the child had been sick before the physician was called. One physician reports a series of fifteen and another ten cases without a death, three of the latter being laryngeal, and with nearly all, the remedy was used on the first day, in four or five on the second day and in only three on the third day. In one case it is reported used on the thirteenth day, but upon inquiry the physician states the child had tonsillar diphtheria, from which it apparently recovered, but it subsequently extended to the larynx, for which latter involvement antitoxin was used with favorable results.

According to the reports read, the death rate increases *pari passu* with the length of time the disease had run before the remedy was used. In the 17 of the above 132 cases in which I used antitoxin, the result was favorable, except in two of the three cases where it was administered on the fourth day of the disease. These two proved fatal on the fifth day in twelve and eighteen hours after the injection, from sepsis consequent upon extension of the disease to the nares and laryngeal obstruction from extension to the larynx. I advised the use of antitoxin when I first saw the children on the second day of the disease, but the parents objected. I am still of the opinion that the children would have recovered had the antitoxin been used when I first saw them. On the fourth day of the disease when it became apparent that the children were sinking, request was made to have the antitoxin administered, but it was then my opinion, concurred in by the consulting physician that nothing would avail, as the little sufferers were beyond hope of recovery. In this collection of cases, the ages ranged from two months to seventeen years, but the great majority were from three to eight years of age.

Membranous croup is here classed separately from diphtheria, on account of the uncertain relation of the two diseases. There were eight cases of croup reported with two deaths, neither tracheotomy nor intubation being performed in any of them. These were reported as idiopathic or true croup—croup commencing in the larynx, in contradistinction to secondary croup, or diphtheritic laryngitis, due to extension of the diphtheritic process from the fauces. Of the latter class, twenty cases are given, with five deaths. In two of these the nasal and post-nasal cavities were extensively involved also, and it is difficult to determine which contributed most to a fatal termination—sepsis or laryngeal obstruction. In the

above twenty cases, intubation was performed seven times, with three deaths. No case of tracheotomy was reported.

In eighteen cases, the disease extended to the nares, eight of which died. The time of death in reference to the injection, was within the succeeding twenty-four hours in all but four. Two of these are given as the second day and two in two and eight weeks respectively. The last two cases were evidently due to some secondary effect of the disease.

The time of death in reference to the day of disease (except in the last two cases above mentioned) is given from the fourth to the eighth day. This taken in connection with the time in which death occurred after using the injection, clearly shows that the remedy was not used until after systemic infection had taken place. or laryngeal obstruction had so prostrated the system that the therapeutic effort of the antitoxin could not be obtained. Then, too, the remedy may not have been used as vigorously as it should have been.

There were reported twenty cases in which immunizing injections were given with no development of the disease and no unfavorable symptoms were observed to follow. In only two of the 132 cases is the disease reported to have spread after the injection was used. In one case of diphtheria, the nervous symptoms in a choreic patient, aged 12, appeared aggravated during the next 24 hours and then improved. In this series, six had post-diphtheritic paralysis; one had otorrhea. In one ease the paralysis effected the lower limbs and in another case the whole voluntary muscular system, except the head. Aphonia and paralysis of the muscles of the right side of head and neck in one. All recovered.

I will only give the history of a few illustrative cases:

On the morning of Nov. 8, 1895, I was called to see Frank M., age 7 years, and found him recovering from a severe convulsion. The history obtained, was that of some error of diet on the previous day and he had had a light chill a few hours before the spasm. As convulsions were easily provoked in the child there seemed to be no special reason for alarm, but his general condition lead me to suspect some grave disease. Pulse was 110, feeble; temperature 101 degrees, and he had vomited once during the morning. The throat was not examined on account of his general nervous condition.

I prescribed calomel, quinin and bromids, hot mustard foot-bath and hot cloths to the head and over the stomach. In about an hour and a half, I was hurriedly sent for, as the child had another convulsion. I increased the bromids and ordered a general hot pack in blankets. He soon recovered from the spasm and had no more during his sickness. I advised isolation, as I thought it might be diphtheria. Calomel ¼ gr. every hour; quinin 2½ grs. every three hours and bromids as necessary, were given during the afternoon and night, followed by castor oil the next morning.

November 9, 9 A.M., temperature 100.5, pulse 112, complains of nausea and weakness. Examination of the throat shows the whole fauces deeply congested, tonsils swollen and a gray deposit on each about the size of a split pea. Diagnosis of diphtheria was made. Quinin was continued, mercury bichlorid one-sixteenth gr. in elix. pepsin and bismuth every two hours and teaspoonful of whisky every two hours, were given. Local applications of Loeffler's solution were made every four hours, and spray of peroxid of hydrogen 50 per cent. with saturated solution potassium chlorid every two hours; 4 P.M., the membrane has covered both tonsils and the uvula, and the child has had nasal hemorrhage.

November 10, 9 A.M., temperature 100, pulse 115. Throat emits a very fetid odor and there is a thin acrid nasal discharge. The whole fauces is completely covered by a thick leathery grayish-white membrane. The membrane is visible in the anterior nares and the child has a coarse croupy cough. I explained to the parents the serious and probably fatal condition and advised that antitoxin be immediately given. The mother dissented. The child's condition continued to grow worse and by the morning of 11th laryngeal obstruction was added to the faucial and nasal involvement. A more serious condition could not be depicted. They now consented to the use of antitoxin and I gave the child a full dose of the Behring No. 2. Now I would give the No. 3, and repeat in six or eight hours, in such a case. The laryngeal obstruction continued to grow worse during the day. In about six hours after giving the injection the child seemed much worse, but rallied some toward evening. About 8:30 P.M. I was sent for hurriedly, as the child was thought to be dying. A severe attack of dyspnea came on and the mother laid him on the lounge, thinking he was dead. When I arrived, he had rallied and was breathing better and improvement was continuous and rapid. I considered the sudden increase of dyspnea the night before, to be due to loosening of large portions of membrane thus producing complete obstruction of the larynx. I now omitted the mercury and gave small and frequently repeated doses of tincture chlorid of iron.

During the whole sickness effort was made to keep the nose and throat clear of septic matter, by the use of syringe and spray. The appetite was irregular and proper feeding was attended with difficulty. Aphonia remained several weeks after recovery.

I have given at length the history of this case in order to show by comparison the probable effect of antitoxin. About two weeks after my last visit to this patient, I was called to see two other children in the same family, one aged 5 years, and one 11 months.

The course of the disease was exactly the same, with the exception of the initial convulsion. I advised the immediate use of antitoxin, but the mother strenuously objected. I could not then conceive, that with such practical demonstration of the efficacy of the remedy in the other child, why objection should be made to its use in these two.

The children continued to grow rapidly worse until the afternoon of the fourth day of the disease, and all hope of recovery was abandoned, when request was made to have the antitoxin administered. My opinion, concurred in by the consulting physician, was that nothing would do any good, as the children were dying. Behring No. 2 was given, but both died in twelve and eighteen hours respectively.

It may be said that if antitoxin saved the first, it should have saved the other two. The inference is not justified, as the latter were profoundly septic, in addition to having laryngeal obstruction. The argument in this is, not that it saved one, but if used not later than the second day it would probably have saved all of them. Subsequent experience in the use of the remedy confirms my belief in this statement.

I will relate one other case of diphtheria, in a girl aged 8 years, who had enlarged tonsils and almost complete nasal obstruction from adenoid growths in the post-nasal cavities. The initial chill, followed by vomiting, occurred in the evening, and I was called the next morning. I found a typical case of diphtheria, the membrane covering the tonsils and extending up the edges of the palate. The characteristic acrid nasal discharge was present, showing extension to that cavity. The breath had a very fetid odor and her general condition showed profound infection. A full dose of Behring No 3 was immediately given, and a No. 2 given the next morning. We could do little with sprays and washes and no effort was made at local application. She immedintely began to improve and the recovery was uneventful. I attribute her recovery entirely to the antitoxin.

A marked feature in this case was the very great reduction in size of the tonsils after recovery. An older brother of this girl had diphtheria in November, 1895, to whom two injections of Behring No. 2 were given, and his general health has been better since than ever before. Previous to this sickness, he was subject to frequent attacks of sick-headache, but now seems entirely free from them.

The effect, apparently, of antitoxin in the case of a delicate, nervous girl, 5 years of age, to whom two injections of Behring No. 2 were given, and in whom choreic movements had been frequently noticed and nystagmus was almost constantly present when the child was excited, was that since recovery both have disappeared, and she appears perfectly well.

Diarrhea did not follow the use of antitoxin in my cases, but constipation was of such frequent occurrence that I suspect some causative relation.

In the treatment of membranous croup with antitoxin, I have only one case to relate. I was called in November, 1895, to see a girl aged 5 years. I informed the mother of the serious illness of the child, prescribed the usual remedies and advised that antitoxin be used. Consent was given. Next morning I injected a full dose of Behring No 3. By this time the disease was fully developed. In twelve hours another dose of Behring No. 2 was given. Next morning the child was better. There was considerable dyspnea for two days, but the child recovered without further treatment, except some simple remedies.

In all the cases, except two, in which I used antitoxin, I called another physician to see the case, that it might not be said I used it where no diphtheria existed.

Reliance was placed in all cases upon the clinical picture of the disease for diagnosis. This is partly in accord with the recommendations of the boards of health of New York, St. Louis, Chicago and other cities, as they advise the use of antitoxin in suspicious cases, and especially in those where the physician is satisfied diphtheria exists, and not wait for a bacteriologic examination, as that can be made later. It is in the early use of antitoxin that its specific effect can be obtained.

The Klebs–Löffler bacillus develops upon the false membrane, and in most instances accompanies the local manifestations of the disease. The streptococcus, said to be the most virulent of the supposed pathogenic microörganisms, develops beneath the membrane, is a late product of diseased action, and is found in cases termed mixed infection. They are found (as the Klebs–Löffler bacillus) in the throats of healthy persons, and even in the substance of the tonsils.

As to medical treatment of these cases, it has been claimed that it in no wise interfered with the use of antitoxin. I believe that large doses of bichlorid of mercury, in some degree at least, counteracts the effect of the antitoxin. Lately, I have confined myself to the use of small and frequently repeated doses of tincture chlorid of iron, and the moderate use of quinin and whisky. The free use of warm salt water or listerin properly diluted, for the purpose of keeping the parts clean, appears to answer every purpose.

This paper deals principally with an analysis of the reported cases.

Antitoxin in the treatment of diphtheria being of comparatively recent introduction, personal experience of the general practitioner must necessarily be limited in its use, and in many instances no opportunity has been afforded to observe its effects. It is from the experience of others that we must learn, and through collective investigation knowledge may be acquired by comparison.

The 132 cases herein given were reported by twenty-five physicians. The report is confined to Vigo County and principally to the city of Terre Haute. It will be observed that more deaths occurred in 1895 than in 1894, presumably on account of the greater severity of the disease. The report represents only the rate per cent. of deaths to the number reported and not to the actual number of cases, as physicians there seldom report more than one case in a family.

No subject could be of more profound interest to the physician, than that of the cure of diphtheria. In using the word *cure*, I refer to its literal meaning and practical application. No discovery since the days of Jenner, when he listened to the story of the milkmaid, and placed the practical banishment of that dreadful scourge, smallpox, within the power of all civilized nations, has been of such great value to mankind.

In antitoxin, I believe we have a true specific for diphtheria. In theory, and probably in fact, it is based upon the principle of vaccination, viz, *to render the human body immune to a virulent disease by introducing artificially into the system, a protective product developed through modification of its specific agent in foreign media.* After successful vaccination, a person may have varioloid, and thereafter, as a rule, be immune to the contagion of smallpox. The immunity conferred by the antidiphtheritic serum in the healthy subject appears to be practically evanescent, but what subsequent effect in this line, a curative dose of antitoxin has upon the human body suffering from a fully developed diphtheria case, has not been observed. So far as I am aware, a second attack of diphtheria has not been recorded as occurring in a patient cured of the first attack by antitoxin. It is well known that one attack of diphtheria confers immunity for a time, and it may be that the introduction of antitoxin into the system in the developed stage of the disease, may so fortify the protective elements that the body will not again become susceptible to the contagion.

The length of time in which antitoxin has been used is not sufficient for extended observation in this direction, but a second attack would be worthy of record.

The exact manner in which antitoxin cures diphtheria, is not definitely settled. According to the law

of Behring, material is developed in the blood which neutralizes the effects of the specific poison of the disease, and confers immunity to those in whom the serum of such blood is artificially introduced. The studies of Pfeiffer have, however, led him to the conclusion that substances are formed which destroy the infectious material and therefore eradicate the cause of the disease. It may be that cell action is so stimulated and the metabolic processes so changed that effectual resistance is offered, through the medium of the blood serum, to the further invasion by the infectious material. This is probable, as experimenters have found that the supposed pathogenic microörganisms may be cultivated in the blood serum of animals immunized for the disease which they produce. Moreover, antitoxins are held in solution in the blood, but do not pass through the coats of the vessels.

SERUM THERAPY IN DIPHTHERIA.

Read in the Section on Materia Medica, Pharmacy and Therapeutics at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5–8, 1896.

BY EDWIN ROSENTHAL, M.D.

PHILADELPHIA, PA.

Since the introduction of the diphtheria antitoxin as a specific remedy in diphtheria, I have used it in 127 cases of diphtheria with a record of five deaths.

As the character of my cases were in many instances of the most dangerous variety, and in nineteen instances necessitated the operation of intubation, I may not be misjudged if I ascribe to the specific action of antitoxin the results obtained.

To briefly summarize my work they are: Tonsillar 67; pharyngeal and tonsillar 14; nasal, pharyngeal and tonsillar 1; pharyngeal 1; laryngeal 12; tonsillar and laryngeal 18; pharyngeal, tonsillar and laryngeal 8; nasal, pharyngeal, tonsillar and laryngeal 4; pharyngeal and laryngeal 2; total 127; number of deaths 5.

The ages were: Under 1 year 4 cases; between 1 and 5 years 55 cases; between 5 and 10 years 30 cases; between 10 and 20 years 13 cases; between 20 and 40 years 25 cases. Nearly 50 per cent. occurred below the age of 5 years and about 25 per cent. between the ages of 5 and 10 years.

1. The deaths occurred below the age of 8 years and were as follows: Age 1 year, 7 months; variety, laryngeal and tonsillar; operation, intubation; time of injection, about seventy-two hours after injection; time of death, forty-nine hours after injection and intubation; cause of death, sepsis.

2. Age, 2 years, 2 months; variety, laryngeal, tonsils, nasal, pharynx; operation, intubation; time of injection, about the fifth day; time of death, thirty-three hours after injection and intubation; cause of death, sepsis and nephritis.

3. Age, 1 year; variety, tonsils, nose, pharynx, lymphatics; time of injection about the fifth day; time of death, three days after injection; cause of death heart failure—a septic case.

4. Age, 8 years; variety, tonsils, nose, pharynx and larynx; time of injection, about the fifth day; time of death, nine days after injection; cause of death, heart failure.

5. Age, 1 year 1 month; variety, tonsils, nose, pharynx and larynx; time of injection, fourth day; time of death, five days after injection; cause of death, heart failure.

They were as regards sex, 51 males, 76 females.

The time in which injections were made: first day, 21 cases; second day, 52 cases; third day, 34 cases with one death; fourth day, 8 cases with one death; fifth day 6 cases with three deaths; sixth day, 3 cases; seventh day, 1 case; eleventh day, 1 case; seventeenth day, 1 case.

Many cases were immunized, using for that purpose antitoxin from several laboratories. In those cases immunized no visual traces of the disease were seen, although the bacteriologic examination frequently revealed the Löffler bacilli. In one case treated for diphtheria of the faucial variety (case 87) a re-infection took place on exposure six months afterward (case 123) the disease manifesting itself in the same way. This proves, that while antitoxin has curative and immunizing virtue, it does not confer lasting or permanent immunity; but the susceptibility to infection remains as in any other form of treatment.

The complications noted: Broncho-pneumonia five cases, only seen by me in the laryngeal variety. Nephritis one case. Albumin was found frequently both before and after injection, antitoxin not increasing the amount. Sepsis four cases. Eruptions noted in about fifteen cases, and was also noticed in several cases that received an immunizing dose.

Sequelæ: Undoubted paralysis of the lower extremities in a female suffering from diphtheria of the laryngeal variety with membranes on the tonsils, complicated broncho-pneumonia, intubated, the tube being worn twelve days, and who received 1,000 units of Behring's antitoxin. The age of this child was 1 year 10 months; the injection was made on the third day, and there was perfect recovery months afterward. Heart failure in two cases, after disappearance of the membranes; in one case three days after the visits ceased. Ozena was noticed in one case.

Method of using the diphtheria antitoxic serum: Antitoxin should be chosen of undoubted reliability. I am pursuaded that my results are mainly due, not only to my method, but to the purity and efficacy of the antitoxin used The technique pursued in the one case is that pursued in all.

Antitoxin is graded as regards strength into what is termed by its originators antitoxic normals or immunity units, which is an amount of antitoxic serum required to save a 500 gramme guinea pig from a minimum fatal dose of the diphtheritic toxin. The number of immunity units per c.cm. gives a standard strength of the serum; for instance: one one-hundredth c.cm. will protect a 500 gramme guinea pig, therefore 1 c.cm. of antitoxic serum, which protects 50,000 grammes of guinea pig, contains 100 immunity units, and would protect an individual weighing one hundred times as much as a guinea pig (about one hundred and twenty pounds, if the susceptibility were the same. The serum, of which 1 c.cm. equals 100 immunity units, is that with which most of my work was done. Serum of greater strength was used. Knowing the strength of the serum makes me have no regard for the quantity used, as I grade my dosage in immunity units and so apply it.

The technique. The antitoxin serum is used as a curative or immunizing agent by subcutaneous injection into the tissues of the body. For the purpose of making these injections any hypodermic syringe may be used if of sufficient capacity, as the Pravaes syringe, the Koch bulb syringe; I prefer a special antitoxin syringe, made for this purpose, having a capacity

of 10 c.cm., and which can be measured accurately by a screw, so that the quantity used can be administered in one injection. This syringe is supplied in metal case, with vulcanized rubber packing, thus permitting complete sterilization of both syringe and case. I have discarded asbestos packings since they become soft and pulpy.

The parts chosen by myself are in the back between the scapulæ on either side of the vertebral column. Other parts of the body, as the loins, groins or sides of the chest have been selected.

The parts are thoroughly cleansed by means of alcohol soaked upon sublimate cotton or gauze, and after injection are hermetically sealed with iodoform collodion.

The syringe is cleansed by means of very hot water and the whole operation rendered as aseptic as possible. I have yet to record an abscess, or even any inflammatory reaction following at the seat of injection, all of which I ascribe to the rigid cleanliness enforced, in the use of my needles as well as in the parts acted upon.

The dosage. The amount of antitoxin used depends upon the time of making the injection, the age and body weight of the individual, and the gravity of the disease, also whether for the purpose of immunization or cure.

Experience has taught me that the method arrived at by the originators of the antitoxin as to the quantity of serum necessary to antagonize the toxins of diphtheria was the correct one; I therefore follow the original method and grade my dose into immunity units.

As an immunizing dose I give an injection of 100 units to perfectly healthy individuals exposed to the contagion—their body weight averaging 120 pounds, basing the dose on these being of equal susceptibility to the guinea pig. This dosage is now the general rule. If there be constant exposure I increase this dosage to 200 units. By constant exposure I mean where the individual to be protected lives in the same room or house, as the tenement system of any large city. In extraordinary instances, as a woman in the last days of pregnancy, about to be confined, I inject a full dose, 600 units, as an immunizing dose. Of such cases I have seen two instances with the most satisfactory results; the accouchement taking place in one instance in the very room occupied by the still affected child, and no symptoms being manifest.

As a curative dose. If the case be seen early, within twenty-four to forty-eight hours, and is of the faucial variety, where the infection has not reached the lymphatics, I administer at once 600 units. If the case be seen on the third day, or if at the very beginning the infection is such that leads one to believe in the necessity of prompt heroic treatment, as in the laryngeal cases or where the lymphatics are involved, or where the bacteriologic examinations show mixed infections (streptococcus, staphylococcus, etc.), I immediately inject 1,000 units. I then await results. If in six to twelve hours no change takes place or the symptoms are aggravated, I again inject 1,000 or 1,500 units of the serum, and so on in increasing quantities until there be an amelioration of the symptoms shown by a decline in the pulse rate and temperature and an improvement in the general condition.

The quantity of antitoxin can be increased to enormous dosage; being harmless, no danger can be apprehended. I have used as high as 13,000 units in one case. Others have used 200 c.cm.—20,000 units, with complete recovery.

Clinical manifestation of the diphtheria antitoxin serum.

1. The effects on the pulse and circulation. In faucial diphtheria, within a very short period, about eight hours in the most favorable cases, the pulse rate declines and remains down and the circulation assumes the normal. This, however, may not be permanent, and if the rate increases again it is an indication for the administration of more antitoxin. Especially is this an indication in those cases where the toxemia is so marked that the temperature is only slightly above the normal or is subnormal. In laryngeal cases, however, the pulse rate remains high in the majority of cases, and this is seen especially in those cases intubated. The indication then is not so much for the antitoxin as for judicious collateral medication.

2. Effects on the temperature. In the most favorable cases, by which I mean the pure and simple diphtheria, there is a rapid decline from any elevation of temperature to the normal, and this decline is permanent. Where, however, there may be a recurrence of the fever and no manifestation of any intercurrent complication as pneumonia, and the like, it is an indication for an additional administration of the antitoxin, even if the occurrence should take place in one, two or three days after the injection. An elevation of the temperature later than four days indicates a broncho-pneumonia or some other disease and should be treated accordingly. In laryngeal cases is this especially marked, and in those cases intubated it has been seen by myself even after the tube was withdrawn.

3. Action on the diphtheritic membrane. The action of the antitoxin is visible to the naked eye by the effects on the diphtheritic membrane.

It limits the extension within twenty-four hours and promotes the separation in forty-eight to seventy-two hours.

As an indication for the sufficient use of the serum I have noticed a distinct red line surrounding the membrane, making a line of demarkation between the healthy and diseased mucous membrane. Over this line I have never seen the membrane spread, and when it has formed my experience has taught me to expect a very favorable prognosis in that especial case.

The membranes separate differently; in some cases it comes away in one piece, leaving a healthy mucous membrane beneath. In other cases, especially those in which there is mixed infection the membranes soften and become pultaceous, and seem to dissolve or melt away.

4. Effects in laryngeal diphtheria. When used early enough it prevents the spread of the membranes, thereby averting asphyxia, and avoids the operation of intubation or tracheotomy. The membranes disappear in the same manner as in the faucial variety, stenosis being invariably relieved on the third day. Where the laryngeal diphtheria is complicated with membranes on the tonsils, pharynx or nose, these disappear at the same time as the stenosis.

Intubated cases. Of the forty-four cases of laryngeal diphtheria, sixteen cases necessitated the operation of intubation, three of which were within the twenty-four hours after injection; the others were intubated before or at the time of the injection.

The average reduction in the time the tube was

worn was sixty-nine hours. Previous to the serum period the average time was 185.25; since this period the average time was 116.25 hours. This reduction was noticed and soon recorded by Huebner (*Klinische Studien*, etc.), Von Ranke, Johan Bokni, O'Dwyer and others.

Inasmuch as the indication for tracheotomy was the length of time the tube was worn, with the concurrent symptoms, decubitus, etc., the time being placed above 120 hours. No urgent symptoms were manifested even in the long cases to necessitate tracheotomy. For that reason antitoxin has proven itself of the utmost value and is one of the conspicuous evidences of its effects.

Antitoxin has reduced the mortality in cases of intubation. In my cases so treated the reduction has been from a mortality of 62 per cent. before the serum period, to 10.5 per cent with antitoxin. Nor do I stand alone in this experience. Bokai (Stephanie, Kinder hospital, Buda-Pesth) reports in his hospital work an increase of 17 per cent. in his cures. The reduction in the time the tube was worn in those cases of recovery was eighteen hours, the average being sixty-one hours serum period, against seventy-nine hours before the serum period.

Jos. O'Dwyer of New York, whose work on this especial method of treatment is so well known to you all, has very kindly sent me a short report of his cases, a transcription of which I give here:

"My results up to the present time in 500 cases, in a series of hundreds: First hundred—largely experimental—seventeen recoveries; second hundred, twenty-seven recoveries: third hundred, thirty recoveries: fourth hundred, twenty-six recoveries; fifth hundred, thirty-nine recoveries.

"The marked increase in the last series was due to the antitoxin, in thirty cases, of which there were twenty recoveries. In the seventy preceding cases in which no antitoxin was used, there were only nineteen recoveries, which was about the same percentage as in all the other series."

O'Dwyer's statistics substantiate my own: from a mortality ranging from 83 to 70 per cent. before the serum period his reduction has been to 30 per cent. The average time the tube was worn, serum period, was 80 hours; before this period the time was 147 hours. So the reduction in time in O'Dwyer's cases was 67 hours.

Its action on the duration of the disease. Antitoxin limits the duration of the disease to four or five days and shortens the period, which may reach to weeks.

When administered early in simple diphtheria all visual traces of the disease disappear on the third day.

In mixed contagion the diphtheria infection is antagonized and the complications treated without regard to the existence of diphtheria.

In the laryngeal variety the stenosis disappears the third day in those cases not requiring operative interference. In cases intubated, the tube can be withdrawn with a certainty and exactness on the fourth or fifth day, such a rule being unknown before the serum period.

The general condition of the patient in the majority of cases improves at once, and by its early use, even before depression was manifested; thereby preventing complications and sequelæ, the termination of which, even with the antitoxin treatment can not be averted.

As a prevention of the meddlesome and dangerous method of constant local and systemic treatment in vogue. As antitoxin acts specifically and the general condition of the patients improve so quickly, no necessity arises for the constant and persistent methods of applying local applications formerly pursued.

It is true that the membranes of the throat are the foci for the invasion of the system by the diphtheria toxin; it is equally true that the injection of the antitoxin antagonizes and prevents further infection. If this be so, and thousands of cases have clinically dĕmonstrated it, the persistent endeavors to remove the membrane by hourly or half-hourly applications are not only superfluous but dangerous, as not only tending to keep the patient awake and in dread, but by weakening the recuperative powers open a way for complications and a dangerous or perhaps fatal sequelæ (paralysis, heart failure and the like).

For this reason when treating a patient with antitoxin, local applications may be made once in four to six hours, and simply for the purpose of cleanliness, or for the specific purpose of ridding the throat of the bacteria, thus preventing the danger of contagion to others.

Poisonous drugs, as corrosive sublimate and the like, are unnecessary, or if administered as indications might require (as ulcerations resulting from the diphtheria, etc., in long cases) may be given at longer intervals.

Nourishment and stimulants are required, but for shorter periods than before, two or three days, and dispensed with when no longer indicated.

While antitoxin is a specific for diphtheria, it is not a "cure all," and complications must receive thorough attention as if diphtheria no longer existed. If the circulation be weak and the case urgent, stimulants, strychnin, digitalis, camphor or ammonia may be indicated. Again if a complication, as pneumonia or nephritis, exists this should be treated without any regard to the diphtheria or intubation, by the wet packs or any method most favored by the operator. But the constant applications to the throat and syringing of the nose at too frequent intervals is to be deplored as tending to a fatal result.

On the presence of bacilli in the throat. Antitoxin does not destroy the Klebs-Löffler bacilli in the throat. They persist as long after convalescence as under any other form of treatment.

It is therefore well to make frequent cultures before permitting the patient to mingle with others, thereby spreading the contagion.

I am at present studying what remedies are most useful in destroying these bacilli, and I have the hearty coöperation of Dr. B. Meade Bolton, the director of the bacteriologic laboratory in Philadelphia, who examines these cultures for me.

I have used calomel combined with salol; corrosive sublimate, Löffler's solutions and a solution of nascent chlorin with tincture of the chlorid of iron, which I have used for a long period. The Löffler solutions and the chlorin iron mixture have given me the best results.

The formulæ of the Löffler solutions are as follows:

No. 1.

Menthol	10 grms.
Toluol, q. s.	36 c.c.
Alcohol absol.	60 c.c.
Liq. ferri sesquichlor	4 c.c.

No. 2.

Menthol	10 grms.
Toluol, q. s.	36 c.c.
Creolin	2 c.c.
Alcohol absol.	65 c.c.

They are used by applying locally to the throat or nose by a mop or spray. Löffler's No. 1 is a painful application and is very much objected to for that reason, and can not be frequently used. The No. 2 is less painful and is applicable to a wider range of use.

The chlorin-iron mixture is administered in teaspoonful doses to a child 5 years of age once in two or three hours, during the day time only.

The formula is:

Potassii chloridi		
Ac. hydrochloric, C. P.	āā	1·00
Tinct. ferric chlor.		5·00
Syr. simplicis or glycerini		120·00

The bacilli disappeared under either of these medicaments in two weeks.

Guaiacol has been used by Dr. Martin W. Barr and Dr. Solomon Solis Cohen as a local application. The application is as painful as Löffler's, though Dr. Cohen has obviated this somewhat by the addition of menthol. Their results have been good, though systematic bacteriologic examinations have not demonstrated any superiority over my methods.

As an immunizing agent. That antitoxin produces immunity against an attack of diphtheria has been abundantly verified by a vast number of observers both in hospital experience and in private practice.

The quarantine system in vogue in Philadelphia has given me frequent opportunities to verify the assertion of Behring, Roux and others. This immunity is not lasting. Biggs of New York places it (from careful observation) at thirty days, Behring places it from six to eight weeks. I have seen no case immunized show clinical traces of the disease, though frequently Löffler's bacilli were found in the throat; where such cases existed, they were carefully watched and cultures made from time to time (once in three days). No other treatment except the immunizing dose was used, and cultures made and examined by Dr. B. Meade Bolton or Dr. H. D. Pease evinced the the presence of the bacilli even to three weeks, though no visual traces were ever seen.

Antitoxin does not confer permanent or lasting immunity from diphtheria even to those who suffered from an attack of diphtheria and were treated with a curative quantity of the serum. For the susceptibility to a reinfection on exposure still remains with the patient, and therefore it should always be proper to immunize the patient whenever exposed.

The influence of antitoxin on the mortality records. There is no city in the world whose records have been carefully kept that has not shown a marked reduction in the death rates by the antitoxin treatment. I might except Philadelphia, which seems to be behindhand in the method of presenting her records as compared with other cities.

There is no hospital in the world where antitoxin has been used that has not shown a reduction in the death rate. Again I must note exception to this by the records of the Philadelphia Municipal Hospital, where it appears only hopeless or the most serious cases are sent, for this hospital holds the most unique position of recording an increased mortality from this method of treatment.

There is hardly an exception to be noted in the statistics of private practitioners, which also show a reduction in the death rate.

Still, despite these positive proofs of the utility of the serum treatment; there seems to be a passive antagonism by some to this form of treatment. I can only explain it in the words of Dr. Charles L. Dana, New York (Diphtheritic Palsies and the Use of Antitoxin, *Medical Record*, April 11, 1896), from whose excellent monograph I quote: "While the treatment of diphtheria by antitoxin is a method that has been approved in all parts of the world and is upheld by a volume of statistics whose brute force is almost overwhelming, yet there is still some degree of skepticism about its real value. Most of the skepticism is the result of profound and banal ignorance, coupled, perhaps, with some hysterical obsession in the lines of zoöphilism and antivivisection. There are, however, some conservative physicians whose character and attainments we respect, who still hold a position of reserve, if not of disbelief, as to the value of the method, and they advance some very ingenious explanations of the way in which the statistics that so apparently favor antitoxin are gotten up."

These statistics are supposed to contain in a majority of instances cases whose recognition is simply bacteriologic and where the clinical diagnosis is secondary. Even if this be so, and I for my part have not counted as cases treated those immunized in whom the specific bacilli were found. I think the statistics are superior to the former for this reason: Given a case of diphtheria as formerly treated prognosis was out of the question; a mild case might suddenly become a serious one. A laryngeal case may become tracheal. With antitoxin the disease is aborted and the serious lesions now so commonly noted by different observers as broncho-pneumonia, multiple neuritis, post-diphtheritic palsies, etc., were not noted before because the patients perished long before these complications were noted. Therefore, given a case as now treated with antitoxin, if the serum is used early enough and in a judicions manner, mortality records should be simply to prove exceptions to the rule, and the death rate noted show a lack of careful observance of the earliest symptoms of diphtheria.

AN INTRODUCTION TO THE DISCUSSION UPON "BLOOD-SERUM THERAPEUTICS."[1]

Read in the Section on Materia Medica, Pharmacy and Therapeutics at the Forty-seventh Annual Meeting of the American Medical Association at Atlanta, Georgia, May 5 8, 1896.

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Probably the most radical change in the ideas of the causation of disease that has ever occurred has taken place during the last thirty years, its final outcome being the subject of the discussion before this meeting to-day. The steps leading up to the position at present occupied have been taken only after many wanderings and painful experiences, but as a result we seem to have reached a rational standpoint from which further progress may be made. The basis of blood-serum therapeutics is the idea of *immunity*, and the procedure is the result of the investigations made to determine how immunity occurs. It had been known for a long time that after attacks of certain

[1] In the preparation of this paper I have received much assistance from the little work of Lachalme, "Blood-Serum Therapeutics, Paris, 1896."

diseases, there was a period during which a second attack of this same disease did not occur. This was, and is, known as *acquired immunity* to the disease in question. Certain races of animals are known to be immune to certain diseases, and this is a *natural immunity*, for which there must be some explanation if only it could be found. This explanation would give a basis for work directed toward the solving of the problem of how this immunity could be produced intentionally, and if this could only be done, we should have made a long step toward the actual and proper treatment of disease.

The securing of artificial immunity has been attempted in several ways; the best known and longest employed is that of vaccination. This method consists in the employment of the virus of a milder disease of the same type, thus, after the attack of the milder disease, and because of it, securing an immunity against the malignant form of disease. Since the introduction of bacteriologic methods, other means have been sought to attain the same end. The protective inoculations against rabies illustrate the use of the actual virus of the disease in an attenuated form, but of gradually increasing strength, to produce an immunity against the full strength of the same virus. Another method makes use of the living cultures of the bacteria producing the disease, as in the protective inoculations against anthrax, and still another of the products of the growth of the bacteria in the test tube, as in the employment of tuberculin. The theory of the action of these various methods is not the same, but their results, so far as they have been explained at all, have been supposed to rest upon some changes produced in the tissue cells or those of the blood, and it is to explain these results that much of the recent work has been carried on.

As to priority in the suggestion of the method under discussion, the position of the *British Medical Journal* seems to be a reasonable one: "The question of who was the originator of the serum treatment is one of interest. It is always difficult to speak with certainty on a point of priority of this kind, for new ideas seldom spring from one man, but we believe that the method had its origin from the observation made in 1887 by Von Fodor, that blood, when drawn from the body, had a distinct bactericidal action. Nuttall and others then pointed out that although this bactericidal action might be connected with the corpuscles of the blood, it was not confined to them, as the serum of freshly coagulated blood was found to contain some proteid substance which undoubtedly exerted a powerful bactericidal effect. In July, 1889, Babes and Lepp recorded a number of experiments in which they had found that the blood of dogs which had been vaccinated against rabies exerted a distinctly protective action when injected into susceptible animals either previous to or along with the virus procured from a rabid animal. Ferran appears to have been the next observer to accentuate this point. He was followed by Bouchard in France, whilst Behring and Kitasato in Germany, and then Roux in Paris, and others in rapid succession pointed out that there was in the serum of the blood of animals vaccinated against diphtheria and tetanus a distinct prophylactic and curative agent which, however, it was difficult to separate from the serum. In 1891 patients were treated in Berlin by the serum prepared by Behring," and the endeavors in this direction are more numerous and widespread to-day than in any other line of medical activity.

So far as the bactericidal properties of an immune body are concerned, all experiments tended to show that they lay especially in the blood, and the main portion of modern endeavor is in the study of the properties of this portion of the body.

The results put it beyond question that the serum of certain animals is so much opposed to some bacteria as not only to hinder their development but actually to destroy them. But this is very far from establishing a general rule as regards immunity, for the refractory condition of an animal and the bactericidal property of its blood are not by any means always, or even most often, present in proportional degree. As for example the bactericidal property of the rabbit's serum, an animal extremely receptive to anthrax, and the absence of bactericidal properties in a dog's blood, who is especially refractory himself to anthrax. So that while the bactericidal property of the serum is a very important matter, it can not be considered as being a factor in the production of immunity. Its existence, however, has served to show that the serum is not an inert material and has been the basis of other important investigations upon the properties of this tissue.

The attenuating power is one to which much attention has been paid by Bouchard, Roger and others, and is probably only a part of its preventive power. This latter factor seems to have been neglected by these observers, and it would seem that the mixtures of serum and bacteria they injected were harmless, not because the bacteria were attenuated but because the serum preserved the tissues from the pathogenic action of the bacteria which accompanied it. From the latest work on this question it appears that the bacteria increase their virulence in the blood of refractory animals, whether in the living body or in the test tube, and that this increase of virulence is the result of a new adaptation, or of a selection among the most resistant bacteria. So that even the existence of an *attenuating* power of the serum seems to be doubtful at present.

The possibility of the *antitoxic* action of the serum first suggested itself to Behring as an explanation of the constantly observed fact of the persistence and development of bacteria at the point of inoculation in refractory animals. The immunity in such cases could not be due to any effect upon the vitality of the bacteria, and the only explanation remaining was that of a neutralizing or destructive action upon their toxic products, this action being carried out by the blood-serum, in preference to the other tissues of the body. Taking up the study of diphtheria and tetanus, two diseases in which the results appeared to be especially due to the action of the products of the bacteria and not of the bacteria themselves, Behring and Kitasato showed that a mixture of the toxins of these bacteria with a small amount of the serum of immune animals could be injected without any results in animals extremely susceptible to the toxin alone. The results were found to be the same whether the mixture was made in the living animal after injection or in the test tube before injection; and also that the injection of the serum in another part of the body, and a little before or a little after that of the toxin could protect the animal from many times the fatal dose of the toxin so far that no effect would be produced by the latter. These observations were of the utmost importance and were asserted to destroy any ground for belief in the theory of phagocytosis. They

were and are believed by many to represent a direct chemical action of the antitoxin upon the toxin, which it either destroys entirely or turns into an harmless product. This antitoxic property is something wholly distinct from a bactericidal power, and is much less easily destroyed, for it resists a temperature of 65 degrees C., the addition of small percentages of antiseptics, and dilution of the serum with water. The antitoxic property has been ascribed to a definite substance contained in the serum, and this substance has been compared to a globulin or a diastase, without as yet ever having been separated, although many efforts to that end have been made. Whatever it may be, its power is enormous, as is shown by the experimental results obtained with serum containing it.

The idea of Behring and Kitasato, of the destruction of the toxin by the serum containing the antitoxin, although simple and easy of comprehension, does not appear to be applicable as a general theory, the more particularly if the observations of Metschnikoff and his followers be correct and taken into account. Metschnikoff has shown in his researches upon the blood of rabbits immunized against hog cholera, that their serum exercised a manifestly curative and preventive effect in fresh animals and without of itself possessing any attenuating or antitoxic property. In other words, that the effect was not merely due to a direct action upon the toxin or bacteria, but that a most important factor was the vitality of the tissues themselves in which the action took place. So that according to Metschnikoff, the action of the serum is especially a stimulation of the tissue resistance, exercised more particularly upon the phagocytes, making them better able to carry out their defensive action. The globucidal power of the serum is another factor that has to be reckoned with. It is closely allied to the bactericidal, and has been studied more especially by Buchner and Daremberg. It is shown upon introducing blood corpuscles of one animal into the serum of another. In such an experiment, the corpuscles are very rapidly disintegrated, and disappear in a very few moments.

This phenomenon occurs in the circulating blood or in the test tube, and Buchner especially has attempted to identify it with the bactericidal property of the blood-serum. They do in fact have characteristics in common, for they are both destroyed at a temperature of about 55 degrees C., upon exposure to light, or upon a modification of the saline constituents of the serum, but the existence of a special albuminoid substance, an alexin, as supposed by Buchner, is not by any means an accepted fact. The coagulating power of the serum is shown by its introduction by intravenous injection in another species of animal. Coagulation very quickly follows because of the precipitation of fibrin, but Richet and Hericourt demonstrated that this was to be avoided by making the injection in the cellular tissue, *not* directly into the blood vessels, so that the injected serum could only enter the blood current after passing through the lymphatics; and it has been recently shown by Hayem that this coagulating power is destroyed by raising to a temperature of 55 degrees C., while Mairot and Bosc found that only 52 degrees C. was necessary to accomplish the same purpose. The same authors have demonstrated the toxic properties of serum injected into animals of another species, as manifested by muscular pains, febrile disturbances, respiratory affections and even fatal convulsions. These properties are somewhat more resistant to heat than those already spoken of and are supposed to be due to certain albuminoid materials. They are extremely variable in different animals and in the same animal toward different species, and they also vary very much in accordance with the condition of health of the animal from which the serum comes. The existence of such properties as these in the serum is of the utmost importance, and that they may exist is unquestionable. At the same time it must be remembered that their effects are only markedly present in intravenous injection and that a wholly different picture is presented as the result of introduction into the subcutaneous cellular tissue. In this situation these toxic effects are so slight as to be inappreciable and may therefore be practically disregarded.

These powers of the serum are apparently closely allied to the physiological characteristics like the "glycolitic" of Lepine and others, and the "peptosaccharizing" of Lepine and Barral.

This paper being merely introductory, the foregoing portion has been devoted to a brief and incomplete summary of the present knowledge of the properties of the serum in general, so far as they are concerned with the present subject.

The production of the antitoxic power has been attempted in the effort to secure immunity or the cure of many diseases, and these efforts are carried out in the same general way. The steps include the production of a toxin immunity first and then an antitoxin immunity. The differences between the two conditions are, that the former is slow in coming, is dangerous during the process, but is lasting and complete when obtained. It is, however, wholly inapplicable to general use. The second is very easy to obtain, is very rapidly reached, is not dangerous, but is not lasting, and sometimes, owing to the uncertainty as to how far it is necessary to go, is not complete. The process of obtaining the first is by the injection into the selected animals of gradually increasing doses of the toxin, either filtered free of the bacteria, or else with them still present, these injections being kept up until they have reached such a point that the animal is not affected by a dose of the toxin or culture sufficiently large to be fatal to untreated controls. This animal has then reached the condition of toxin immunity, and this immunity is a very lasting one. The condition is due to the presence of the antitoxic principle in the blood-serum. This antitoxic property may be used to secure an antitoxic immunity in other animals, and these not necessarily of the same species, provided the serum containing it be injected subcutaneously.

These are the simple bases of the method, the details are of the most varying and, as yet, indefinite character. The remarkable thing is, not that we know so little in regard to these details, but that so much has been accomplished in the time over which the investigations have extended.

A simple list of the diseases in which it has been sought to apply these principles for the production of the antitoxin is a long one, without any attempt being made to give an account of the methods pursued in each. Such a list—and incomplete perhaps—would include the investigations of Richet and Hericourt upon their staphylococcus pyosepticus, and the work upon *anthrax, hog cholera, avian septicæmia* and *symptomatic anthrax. Rabies, typhoid fever, pneu-*

monia and *tuberculosis* have also been studied, without great success so far as is generally known. In *diphtheria* certainly, probably in *cholera*, and possibly in *tetanus* are to be found the main results that justify us in hoping for further advances in this direction so far as the application to man is concerned. Very possibly, too, results that may be immediately forthcoming will show that we are much nearer to a solution of the problem of the streptococcus antitoxin than at present seems to me to be the case.

THE FALLACY OF ANTITOXIN TREATMENT AS A CURE FOR DIPHTHERIA.

Read in the Section on Diseases of Children, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5–8, 1896.

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Early in my medical career, and at the time that Pasteur declared he had discovered a certain remedy for hydrophobia, it seemed a pity to me that the profound effort could not have been directed to the cure of diphtheria. Hydrophobia is such a rare disease, occurring not oftener than one to the million per annum, whereas diphtheria is universally prevalent, is the reason why regret was felt at the time of his publication. What it was hoped he might have done, is alleged to have been done by other investigators. Pasteur claimed in 1884, that a product made from the culture of the brain of an animal which had been inoculated with the disease of hydrophobia, was able, when injected beneath the skin of the human being, to cure rabies. This prophetic utterance emanated from a man who seemed to me, during this period of medical adolescence, to be utterly irrefutable. The scientific position which was accorded him, made his declaration appear to the world at that time, and to me with almost the same awe inspiring force, as if it had been an inspiration which had directed his mind and his hand. Hundreds and thousands of human beings have turned their faces toward the Pasteur Laboratory since 1884, supposing that they were mortally wounded by the teeth and the virus of mad dogs. There have been many who have presented themselves at his gate who were bitten, but not by a mad dog; hundreds of others who were bitten through the protecting folds of the clothing; many, indeed, who were simply licked by the tongue of a dog, not bitten at all. Still others have submitted to the inoculation through curiosity, having had no injury whatsoever. So great is the influence of the modern press that a scientific proposition, while still in the germinative state, is heralded throughout the civilized world, and is quickly transformed into a perfected science by writers of the press. There were a few who were able to doubt the truth of the allegation as to the curative influence of the Pasteur lymph. Long before cool and scientific inquiry could be made by physicians away from this center of discovery, the die had been cast that hydrophobia was curable by Pasteur lymph. At this present moment there are unmistakable proofs that error in judgment and in practice is the largest element in the hydrophobia cure. During the first few years of the experimental inoculations for rabies, many deaths occurred among the patients; so many, in fact, that Pasteur himself became alarmed at his own work. During a later period the death rate from hydrophobia, as stated at the Pasteur institute, became less. The lowered death rate was proclaimed to be the result of the natural improvement in the process, and at the time, was accepted by nearly all. In the last few years of the hydrophobia cure the death rate has been materially lessened and is attributed to still further advancement in the understanding of the treatment. Right here is where the point, which is to be drawn from the foregoing statements, appears.

Whatever may be the view of persons who have not personally investigated the treatment of hydrophobia by Pasteur lymph, the real explanation of the reduced mortality since the declaration of the treatment in 1884, is directly due to the dilution of the curative lymph. In so far as the reduction of the virility of the laboratory product is concerned, just so far has there been advancement in the progress; perhaps, if the lymph was indefinitely attenuated, the mortality would be still less. This recital is introduced to show the error which may exist in one of the greatest therapeutic faiths close to the end of the nineteenth century.

Bacteriologic investigators, in Berlin and Paris, sent word to the United States recently, that diphtheria is curable by a specific medicine. This specific cure is produced as follows: A culture of the germs of diphtheria is injected, day after day, in increasing doses for a long time, into a horse, until it is able to withstand the poison of 250 cubic centimeters of the diphtheria virus, whereas one-tenth of a cubic centimeter of the same virus would be fatal to a guinea pig. After a certain period has elapsed a quantity of blood is drawn from the jugular vein of the horse, and the serum, after being further treated in the laboratory, is ready to be injected beneath the skin as a cure for diphtheria.

Ever since the discovery by Tyndall that the atmosphere, as well as the soil and the water, is inhabited by life in invisible form, there has been a prolific series of theories concerning germ organisms. It is generally accepted that a constant state of antagonism exists between minute organic life, and it is supposed that preservation as well as destruction of life, is attributable to these germs which are warring with each other. First came the discovery of germ life in nature, followed in due time by the declaration that all diseases are due to the influence of pathogenic germs. The next step consisted of a conception that pathogenic germs must be antagonized by other germs in the preservation of life and the treatment of disease. The next step in the process is that pathogenic germs, or their ptomaines, are able to be counteracted in their influence upon the life of the human body, by either the same germ or its own ptomaine. It is believed that during the period of inoculation of a horse with the diphtheria culture, a process is going on which is generating a fluid in the animal, that is antagonistic to the disease which it is assumed is caused by the original germ, namely, diphtheria.

Let us now consider diphtheria from a clinical standpoint. There are two varieties of diphtheria which exist to-day, but, one of which did not exist yesterday. One is true clinical diphtheria, the gross symptoms of which are entirely sufficient for practical diagnosis. The other form is the diphtheria of the bacteriologic laboratory. One is diagnosticated by the clinician, while the other is discovered by the bacteriologist. These two varieties are made necessary by reason of the claims of bacteriology, by which

discoveries practical medicine has been both aided and retarded. Aided, by helping to a clearer understanding of the pathogenic and bacteriologic changes during the process of disease, and hindered, for the time being, by throwing a cloud across the pathway of natural and practical therapeutics.

Diphtheria is a systemic disease with both general and local manifestations. The local manifestations are located principally in the throat and larynx. By some observers the local symptomatology is considered paramount. It is taught by bacteriology that local microbes develop toxins upon the mucous membrane of the throat, and from this source the entire system is infected, whereas the true explanation regards the pathologic changes in the throat as but local exhibitions of general systemic poisoning. The laboratory declaration that a Klebs–Löffler bacillus found in the secretions of the throat establishes *prima facie* evidence that a disease is diphtheria, need not confuse our judgment and interfere with the conclusion previously stated in the foregoing sentence. It is undoubtedly true, that suitable nourishment for the growth of germs is found in the throats of children whose general system is impaired with diphtheritic sepsis. The so-called specific germ is found upon the tonsil both in health as well as in disease. Is it, therefore, a reliable means of determining the diagnosis of diphtheria?

Is the explanation of the false membrane which forms upon the throat, thus interfering with respiration, to be found by bacteriologic inquiry? When the system is impaired, and a determination of the weakened vital forces results in an inflammation of the fauces, there is thrown out upon the mucous membrane a thick, tenacious, glairy fluid, which dries and thickens into a membrane. The inflammatory state of the mucous membrane keeps adding fresh serous discharges, thus augmenting the deposit and ultimately filling the free space of the throat. In this serum the colonies of a variety of germs find normal food for nourishment and growth. Owing to the occlusion of the breathing space, insufficient air enters the lungs and further embarrassment of the health of the child quickly ensues. Examinations of the blood show an altered relationship among the component parts. Capillary circulation is diminished and congestions arise, both in the structures of the throat and neck, and in other tissues which are adjacent. The physical economy of the vital organs is imperiled and their functions are imperfectly performed. Retention of morbid matter rapidly accumulates throughout the entire system, especially in the capillary and lymphatic vessels. Great efforts are made by the resisting vitality to unload its burden and repair the damage.

At this time of the pathologic processes there are two therapeutic measures which are imperatively demanded: first, the supply of new force to the tissues by fresh nutrition; and secondly, aid to the impaired efforts of the organism to remove the morbid and retained matters. Nature is doing all that it can to carry the effete material produced by the disease, out of the system through the excretory organs. At this moment what is accomplished by forcing into the circulation a substance which has no natural relationship to the structure of a single element composing the entire body? The system is laboring and panting for life, under the oppression of toxins which it is trying to eliminate. At the very crisis of the greatest strain upon vital resources, a serum which does not belong in the human economy, is strangely added to the fearful load, which is in some cases the last straw that breaks the camel's back. Its use is therefore unphysiologic and absolutely contraindicated. The bacteriologist affirms to the contrary; observe which is the better able to judge, practical clinicians or the ultrascientist in the laboratory?

The claims that are seductively held out that cases treated early by antitoxin would recover have utterly failed. The claim subsequently that cases treated by antitoxin recover more quickly than those not so treated has utterly failed to be true. The claim that the death rate would be lessened has proved to be a disappointment. The claim that antitoxin was harmless has been proven to the contrary by many fatal terminations. Judging from the facts concerning the use of antitoxin in practice, does there stand on record to-day one single valid reason, from a clinical standpoint, to encourage the hope of better results in the future than have been attained in the past by other methods of treatment? It is not the purpose to impute insincerity, or lack of intelligent industry, on the part of the profession, concerned in experimenting with antitoxin, but the promises of better results through its use have unfortunately failed to be substantiated.

The human system, when laboring under morbid influences, needs rather those elements which can add strength and vigor to the vital resistance. By what law or principle in physiology can augmented vital resistance be maintained by the introduction of antitoxin into the system? Has the explanation of the action of antitoxin been satisfactorily given by those who are its sponsors? It is to be conceded that there are cases of diphtheria which, when treated by antitoxin, have seemingly progressed favorably, while there are other cases which have quickly terminated fatally. The influence of the antitoxin virus is directly dependent upon the condition of the patient at the time of its introduction. If the powers are well maintained, as during the first few days of the disease, naturally the system is stronger and its efforts more effective toward elimination, both of the antitoxin introduced and of the autogenerated toxin. Here is the explanation of the advantage claimed by the early use of antitoxin. It follows, when the system is further impaired its phagocytic action is also impaired, and the chances for recovery by reason of the further introduction of extraneous matter are lessened. What physiologic problem could be more simple? The point is this, that the blood does not need to be further polluted in order to expel the autogenerated products which it already contains. Can any one explain the reaction which takes place in the human living organism when antitoxin is added? There is a reaction, but that the reaction is a curative influence is open to discussion.

A small amount of morbid matter adjacent to living cell structures is dissolved away by the leucocytes and forced out of the body through the escapes provided by nature. This takes place regularly when the cell is aided by forces which contribute to its vigor. If the vitality is diminished by extensive morbid processes, extraneous matter added to the sys- only further weakens the reconstructive agencies which are at work. The theory that sepsis of any kind, already in the system, is able to be neutralized by the addition of manufactured toxins from without, though freely taught, is utterly inconsistent and

unreasonable. Can the chemic reactions of the laboratory be successfuly repeated in the laboratory of the human body?

Has horse serum, plus disease, any natural place in the human blood? And the red corpuscles are dissolved by its presence. No material success has ever been achieved by the transfusion of healthy animal blood into the human body for the cure of disease. Transfusion of salt water accomplishes all that is claimed for the process. Now then, how much the less is likely to be accomplished when an infected animal serum is injected for the cure of diphtheria?

The blood has lost some of its component elementary conditions. It is thereby altered in character, and when acting through inflamed mucous membranes morbid symptoms are produced, such as are seen in diphtheria. The fluid which patrols the entire body should be strengthened rather than further decomposed and disorganized by the addition of extraneous and poisonous matter.

The records of the cases treated in the Willard Parker Hospital of New York City prove that antitoxin is dangerous and even fatal. The statistics of that hospital establish that the further use of antitoxin is unjustifiable. Extreme interest and effort to know the truth has guided the staff of the Willard Parker Hospital. Dr. Joseph E. Winters of New York has sought diligently to establish the value of antitoxin, but the clinical experiences have forced him unwillingly to condemn its use. Is it safe to neglect the warning of such an experienced clinician and medical teacher? Professor Lennox Browne of London, patiently and earnestly sought for clinical reasons to further the interests of antitoxin. His conclusions are emphatic and pronounced against it. Dr. Weeks of Philadelphia also deprecates the use of antitoxin, basing the conclusions upon an extensive experience in the Municipal Hospital of that city.

Health department statistics of New York are cited in Chicago to the advantage of antitoxin, and Chicago statistics are published in the interest of antitoxin in New York. Health department methods of collecting information must be taken with allowance for accuracy. Previous to leaving Chicago a culture was made of the tongue of the office boy and the tube left at the city health office. The answer received stated that the case was one of true diphtheria. In fact, the boy was not ill at all. Provisions were immediately made by the department to fumigate and otherwise annoy the family at the boy's home. Is it not easy to be seen that the enthusiasm and overzealous interest of the medical corps in the employ of cities may bring to the notice of the health departments cases similar to the one cited? Such reports go on the records and contribute toward the statistics which are sent broadcast. The statistics very quickly become confused and their power for usefulness is absolutely *nil*. Unquestionably large numbers of cases which have been reported to be diphtheria and cured by an injection of antitoxin have been of the bacteriologic class.

It was recently stated to me, upon good authority, that the sales were falling off rapidly and an early termination of the demand for antitoxin was not for off; also that offers to purchase antitoxin upon most advantageous figures had been declined because of the fear of pecuniary loss. Thus the straws point the way the wind blows.

103 State Street.

SOME PRACTICAL POINTS ON THE COMBINED EFECTS OF ANTITOXIN AND INTUBATION,

WITH SPECIAL REFERENCE TO INFANT FEEDING IN MALIGNANT DIPHTHERIA.

Read in the Section on Diseases of Children at the Forty-seventh Annual Meeting of the American Medical Association at Atlanta, Ga., May 5-8, 1896.

BY LOUIS FISCHER, M.D.

Associate Professor Diseases of Children, New York School of Clinical Medicine; Physician to the Messiah Home for Children; Attending Physician Children's Department, German Poliklinik and to the West Side German Dispensary.

Certain factors appeal to us in a severe case of laryngeal diphtheria. The main point to be considered, however, is to afford instantaneous mechanical relief and prevent asphyxia. This, to my mind, is of more importance than the consideration of what the real therapeutics shall be.

If therefore, a child has recovered from the exhaustion following this mechanical relief by intubation, then it is necessary to commence with the real therapeutic management of the case.

If a history of diphtheria exists, and we are positive of the diagnosis, then we should without delay inject our case with either 5 c.cm. of antitoxin of the strength of 500 normal units, and if no relief is afforded in twenty-four hours, then we repeat the injection of the same dose of antitoxin. The choice as to the location of the injection depends on the practitioner. My own preference has been, that seen by me in Berlin with Professor Baginsky, in the interscapular space. It is not the purpose of this paper to detail the technique of intubation, for every one of us, no doubt, knows when and how to place a tube.

The same might be said for the injections of antitoxin. They have become so universally used that the technique is very well understood. It is an important point to lay stress on what I consider of vital importance, especially so, when we hear of sudden deaths occurring within a minute or two after an injection of antitoxin has been given. Any one familiar with the danger of injecting air into a vein will at once recognize the great importance of selecting that part of the body which is least likely to have large veins, and where we would be least apt to puncture them. A thrombus forming in a vein can easily produce death, and we all know that were the barrel of the syringe filled with plain water or milk or with any other ingredient, that death would occur just as quickly if air is injected into a vein, as it does or has done when antitoxin is injected.

We then have reached the two main indications demanded by science of to-day in the treatment of an obstinate case of laryngeal diphtheria: 1. We have satisfied nature's demand for the relief of the stenosis by intubation, and probably avoided asphyxia. 2. We have aimed, by injecting the antitoxin, at the destruction of septic elements or toxins introduced in the system through the agency of the Klebs-Löffler bacilli. The most important part of the treatment of a severe laryngeal diphtheria consists in the after treatment. I insist in every case of laryngeal diphtheria, with a tube in the throat, on feeding per rectum. By this means we can guard against that most dangerous complication, namely, Schluck-pneumonie. This latter is caused by the suction or flowing into the trachea, bronchi and capillaries of liquids, intended for swallowing, and causing pneumonia.

That such a pneumonia is not only a very difficult matter to handle, as a complication, should not be lost sight of, for more than one-half of all fatal cases die of this complication. I therefore advise giving a cleansing enema of soap and water, usually a pint in all, and throw it into the rectum and colon to wash away accumulated feces, and follow this cleansing enema by nutrient enema of peptonized milk, peptonized yolk of egg, peptonized beef juice, and sometimes small quantities of brandy if stimulation is called for. The interval of three hours is usually called for owing to the risk of exciting too active peristaltic movements and having the nutrition emptied out of the bowel.

It is well to bear in mind that the rectum absorbs and does not digest, and therefore that only liquid nourishment should be thrown in. No solid food should be pushed into the rectum. Small quantities will be better borne than large ones; all farinaceous food, like barley, rice and farina, soup made from beef, veal or chicken can be thrown into the rectum in quantities of one to two ounces.

I have frequently tried to resort to forced feeding by pushing a catheter through the nares into the esophagus and pouring small quantities of liquid food directly into the stomach, but this is such a highly objectionable plan in private practice that I have almost completely abandoned it. You will agree with me that while some parents will think it cruel to push a Nelaton catheter through the nose of their beloved infant for feeding purposes, they will not object in any way to using the rectum and colon for this purpose.

A point to remember in connection with dyspnea which sometimes occurs in an intubated child, is that relief is frequently afforded by giving inhalations of oxygen so that as a matter of routine, I invariably advise a cylinder of oxygen to be kept handy, in a malignant case of diphtheria with stenosis and threatened asphyxia.

The wonderful results achieved by me in the treatment of this dreadful disease are due to the rapidity with which I tried to overcome urgent symptoms. Thus I never leave a high temperature, of 105 degrees, without at once giving an antipyretic bath, immersing the child in a temperature of 90 and gradually cooling to 70, the duration of the bath to be in all about five minutes. This is to be continued every three hours until the temperature remains at 102. I do not use antipyretics during the course of treatment of diphtheria. One of the greatest mistakes encountered by physicians is that after an injection of antitoxin has been given, they discontinue all further medication. They do not properly nourish their patients and merely look for miraculous disappearance of the pseudo-membrane and all further symptoms after this one injection, and thus it is that the great many failures in the treatment of diphtheria with antitoxin are not due to the impotency of this most valuable therapeutic agent, but rather to the careless after-treatment, and sometimes the exhaustion of the patient, from lack of proper nourishment.

I insist on a thorough nasal irrigation of warm salt water solution at least twice a day, in every case of diphtheria without nasal complication, merely as a hygienic measure.

Sustain the Heart.—This can best be done with nourishment, and the less drugs used, excepting those urgently called for, as for example strychnin in minute doses, the better. A wise plan is to give most children as little alcohol as possible. It is a good plan to give all medication hypodermically, so, for example, a minute dose of strychnin can be used if required, or alcohol can be injected. A cool, clear temperature of 65 to 70 degrees will add much to the comfort of our patient. If the glands of the neck are very much swollen, then an ice collar will do a great deal toward relieving *the swelling*. Spartein is sometimes called for, but unusual care must be exercised owing to the irritability of the stomach. Pseudo-membrane should be carefully noted in regard to its size, and every diminution looked upon as favorable progress. *Fetor ex ore* is a usual symptom of necrotic tissue, be it in the form of a pseudo-membrane or otherwise, and is usually found during the course of laryngeal diphtheria. A gradual fall of the temperature, not by crisis, but by lysis, should be looked forward to as a favorable symptom; so also the diminution of the size of the glands of the neck.

Such symptoms as high-colored urine with small traces of albumin, possibly a cast, were now and then found during the ordinary course of a malignant case of diphtheria, long before antitoxin was discovered. It is therefore not surprising to find it now.

I look upon the disappearance of a high color and a freer secretion of urine, and a disappearance of the albumin as favorable symptoms indicating convalescence. The respiration in some of my cases reached as high as one hundred per minute. A diminution in the number of respirations and at the same time decrease in the rapidity of the pulse, with the fall of temperature by lysis, are all favorable symptoms.

Diaphoresis, when commencing after a few days of treatment of a malignant case of diphtheria, I look upon as very favorable symptom, being nature's effort of eliminating toxic elements through the sweat glands.

I have purposely refrained from tiring you with the description of clinical histories of single cases of diphtheria, and furthermore, do not care to give you statistics which can be made to suit the whims of any author, but can assure you that I recognize to-day in diphtheria, not the old foe of former times, but am willing to give a better prognosis to-day, with proper antitoxin treatment, aided by so called supporting treatment, which consists in concentrating nutrition when the body most needs it, than by any old fangled method of treatment known.

AN EXPERIENCE WITH ANTITOXIN WITH INSTRUCTIVE RESULTS.

Read in the Section on Diseases of Children, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5–8, 1896.

BY JOSEPH WM. STICKLER, M.S., M.D.

ORANGE, N. J.

I will quote but two cases, types of others, to call attention to points which seem to me to be of importance in connection with the administration of antitoxin.

Case 1.—Some time ago I was asked by Dr. Simmons of Orange, N. J., to see a boy about 7 years of age, who was suffering from some form of laryngeal stenosis. At the time he requested me to consult with him he could not discover by the ordinary method of examining the throat (with tongue depressor) any membrane. When I arrived at the house the child was sitting upon his mother's lap, presenting the appearance of a child in the advanced stage of so-called membranous croup,

i.e., laryngeal diphtheria. The breathing was however fairly easy, at times losing its marked stridulous character. When the respirations were not markedly quickened and labored the skin was normal in appearance and the lips ruddy in color. The pulse was full, strong and regular. Mind clear, urine normal, and body well nourished. An examination with the laryngoscope revealed the presence of quite a large amount of membrane within the larynx. This discovery when coupled with the previous history of the case led me to give a very unfavorable prognosis. I told the Doctor I would be ready to perform tracheotomy any moment he might desire it, fully expecting to be sent for before the following morning. During the interim I advised the use of antitoxin. Three days passed before I heard of the boy's condition. Imagine my surprise when Dr. Simmons told me that the patient began to improve almost immediately after the use of the serum and made a complete recovery in one week. The points presented by this case are: 1. The laryngeal stenosis had been gradually increasing up to the time I saw the patient. 2. The stenosis was due to the presence of membrane which was demonstrable by the use of the laryngoscope. 3. The vital powers of the child had not been markedly depressed by the toxins of the Löffler bacilli, and it is to this latter point I wish to direct special thought.

Case 2.—Dr. Thomas S. Fitch of Orange, N. J., asked me to see a little girl 5 years of age who had diphtheria. The disease had developed three days prior to my first consultation. When I was admitted to the sick room the child was breathing at the rate of thirty to thirty-five times per minute, and the respirations were very labored in character. The pulse was weak and averaged 100. The pupils were somewhat dilated, and the child was very irritable. The skin was mottled and of an ashy hue. The lips were red but somewhat shriveled. The hands trembled and the gait was unsteady. When left alone she would sleep, turning occasionally from one side of the bed to the other. The urine was diminished in quantity and was slightly albuminous. The body was fairly well nourished, but only small quantities of fluid nourishment could be given at comparatively long intervals. The entire pharynx, tonsils, soft palate and a portion of the hard palate presented to view a dense membrane broken only at a few points. The nostrils also contained membrane. Bacteriologic examination showed the presence of myriads of the Klebs-Löffler bacilli. Dr. Fitch felt inclined to use antitoxin. My opinion was that because of the tremendous depression of the vital forces the child must die. It seemed best therefore to support the heart's action, if possible, till nature could rally her spent powers, and to accomplish this result we decided to use active heart stimulants and such nutriment as the patient could and would take. In addition to this line of treatment we thought we would try antitoxin, giving 10 c. c. at twelve-hour intervals. The patient got steadily worse until about twenty-four hours later, when she died. The point presented by this case, which seems to me to be of great moment, is this, the folly of using antitoxin when the whole animal economy has been struck such a tremendous blow by the poison of the diphtheria bacilli.

Judging from these and other cases, I believe that when the heart's action is fairly good, when the system at large has not been seriously impaired in its tone, when the urine shows little or no albumin and indicates no organic nephritic trouble, as in the first case quoted, I care not how much membrane there may be present, antitoxin when judiciously used is likely to benefit the patient. When, on the other hand, conditions obtain such as are mentioned in Case 2, I believe antitoxin to be contraindicated.

DISCUSSION ON PAPERS OF DRS. ELMER LEE, JOS. M. STICKLER AND LOUIS FISCHER.

Prof. Edwin Klebs, Citronelle, Ala.—First permit me to speak on the papers read before us. Dr. Elmer Lee stands on the old standpoint of the pathology of diphtheria, which is not tenable. We must, it seems, accept the bacilli as the only cause of diphtheria. That is necessary not only from a bacteriologic or a laboratory view, but of a clinical view also. You know that in diphtheria we first see an affection of the throat, a slight angina, and later a general affection; that is the consequence of the action of the diphtheria bacillus in the throat. The few cases in which we have no local affection are not contrary to this opinion. The local affection may occur in parts we can not see in the larynx or be a very slight one. But we need not dwell on this point longer. Now the second point he has brought forth, the observation of the diphtheria bacillus in the throat of some healthy people. That part is often discussed. But it seems to me quite clear that the right explanation of it is not given by Dr. Lee.

We see so often in grave diphtheritic epidemics, that the children become sick in a grave manner immediately after having caught cold. In this manner I have lost a child. He was out in a heavy snow storm in Zurich, and upon returning had diphtheria. How was this to be explained? Surely the child had the diphtheria organisms present before, and under the influences of the cold there was made some change in the mucous membranes, probably an obstruction of the circulation that we can see microscopically in fresh cases, so that the tissues become better adapted for the growing of the diphtheria bacilli. And then, if the gentleman does not accept that the diphtheria bacillus is the cause of diphtheria, we would have two different diseases in the same body and we must ask, What is that other disease not differing from the diphtheria bacillus? Now, the other preferred opinions are very difficult to speak upon. He has said the antitoxin can be dangerous. I asked him and he said, yes, he had personally seen such cases. But we will return to that point later.

Dr. Stickler has brought forward two cases, one doing excellently, in such manner as, if I have understood it right, one can not think otherwise than that there has been a very beneficent influence of the antitoxin. In the second he had no effects. But, have we any one treatment that will be efficient in all cases? That is not possible. But I think Dr. Stickler has given us a very important paper. Clear observations are often more valuable than greater statistics.

Now as to the last paper. I have not understood much of it, but I believe the gentleman had good results with the antitoxin. I can not enter into details and return to a more general discussion. From some we hear that the antitoxin serum is inefficacious and may be sometimes dangerous; from others we hear that it seems totally reliable. Now, we must have fair play in this matter. It is enough to now state that numerous observers had good results in a great number of cases. That in farther progressed cases there is noted inefficiency, can not be a ground for rejecting the treatment; a graver objection is the possibility of sudden death after the injection of the antitoxin.

The first point we must regard in this question is the experimental foundation of the whole question. It seems to me there can be no doubt that an anti-poisonous or antitoxic effect of these substances is fairly demonstrated. If Behring and others inject great quantities of it at the same time as poisonous matter from diphtheria cultures, into the abdominal cavity of guinea pigs, and the animal will not die while control animals die in a very short time, we can not say otherwise than that there is a benefiting antitoxic influence. The same observations have been made by all good observers. If we find such a degree of security in animal experiments we can not say there is nothing in it and it is not probable that the same substance is of no use in man, when it is effective in guinea pigs.

But there is another point to discuss. Behring and others have said the antitoxin has alone a healing influence, but it has also a preventive influence. That is another question. We must ask, Can we immunize with the antitoxic serum in a certain quantity susceptible animals? Some physicians have asserted that they have had good preventive results by injecting as small a dose as one cubic centimeter of serum into children. But, gentlemen, that must be a mistake. They may have injected the serum and the children have not become diphtheritic, but that does not prove that the injection prevented the diphtheria. It is very difficult to speak of such a preventive action without proof of infection. But we have other and better ground to say it can not be that there

is given by the injection of so small doses immunity to any animal or human being. The serum has proven a good nourishment substance in which it is possible to cultivate the diphtheria bacillus. Now, can the same substance, in such small quantity, immunize an animal if the diphtheria bacillus can grow upon it? We will remember how great quantities of the strongest diphtheria cultures are necessary for immunizing animals. These must be continued for a long time and the immunity lasts for only a short time. And so I think the antitoxin has not an immunizing power; or, at any rate, such power has not been demonstrated. I must say I have not been able to read the latest German papers, but I think conclusive experiments have not been made. Whether the assertion of R. Pfeiffer that his cholera serum effects degeneration of the cholera vibrio is acceptable or not we can leave undecided.

I think statistics are always a little uncertain. When a new remedy is used, many mild cases are healed in a short time. In Berlin there are two hospitals. The patients in the St. Urban Hospital were treated with the serum whereas in the Bethanien-Hospital the patients were not treated with the antitoxin. The death rate was reduced in the first from 50 to 20 per cent., in the second from 50 to 30 per cent. But in the first the cases were nearly doubled in number, so that more lighter or fresher cases were treated by antitoxin.

Now I come to a point that seems to me to be of the highest importance, the danger of antitoxin. I wish that point would be illustrated in a more extensive manner by publishing all cases in which the injection was shortly followed by death. We have such cases, but a part of them seems to be on account of the disease. But if in one case alone the patient has been killed by antitoxin, we have a great interest to find out the true cause of the death. Such a case is that of Professor Langerhans in Berlin. After a girl in the house became diphtheritic, he thought he would, if possible, prevent the spreading of the disease to his own children, but after the injection the first child died immediately. So it is possible that death may occur after the most cautious injection of antitoxin, a fact that gives a high responsibility to every physician using this remedy. We must search, therefore, to find out, what may have been the cause of such fatal accident.

In this case it is reported that the body of the dead child was quite normal, well nourished. There was no introduction of air into the blood. The danger of introducing air is, by the way, not so great as often accepted. One can inject some centimeters of air in the blood vessels of a rabbit without any bad effect, as the air is resorbed in a very short time. It will be better to inject the fluid in children into the muscles far distant from the lungs, in the dorsal or gluteal region. Then it is convenient to push the needle alone in first and see if bleeding follows or not. If not, one may inject without fear, but always slowly, under no high pressure. If these precautions are followed, I think that no danger can be feared from the injection.

If all these precautions were taken in the Langerhans case, I can not tell, but it is clear that, if the death occurred by the injection into a vein, the antitoxin used must have been in a high degree poisonous.

I do not know, if the consequences of such injections in the blood of animals are studied, or if kymographic designs for measuring the blood pressure and action of the heart before and after the injection of antitoxin are made, certainly they should have been, if they were not.

I think it is not probable that the antitoxic serum itself contains such a formidable heart poison, as very great quantities of it injected into the peritoneal cavity of animals proves harmless. Much more probable it seems to me, that in this and other similar cases observed in Brooklyn, N. Y., an accidental pollution of the antitoxin has combined with intravenous injection to produce the fatal effect.

The sure disinfection of serum is a very difficult matter. Twice I have found microbes in tubercle-serum. On the other side, the best antiseptics, as mercury-bichlorid, phenol and kresol make coagulations in the serum. Therefore, one must search for other disinfectants that will not coagulate albuminous matters. I note that chinosol is proclaimed as such by Emmerich; its antiseptic action is forty times stronger than carbolic acid and does not coagulate albumin. I have proved it a very good disinfectant for external and internal use, and I would recommend it for the disinfection of serum. Certainly we must demand from the manufacturers of antitoxic serum, that they must prepare the serum in an absolutely pure manner, excluding totally the possibility of accidental pollution. It is not a good manner to dispense it in colored bottles. It can be protected against the light by dark coverings.

I am sure that all these precautions can be executed and will be executed, in this land, in which I have seen as good bacteriologic work as anywhere in Europe. I remember with pleasure that in many of our cities are instituted health offices for the preparing of the anti-diphtheritic serum (New York, Pittsburg), in which in every case of diphtheria the presence of the diphtheria-bacillus is controlled by bacteriologic examination and the serum is given gratuitously to the profession. In Berlin the magistrate has declined to do the same. I hope that the demands of science will always find here a ready reception.

DR. W. E. CASSELBERRY, Chicago—Having had considerable experience with antitoxin, especially in laryngeal diphtheria, I feel I may at least recite my experience. Previous to the introduction of antitoxin, the results in laryngeal diphtheria and membranous croup were very unsatisfactory. The published results, on the average, only saved about 25 per cent. of all cases that had come to the operating stage. The antitoxin has reversed my statistics, or at any rate my statistics have been reversed, to the saving of about 75 per cent. of cases. I attribute this to the antitoxin, in the first place, because the two epidemics were parallel, and secondly, because of the course of the clinical symptoms. The antitoxin in my hands has, both in laryngeal and pharyngeal diphtheria, within twenty-four hours after its administration, had the result of reducing the intumescence of the parts. I have not observed it caused a rapid falling off of the membrane, but the swelling and intumescence, which is responsible largely for the laryngeal obstruction, within twenty-four hours subsided. The other clinical symptoms also ameliorated under the influence of the remedy. The broncho-pneumonia does not so frequently supervene. The antitoxin appears to limit the disease and prevent its further extension. The tube having been introduced into the larynx, we have to dread much less the extension of the disease in the form of broncho-pneumonia and membranous bronchitis into the respiratory passages not within the reach of the tube. And I feel here the antitoxin has been a very decided help. I do not regard the antitoxin as an innoxious remedy. It has not been my custom to recommend it as a prophylactic measure. I endeavor to make the diagnosis as soon as possible. The microscopic tests I consider of value, but I do not rely wholly upon them. I think the experience of the clinician is of equal value with the bacteriologic examination, and if with that we can find the Löffler bacillus, I think the diagnosis may be made with certainty. But I like to have the clinical experience and the bacteriologic examination both to indicate diphtheria before the serum is used. I think we can conceive that the individual in health might be more affected by the antitoxin than are those affected with diphtheria. Inasmuch as cases have been reported of death following the use of the serum as a prophylactic measure, I think it is better to wait until a diagnosis of diphtheria is made.

DR. J. A. LARRAREE, Louisville, Ky.—In the discussion it seems the papers went back far enough to discuss the germs

themselves. There is no such thing as germ *theory* at the present time; it is germ *fact*. So to make progress we must not go back and stir up the germ theory.

It is said of all microörganisms, they are omnipresent, but it is only during the arousing and calling into activity of these germs we have disease. And all those things which put the germs into activity, are causes of disease.

It is surprising we should contemplate immunizing against a disease which does not immunize against itself. The comparison of antitoxin with Jennerian vaccination has fascinated the laity. In one we have a very complete protection continuing for life, ordinarily. This is a molecular change, which remains. It is not and may not be expected the antitoxin, when it fills our greatest expectation, will secure immunity. So, I have not in a single instance attempted immunization in practice. The theory has not appeared tenable to me. I have arrived at this point, there can be no question about toxins and antitoxins. There is no question, even in diphtheria, but that antitoxins, if properly prepared and if they are the real antitoxins, are potent to arrest the disease in its progress. I have seen four children die who I believe would not have died if they had not used antitoxin. I have seen twelve cases of laryngeal stenosis get well, that would have died without the antitoxin.

It is an accepted law, that remedies are capable of doing harm in the absence of disease. It is untenable to suppose sufficient air was injected to produce death. When the jugulars are injected with sufficient air, death may supervene. It is probable a curdling ferment has been introduced, which upon the return of the circulation, in two or three minutes, has produced a thrombus. But I believe the antitoxin does produce an immediate effect on the kidneys. In one poor little fellow, apparently doing well, death occurred within twenty-four hours with complete anuria. Anuria is almost pathognomonic in diphtheria, but this was not the time for it to appear in the case I have mentioned.

Another important point is with reference to pure serum. All who have used antitoxin much have observed the diphtheria rashes. These indicate the heterogenous products formed. I have found the greatest care necessary in color inspection of these bottles before using, and I stopped one just in time, perhaps, to prevent an accident. The fluid was turbid and milky.

We know these cases without intubation died and with intubation we formerly relieved only 25 per cent. of cases. Since the introduction of antitoxin, I have had less fear of laryngeal stenosis, and four cases have gotten well without intubation. I do not believe we can get such good results from anything else. I do not think we should abandon the other treatment. We should take all due pains to remove septic material from the throat. Since I have done this in scarlet fever, I have had less ear trouble and other complications. I believe most of the cases of sepsis have an origin in the throat and not outside of it, and many cases usually supposed to die from diphtheria really die from sepsis. I hoped somebody would bring out the value of the knee-jerk in diphtheria. It is considered by some of my friends in the Windy City as diagnostic of diphtheria.

Now in regard to this treatment, it does not inhibit or prohibit the old well known fortification of the blood. Whatever may be introduced in the form of animal toxins, the invasion of the blood is the principal danger. So I shall not give up the old-fashioned muriated tincture of iron, given internally and applied externally.

Dr. W. B. Parks, Atlanta—The city of Atlanta has just sent in its first order for antitoxin. The only cases we have had here have been cases of follicular tonsillitis, and hence we have not secured the antitoxin sooner.

Dr. Rosenthal, New York—As to the changes in the blood, due to the injections of the antitoxin, the latest paper was published April 25, by a gentleman from New York, and was a report made to Professor Biggs, of New York. He had three series of cases: one of pure diphtheria; another, in which the antitoxin was used, and the third, in which the results were given before and after the antitoxin. After the introduction of the antitoxin there was no change in the red blood corpuscles or in the leucocytes. As a curative dose in diphtheria, I have used as high as 13,000 antitoxin units; others have used 20,000 units of the antitoxin, and these patients are walking the streets to-day, well. I have never seen any bad complications following the injections. I give the injections between the scapulæ. I prepare the back by washing with corrosive sublimate. I have in my room a chart, which my student and an assistant have made, in which they have taken hourly the temperature and respiration of the patient, and made chemic and microscopic examinations of the urine nearly hourly, and they have found no increase of albumin in the cases with albumin before the injection was made. They only found an increase of the urates and heightening of the specific gravity, no sugar and only a little albumin.

Regarding prophylaxis. The antitoxin does not immunize. Diphtheria is diphtheria, whether you use one c.c. or 1000 c.c. If you treat the diphtheria with a curative dose of antitoxin and expose the patient a month afterward to diphtheria, he will surely get diphtheria. I have in my room the record of the case of a little fellow who was exposed. He was left quite sick, locked up in a house with another case of diphtheria. In this case it had no permanent effect.

I use the Löffler solution, or the guiacol, or—and it is as good as anything—the tincture of the chlorid of iron.

The post-diphtheritic palsies. We hear more of these than formerly because the patients died, before they had these palsies. We have multiple neuritis, ozena, inflammation of the middle ear, which would have been seen before the use of the diphtheritic antitoxin had the cases lived. But now the toxins have been neutralized by the antitoxins and we have a clearer field to work in. If antitoxin has any virtues it antagonizes the Klebs-Löffler bacillus and nothing else. If we find a mixed infection, then is the time to give the iron.

Another point is the reduction of the time the tube is needed in laryngeal stenosis since the use of antitoxin. In my own cases I have found the reduction has been sixty-nine hours. I could take the tube out on the third or fourth day. Often there is no indication for intubation or tracheotomy.

All my cases have been substantiated by microscopic examination. If we did not have the evidence of diphtheria, we would believe we had been treating follicular affections or something else for diphtheria. We probably all have bacilli in the throat, but when you have set up a chemic or mechanic action in the throat, the disease immediately comes forth and there you have diphtheria which you wonder you did not see before. It is the same thing in pneumonia and other contagions. I have no doubt you could find the pneumococci or the bacilli of diphtheria in my throat. Perfectly healthy gentlemen and phthisical patients have had the secretions examined in the laboratories, and the returns have been made that they were very virulent cases of diphtheria.

I do not not stand alone in the matter of intubation. I have here a letter from a doctor who in his last thirty cases has saved twenty. The method we pursue now in Philadelphia, is this: If we have a case with the clinical manifestations of diphtheria, we make the injection first and make the bacteriologic examination afterward.

As to the quotations by Dr. Lee. Dr. Lennox Browne's book is out and has had sufficient criticism. Dr. Winters, I understand, has been entirely crushed and has come out in favor of the antitoxin. Professor Welch has quoted every authority, French, German, Austrian and Russian, who has had anything to do with the antitoxin, in all, 10,000 cases and now

favors antitoxin. Some people have a sort of fever in the antivivisection line, but, he says, it is to the glory and honor of the bacteriologists the antitoxin has come forth. The statistics of Dr. Welch of the Johns Hopkins Hospital are unique. He told me he had to go to other treatment, but with the other treatment his mortality rate has increased from 29 to 33 per cent. Kitasato of Japan, Metschnikoff, Kasmann, Wassermann, Ehrlich and others have given statistics showing a decrease in the death rate. Statistics often lie, but there is certainly great similarity between them; and if they are all liars, I am very glad to be counted among such a class.

DR. ROSS, Kokomo, Ind.—Unfortunately in the little city where I live we have had a good deal of diphtheria. The physicians have in almost every case injected antitoxin early. My partner and myself have probably treated forty-five or fifty cases and have in every case injected the antitoxin. We have sometimes used the Behring preparation and sometimes the preparation made in New York. We have tried to use the utmost antiseptic and aseptic care. We have not had as much irritation about the point of injection as I have seen from a mosquito bite. We have only once seen an erythema, which was slight and disappeared in a few hours. We have not had any trouble from shock or other adverse symptoms. We have never failed to see, within thirty-six hours, the temperature become normal and the membrane begin to disappear. We have not lost a case of diphtheria. No regular physician in our city, of the 200 or more cases treated, has lost a case of diphtheria during this epidemic. Perhaps a dozen cases have died but they were cases treated by irregulars, who refused to use the antitoxin. We have accepted what has been promulgated by the investigators and teachers; we have tried to use suitable precautions, and we have had good results. I shall certainly go on, not at all deterred by the frequency of the word "poison" in the paper by Dr. Elmer Lee, of Chicago. I have not seen nor heard of a case of disease of the kidneys following the injection of antitoxin. Heretofore, in cases treated by the old method, frequently after a patient was discharged and I supposed the disease and my treatment were ended, I have been called back to see the little patient with pulseless wrist and pale countenance, and witness its death in a short time. Such a thing has not occurred in the cases we have treated with the antitoxin.

I was called to see a case of laryngeal diphtheria. The case called for intubation or tracheotomy. The condition of the patient was such I thought neither procedure promised much. We tried intubation without success. We prayed to be permitted to use the antitoxin. The child was apparently almost in the agonies of death. After assuring the mother of the necessity, we were permitted to use the antitoxin. In the evening we made the injection. The next morning, instead of finding the child dead, we found it sitting up in bed, playing, and breathing as if nothing had happened to it.

DR. GRAY—We have had, during the past year, an epidemic of diphtheria. I have seen from fifty to seventy cases treated with the antitoxin, and have given it personally in twenty-eight cases, of which only one died. In the fatal case death occurred one hour after the administration of the antitoxin. In that case I gave it only at the earnest solicitation of the family, knowing at the time it would be useless.

I found a child 2½ years old suffering from diphtheria. The little patient had been sick about three days and was cyanotic. In the same bed during those three days another child, of 4 or 5 years, had been sleeping. I administered 2,000 units of the antitoxin and in eight hours gave 1,500 units. In a week the child was well. I had cultures made from the throat of the child that slept with him and also from the father and mother, in which the Klebs-Löffler bacillus was found, but they did not develop diphtheria.

At first the doctors were afraid of it and gave small doses. I have found with the large dose at first we have much better results. I give all my injections into the interscapular region, first washing the back of the child with alcohol. I use an aseptic needle, first soaking it in a weak carbolic acid solution and then washing it with alcohol. I have never had a rash nor the slightest indication of abscess. In the case of a child 4 years of age, sick three days, the larynx, nasal passages and pharynx were involved. The child was cyanotic, with a weak, thready pulse of 140, temperature 103½ degrees, albumin in the urine, and apparently near death. I injected 1,500 units. In eight hours afterward there seemed to be some improvement and I repeated the antitoxin, and again in the course of twenty-four hours, and the child recovered with a subsequent mild nephritis. I have given small doses of brandy to support the heart. Sometimes I have stuck to the iron. Of the twenty-eight cases, I do not think one (except the one that died) did not recover within a week or ten days so it could be on the street.

DR. THOMASON, Albion, Mich.—I can only give some deductions from my own clinical experience. A year ago, in Washington this same subject was discussed. The antitoxin treatment was then in its infancy. Those of us who defended the antitoxin at that meeting had considerable opposition to meet. The fate of the Koch tuberculin was talked about, and they were all afraid of antitoxin. When the papers were read giving favorable results in a number of cases, and I gave my limited experience of some twenty cases in the same epidemic, in the first few of which (treated before we were able to obtain the antitoxin) there was a mortality of 50 per cent. and in the others, with the antitoxin, 100 per cent. recovered, many thought I was prevaricating. But now we feel antitoxin is very nearly a specific in the treatment of diphtheria. A few cases are reported of death as the result of antitoxin, but it is questionable whether death in those cases was due to antitoxin. But even if it has killed a few, it has saved many. The same applies to cocain. Cocain killed a patient just as he was leaving my office, but for that reason I shall not discard cocain. I take the same aseptic precautions I would take in an abdominal section. I make the injection into the deep muscular tissues of the subscapular region. Prior to the introduction of antitoxin, I operated in twenty cases, every one of which was fatal. Since the introduction of antitoxin I have had four cases and all recovered.

I know I am not in harmony with some of the gentlemen, in regard to it being an immunizing agent. I have used it as an immunizing agent and, rationally or irrationally, I have had justifiable results. In one family of six children, five children had diphtheria and one did not. I gave an immunizing dose to that child and it escaped; and I also gave the parents injections and they escaped. In a family of five children in which three had the disease, I gave immunizing doses to the remaining two and they escaped. I have never had any bad results but an erythema.

The deaths in diphtheria, after the use of antitoxin, I believe to be due to secondary causes. I never neglect the general treatment. The antitoxin arrests the primary trouble, that is all; consequently I stick to the old chlorid of iron treatment as tenaciously as ever.

DR. J. A. LARRANEE, Louisville, Ky.—I would like to ask one question of Dr. Thomason. The Doctor speaks of results in immunizing. How is it known these cases would have had diphtheria if he had not immunized them?

DR. THOMASON—I do not know. It may be rational or irrational, but I have used the antitoxin with the results I have given.

DR. W. J. BELL, Atlanta—In 1894 we had an epidemic in an institution with which I was connected. There I had an occasion to use the antitoxin. The conclusion reached there, by Dr. Parks and Dr. Peck, was conclusive, that antitoxin had an

antitoxic effect. The statistics bear out that conclusion. During my term there I held to the iron treatment, as was insisted upon by our Resident, and it was certainly indicated. I noticed these cases bear iron to an enormous degree of tolerance. I gave at first a small dose, increasing to forty drops in children 18 months to 2 years old. The cases did well. In a great number of those cases I was satisfied I had not only a local effect from the iron but also a good general effect on the system. It seems to me our best result would be obtained if we could use the antitoxin and so saturate the system of those exposed we could render them temporarily immune. I do not think there are any who claim the immunity is permanent, but there is a temporary immunization. Therefore, in those cases where the Klebs-Löffler bacilli are found in the throat, the antitoxin should be used, in smaller doses than for a regular case, but at regular intervals, immunizing the general system. During the first part of the epidemic we had our work done in New York, but afterward we established a laboratory and did the examining for the institution. There were some five hundred children in the institution. We had a regular quarantine and an intermediate quarantine, and we went over the cases as well as possible. We had spots of infection in a number of places through the wards and so could not locate the point of infection. We selected forty cases, where the Klebs-Löffler bacilli were found, and used the usual treatment. Out of this number only two cases developed, which seems conclusive evidence that we obtained an immunizing effect from the antitoxin.

Dr. H. E. Garrison, Dixon, Ill.—In our town we have not found the Klebs-Löffler bacilli, but the antitoxin has been used with wonderful results. We had an examination made by the State Board of Health, of Illinois, and they found the staphylococci only. One or two cases died without the antitoxin and five or six with the antitoxin. There is a population of about 8,000, of which number not less than 1,000 have had a sore throat.

Dr. Baker, Erie, Pa.—I think the cases of infectious diseases may be divided into three classes: 1, cases which are mild and will recover at any rate; 2, cases that may or may not recover; 3, cases that will die. To simply say a case is diphtheria, the antitoxin is given and the case recovered, gives no information whatever. But if you treat a series of cases such as I would include in the third section, and get good results, the statistics are of some value. I saw 150 cases, out of which three or four to me meant something. One boy I remember especially was very sick. We had him early and administered the antitoxin thoroughly, but he died. I do not think, from the observations there, I saw the antitoxin do anything that has not been duplicated without it. In private practice my experience covers some fifteen cases. The theory is seductive. The line of treatment is on a trunk line and it is exceedingly probable it will be worked out in time. Whether that time has arrived is doubtful. I think the question of immunization is answered absolutely by the fact the disease does not immunize itself.

Dr. Hodgkis, Connecticut—I had the opportunity of witnessing a number of cases of diphtheria, and being a little distrustful of the results of antitoxin, I allowed one case I considered mild and would get well if left to time, to go on for a period of eighteen days, with a great deal of diphtheritic membrane covering the uvula, soft palate, tonsils and pharyngeal walls, and at the end of that time there was no disappearance of the membrane under the old treatment. Paralysis having resulted, I considered the case going on to the worst and it was a proper time to use the antitoxin. I had previously used it in other cases. After using 10 c.c., on the following day the membrane had disappeared from the uvula and the soft palate. On the next day we used 5 c.c. and on the following day all the membrane had disappeared. This is an illustration showing positively the disappearance of the membrane after the use of the antitoxin.

Dr. D. C. Wilson, Ironton, Ohio—We had a severe epidemic in our town during the past winter. The first few cases I lost. I immediately ordered antitoxin and lost no cases in the some sixty cases treated after that. One child contracted the disease. Inside of eight hours another of the same family contracted diphtheria, and I injected the ten other children and none of them contracted the disease. But the father contracted the disease. In his case I did not use the antitoxin at first and he grew worse until I thought it unjustifiable to wait longer and injected it, with recovery. I was called to a case of laryngeal diphtheria. The child was cyanotic. The consulting physician refused to use antitoxin but I insisted. The next morning the child seemed somewhat better. Later I injected the child again, and the child was soon up and about the house. I have had no bad results. I had in one case an erythema follow. I use the injection in the side. I first thoroughly antisepticize the chest, brush off the skin with alcohol, and use the carbolic solution. I have not sealed up the wounds at all.

Dr. Knipe, Norristown, Pa.—I merely would like the consensus of opinion about this. One man claims antitoxin could not immunize simply because the disease does not immunize itself. Theoretically, my own impression is that ordinarily diphtheria does immunize against another attack. Dr. Garrison has reported a number of cases of diphtheria in which the bacillus was not found. These may have been only cases of tonsillitis. But I believe true diphtheria does immunize as much as smallpox. I believe the statistics from the German army show a good mark of vaccination is a greater security than having had smallpox itself.

Dr. Edwin Klens, Citronelle, Ala.—Permit me to make a few remarks on this question of immunizing. We have very different qualities of immunity in the different forms of infectious disease. We can not compare, in this point, diphtheria and smallpox. We would be very glad if we had such a high degree of immunity in diphtheria as in smallpox. But some gentlemen have thought they have immunized. Some members of a family have diphtheria and in the other members of the family they found the bacilli, and they injected them with the serum and they did not get diphtheria. In Zurich, for weeks after diphtheria in a family we found in the children who did not have diphtheria the diphtheria bacilli, but they did not have diphtheria although they were not injected. We have two sides to this question of infection; the germ on one side and the body on the other. We must consider, first, sufficient infectionability of the germ; and second, sufficient susceptibility of the body. We know an infectious germ can be in the nose of a healthy child and not cause diphtheria.

Dr. Elmer Lee, Chicago—There is not much more to be said. The position taken in the paper read by me, *is correct*. It is admitted, in that paper, that diphtheria is treated by the use of antitoxin, seemingly with favorable results. If you undertake to say to me or to the world, that that treatment is based upon scientific knowledge, it is my contention that it is an incorrect statement. If you base it upon empiricism, there is nothing more to be said. It is contrary to physiologic law. Physiologic law is the law of our nature and being. That an impurity will secure purity, is not the lesson we learn by watching the bubbling water as it comes out of the side of the hill, that is made muddy by the foot-print of the cattle. The stream will clear itself if we will only let it alone.

There is one weak point in my paper. I know my weak points better than the audience. The weak point is, while criticising antitoxin, no substitute has been offered to you. The old treatment, as it is called, is not satisfactory.

Here is a letter, that happens to come in, fortunately, to save the day because of the ferocious attack by the gentleman from

Philadelphia. This letter is from Dr. Joseph Winters, Professor of Diseases of Children and head of the staff of the Willard Parker Hospital, New York. The communication is of recent date and is as follows: " . . . It seems to me that one of the main features of this discussion, is the increase of the number of cases of reported diphtheria, as a result of the present method of diagnosis." That method of diagnosis is the one referred to in my paper as the bacteriologic, as distinguished from the clinical diagnosis. Dr. Winters says, further: "I spent three and a half months in the hospitals of Europe, last summer, making a constant study of the results of the antitoxin treatment, and am convinced that there is, absolutely, no value in it." It don't make any difference, gentlemen, Dr. Winters is an experienced man. He is fifty years old, and his judgment is not puerile and it is not to be neglected.

Now, the object of bringing out the paper before you to-day was not to antagonize the profession nor to indulge in any aspersions. It was to call your attention to just exactly what is true. In so much as you have spoken your views, in so much you have delighted me and accomplished that which was intended and expected by the paper. It is not my purpose nor in my power to answer the objections to the paper nor to go into the clinical part of the disease.

In conclusion, it is my purpose to present to you, at the next annual meeting, a substitute for antitoxin, a complete method by which all cases in my practice have recovered quickly and surely, and pleasantly and scientifically.

DR. W. A. DIXON, Ripley, Ohio—I wish to say I admire Dr. Lee for his bold paper yesterday. But if a man has a conviction and is bold enough to state it, he ought to be commended for it. And I expect he is about half right.

THE CHAIRMAN—He certainly put himself in a very trying position.

DR. DIXON—I have never yet had an opportunity to test antitoxin, because we have had no true diphtheria. But every man has his fad and if you start him in the right place he is a "crank," and I have my "cranky" ideas about diphtheria. I believe diphtheria is not primarily a disease of the human family at all, but a disease of animals, obtained from birds, cats, rabbits, rats, etc. I have had occasion to dissect the pet animal of a child seized with true diphtheria. The child was isolated in the country and had no opportunity whatever to be infected from other children. Unless we can devise some theory to explain an autoinfection or the presence of the bacilli in a healthy place in the country, we must look for the contagion in something else. The most noted case I can refer to is the case of a child 3 years old. Not being able to discover how it might have taken diphtheria, and believing as I have stated, I asked if the child had a pet. The mother replied, "O yes, it has a pet cat that it carries in its arms continually and often takes to bed with it." I asked for the cat, and on examination I found it had enlarged glands and discharged at the nose. I took it home, dissected it, examined the membrane microscopically and found it had true diphtheria. Therefore I believed the child obtained its diphtheria from the cat. I have had occasion to report several cases of like kind. In one case the canary bird was sick prior to the child; in one or two cases turkeys were sick prior to the child, etc. I read a paper on this subject at Milwaukee, in the Section of Diseases of Children, but I suppose it must have been a very poor one, for it did not draw out any comments and I have not heard anything from it since. But I am just as firm a believer as ever that the contagion of diphtheria is often derived from an animal or bird. Hence we might have some reason, on that theory, to believe in the virtue of antitoxin, just as we have reason to believe in the value of vaccine as a remedy to prevent smallpox. Those who have read extensively upon the subject of diphtheria, know the first epidemic in this country was brought by the importation of birds, particularly turkeys.

THEORY OF SERUM THERAPY; CONTRIBUTION FROM THE BACTERIOLOGIC LABORATORY OF THE CITY OF PHILADELPHIA.

Read in the Section on Materia Medica, Pharmacy and Therapeutics at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5–8, 1896.

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Some of the theories which have been advanced to explain immunity from infectious diseases have a bearing upon the production of antitoxin; others leave this out of consideration. It is evident that no theory can stand if it offers no explanation of the reason why it is possible to use the blood serum of inoculated animals to protect and cure other animals and human beings. It will be my purpose in this paper to put the various theories, that have been advanced, to this test. Some of the theories merely attempt to explain why the bacteria do not grow in the body of non-susceptible animals and leave out of account the neutralization of the disease producing products, and for this reason fail to be universally applicable.

1. The exhaustion theory of Pasteur claims that the bacteria are unable to grow in the body of an animal that has suffered from an attack of the microörganism in question, because all of the necessary food has been exhausted by the first attack. There are other reasons for discarding this theory, but it is evident that it offers no explanation of the production of substances in the blood which can be used in treating other animals. Even if it should explain the reason why recovery protects the animal itself from subsequent invasion it offers no explanation why the serum of this animal will counteract the poisonous properties of the bacteria in another animal.

2. The accumulation theory of Chauveau comes somewhat nearer an explanation, though not as it was originally conceived. According to the original conception the waste products of the growth of the bacteria in the body simply accumulate till the tissues become so saturated with the effete material that the bacteria are unable to grow. The bacteria, in other words, are poisoned by their own excreta. In order to make this theory fit the facts it would have to be extended so as to mean that not only the bacteria are unable to grow on account of the accumulation of effete products but also that these products neutralize the poisonous products of the bacteria. This enlargement of the theory is practically what has been done in the following:

3. The theory of special organs, Brieger, Kitasato and Wassermann, claims that there are probably two substances in every culture of bacteria, viz., a disease producing substance and a substance tending to counteract this. It is supposed that the disease producing substance is destroyed by certain organs of the body, notably the thymus gland, and that the other substance, the antidote, is liberated,

4. The accommodation theory claims that the tissues of the body gradually become accustomed to the bacteria and their products just as men become habituated to large doses of arsenic, opium or other poisons. But this explanation is not satisfactory because in the production of immunity there is always a crisis observable. The animal undergoing inoculation often more or less suddenly shows a great power of resistance. The process is not gradual enough for it to be accounted for by this theory.

5. Pfeiffer's theory of special enzymes claims that in animals gradually inoculated with the products of the cultures of bacteria two substances are developed: a. A substance capable of being converted into the germicide. b. The germicide itself. The former is converted into the latter by special ferments residing in the animal tissues. The former is called the immunity substance in contradistinction to the latter which is called the germicide. It is contended at least for typhoid fever and cholera that blood serum taken from animals inoculated for a long time with cultures of the bacteria of these diseases contains a certain amount of both these substances, and if an ordinary susceptible animal is inoculated with cultures of typhoid fever or cholera and is given a dose of the protective serum at the same time that the germicide acts at once, and that the immunity substance becomes converted into the germicide, thus furnishing an additional supply. Animals that have been gradually inoculated with the products of typhoid or cholera cultures are supposed to have the immunity substance stored up in their tissues and that this is converted into the germicide when the animal is inoculated with virulent cultures. The action is specific, *i. e.*, animals immunized from cholera have the immunity substance of cholera, and the same with typhoid fever.

6. Under the cellular theory are embraced: a. The phagocyte theory of Metschnikoff. b. The starvation theory of Grawitz. c. The theory of the alexins of Hankin.

a. The phagocyte theory has been more actively advocated and more vigorously assailed than perhaps any other theory. According to this theory, the white corpuscles of the blood destroy the bacteria. The corpuscles concerned are believed to be the polynuclear leucocytes and the large mononuclear; the lymphocytes are not supposed to be concerned. The leucocytes are supposed to actually devour the bacteria at once, or to produce degeneration of the bacteria first and devour them afterward. In the latter case the leucocytes are supposed to break up and liberate a substance which causes the bacteria to degenerate and then fresh leucocytes appear to devour the degenerated bacteria. The breaking up of the leucocytes he calls phagolysis.

b. According to Grawitz's starvation theory the leucocytes deprive the bacteria of nutrition.

c. Hankin's theory, which is advocated by Buchner and others, claims that the neutrophilic leucocytes break up and liberate a substance that destroys the bacteria. Hankin's original statement was that the eosinophilic leucocytes break up and liberate alexins, but he has retracted this statement and his present view is more in accord with Metschnikoff's theory of phagolysis.

7. The humoral theory of Behring claims that there is developed a substance in the humors of the body that neutralizes the poisonous products of the bacteria. It is believed that this substance is generated by the fixed cells of tissues rather than by the leucocytes.

Opinion among bacteriologists is now practically divided between the humoral and the phagocyte theory. Both have been ably supported and both have been vigorously attacked. It is possible that in the production of immunity many of the explanations advanced may play a part. It may be that no one of them is sufficient to explain all the phenomena.

REPORT OF THE AMERICAN PEDIATRIC SOCIETY'S COLLECTIVE INVESTIGATION INTO THE USE OF ANTITOXIN IN THE TREATMENT OF DIPHTHERIA IN PRIVATE PRACTICE.

REPORTED AT THE EIGHTH ANNUAL MEETING HELD AT MONTREAL, CANADA, MAY 26, 1896.

This subject was chosen by the officers of the Society for its eighth annual meeting, with the belief that a large amount of valuable experience, not otherwise available, might in this way be reached and collated. It was also believed that a more trustworthy estimate of the value of the serum treatment of diphtheria might thus be obtained than by statistics taken from hospital practice. There are very few hospitals in America that receive diphtheria patients, and the conditions under which patients are admitted to hospitals, and the surroundings while there, are so different from those of private practice, that the measure of success in hospital cases can not be taken as an index of the results which have been obtained upon this side of the Atlantic with the new treatment.

In order, therefore, to obtain an expression of opinion from American physicians as to the serum treatment, after what had been, with most of them, their first year's experience, a circular letter was prepared and issued by the Committee early in April. This was distributed through the members of the Society as widely as could be done during the time allowed. An attempt was made to reach as many physicians as possible who had had experience with the remedy.

The first surprise of the Committee was in learning how very widely the serum treatment had been employed, especially in the Eastern and mid-Western States. With more time, the number of cases collected might easily have been doubled and perhaps trebled; but enough reports have come in to enable one to see what opinion was held on the 1st of May, 1896, by American physicians who have used this remedy.

The circular letter asked for information upon the following points: Age; previous condition; duration of disease when the first injection was made; the number of injections; the extent of the membrane—tonsils, nose, pharynx and larynx; whether or not the diagnosis was confirmed by culture; complications or sequelæ, viz., pneumonia, nephritis, sepsis, paralysis; the result; and remarks, including other treatment employed, the preparation of antitoxin used, and general impression drawn from the case.

Reports were returned from 615 different physicians, with 3,628 cases. Of these, 244 cases have been excluded from our statistical tables. These were cases in which the disease was said to have been confined to the tonsils and the diagnosis not confirmed by culture, and therefore open to question. A few cases were reported in such doubtful terms as to leave the diagnosis uncertain. The figures herewith given are therefore made up from cases in which the diagnosis was confirmed by culture (embracing about two-thirds of the whole number) and others giving pretty clear evidence of diphtheria, either in the fact that they had been contracted from other undoubted cases, or where the membrane had invaded other parts besides

the tonsils, such as the palate, pharynx, nose, or larynx. It is possible that among the latter we have admitted some streptococcus cases, but the number of such is certainly very small.

There are left then of these cases, 3,384 for analysis. These have been observed in the practice of 613 physicians, from 114 cities and towns, in fifteen different States, the District of Columbia and the Dominion of Canada.

In the general opinion of the reporters, the type of diphtheria during the past year has not differed materially from that seen in previous years, so that it has been average diphtheria which has been treated. If there is any difference in the severity of the cases included in these reports from those of average diphtheria, it is that they embrace a rather larger proportion of very bad cases than are usually brought together in statistics. The cases according to the extent of the membrane, are grouped as follows: In 593 the tonsils alone were involved. In 1,397 the tonsils and pharynx, the tonsils and nose, the pharynx and nose, or all three were affected. In 1,256 cases the larynx was affected either alone or with the tonsils, pharynx and nose, one or all. In many instances the statement is made by the reporters, that the serum was resorted to only when the condition of the patient had become alarmingly worse under ordinary methods of treatment. This is shown by the unusually large number of cases in which injections were made late in the disease. Again, many physicians being as yet in some dread of the unfavorable effects of the serum have hesitated to use it in mild cases, and have given it only in those which from the onset gave evidence of being of a severe type. The expense of the serum has unquestionably deterred many from employing it in mild cases. These facts, it is believed, will more than outweigh the bias of any antitoxin enthusiasts by including many mild cases which would have recovered under any treatment. It will, however, be remembered that tonsillar cases not confirmed by culture have not been included.

Only two reports embracing a series of over 100 cases have been received, most of the observers having sent in from five to twenty cases, although there are many reports of single cases, particularly of single fatal ones.

In addition to this material which has come in response to the circular, there have been placed at the disposal of the Committee by the courtesy of Dr. H. M. Biggs, 942 cases treated in their homes in the tenements of New York. Of these, 856 were injected by the corps of inspectors of the New York Health Board, upon the request of the attending physician, and eighty-six others were treated by physicians receiving free antitoxin from the Health Board. In the first group the diagnosis of diphtheria was confirmed by culture in every case, and in all of the latter except twenty-six; in these the diagnosis rested upon extensive membranous deposits or laryngeal invasion. The cases of the New York Health Board were of a more than ordinarily severe type, 485 or more than 50 per cent. of these being reported as being in bad condition at the time of injection; to mild cases the inspectors were not often called. Further, an unusually large number of them (38 per cent.) were injected on or after the fourth day of the disease. In 182 of these cases only the tonsils were affected; in 466 the tonsils with the pharynx or nose, the pharynx and nose, or all three; in 294 the larynx was invaded with or without disease of the tonsils, nose, or pharynx.

Through the courtesy of Dr. Biggs, the Committee is able to include also a partial report upon 1,468 cases from Chicago, treated in their homes in that city by a corps of inspectors of the Health Department. It was the custom in Chicago to send an inspector to every tenement-house case reported, and to administer the serum unless it was refused by the parents. These cases were therefore treated much earlier, and the results were correspondingly better than were obtained in New York, although the serum used was the same in both cities, viz., that of the New York Health Board.

TABLE I.—DAY OF INJECTION AND RESULT.

	Injected on 1st Day.			Injected on 2d Day.			Injected on 3d Day.			Injected on 4th Day.			Injected on 5th Day.			Day of Injection Unknown.			Totals.		
	Cases.	Deaths.	Mortality, Per cent.	Cases.	Deaths.	Mortality, Per cent.	Cases.	Deaths.	Mortality, Per cent.	Cases.	Deaths.	Mortality, Per cent.	Cases.	Deaths.	Mortality, Per cent.	Cases.	Deaths.	Mortality, Per cent.	Cases.	Deaths.	Mortality, Per cent.
The Committee's Report	764	38	4.9	1,065	89	8.3	620	79	12.7	336	77	22.9	390	152	38.9	215	15	7.0	3,381	450	13.0
New York Health Board	126	11	8.7	215	26	12.0	228	37	16.6	153	32	20.9	203	59	29.0	17	4	23.5	942	169	17.8
Chicago Health Board	106	0	0	336	5	1.5	660	18	2.7	269	38	14.1	97	33	34.0	0	0	0	1,468	94	6.4
Totals	996	49	4.9	1,616	120	7.4	1,508	134	8.8	758	147	20.7	690	244	35.3	232	19	8.2	5,791	713	12.3

TABLE III.—AGE AND RESULT OF TREATMENT.

	0 to 2 Years.			2 to 5 Years.			5 to 10 Years.			10 to 15 Years.			15 to 20 Years.			20 Years and Over.		
	Cases.	Deaths.	Mortality, Per cent.	Cases.	Deaths.	Mortality, Per cent.	Cases.	Deaths.	Mortality, Per cent.	Cases.	Deaths.	Mortality, Per cent.	Cases.	Deaths	Mortality, Per cent.	Cases.	Deaths.	Mortality, Per cent.
Committee's Report	631	137	21.7	1,276	175	13.7	883	108	12.2	276	19	6.8	112	4	3.6	214	9	4.2
New York Health Board	236	65	27.5	466	83	17.8	178	21	11.2	29	0	0.	11	0	0.	22	0	0.
Totals	867	202	23.3	1,742	258	14.7	1,061	129	12.1	305	19	6.2	123	4	3.2	236	9	3.8
Moribund	43			59			59			9			0			4		
Mortality excluding moribund cases			19.2			13.3			8.7			3.3			3.2			2.1

THE RESULT AS INFLUENCED BY THE TIME OF INJECTION.

In Table I, are given the results obtained in these three different groups of cases, classified according to the day on which they received the first injection of serum antitoxin.

The grand total gives 5,794 cases with 713 deaths, or a mortality of 12.3 per cent., including every case returned; but the reports show that 218 cases were moribund at the time of injection, or died within twenty-four hours of the first injection. Should these be excluded there would remain 5,576 cases (in which the serum may be said to have had a chance) with a mortality of 8.8 per cent.

Of the 4,120 cases injected during the first three days, there were 303 deaths—a mortality of 7.3 per cent., including every case returned. If from these we deduct the cases which were moribund at the time of injection, or which died within twenty-four hours, we have 4,013 cases, with a mortality of 4.8 per cent. Behring's original claim, that if cases were injected on the first or second day the mortality would not be 5 per cent., is more than substantiated by these figures. The good results obtained in third-day injections were a great surprise to your Committee. But after three days have passed the mortality rises rapidly, and does not differ materially from ordinary diphtheria statistics. Our figures emphasize the statement so often made, that relatively little benefit is seen from antitoxin after three days; however, it must be said that striking improvement has in some cases been seen even when the serum has been injected as late as the fifth or sixth day. The duration of the disease, therefore, is no contraindication to its use.

THE INFLUENCE OF BACTERIOLOGIC DIAGNOSIS UPON THE STATISTICS.

This is shown in Table II.

TABLE II.—DIAGNOSIS CONFIRMED BY BACTERIOLOGIC EXAMINATION.

Committee's Reports . .	2,453 cases;	302 deaths;	mortality,	12.3 per cent.
N. Y. Board of Health . .	916 "	160 "	"	16.9 "
Chicago Board of H'lth.	1,468 "	91 "	"	6.4 "
Totals	4,837 "	556 "	"	11.4 "
(Excluding 145 cases which were moribund or which died in twenty-four hours)		"	"	8.7 "
DIAGNOSIS FROM CLINICAL EVIDENCE ONLY.				
Committee's Reports . .	931 cases;	148 deaths;	mortality,	15.7 per cent.
N. Y. Board of Health . .	26 "	9 "	"	34 6 "
Totals	957 "	157 "	"	16.3 "
(Excluding 72 cases either moribund or dying in twenty-four hours)		"	"	9.6 "

In the cases in which the diagnosis was not confirmed by a bacteriologic examination the mortality is thus 5 per cent. higher than in the bacteriologic cases. This difference is to be explained by two facts: first, as already stated, that we have excluded from our reports all tonsillar cases (and hence most of them very mild ones) not confirmed by bacteriologic examinations; and secondly, by the fact that this group of cases comprises those treated in the country where physicians have hesitated to use antitoxin unless the type of the disease was a grave one, and where also a large proportion of the injections were made later than in the cities. However, should we leave out the moribund cases, the mortality is but 9.6 per cent., which differs but slightly from the cases confirmed by bacteriologic diagnosis.

In our subsequent statistics we shall consider together all the cases bacteriologically confirmed and otherwise, as the statistics are not materially altered by this grouping.

THE RESULTS AS MODIFIED BY THE AGE OF THE PATIENTS.

Unfortunately the ages have not been furnished in the report of the Chicago cases, and we have therefore only the cases reported to the Committee, and those from the New York Board of Health for analysis. In Table III, are shown the mortality of the different ages grouped separately.

The highest mortality is seen as in all reports to be in the cases under two years, but including all those returned, even those that were moribund when injected, the death rate was but 23.3 per cent. (21.7 per cent. of the Committee's cases), while if we exclude cases moribund when injected or dying within the first twenty-four hours, it falls to 19.2 per cent.

After the second year there is noticed a steady decline in mortality up to adult life. In many of the reports previously published, the statement has been made that no striking improvement in results was observed in adult cases treated by the serum. Our figures strongly contradict this opinion. Of 359 cases over 15 years old which were returned, there were but thirteen deaths. That the reader may judge for himself how far antitoxin is to be held responsible for the result a brief summary of these thirteen cases is appended:

Case 1.—Fifteen years old; injected on the fourth day; membrane covering tonsils and pharynx; profoundly septic, sinking rapidly when injected; died in two hours. "My only death in seventeen cases." (Jones, Gloucester, Mass.)

Case 2.—Forty-four years old; injected on the fourth day; membrane on the tonsils and pharynx; in bad condition; died three hours after injection. The tonsils had been previously incised, the early diagnosis having been quinsy.

Case 3.—Thirty-one years old; injected on the sixth day; membrane on the tonsils, nose, pharynx, and larynx; intubation; sepsis; in bad condition; lived eight hours after injection.

Case 4.—Thirty-five years old; injected on the fifth day; membrane on the pharynx and nose(?); in bad condition; septic; died in twelve hours.

Case 5.—Sixty years old; in bad condition; had serious mitral regurgitation; injected on the fourth day; membrane covering tonsils, pharynx, and larynx; died from heart failure on following day.

Case 6.—Sixty years old; "kidney trouble for years"; injected on the third day; very extensive membrane, covering tonsils, pharynx, and nose; profound sepsis; in bad condition; dies suddenly on the day after injection.

Case 7.—Seventeen years old; in bad condition: convalescing from measles; enormous adenopathy; profound sepsis: exceedingly high temperature; membrane covering tonsils and nose; injected at the end of forty-eight hours; three injections, temporary improvement after each one; duration of life not given.

Case 8.—Fifteen years old; in bad condition; injected on the ninth day; membrane covering tonsils, nose pharynx, and larynx; no operation; enormous infiltration of the tissues of the neck; nephritis; sepsis; lived four days and died of sepsis.

Case 9.—Twenty years old; injected on the third day; membrane upon the tonsils, nose, pharynx and larynx; "a stubborn patient who got up before he was allowed, and died suddenly after it."

Case 10.—Twenty-five years old; injected on the fifth day; membrane covering both tonsils, entire pharynx, and completely occluding nose; nephritis and sepsis; throat cleared off entirely; died suddenly on the fourteenth day from cardiac paralysis.

Case 11.—Nineteen years old; injected on the fifth day; membrane upon the tonsils and pharynx; profound sepsis; duration of life unknown.

Case 12.—Twenty-two years old; injected on the fourth day; membrane upon the tonsils and gums; sepsis; died on the sixth day.

Case 13.—The well-known Brooklyn case, reported in 1895. Girl, 16 years old, who died suddenly ten minutes after injection.

Such are the adult cases which antitoxin failed to cure. Four of them were moribund at the time of injection, no one of them living over twelve hours. Two, both 60 years old, were already crippled by previous organic disease, one of the heart and the other of the kidneys. In the measles case there was undoubted evidence of streptococcus septicemia. Only two of the cases were injected as early as the third day; three of them on the fifth day, and one on the ninth day. Omitting the four moribund cases the the mortality of 355 adult cases treated with the serum is 2.5 per cent.

PARALYSIS.

Reliable data upon this point and those hereafter to be mentioned are to be had only from the 3,384 reports returned to the committee. Of these paralytic sequelæ appeared in 328 cases, 9.7 per cent. Of the 2,934 cases which recovered, paralysis was present in 276, or 9.4 per cent. Of the 450 cases which died, paralysis was noted in fifty-two, or 11.4 per cent.

The variety of the paralysis and the date of injection is shown in the following table:

TABLE IV.—VARIETY OF PARALYSIS AND THE DAY OF INJECTION.

RECOVERY CASES.	CASES.	DAY OF INJECTION. 1st Day.	2d Day.	3d Day.	4th Day.	5th Day.	Unknown
Paralysis mentioned (variety not specified).	132	8	32	32	19	16	23
Throat only (aphonia, nasal voice or regurgitation)	114	16	21	25	11	16	24
Extremities	14	3	5	2	..	3	1
Ocular	11	..	4	3	1	2	1
General (multiple neuritis)	4	..	1	2	1	..	..
Sterno-mastoid	1	..	1	..	..	..	..
FATAL CASES.							
Paralysis mentioned (variety not specified).	9	..	3	2	1	2	1
Cardiac, late after throat clear (in four of them throat also)	32	1	2	8	9	8	4
Throat only	6	..	2	..	..	..	4
General late	4	..	1	..	1	2	..
Muscles of respiration	1	..	1	..	..	..	..
Totals	328	28	73	76	43	49	59

Observations of some of the individual cases are interesting, particularly those of cardiac paralysis. It is twice stated that the child had gotten up and walked out of the house, where it was found dead. Twice death occurred after sitting up suddenly; once, on jumping from one bed into another. One patient of 20 years, got up contrary to orders and died soon afterward. Another patient was apparently well until he indulged in a large quantity of cake and candy, soon after which cardiac symptoms developed and he died shortly. One case was that of a woman, 60 years old, who had serious organic cardiac disease.

It is difficult from these statistics to state what protective power the serum may have over the nerve cells and fibers. Apparently this is not great unless the injections are made early in the disease, and even then in severe cases the amount of damage done to these tissues in twenty-four hours may be very great, even irreparable. Time is not the only element in estimating the effect of the diphtheria toxins.

Great discrepancy exists in the statements made regarding the frequency of paralytic sequelæ after diphtheria. In a series of 1,000 cases reported by Lennox Browne, paralytic sequelæ were present in 14 per cent. In 2,448 cases by Sanné, paralysis was noted in 11 per cent. In the series of cases here reported, the difference is slightly in favor of the antitoxin treatment, but paralysis is certainly frequent enough to show how extremely susceptible the nervous elements are to the diphtheria toxins. One thing is quite striking from a study of these cases, and that is the proportion that have died from late cardiac paralysis, That many of them would undoubtedly have succumbed earlier in the disease from suffocation (laryngeal cases) or diphtheritic toxemia, had the serum not been employed, is beyond the question. Although the serum is able to rescue even many such desperate cases it can not overcome the effects of the toxins upon the cells which have occurred before it was injected.

[1] Cases of heart failure occurring at the height of the disease have not been included here; although they are mentioned among the cases of cardiac paralysis in the table of fatal cases.

SEPSIS.

Sepsis is stated to have been present in 362 of the 3,384 cases, or 10.7 per cent. It was present in 145, or 33 per cent. of the fatal cases. Some explanation is necessary for a correct appreciation of these figures. The majority of the reporters, it is plain from their remarks, have not distinguished between diphtheritic toxemia and streptococcus sepsis. The former is certainly meant in the great majority of the cases. There is a very small proportion in which there is evidence of streptococcus sepsis. The six cases complicating measles and the five complicating scarlet fever, however, should possibly be included among this list.

NEPHRITIS.

The statements on this point are quite unsatisfactory. The reports state that nephritis was present 350 times, or in 10 per cent. of the cases. On the one hand it must be stated that the diagnosis of nephritis rests in many cases simply upon the presence of albumin in the urine; but, on the other hand, it is true that in a large number of the cases, more than half, no examination of the urine is recorded as having been made, so that it is impossible to state with anything like approximate accuracy, the frequency of nephritis in these cases. Of the 450 fatal cases, the presence of nephritis is mentioned without qualification or explanation in thirty-nine cases, these being usually put down also as septic, dying in the acute stage of the disease. There are fifteen fatal cases, however, in which the renal disease was stated as the cause of death. In no less than nine the nephritis occurred late in the disease, usually during the second or third week. In these fifteen cases the evidence of severe nephritis was conclusive, such symptoms being present as dropsy, suppression of urine, with coma or convulsions.

BRONCHO-PNEUMONIA.

Broncho-pneumonia is stated to have been present in 193 of the 3,384 cases, or 5.9 per cent., a remarkably small proportion when compared with hospital statistics. Among the patients that recovered broncho-pneumonia was noted 114 times, or in 3.8 per cent.; among the fatal cases seventy-nine times, or in 17.5 per cent., but in only about one-half of these was the pneumonia the cause of death. Of these, thirty-seven were laryngeal cases operated upon late, ten were septic cases and the the pulmonary disease was coincident with the height of the diphtheritic process. In seven pneumonia was independent of both the above conditions, occurring late in the disease in all but two.

LARYNGEAL CASES.

Of the 3,384 cases reported to the committee, the

larynx is stated to have been involved in 1,256 cases, or 37.5 per cent. This proportion is somewhat higher than is usual, and is partly explained by the fact that several physicians have sent in the reports only of their laryngeal cases. These laryngeal cases occurred in the practice of 379 physicians.

In 691, or a little more than one-half the number, no operation was done, and in this group there were 128 daths. In forty-eight of them laryngeal obstruction was responsible for the fatal issue, operation being refused by the parents or no reason for its being neglected having been given. In the eighty remaining fatal cases the patients died of other complications, and not from the laryngeal disease.

In the 563 cases, or 16.9 per cent. of the whole number, there was clinical evidence that the larynx was involved and yet recovery took place without operation. In many of these cases the symptoms of stenosis were severe, and yet disappeared after injection without intubation. No one feature of the cases of diphtheria treated by antitoxin has excited more surprise among the physicians who have reported them than the prompt arrest, by the timely administration of the serum, of membrane which was rapidly spreading downward below the larynx. Such expressions abound in the reports as "wonderful," "marvelous," "prepared to do intubation, but at my next visit the patient was so much better it was unnecessary," "in all my experience with diphtheria have never seen anything like it before," "no unprejudiced mind could see such effects and not be convinced of the value of the serum," etc.

In establishing the value of the serum, nothing has been so convincing as the ability of antitoxin, properly administered, to check the rapid spreading of membrane downward in the respiratory tract, as is attested by the observations of more than three hundred and fifty physicians who have sent in reports.

Turning now to the operative cases we find the same remarkable effects of the antitoxin noticeable. Operations were done in 565 cases, or in 16.7 per cent. of the entire number reported. Intubation was performed 533 times with 138 deaths, or a mortality of 25.9 per cent. In the above are included nine cases in which a secondary tracheotomy was done, with seven deaths. In thirty-two tracheotomy only was done with twelve deaths, a mortality of 37.4 per cent. Of the 565 operative cases, sixty-six were either moribund at the time of operation, or died within twenty-four hours after injection. Should these be deducted, there remain 499 cases operated upon by intubation or tracheotomy, with 84 deaths, a mortality of 16.9 per cent.

Of the 2,819 cases not operated upon, there were 312 deaths, a mortality of 11.3 per cent. Deducting the moribund cases, or those dying within twenty-four hours after injection, the total mortality of all non-operative cases was 9.12 per cent.

Let us compare the results of intubation in cases in which the serum was used, with those obtained with this operation before the serum was introduced. Of 5,546 intubation cases in the practice of 242 physicians, collected by McNaughton and Maddren (1892) the mortality was 69.5 per cent. Since that time statistics have improved materially by the general use (in and about New York, at least) of calomel fumigations. With this addition, the best results published (those of Browne) showed in 279 cases a mortality of 51.6 per cent.

Let us put beside the cases of McNaughton and Maddren the 533 intubations with antitoxin, with 25.9 per cent. mortality. With Browne's personal cases let us compare those of the fourteen observers who have reported to the committee ten or more intubation operations in cases injected with serum. These comprise 280 cases with sixty-five deaths, a mortality of 23.2 per cent. In both comparisons the mortality without the serum is more than twice as great as in the cases in which serum was used.

The reports of some individual observers concerning intubation with the serum are interesting:

Neff, New York, twenty-seven operations, with twenty-seven recoveries.

Rosenthal, Philadelphia, eighteen operations, with sixteen recoveries.

Booker, Baltimore, seventeen operations, with seventeen recoveries, including one aged ten months, and one seven and one-half months.

Seward, New York, eight operations, with eight recoveries.

McNaughton, Brooklyn, "In my last seventy-two operations without serum, mortality 66.6 per cent.; in my first seventy-two operations with serum, mortality 33.3 per cent."

O'Dywer, New York, "In my last 100 intubations, first seventy, without serum, mortality 73 per cent.; last thirty, with serum, mortality 33.3 per cent."

But even these figures do not adequately express the benefit of antitoxin in laryngeal cases. Witness the fact that over one-half the laryngeal cases did not require the operation at all. Formerly 10 per cent. of recoveries was the record for laryngeal cases not operated upon. Surely, if it does nothing else the serum saves at least double the number of cases of laryngeal diphtheria that has been saved by any other method of treatment.

The great preponderance of intubation over tracheotomy operations shows how much more highly the profession in this country esteems the former operation.

A STUDY OF THE FATAL CASES.

Of the 450 fatal cases in the committee's report, 229, or one-half, received their first injection of the serum on or after the fourth day of the disease, and 152, or over one-third of these, on or after the fifth day.

There were fifty-eight cases in which it was stated that the child was moribund at the time of injection, the serum being administered without the slightest expectation of benefit, but at the earnest solicitation of the parents.

There remain 350 cases in which the cause of death could be pretty accurately determined by the reports. These died from the following causes, the most important cause being placed first.

Sepsis (including diphtheritic toxemia) was the cause of death in 105 cases, of which sixteen had nephritis, four were intubated or tracheotomized, two were laryngeal cases not operated upon, four had paralysis, one had pneumonia, and in one the fatal sepsis was attributed to a traumatic condition of the left knee.

Cardiac paralysis was the cause of death in fifty-three cases. Under this head are included cases of sudden heart failure occurring at the height of the disease (twenty-one in number) as well as those more commonly designated as heart paralysis, where death occurred suddenly after the throat cleared off. Of the latter there were thirty-two examples; four of these had paralysis, nineteen were septic, eight had

nephritis, five were intubated, and one tracheotomized.

Broncho-pneumonia was put down as the cause of death in fifty-four cases. In thirty-seven of these it followed laryngeal diphtheria; of these twenty-two were intubated, and four tracheotomized; two had nephritis; nine were septic. Broncho-pneumonia and sepsis was the cause of death in ten cases, of which three had nephritis and one general paralysis. Broncho-pneumonia caused death in seven cases, apart from sepsis or laryngeal diphtheria; of these only one had nephritis; one died from heart failure; and in five, pneumonia came on late in the disease.

Laryngeal diphtheria without operation caused death in forty-eight cases. In some of these the operation was refused by the parents, in others it was neglected by the physician, the patients dying of asphyxia; three of these cases had nephritis, four were septic, two had pneumonia, and one had sepsis and nephritis.

Diphtheritic tracheitis or bronchitis caused death in eleven cases; all of these were intubated, and in two there was evidence of the existence of membrane in the bronchi before operation. There were thirty-three other cases in which death followed laryngeal diphtheria without the supervention of pneumonia. It is highly probable that in some of these death was due to membranous tracheitis or bronchitis. All of them were operated upon; ten were septic, two had paralysis, and one had nephritis.

Sudden obstruction of the intubation tube was the cause of death in three other laryngeal cases.

The tube was coughed up in three cases, fatal asphyxia occurring before the physician could be summoned.

Died on the table during tracheotomy, one case.

Nephritis was the cause of death in fifteen cases; seven of these were septic, and three had been intubated.

General paralysis was the cause of death in five cases; in all probably the pneumogastric was involved.

Paralysis of the respiratory muscles produced death in one case, one of laryngeal diphtheria, which was intubated, was complicated by broncho-pneumonia.

Measles associated with diphtheria produced death in six cases; five of these were laryngeal and were intubated, in two there was pneumonia, and in two sepsis. Diphtheria developed during the height of measles, or immediately followed it.

Scarlet fever with diphtheria was the cause of death in six cases; in three of these there was broncho-pneumonia, nephritis and sepsis; in two scarlet fever preceded diphtheria, and in one of these there was sepsis with gangrene of the tonsils. In the sixth case the patient died of scarlet fever, which developed during convalescence from the diphtheria.

Gangrene of the cervical glands or cellular tissue of the neck was the cause of death in two cases associated with profound general sepsis.

Endocarditis caused death in one case, nineteen days after the diphtheria.

Diphtheritic inflammation of the tracheal wound with sepsis caused death in one case.

General tuberculosis, five weeks after diphtheria, was assigned as the cause of death in one case.

Exhaustion was the cause of death in three cases, one a protracted case; another complicated by pneumonia and sepsis; one by nephritis.

Convulsions was the cause of death in three cases apart from disease of the kidneys. In one, the well-known Brooklyn case, the girl died ten minutes after the injection, in another, twenty-four hours after injection, in the third the particulars were not given.

Meningitis was assigned as the cause of death in one case.

THE KIND OF ANTITOXIN USED.

They are given in the order of frequency with which they have been used: 1, the serum prepared by the New York Board of Health; 2, Behring's; 3, Gibier's;[2] 4, Mulford's; 5, Aronson's; 6, Roux's. In addition a large number of cases are reported as having been treated by the serum prepared by the Health Boards of different cities—Brooklyn, Newark, Rochester, Pittsburg, etc. The largest number of cases have been treated by the serum prepared by the New York Health Board, a very large number by Behring's serum, all others being relatively in small numbers.

Dosage and number of injections. In the great majority of cases but one injection is reported. In very severe ones two and three have been given. The largest amount is in a case by Wiener (Chicago) who gave eighteen injections of Behring's serum to a laryngeal case in a child thirteen years old. Another instance of ten injections is reported with no unfavorable symptoms.

As a rule the dosage has been smaller in antitoxin units than is now considered advisable, particularly in many of the laryngeal cases and others injected later than the second day.

CASES INJECTED REASONABLY EARLY (DURING THE FIRST THREE DAYS) IN WHICH ANTITOXIN IS SAID TO HAVE PRODUCED NO EFFECT, THE DISEASE ENDING FATALLY.

These cases are twenty in number. Brief reports are introduced that the reader may judge to what degree they may be regarded as a test of the serum treatment. In our statistical tables all of them have been included among the fatal cases.

In *Cases 1* and *2*, the cultures were reported negative. *Case 1*, by Gallagher, New York: Child eighteen months old; septic; although no eruption was present, the reporter was "inclined on reflection to regard this case as one of scarlatinal sore throat."

Case 2, by Potter, Buffalo: Male, fourteen months old; two cultures made, but no Löffler bacilli found; membrane in the nose and pharynx. Injected on the third day one dose of Behring's serum No. 1. No improvement; death from sepsis. "Probably pseudo-diphtheria" (I. H. P.).

In *Cases 3* to *9*, no cultures were made.

Case 3, by Tefft, New Rochelle: Seven years old; injected after eighteen hours' illness; two injections of Behring's No. 2 serum; membrane on the tonsils, pharynx and nose; no effect observed from injections, patient dying on the third day.

Case 4, by Tefft: Male, four years old; membrane on the tonsils and pharynx; injected after thirty-six hours' illness with Behring's No. 2; died on the third day; no noticeable effect from the injection.

Case 5, by Tefft: Six years old; membrane on the tonsils, nose and pharynx; septic; injected after thirty-six hours' illness; three injections of Behring's No. 2. "Saw no effect from the injections, the disease going steadily on to a fatal termination."

Case 6, by Cameron, Montreal: Two and a half years old; fifty hours ill; membrane on the tonsils, nose and pharynx; septic; no improvement noticed, and child died twenty hours after injection.

Case 7, by Baker, Newtonville, Mass.: Three years old; laryngeal diphtheria: injected on the third day 10 c.c. Roux's

[2] It is worthy of note that in the tests made by the State Board of Health of Massachusetts, published under date of April 6, 1896, this serum was found far below the standard as labeled upon the bottle; thus, a package marked to contain 2,500 units, by test was found to contain less than 700. All the other varieties of serum tested were found essentially up to the standard.

serum; cyanosis; intubation: temperature 103 degrees F., and continued high until death in eighteen hours after operation; injections had no effect.

Case 8, by Anderson, New York: Three years old: injected after three hours' illness; membrane on the tonsils, nose and pharynx; one injection New York Health Board antitoxin. "A case of malignant diphtheria, full duration twenty-four hours."

Case 9, by McLain, Washington: Four years old; twelve hours sick; membrane on the pharynx and the larynx; two injections; no operation; first injection early in the morning, the other early in the afternoon; died the same day; no change in the condition; antitoxin had no apparent effect.

In cases 10 to 13 diphtheria complicated measles, all reported by W. T. Alexander, New York. Disease confined to the larynx in all: in three the stenosis developed during measles, and in one while the patient was convalescing from measles; diagnosis confirmed by culture in every case, and in all intubation performed. Antitoxin seemed to have no effect, the cases going on to a fatal termination; all received their injections within twenty-four hours after the laryngeal symptoms appeared.

In three cases—14 to 16—the type of the disease was malignant from the outset.

Case 14, by Lloyd, Philadelphia: Fifteen months old; injected after thirty-six hours' illness; diagnosis confirmed by culture; membrane covered the tonsils, pharynx, nose and larynx; intubation; sepsis; death on the fifth day. Although antitoxin was used as promptly as possible no perceptible effect noticed. One injection, Behring's No. 3, was given.

Case 15, by Wert, Mount Vernon, N. Y.: Eighteen months old; injected on the third day; diagnosis confirmed by culture; membrane on the tonsils and pharynx. "Very intense type of the disease." Antitoxin could not be procured before the third day: Gibier's serum used. "Died suddenly in apparent convulsions about ten hours after injection; urine not examined; very little passed."

Case 16, by Ingraham: Six years old; membrane covered the tonsils, pharynx, and larynx; diagnosis confirmed by culture; pneumonia present; condition very bad; injected after two and a half days' illness; three injections of Behring's serum; no benefit noticed.

Case 17, by Johnson, Buffalo: Three years old; twelve hours ill; case septic from the start; membrane on the tonsils, pharynx, and larynx; diagnosis confirmed by culture. "Antitoxin apparently had very little effect."

Case 18, by Baker, Newtonville, Mass.: Two and a half years old; twenty hours ill; disease confined to larynx; diagnosis confirmed by culture; one injection of Gibier's serum; intubation. "Was doing well a few minutes before death when child got up in its crib, changed color and died almost immediately." Death attributed to "sudden heart failure; found no obstruction of the tube."

Case 19, by Story, Washington: Five years old; in fair condition; thirty-six hours ill; diagnosis confirmed by culture; membrane on the tonsils, pharynx, and larynx; one injection of United States Marine Hospital antitoxin; injection produced no effect.

CASES IN WHICH UNFAVORABLE SYMPTOMS WERE, MIGHT HAVE BEEN, OR WERE BELIEVED TO HAVE BEEN, DUE TO ANTITOXIN INJECTIONS.

Only three cases reported to the committee could by any possibility be placed in this category. All of the details furnished by the reporters are reproduced:

Case 1, by Kortright, Brooklyn: Sudden death in convulsions ten minutes after injection. This case is the already well-known Valentine case, occurring in Brooklyn in the spring of 1895. The principal points were as follows: A girl sixteen years old; in good condition; tonsillar diphtheria; diagnosis confirmed by culture; injected on the first day with 10 c.c. Behring's serum; died in convulsions ten minutes later.

Case 2, by Kerley, New York: Fairly healthy boy, two and one-half years old; membrane on tonsils, pharynx and in nose. Diagnosis confirmed by culture; injected on the morning of the fourth day with 10 c.c. (1,000 units) New York Health Board serum; temperature at time of injection 100.4 degrees F.; no sepsis, and child apparently not very sick; urine free from albumin. Distinctly worse after injection; in ten hours temperature rose to 103 degrees F.; urine albuminous; throat cleared off rapidly, but marked prostration and great anemia, with irregular fluctuating temperature continued and death from exhaustion with heart failure four days after the use of the serum.

Case 3, by Eynon, New York: Male, three and one-half years old; diagnosis confirmed by culture; two days ill; membrane on tonsils and in nose; two injections New York Health Board serum. "A rapid nephritis developed after the second injection, causing coma, convulsions and death twenty hours after the second injection." In response to an inquiry for further particulars the following was received: "The case seemed a mild one, but the injection was given one afternoon and repeated the following afternoon, about 1,500 units in all. The urine up to that time had not been examined. About fourteen or sixteen hours after the second injection unfavorable symptoms began to develop pointing to infection of the kidneys. The urine was found to be loaded with albumin. My impression at the time was that the antitoxin either produced, hastened or intensified nephritis, thereby causing the fatal termination."

In regard to the three fatal cases just cited, Case 1 is wholly unexplained. In Case 2 the query arises, did this sudden change hinge upon the injection of the serum or was it one of those unexplained abrupt changes for the worse in a case apparently progressing favorably, so often observed in diphtheria? As regards Case 3, it will be seen from the letter that the evidence is not at all conclusive. All details available are given and the reader may draw his own conclusions.

CLINICAL COMMENTS.

The following are selected from hundreds which have been received and may be taken fairly to represent the sentiments of the physicians who have sent in reports:

Dr. Douglas H. Stewart, New York, sends reports of four cases, all desperate ones, and all "presumably fatal under any other form of treatment." Very extensive membrane in all; larynx involved in three; in one neglected case in a child 3 years old, *injected upon the fifth day*, the membrane covered the tonsils, nose, pharynx and larynx. Broncho-pneumonia, nephritis and sepsis all present. Temperature 107 degrees F. at the time of the first injection. Prostration so great that he dared not attempt intubation. Believes that this case would certainly have been fatal in a few hours without antitoxin. Perfect recovery.

In another case 3 years old, membrane first discovered in the left ear, next morning seen upon the tonsils, and spread in a few hours over the pharynx into the larynx and trachea. Intubation necessary in a few hours; had never seen membrane spread so rapidly as in this child. Urine albuminous; membrane subsequently expelled from larynx and trachea in large casts with profuse bloody expectoration. Complete recovery on the ninth day. The physician describes this as "the very worst case of diphtheria that has ever come under my notice." Five thousand four hundred antitoxin units were given in four injections. He remarks: "My experiences in the past have been so very unfortunate that the advocates of antiseptics or therapeusis were a constant surprise to me. It has been my fate to have the most desperate cases unloaded upon my shoulders. I had been forced into the belief that the profession was absolutely powerless in the presence of true diphtheria; have lost case after case with tube in the larynx and calomel fumigations at work. Previous to antitoxin my only hope had become centered in nature and stimulants. In two years have not lost a single case, and surely I may be pardoned if I suffer from diphtheria-phobia in a sub-acute form, and use antitoxin sometimes unnecessarily."

Dr. L. L. Danforth, New York, states that during his twenty-two years of practice in New York he has

seen many fatal cases of diphtheria, had used all kinds of remedies, mainly those of the homeopathic school, and while he had as much confidence in the latter as in anything else, he had seen so many deaths during the year past that he "hailed with delight the advent of antitoxin and determined to use it." Reports five cases, all of a severe type. "The result in every case has been marvelous. I would not dare to treat a case now without antitoxin."

Dr. H. W. Berg, New York, reporting fourteen cases, says: "I have not yet ceased to be surprised at the recovery of some of these cases, which, in the light of my former experience with diphtheria treated without antitoxin, seemed to be irretrievably lost."

Dr. George McNaughton, Brooklyn, reports seventy-two laryngeal cases, with twenty-four deaths; sixty-seven of these were intubated, with twenty-one deaths. He states that he has kept no records of cases other than laryngeal ones, as these seemed the best test of the serum treatment. He believes that if the serum is used early, very many cases will not need operation for the relief of stenosis. "I would urge the use of antitoxin in all cases of croup in any patient who has an exudation upon the pharynx; would not wait for bacteriologic confirmation of diagnosis, for in so doing valuable time is lost." Has noticed that the tube is coughed up more frequently in injected cases, and believe this due to the fact that the swelling of the tissues subsides at an early date.

Dr. D. C. Moriarta, Saratoga, reporting four cases, says that the first was a malignant one and "I only used the remedy because I am Health Officer and was urged to do so, as the type of the disease was that from which I have seen recovery but once in eleven years." Boy 5 years old, four days ill when injected; great prostration, rapid breathing, and he was "practically gone." Nares filled and tonsils and pharynx covered; severe nasal hemorrhage; cervical glands greatly swollen; heart's action very frequent and feeble; child unable to lie down. Behring's serum twenty c.c. injected; in six hours evidently more comfortable; in eighteen hours decidedly improved; in twenty-four hours sitting up and feeling much better; in forty-eight hours all urgent symptoms gone and membrane loosening. Subsequently had nephritis which lasted six weeks, and multiple neuritis which persisted for three months, but ultimately recovered perfectly. "I send this report because it converted me. No unbiased person familiar with diphtheria could see such results as this and not feel there must be good in it."

Dr. F. M. Crandall, New York, sends report of a child 7 years old. Membrane on the tonsils and in larynx, with croup for forty hours when antitoxin was injected and intubation done. Progress of the disease had been rapid; semi-stupor and eyes half open; very feeble, rapid pulse; intense toxemia; general cyanosis. Both cyanosis and dyspnea persisted after intubation, showing clearly the presence of membrane below the tube. Case regarded as "absolutely hopeless." The first change was seen in the disappearance of toxemia, with improvement in the pulse, clearness of the mind, etc.; later a change in the local condition; large masses of membrane were expelled from the larynx and trachea, necessitating frequent removals of the tube. Tube finally removed in a week with complete recovery.

Dr. Reynolds, Baltimore, mentions a case showing the danger of relying too implicitly upon the bacteriologic diagnosis. Male, 3 years. Culture reported only staphylococcus and streptococcus, consequently injection delayed until the fifth day, when membrane covered tonsils, nose and pharynx. Child died two days later. A sister subsequently contracted the disease, received antitoxin on the third day and recovered. The reporter would not wholly rely upon the culture test for diagnosis.

SUMMARY.

1. The report includes returns from 615 physicians. Of this number more than 600 have pronounced themselves as strongly in favor of the serum treatment, the great majority being enthusiastic in its advocacy.

2. The cases included have been drawn from localities widely separated from each other, so that any peculiarity of local conditions to which might be ascribed the favorable reports must be excluded.

3. The report includes the record of every case returned except those in which the evidence of diphtheria was clearly questionable. It will be noted that doubtful cases which recovered have been excluded, while doubtful cases which were fatal have been included.

4. No new cases of sudden death immediately after injection have been returned.

5. The number of cases injected reasonably early in which the serum appeared not to influence the progress of the disease was but nineteen, these being made up of nine cases of somewhat doubtful diagnosis; four cases of diphtheria complicating measles, and three malignant cases in which the progress was so rapid that the cases had passed beyond any reasonable prospect of recovery before the serum was used. In two of these the serum was of uncertain strength and of doubtful value.

6. The number of cases in which the patients appeared to have been made worse by serum were three, and among these there is only one new case in which the result may fairly be attributed to the injection.

7. The general mortality in the 5,794 cases reported was 12.3 per cent.; excluding the cases moribund at the time of injection or dying within twenty-four hours, it was 8.8 per cent.

8. The most striking improvement was seen in the cases injected during the first three days. Of 4,120 such cases the mortality was 7.3 per cent.; excluding cases moribund at the time of the injection or dying within twenty-four hours, it was 4.8 per cent.

9. The mortality of 1,448 cases injected on or after the fourth day was 27 per cent.

10. The most convincing argument, and to the minds of the Committee an absolutely unanswerable one, in favor of serum therapy is found in the results obtained in the 1,256 laryngeal cases (membranous croup). In one-half of these recovery took place without operation, in a large proportion of which the symptoms of stenosis were severe. Of the 533 cases in which intubation was performed the mortality was 25.9 per cent., or less than half as great as has ever been reported by any other method of treatment.

11. The proportion of cases of broncho-pneumonia —5.9 per cent.—is very small and in striking contrast to results published from hospital sources.

12. As against the two or three instances in which the serum is believed to have acted unfavorably upon the heart, might be cited a large number in which

there was a distinct improvement in the heart's action after the serum was injected.

13. There is very little, if any, evidence to show that nephritis was caused in any case by the injection of serum. The number of cases of genuine nephritis is remarkably small, the deaths from that source numbering but fifteen.

14. The effect of the serum on the nervous system is less marked than upon any other part of the body; paralytic sequelæ being recorded in 9.7 per cent. of the cases, the reports going to show that the protection afforded by the serum is not great unless injections are made very early.

The Committee feels that this has been such a responsible task that it has thought best to state the principle which has guided it in making up the returns. While it has endeavored to present the favorable results with judicial fairness, it has also tried to give equal or even greater prominence to cases unfavorable to antitoxin.

In conclusion the Committee desires in behalf of the Society to express its thanks to members of the profession who have coöperated so actively in this investigation, and to Dr. A. R. Guerard for the preparation of the statistical tables.

(Signed)

L. Emmett Holt, M.D.,
W. P. Northrup, M.D.,
Joseph O'Dwyer, M.D.,
Samuel S. Adams, M.D.,
} Committee.

THE ACTION OF THE SOCIETY UPON THE REPORT.

At the close of its presentation, the Society voted to accept the report of the Committee and after a full discussion it was decided to embody its conclusions in the following resolutions:

(1) *Dosage.* For a child over two years old, the dosage of antitoxin should be in all laryngeal cases with stenosis, and in all other severe cases, 1,500 to 2,000 units for the first injection, to be repeated in from eighteen to twenty-four hours if there is no improvement; a third dose after a similar interval if necessary. For severe cases in children under two years, and for mild cases over that age the initial dose should be 1,000 units, to be repeated as above if necessary; a second dose is not usually required. The dosage should always be estimated in antitoxin units and not of the amount of serum.

(2) *Quality of antitoxin.* The most concentrated strength of an absolutely reliable preparation.

(3) *Time of administration.* Antitoxin should be administered as early as possible on a clinical diagnosis, not waiting for a bacteriological culture. However late the first observation is made, an injection should be given unless the progress of the case is favorable and satisfactory.

The Committee was appointed to continue its work for another year and was requested to issue another circular asking for the further coöperation of the profession, this circular to be sent out as soon as possible in order that physicians may record their cases as they occur through the coming year.

Formalin in Gonorrhea.—Dr. George T. Howland reports five cases of gonorrhea treated with one half per cent. formalin solution. By means of Sterns urethral irrigators, one quart of the warm solution was injected once or twice a day. The discharge ceased in from twelve to twenty-seven days.—*Journal of Cutaneous and Genito-Urinary Diseases*, June, 1896.

THE RELATIONS EXISTING BETWEEN OCULISTS AND OPTICIANS.

Read before the Tri-State Medical Society, at Chicago, April 8, 1896

BY FRANK ALLPORT, M.D.

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MINNEAPOLIS, MINN.

In presenting this paper before your society, I am impressed with the advisability of an oculist laying before a body of influential general practitioners one of the evils of ophthalmology. It is unnecessary to argue this matter in an ophthalmological society or section, as *we* clearly appreciate and understand the argument. But it is desirable that our common friend and mother, the general school of medicine and surgery, should listen to our views, and render us that aid and cordial coöperation we so earnestly and righteously desire, and feel we have a right to expect and and demand. Many of you, practicing in more general lines of work or separating yourselves into other special fields, do not thoroughly understand and appreciate the importance and gravity of the situation, and often, I fear, nay, I am sure, lend your influence by indifference or positive advice, to the perpetuation and prosperity of an evil striking at the root of essential ophthalmological development. I refer to the alleged correction of errors of refraction by the numerous varieties of opticians.

In discussing this question, no claim of originality is made, for the ground has been quite thoroughly covered by Dr. Pilgrim and others; therefore, what I have to say must appear largely in the light of repetition; I simply desire to awaken in the minds of physicians *not* practicing ophthalmology an interest in the matter similar to that experienced by them (in which they expect us to participate), upon witnessing unqualified and unlicensed men, in the shape of itinerants, residents, or druggists, presuming to boldly practice medicine or surgery. In writing this paper, I am well aware that to little souls, in and out of the profession, it may appear as a narrow and selfish complaint, originating from a diminished income, on my own part and that of my brother oculists. To broad-minded men, however, an entirely different construction will be placed upon my words, and my reasoning will be clear, and understood as an effort to prevent the practice of medicine by improper persons, and to protect the public, by improving the status of our profession. Such reform work has been accomplished in other branches of our science; it should, and will be done in this. With regard to such practices diminishing the incomes of oculists, it is my firm and honest conviction, after years of experience, that this is not the case. Those who primarily patronize the optician, would not usually seek an oculist, and do not except under compulsion, sometimes induced from sad and unfortunate ocular experiences in an optical establishment.

Dr. Gould says, "Every pair of lenses worn by every person in the world has a medical and pathological significance." If this remark is true, and it undoubtedly is, the adjustment of glasses should only be confided to men who have not only some knowledge of optics, etc., but who also possess a broad conception of the anatomy, physiology and pathology of the human body, including the eye. If *properly* adjusted glasses are capable of improving the eye and health, and relieving ocular symptoms and various

reflex neuroses, *improperly* adjusted glasses are capable of *producing* the same pathologic conditions. The average oculist can enumerate scores of instances where this has occurred, by the prescribing of concave for convex glasses, the over-correction of myopia, the improper setting of cylinders and prisms, etc.; but such facts are not so well understood by the general practitioner, and it is hoped that the honest assurance by honest oculists that such instances are of more than frequent occurrence will lead to an establishment of the truth.

Who is the optician? He has a plural existence, the lowest grade of which can be found at the county fair or the street corner. These men, as a rule, do not pretend to much knowledge, and may content themselves with selling their wares, and perhaps aiding their patrons with a few lines of printed matter to select glasses. That they are harmful is certain, but inasmuch as the customer simply purchases whatever glasses he may select, it may be correctly asserted that the circumstance is similar to the sale of a designated variety of patent medicine, and until we can control the sale of the latter, we can not justly demand the abolishment of the former, although the technical argument might be raised, that one is patented and protected by the government and the other is not.

The jeweler or druggist who sells glasses, under practically the same circumstances, with little or no protestation of knowledge, and no tendering of advice, places himself in the same category, an undoubted evil, but nondescript in character and difficult to control. The next grade of optician is he who travels from town to town, announcing himself as Doctor or Professor So-and-So, carrying with him a formidable array of poorly understood instruments, and much seductive literature. He may have "picked up" his fund of knowledge in some optical establishment, or "graduated" at some "Refraction" or "Optical School," whose existence should be at once condemned. His methods of doing business are various and astonishing, but will not be here criticised, as such criticisms are not the aim and object of this paper, which is written for a broader purpose. Suffice it to say that the traveling optician usually does a good and profitable business, and often forms pleasant acquaintances with physicians in small towns, who, it must be regretfully admitted, send them patients who are supposed to need glasses.

Another variety is he who "holds forth" at a department store, or in some room or store of his own, or forms an alliance with a jeweler. He belongs to about the same class as the traveling optician, except that he does not travel, and these two classes have at least one thing in their favor, viz., they do an independent business, and ask no favors of the oculist in the way of prescription work, which can not be said of the highest grade of optician, viz., he who has a store and workshop in a large city, does prescription work for oculists, and all the refraction work he can do besides. He is the evolution of the original optician from whom has sprung all the preceding varieties just mentioned, and consequently the "principal offender" in the present issue. Now permit me to say on the start, that I have no quarrel with opticians as a class; I know many of them personally and take pleasure in testifying to their average honor and integrity. The better class of opticians realize the embarrassments and perplexities of the subject keenly, and would gladly do all in their power toward its rectification; but they are rendered powerless by unprincipled competitors, who are unwilling or unable to see the difference between an oculist and an optician, and who either considers that a superficial knowledge of optics fully equips them to intelligently treat refraction errors, or who know better, but persist in their course in spite of their knowledge. It is chiefly such opticians who come in contact with the oculist, for it is to such shops that his prescriptions are usually sent. This places him in the unfortunate and anomalous position of directing his business to his principle, and not always honorable competitor, which frequently leads to a disintegration of confidence between the oculist and his patient, and an impertinent and presumptious alteration of a prescription by the optician from time to time to suit the emergencies of the case.

Owing to these and many other abuses, a lack of harmonious relations have necessarily crept in between the oculist and optician, the former feeling that an ocular examination and refractive correction is not a mere mechanical art, but one of the highest and most exacting branches of medical science, and to be dealt with by properly educated physicians only, and the latter, *perhaps*, feeling that he is as competent to "fit glasses" as the oculist, and should consequently be allowed to do so unmolested, and that everybody should strictly "mind his own business." It is strangely true, however, that the optician feels aggrieved when the oculist, in view of the fact that the optician is his active competitor, endeavors to ignore the latter by dispensing his own glasses. There is also a higher motive in such a step, viz., a conviction that he who practices medicine without a license should be discouraged. The optician should remember, that as long as he even *reasonably* adhered to his trade, amicable relations existed between himself and his best friend and patron, the oculist, and not until he endeavored to usurp the latter's position, and inaugurated a series of mutually unfortunate consequences. has the oculist been compelled to resort to measures that the optician views with mingled feelings of hatred and revenge. He has built his own house and should be willing to live in it.

The measures of relief adopted by many oculists, such as purchasing their own glasses, engaging a private office optician, etc., are not as yet wholly desirable, but no one can doubt the evolution of a plan satisfactory to both oculist and patient. Let us hope that the ultimate solution will be the re-establishment of amicable and mutually profitable relations between the oculist and optician, and the determination by the one to adhere to his profession and the other to his trade, and together exterminate pretenders, who are neither one thing nor the other.

In order that errors of refraction may be accurately corrected, it is necessary that the work of both oculist and optician should be properly performed; both are dependent upon each other, and should labor together for their mutual benefit and the good of the public. The optician possesses a high and honorable calling and one of which he need not be ashamed. Why then should he seek to invade the territory of the practice of medicine? The lame and senseless argument is sometimes advanced, that the optician antedates the oculist, who has therefore become the trespasser. The barber might as well claim a right to practice surgery and dentistry, as history places him in the pioneer ranks of both these professions. The

truth of the matter is, that correcting errors of refraction has developed, by inevitable scientific solution, from a mere trade to an important branch of medicine and surgery, and as such should be performed only by properly educated men. If the optician wishes to do such work, he should study medicine and become a licensed physician, when he will be privileged to practice his profession in this or any other line he may select.

I would not be understood as meaning that a medical diploma is an assurance of knowledge, as the occupation of a chair in a medical college for fifteen years, has compelled me to regretfully express an adverse opinion. I am willing to admit that the most intelligent resident opticians possesses a better knowledge of optics and errors of refraction than the average medical man. But two wrongs do not make a right, and no one unpossessed of a medical license should perform such work, and only then when special ophthalmologic training has supplemented a general medical education. I am happy to say that ever-increasing salutary medical laws, combined with efficient postgraduate instruction, have rendered the special practice of ophthalmology untempting to most men not thoroughly equipped for its prosecution. The field would be broadened and deepened, the public benefited, and small towns quite generally supplied with physicians well qualified to work in this department, if only the optician in his various aspects could be prevented from attempting to correct errors of refraction.

The law, as at present interpreted, does not require that an optician shall possess any knowledge whatever in order to follow his important and dangerous calling. A druggist is subject to pharmaceutic laws, a veterinary surgeon to veterinary laws, a dentist to dental laws, but an optician is subject to no laws whatever, and may continue adjusting glasses, and ruining eyes at his own option. One would think that the better class of opticians would take sufficient pride in their own business, profession, or whatever they choose to call it, to precipitate some thoughtful legislation tending toward a purification of their own ranks. It is hoped that the agitation of this question will at least accomplish some result, for a proper eliminating process will leave broader-minded and better educated men to deal with, and it is unquestionably true, that the more intelligent the optician, the more does he comprehend the position of his calling, and the more ready is he to exalt its importance, to distinguish and admit the difference between an oculist and an optician, and to govern his actions accordingly. I am loath to admit that there are many physicians of more than average ability who, either by word or deed, sympathize with the optician in this argument, and do not admit that in attempting to correct errors of refraction the optician is essaying the practice of medicine. Such views are born either of indifference or an ignorant misconception of the facts, and should be easily overcome by the exercise of reason, intelligence and thought. No special field of our profession has made greater advances of late years than ophthalmology, and the most distinguished of its devotees unite in declaring errors of refraction and muscular anomalies its most profound and scientific subject, and one that has taxed without satisfying many of the most powerful intellects of the century. These men declare unhesitatingly that such work can not be separated from general ophthalmology, and surely no one believes that the latter can be alienated from the practice of medicine.

No intelligent oculist to-day fails to thoroughly examine every patient who seeks his advice, even if only the correction of presbyopia is the object of the visit. Such an examination includes a general review of the physical condition of the patient, and an exacting and systematic investigation of the eye, both intra- and extra-ocularly, not only as to the refraction and muscular balance, but also as to medial opacities, cataract, retinal, chloroidal and nerve diseases, and many other pathologic conditions impossible of detection by the inexperienced, and yet frequently of the greatest importance to the applicant when once discovered. It often happens that cases of supposed rapidly advancing presbyopia prove upon careful examination to be glaucoma, amenable to treatment and possible of cure. Diminution of vision is sometimes proven by the ophthalmoscope to be the first evidence of ulbuminuria in the retina, which serves as an indication for successful therapeusis. Headaches, neuralgias, etc., are daily discovered to be the reflex evidences of hypermetropia, astigmatism, muscular insufficiencies, etc. And so I might proceed in giving instance after instance explaining *why* ocular examinations should be made as frequently as possible and by properly equipped physicians only, but I refrain, as it appears almost an insult to intelligent physicians to urge the claim after once their attention has been diverted in this direction.

Without further specification, then, which I am confident is totally unnecessary, I make the statement boldly, and without fear of contradiction by those having sufficient intellect to judge or breadth of character to concede, that correcting refractive errors is practicing ophthalmology, which, in its turn, is practising medicine, and that this should be permitted only by medical graduates, and that where State medical practice acts exist, the optician is practicing medicine without a license, and should be restrained from further prosecuting his calling, so far as giving advice and prescribing glasses is concerned. Such work can not be properly performed without a thorough knowledge of anatomy, physiology, pathology, etc., a broad training in ophthalmology and a general comprehension of the different branches of the science of medicine and surgery, as taught in first-class medical colleges and postgraduate institutions.

In presenting this paper I have refrained from casting slurs upon the optician, and from indulging in any personalities or instances whatever; they have pressed in upon my memory, with their aptness and appropriateness, so urgently as to render their repression exceedingly difficult, but I have felt that what was needed was not a display of acrimonious bitterness, inspired by personal quarrels and a sense of wrongdoing and injustice, but a calm, earnest, and unimpassioned presentation of the point at issue, viz., the unlicensed practice of the medical profession by my friend the optician. There is no more reason why an optician should fit glasses, than that a druggist should prescribe medicine, and yet you, my brother general practitioner, would anticipate *our* aid in expelling such an evil, and would not expect us to ask you the reason why. Let us, I beg of you, bespeak *your* assistance in sentiment, influence and action.

What is to be done about it? This is a serious question, and one surrounded with obstacles. Great movements progress slowly, and we can not anticipate

a satisfactory settlement at once. We must primarily awaken a proper comprehension of the subject in the minds of physicians, and through them compel the laity to understand, that "fitting glasses" is not a trifling affair, necessitating only the patient's personal sensations, and the guidance of an optician to correctly consummate; but that it is, on the contrary, an important event, necessitating a thorough examination and possibly entailing serious consequences, and should therefore only be performed by a properly equipped, especially trained, medical practitioner. Until this is reasonably well accomplished, it will be futile to attempt more radical measures. Let this step be well grounded by constant agitation, and a desirable solution of this perplexing question will be rendered comparatively easy.

SOCIETY PROCEEDINGS

New Jersey State Medical Society.

Proceedings of the 130th Annual Session held in Asbury Park, June 23, 1896.

The usual reports, etc., were presented and acted upon. The committee on the prevention of purulent infection of the eyes of the new born reported that the Board of Health had issued a circular to the profession, etc., detailing the plan of Credé of Leipzig, to prevent this. After the umbilical cord has been divided and the skin cleansed, bathe the eyelids with a cloth wet with pure water, then touch the everted lids with a glass rod dipped into a 2 per cent. solution of nitrate of silver. It was agreed that the State Board of Examiners should be asked to require of each applicant for a license to have a knowledge of this method.

The proposed act to prevent cruelty to animals in the District of Columbia was brought up by Dr. H. Mitchell, the secretary of the State Board of Health and after some discussion it was

Resolved, That it is the sense of this Society that the bill entitled a "bill for the further prevention of cruelty to animals in the District of Columbia" now pending before Congress is a menace to medical and surgical progress, a bar to proper scientific investigation and inhumane in that it restricts the possibility of the acquirement of knowledge that will lessen human suffering and prolong life; therefore,

Resolved, That the Medical Society of New Jersey respectfully requests the members of Congress from this State to use every proper effort to prevent it from becoming a law.

Resolved, That printed copies of this action be forwarded to the New Jersey congressmen and to the chairmen of the committees on the District of Columbia in the Senate and House of Representatives of the United States.

In the afternoon the Standing Committee gave a very valuable resume of the reports of the counties of the epidemics that had prevailed in their localities, the result of the trial of new remedies, of improved sanitation, especially of the results of the employment of antitoxin, mallein and thyroid extract. There was a great want of uniformity in the results as reported. Some appeared to have obtained very great benefit, others had found these remedies useless, while others held them sub judice.

DR. PHILIP MARVEL of Atlantic City, read a valuable paper upon

AUTO-INFECTION.

He explained the difference between ptomaines and toxins; the one poisonous, the other harmless. The toxins were the result of decomposition within the body. There is constantly going on a building up and breaking down; so long as the two processes are kept equal, the person is in health. Otherwise, disease results from the alkaloidal products. The channels by which the poisons are eliminated are the blood, lymphatics, the cellular tissue, etc. The putrefaction of foods result in a toxin formed by the action of the bacteria on the proteids. This is the principal cause of nearly all diseases. The common carriers are the blood and lymphatic systems. When the poison is in excess of the vital fluids, there is impaired function followed by death unless soon relieved. The poisonous substances are formed by the presence in the body of complex substances capable of combining with acids through the action of fermentative bacteria producing salts corresponding to organic and vegetable bases. All animal excretions are poisonous and are eliminated by the skin, the alimentary canal, the pulmonary mucous membrane and the skin. Acute auto-infection is very dangerous and gives rise to symptoms which are alarming, followed by death in a very short time. He quoted several cases where death had followed the ingestion of food already partially decomposed. Also quoted some experiments with animals where the injection of bile produced death in a short time. We must have free elimination constantly going on, or there will be reabsorption. Somewhere in the animal economy there is an unknown means for transforming toxic into inert matter or life could not continue. We find also that there is a different degree of poison for the same toxin in different individuals and under almost the same circumstances. Excess of food will often load the system with these toxins and we also find different types of these troubles. In acute cases we have a development of gas, tympanites, burning stomach, eructations, etc.; with these, headache, depression, fatigue, dizziness, vertigo, etc. In graver attacks there are convulsions, coma, death. These symptoms must be differentiated from ordinary impared digestion by the suddenness of the onset, within six to twenty hours after taking food. When we can obtain free emesis and relaxed bowels there is more possibility of relief. In some instances we have extensive skin eruptions resembling erythema, scarlatina and the like. Sometimes the absence of vomiting will mask the case. He mentioned cases where the diagnosis had been measles, etc. He carefully analyzed several cases which he detailed showing how to prove the origin. In nearly every case it is the result of food ingested which had already begun to decompose. Some of the results of this trouble may be chronic atony of the stomach, dyspepsia, diarrhea, dysentery, stomach cancer or dilated stomach. 1, we have disarrangement of the structural tissues; 2, consequent interference with the nerve energies; 3, impairment of cellular function, inviting abnormal production; 4, and thus favoring fermentation; 5, prolonging digestion, thus aiding putrefaction. Perhaps in the future we may be enabled to observe these actions by means of skiascopy. He believed that numbers of cases had been diagnosed typhoid fever and when treated by intestinal antisepsis and elimination had been established, got well in ten days or two or three weeks, and thus were quoted as aborted typhoid fever.

DR. G. H. BALLERAY gave the details of a number of cases of fibroids of the uterus obstructing labor, with subsequent disappearance of the tumor. He detailed the symptoms by which the presence of some obstruction was determined, the mode of procedure in delivery, turning, etc. The detail of cases was unique and interesting and elicited much animated discussion. It was agreed by those who participated that the tumors were not ovarian, nor in every case truly fibroids, as these rarely if ever disappear in this manner.

DR. HENRY MITCHELL, the secretary of the State Board of Health, introduced his aid, DR. M. RAVENEL, who gave a very able resume of what was proposed to be done by the bacteriologic department of the Board. It was mainly devoted to the investigation of tuberculosis and diphtheria as these would occupy a central position being most important. The early diagnosis of diphtheria was of great importance and it was only by a bacteriologic investigation that the diagnosis could be made. Then a secondary examination was needed in order to decide when the patient had ceased to be dangerous to others. There is no fixed time when these bacteria disappear

from the throat, even mild cases show them six weeks after the disappearance of the membrane. They often linger in the nose and so long as a nasal discharge continues, it is suspicious and investigation should be made. Cholera also is to be looked after although it is hoped that no such need may arise. The diagnosis here can be made in eighteen to twenty-two hours and in no other way. Water being almost invariably the source of the infection, all water must be examined. It is not possible to be positive as to typhoid fever bacteria in the present state of the science especially in a sample of water, for the time elasping between the infection and the desire for an investigation of a suspected supply is so long, three to six weeks, that many changes may occur; and then it must be remembered that the bacillus of typhoid is delicate, non-resistant, and temperature and nutrition are not favorable to it, and the common water plants are antagonistic to it. Also we have mechanical precipitation and the disinfection practiced so that there are too many factors entering into the matter. Again we have the constant presence of the colon bacillus and perhaps the formation of ammonia by this bacillus has much to do with this. Diseases of animals must occupy the attention as being of great importance, as in tuberculosis; here tuberculin is an infallible test. Anthrax does not often occur, but the department is prepared to make the diagnosis and this very easy. Glanders can only be diagnosed by the inoculation of animals. Hydrophobia is diagnosed by the injection of brain of the suspected animal rubbed up with sterile water and placed beneath the dura mater of a rabbit. This is the chief use of this animal to allay the fears of those bitten and to check the spread of newspaper hydrophobia. Water examinations are only made when for public use.

The President, Dr. Wm. Elmer of Trenton, then delivered the annual address. He dwelt upon the need of personal hygiene as it must become a matter of intelligent conviction among all classes. Those who occupy higher positions must help the lower, the wage earners in this point. The physician must work in this line regardless of self to spread the gospel of cleanliness of the person, the house, the surroundings. Thus to stamp out preventable diseases, which are an insult to an enlightened community.

The State and local boards may issue orders, but the people must join to prevent such, as it is a crime greater than many for which men are punished; the greater the nation, the greater the regard for a high grade of sanitation. Public hygiene is now a science, we have a right to demand pure air, pure water, pure soil. Add to these wholesome food and surroundings. The great misery comes not from numbers but from our imperfections and want of control of the conditions in which we live. Sewer waste and filth disease are concomitants in the crowded community, they are forced upon us. The great waste of life is among the children; fully one-half die before they reach the age of 5 years. Cholera infantum is the usual cause, produced by crowded homes, illy ventilated, with bad drainage, bad food and equally bad milk. We are glad to be able to chronicle a great improvement in the last year; not only the poor live better, but the training and education of the young are greatly improved. Munter's "plenty of sleep, milk and flannel" is old but good common sense. We now have physicians on the school boards, we have compulsory vaccination, we have demands for quarantine, and the Health Boards demand a quarantine of not less than forty days for smallpox, scarlet fever, measles and diphtheria. In some places the latter is not regarded safe to release from quarantine until an examination shows the absence of the bacteria. We must teach the young the rudiments of isolation and infection and the laws of living. We demand health of body as well as trained minds. Ventilation of the sick room air without draft needs the attention of the physician; also food well prepared, wholesome, nutritious, daintily served. Baths and sunlight, with cheerful demeanor and quiet manner are needed for the sick and to prevent getting sick. Another great demand is the filtration of water supplies for the cities. The Cincinnati process of sedimentation and sand filtration appears the best; each bed is independent and there are daily bacteriologic examinations of each. By those means typhoid fever will be greatly lessened. He quoted several cities as showing the value of these methods. The economic value of a life is, say $780 each, hence a death by typhoid fever is known as destroying that amount of wealth. He also alluded to consumption, its communicability, being the most prevalent disease and with the greatest mortality. It is conveyed by a microscopic parasite, found in the sputum dust. We must rely upon hygiene, not drugs, in this disease. There were many other subjects which demanded our attention, but time would not admit. Preventive, not curative, medicine is the great question of the day.

On the second day Dr. Alexander McAllister, of Camden, read a paper on the

THERAPY OF ANTITOXIN SERUM, NUCLEIN SOLUTION AND THYROID EXTRACTS.

Most of the paper was devoted to the first subject. He treated of the discovery of this method and alluded to the work of Roux, Yersin, Klebs, Koch, Löffler, etc. They prove that it is not the mere presence of the bacillus that gives rise to the disease, but the products of it, the ptomaines. Diphtheria is a toxemia and its toxin acts as a ferment, and when injected into living tissues, there results a certain albuminoid body, this isolated, and subjected to alcohol, produces a proto- and dextro-albumose. Rabbits injected with this exhibited the signs of diphtheria. It has also been reduced to a white amorphous powder. Then came the immunizing of animals, next the injecting the serum of blood rendered immune to certain bacteria into animals, thus immunizing them. This is to be carefully distinguished from the Jenner process for smallpox, Pasteur's for hydrophobia, which really produce a milder form of the disease. He described the method of producing antitoxin. The consensus of medical opinion tends to favor this treatment of diphtheria. Of course it has met with opposition. Too sanguine results are expected, a want of understanding of the discovery and its limitations, as where it is used and the patient dies of pneumonia or nephritis, and the prejudice against a new treatment. Since Jan. 4, 1895, he had treated forty-five cases of diphtheria with antitoxin, all of which recovered. Too much attention can not be given to the preservative used in protecting the serum. Carbolic acid is a toxic and dangerous remedy, highly irritating to the kidneys and urethral tracts, hence objectionable. Formalin would be the ideal preservative, except for the fact that it coagulates the serum after a time. Camphor is uncertain, feeble in power, and disguises the signs of decomposition, and putrefaction might be present and not be recognized. The best germicide and preservative is tricresol, a very feebly toxic agent, no irritating effect on the kidneys, and only feebly coagulates albumin. It is for these reasons that we are apt to have strikingly different effects of the different kinds of preparations. Since Jan. 4, 1895, he had treated forty-five cases with the serum; diagnosis confirmed by culture in all but eight. One died of laryngeal diphtheria. There were seventeen of laryngeal form, all recovered. In only five was it necessary to repeat the injection a second time, and a third time in one. Mulford's serum was used. Twenty c.c. were used at each injection. He believed the serum produced in this country was equal in value to that made abroad. No local reaction followed; there was a rise of temperature in some of one or two degrees, and pulse somewhat accelerated. In the mild cases improvement was noticd in ten hours, in others twenty-four to thirty-six hours; membrane changes in color and becomes detached. Had a small abscess in one. Erythema followed in the majority in eight to ten days after the injection; in one it persisted two weeks. Internal treatment was mistura bashami, strychnia, stimulants, locally hydrozone, boric acid solution, etc. Albumin was present in urine of the majority, clearing up as convalescence advanced. Post-paralysis occurred in all to a mild degree. Where paralysis occurs, the results are more favorable where the serum has been used. Only three died of the forty-five; one of heart paralysis, one complicated with abortion, one of sepsis. Beyond a doubt the mortality is lessened. It is not a specific, as vaccination for smallpox. It does not destroy the bacillus, only checks the course of the disease. The mere presence of the Klebs-Löffler bacillus in a case of sore throat does not constitute it diphtheria; it needs other symptoms, as fever, etc. Had immunized twenty-one cases,

two had afterward a mild attack of diphtheria. Immunization takes away the dread of the disease. In intubation the tubes can be removed sooner than without the serum. Pharyngeal cases may be doubtful evidence, but the results in laryngeal cases are conclusive. He quotes 5,794 cases in private practice with 713 deaths, a percentage of 12.3. Injected during the first three days 4,120, with 303 deaths. After the fourth day 1,448, mortality 27 per cent.; 1,256 laryngeal cases, 691 not operated on, 563 recovered, 80 died from other causes, and 48 from laryngeal stenosis; 565 operated on, mortality 25.9 per cent. Intubation in 533, tracheotomy in 32, mortality 37.4 per cent. Cases drawn from the practice of 615 physicians; over 600 express themselves strongly in favor of the serum. We regret that it is impossible to give more at length the details of this interesting and valuable paper. He gave a valuable bibliography, and statistics of American and foreign observers with and without the serum. There have been upward of a million injections and but five deaths were attributed to the serum, and in these no positive conviction can be assigned. With nuclein and thyroid extracts his experience was limited. The masters have given us reason to believe in these remedies, and he believed time would prove them correct. Many able clinicians are using nuclein locally and internally. The minimum dose to begin with is 10 minims, increasing 5 minims daily till the maximum dose is reached, 30 to 80 minims. In delicate or nervous patients you may have shock, fainting; here a stimulant is needed. Sometimes an erysipelatous rash is produced, usually passing in a few hours. A certain elevation of temperature follows. The leucocytosic effect generally lasts fourteen hours. It is claimed as serviceable in tonsillitis, indolent ulcers, incipient phthisis, malaria, diphtheria, etc. The power of nuclein of supplying building material and arresting disease germs make it more applicable than the antitoxins. Thyroid extract is claimed of value in a number of diseases, but specially in Graves' disease, etc.

In the debate which followed there was shown a great difference of opinion, one member having 100 intubations which he had been called to perform. In 20, serum was not used. Here the percentage of deaths was higher. His belief was in favor of its use, as 75 per cent. recovered while the others had 38 per cent. of recovery.

DR. BARKER, of Morristown, regarded it as a double-edged weapon needing care in its use. In one case that he knew 1,000 units were injected, the temperature and pulse reacted; vomiting was stopped by evening, had a comfortable night, in the morning appeared to be doing well. Then 1,500 units were injected, vomiting soon recurred, and death in the evening. Let well enough alone. Here there was no need of the second injection.

DR. DALAND, of Philadelphia, was in favor of the remedy. Many facts must be considered. Formerly many cases were not called diphtheria which are now decided to be such. It is unquestionably the reason of the lessened mortality because of the serum injections. It is difficult to estimate the epidemic influence. Suffocative cases occur less in the hospitals. It is a powerful remedy and needs much care to apply it. He had good results from the thyroid extract in exophthalmic goitre.

Another member had statistics of 5,000 cases and no accident, hence we are justified in employing it. Several others spoke on the subject, and the opinion appeared largely in favor of the serum and the thyroid extracts.

DR. C. R. FISHER read a paper on "Antisepsis." With this we may operate in a farm house with much better hopes of good results. He did not believe it was necessary before delivery to employ antiseptics, but the hands and the canal should be protected by this means at every examination. Puerperal fever was not now epidemic as formerly because of antisepis. Antiseptic surgery is now simplified, we no longer spray the room, etc.; that was an abuse of it.

DR. MCEWAN read a paper on "Chloroform Narcosis." His conclusions were: 1. Chloroform is a dangerous drug. 2. Its dangers can be reduced to a minimum by the most scrupulous attention and conscientious care on the part of the anesthetizer. 3. That the administration of chloroform properly could only be done by one person having charge of it, and it is not a time to assist or to indulge in conversation with a bystander, or to watch an operation in order to familiarize oneself with the steps of scientific procedure.

The officers for the next year are: President, Dr. T. J. Smith, Bridgeton; first vice-president, Dr. D. C. English, New Brunswick; second vice-president, Dr. C. R. P. Fisher, Bound Brook; third vice-president, Dr. Luther S. Halsey, Williamstown.

The next meeting will take place in Atlantic City, fourth Tuesday in June, 1897. It was agreed that the Committee of Arrangements might arrange for a three days' session.

American Neurological Association.

Annual Meeting held at Philadelphia June 3, 4, 5, 1896.

(Concluded from page 1265.)

DR. N. E. BRILL of New York read a paper on

THE STATUS OF OPERATIVE PROCEDURE AS A REMEDIAL AGENT FOR EPILEPSY.

This paper was a protest against promiscuous operation and surgical treatment in both essential and chronic epilepsy. He favored the removal of depressed bone where there was evidence of depression, as in these cases he had seen good results. In cases due to pathologic conditions, he took the position that craniotomy with excision of the cerebral cortex was unjustifiable, owing to, first, the bad results as far as amelioration is concerned, attending the operation; to our inability as yet to make absolute diagnosis as to the character of the pathologic lesion which occasioned the epilepsy. He cited cases to show that where a positive diagnosis has been made previous to the operation, when the skull was removed, the dura torn back and the brain excised no evidence of cerebral disease or defect was found. He argued further that there was an appreciable risk in the operation even when done with the most careful attention to technique; that fatal cerebritis and meningitis were by no means rare; that death occurred even on the operating table from shock; that we had no right to take even the slightest risk when the chances of amelioration or cure were so problematic unless the civilized world and a legal code endorsed the Spartan doctrine of destroying defective children. With such a purpose in view the thought of operation might possibly be justified. Against indiscriminate surgical interference, he voiced the protest of Lucas, Champonnière and others. As for the operation of craniectomy in epilepsy, he could find no justification whatever, especially when viewed in the light of our ignorance as to the pathology of the disease. He advocated conservatism and demanded that the clinician should hesitate before he ratified surgical measures, as an ameliorating agent in these cases. He regarded the large number of reported cases as a striking result of the clinician's desire to prove his skill in diagnosis by an antimortem operation and concluded by saying that no operation should be recommended unless the diagnostician should satisfy his conscience that the signs of disease were such that there could be no possible doubt as to the absolute presence of a definite pathologic condition, the character and nature of which he had absolutely determined previously.

DR. A. G. GERSTER in discussing the various papers on epilepsy, spoke on the different methods that have been employed in operative procedures. He referred to the fact that the circular saw was considered defective on account of the slowness of its work and the consequent danger of injuring the dura mater and stated that he had found a chisel more desirable than the trephine. In his opinion, the danger of injuring the dura mater is nil. He also considered the V-shaped chisels as too slow and unsatisfactory, as they have a very narrow groove, and penetration of the thinner lamellæ and injury of the dura mater may occur. He referred to Krause's modification of the circular saw and stated that even this did not entirely obviate the possibility of injury to the dura mater. He considered the greatest danger in cranial operations to be that of hemorrhage, and stated that unlike arterial hemorrhages, which could be easily stopped, it was the continual oozing of blood that was difficult to control. He considered any apparatus by which the skull could be opened in ten or fifteen minutes an excellent improvement and he was very glad to see an instrument invented by a Western man which would permit of satisfactory and rapid work. This instrument is built on the principle of the ordinary dental engine; it is very readily sterilized and does not require any expensive apparatus. An incision is made in the usual way and the extent and size of the flap having been defined, drill No. 1 is inserted, the object being to penetrate the entire thickness of the skull, the diameter consequently being a little larger than that of the other two. After outlining with drill No. 1, drill No. 2, which is smaller and sharper, is inserted. This is followed by drill No. 3, which is placed in the aperture made by drill No. 1. As soon as this is finished the flap can be pried up and the section laid open. The first case in which Dr. Gerster used this instrument, the operation took nineteen minutes, while the last took less than four minutes.

DR. M. ALLEN STARR referred to operative interference in epilepsy and stated that there had been a recurrence in every case and none of them had been cured. The first operation was done in October, 1889, and all the operations were performed on carefully selected cases by one of the most skillful operators in the country. No case has been operated on where

there has been very long duration between the trauma and the fit, nor any case of idiopathic epilepsy. With regard to the exsection of cysts, Dr. Starr mentioned cases that he had seen die on the table. He referred to a case operated upon by Dr. McCosh, who exposed considerable area, laid back the dura and discovering a clot upon its inner surface, he scraped and thoroughly curetted that region. The child had no paralysis and for a time recovered. Concerning abscess of the brain he has seen twelve cases of which eleven were operated upon. In each case an abscess was found either at the operating table or at autopsy. Of these operations three recovered. There are cases of brain abscess where the temperature is very irregular, varying between 98 and 106. There are also many cases which improve without any operation. Concerning the neurologic side of the question he did not think there was any connection with aphasia. He referred to an interesting case of aphasia in which an abscess was found in the temporal lobe. He mentioned another case in which the symptoms pointed to a tumor in the left hemisphere. The patient had epileptiform convulsions with unilateral paralysis. At the operation the tumor was found in the right hemisphere and there was perfectly good decussation of the motor fibers. In his opinion the days of trephining were over and the question now was how to make the flap and what instruments to employ. He stated that Dr. McBurney was doing very rapid work, performing operations in from fourteen to seventeen minutes with chisels and gouges, the gouges being but two mm. in width and the chisel being very sharp and narrow. As to the condition of exophthalmus, he could not understand how this could be caused by brain tumor except it lay behind the eyes.

Dr. W. W. Keen mentioned that paralysis frequently resulted from the injury to the brain caused by the tumor and the surgical interference. In Dr. Thomas' case there was nothing but a moderate paresis of the lower face and a moderate aphasia. After the mechanical interference there was no paralysis, but there was a diminution in the aphasia. He exhibited a tumor removed in December 1889, from a patient who is to-day living and well. In his opinion it seemed as though the removal of large tumors was less dangerous than small ones and if this be true it is doubtless due to the fact that in searching for tumors, one is apt to inflict an amount of injury upon the brain which is incompatible with recovery. During the past ten years the advancement in brain surgery had been very conspicuous and at the present time we are able to draw reasonable conclusions as to the result. He has not reported any of his own cases as he desired sufficient time to elapse to form an opinion as to the ultimate results. Although his experience had been moderately large, he is not able to report a single case cured and by cure he meant that after a reasonable time had elapsed the patient had had no fits. He was not willing to accept one year or even two and thought three should be exacted as the time limit to form an opinion. Although at the end of three years the patient may be still a sufferer, yet there will probably be great amelioration. He considered it worth while in nearly all cases to operate as he thought the results had been sufficiently satisfactory to warrant it and he stated that he would rather run the risk of any operation than go through life with such a frightful disease. As to idiopathic epilepsy he would not operate, but in Jacksonian, he considered operation justifiable judging from a number of cases recently reported. It is his practice to operate whether there are brain symptoms or not, but to refuse operation in cases that have gone on for many years. In his opinion at least twenty years should elapse before this question can be settled to the satisfaction of the profession. He did not think that 50 per cent. of the cases would ever be cured, but that a sufficient number will be benefited to make it worth while to run the risk of operation.

Drs. H. M. Thomas of Baltimore and W. W. Keen of Philadelphia reported a case of a large tumor removed from the brain with wide opening of the lateral ventricle. The patient, a young man of 19, with an excellent family and personal history and no history of accident, in December 1895, had an attack of intense headache and vomiting, but without optic neuritis. The latter symptom followed in the middle of January with blindness later in the right eye, slight vision remaining in the left, slight protrusion of the left eye-ball, pupils equal and normal, smell, hearing and taste unaffected, paresis of the lower right face, sensation and the muscles of mastication unaffected, no muscular weakness in either the arms or legs, but there was a good deal of muscular restlessness of the right hand, persisting even during sleep. Reflexes present, mental condition poor. He was dull and apathetic and sometimes slightly wandering mentally. After the early headache and vomiting, neither of these was a marked feature. There was slight aphasia. Drs. Osler and Starr saw the patient with Dr. Thomas and the conclusion reached that it was a tumor in the left frontal lobe, probably at the base of the second frontal convolution and subcortical. On May 10, Dr. Keen operated. The bone was chiseled from the temporal fossa parallel to the eye-brow and a little above it nearly to the middle line, then backward nearly to the fissure of Rolando, then downward again into the temporal fossa. This large flap was reflected and the dura opened. The tumor presented through a rupture of the cortex at the base of the second frontal convolution as had been diagnosticated. After ligating some vessels at its border, the tumor was easily scooped out by the fingers. The lateral ventricle was then seen to be widely open. To prevent blood filling the ventricle and passing into the third and possibly the fourth, the anterior part of the ventricle was packed with a strip of iodoform gauze. This was removed at the end of the second day. After the operation there was no increase whatever in the paralysis. In two weeks the patient had entirely recovered. The tumor was 7.5 cm. long, 5.5 cm. broad and 4 cm. deep and weighed two and a half ounces. It was a hard non-infiltrating sarcoma.

"A Case of Cerebral Abscess Situated in the Posterior Part of the External Capsule (involving the medullary substance of the first temporal convolution, also the posterior part of the lenticular nucleus, and extending into the subthalamic region), with some Considerations in Regard to the Constitution of the External Bundle of Fibers in the Cerebro-Peduncle," by Drs. Charles K. Mills and Wm. G. Spiller.

The authors related the details of the case and stated that at the autopsy an abscess was found in the left hemisphere just above the level of the callosum. Both tympanic membranes were normal and microscopic examination of the pus from the cerebral abscess revealed only the ordinary staphylococcus pyogenes aureus. In view of the frequency of cerebral abscess after suppurative processes in the lungs, it may be added that merely spots of catarrhal pneumonia were found in both lungs. No degeneration was noticed anywhere in the motor tract. The fibers from the first temporal gyrus were almost entirely destroyed as well as those from the upper anterior part of the second temporal convolution. And as no degeneration had been found within the latter bundle of the peduncle by the method of Marchi sixty-eight days after the first attack and twenty-eight days after the second, it was considered that the case demonstrated the fact that no fibers from the first temporal and the upper anterior part of the second temporal gyrus including a portion of the upper middle of this gyrus enter the fasiculus of Turek. In another case of hemiplegia in which death occurred three weeks after the attack the authors were able to show intense degeneration by the method of Marchi.

Dr. J. Arthur Booth of New York, read a paper on and presented a case of

EDEMA OF THE EYELIDS IN GRAVES' DISEASE; THYROIDECTOMY.

After detailing at some length, the circumstances connected with the patient presented, the author drew the following conclusions: 1. Slight decrease of the edema situated in the extremities is a common occurrence in Graves' disease, but this symptom limited to the eyelids is very seldom seen. 2. In distinguishing these various forms of swelling it is necessary to be guided by the position and the degree. If situated only on the face and upper limbs, or if unsymmetrical it is entirely of nervous origin. It may be that it effects the feet, but this will be slight and temporary. 3. These symptoms are evidently of vaso-motor origin and are probably due to a paralysis affecting the constrictor nerves, manifestations of peripheral neuritis. 4. Limited to the eyelids, it may be due to a paresis. If this be true, however, it is strange that we do not meet with it in other palsies of the muscles. 5. Thyroidectomy carefully performed and by one cognizant of the occasional complications, such an operation is not as dangerous as is generally believed. 6. From operative interference in Graves' disease, we may expect an improvement to some extent.

Dr. M. Allen Starr said that the percentage of death in operations upon the thyroid gland was high and that he knew of several cases operated on in New York where every precaution had been taken, but death had resulted from some unexplained cause, although the ordinary surgical shock was not present.

Dr. Philip Coombes Knapp of Boston read a paper on

THE NATURE OF NEURASTHENIA.

The author's study was based on one hundred cases in hospital and fifty in private practice. The chief symptoms were nervousness and weakness, the "irritable weakness" which is considered an essential symptom of neurasthenia. Next in frequency came headache, indigestion, insomnia and epilepsy. Depression, backache and other symptoms were much less common. Neurasthenia was considered to be analagous to

chronic fatigue and to be due primarily to exhaustion in the cells of the brain cortex. Mental depression was not infrequent, but it was usually secondary to a neurasthenic condition or the physiologic result of the cause (grief, worry), which had produced the neurasthenic. Among the morbid fears were first those pertaining to the physical welfare of the patient often based upon physical symptoms and having a rational basis, although resting upon false premises and ignorance of the significance of these symptoms. In other cases the fears were of a different character and these cases were not neurasthenia, but true hypochondria, a mental state akin in some degree to paranoia. The second class of morbid fears were the so-called phobias. These fears exist in perfectly healthy people who, under their influence, may be drawn into considerable anxiety and distress. In other cases the morbid fears were secondary to certain unexplained ideas. These fears and unexplained ideas are not uncommon in mild forms in perfectly healthy persons. In the severe forms they exist as independent psychoses. These different psychoses may exist independently without any trace of neurasthenia. It will be found in only a small percentage of neurasthenic cases which is greater among private patients. When found in neurasthenia these fears and unexplained ideas are indicative of the coexistence of another affection.

DR. THEO. DILLER said in his opinion in all such cases it was of primary importance to search for neurasthenia as it is a question whether or not they are the outcome of a neurasthenic disease or a degeneration.

DR. BURT G. WILDER referred to the case of a distinguished etymologist who was made very uncomfortable by the mere presence of a cat even if he could not see it and stated that this fear was greatly intensified if the floor was carpeted.

DR. SPITZKA considered it important to separate the inherent cases from the acquired.

DR. HENRY S. UPSON of Cleveland, read a pager on

NERVE DISTURBANCES FROM INDIGESTION.

Three cases were cited. While conclusions from so few cases are not warranted, yet the speaker believed that the type of nerve disturbance found in typhoid is found in intestinal indigestion without the intervention of this disorder. It may easily be confounded with mild melancholia or neurasthenia, which presents many points of similarity. It must be carefully differentiated from nerve diseases which are amenable to treatment, which treatment should not consist exclusively in the administration of an antiseptic.

DR. LANGDON—One must not forget that bacteria are of two kinds, the conservative and the pathogenic and there may be a third kind, the indifferent. It is well known that we could not live in our streets except for certain bacteria and it does not follow that because their presence may have a doubtful effect in some cases it will do so in all. He had obtained good results by the administration of mercury given in the form of calomel, which he claimed is converted into bichlorid of mercury by hydrochloric acid.

DR. THOMAS J. MAYS of Philadelphia read a paper on

TOXICOSIS OF THE NERVOUS SYSTEM AS A CAUSE OF PULMONARY CONSUMPTION.

Dr. Mays said disturbance of the nervous system and especially of the respiratory nerves induces some form of pulmonary disease and frequently pulmonary consumption. That diseases of the pneumogastric nerves leads to these disorders is confirmed by the opinions of Chevan, Holland, Copland, Laycock, Allbutt and Clouston, which are quoted. Besides, clinical proof and post mortem evidence are adduced from cases found in medical literature. Alcohol, syphilis, mercury, lead, typhoid fever, diphtheria, measles, whooping cough, mumps, influenza, cerebro-spinal meningitis, beri-beri, rheumatism, etc., intoxicate the nervous system and become prolific sources of pulmonary mischief. Of all these poisons alcohol is probably most sure to bring about pulmonary diseases through the nervous system, and a number of cases giving post mortem proof of this are cited. Syphilis and most of the other poisons mentioned are treated in the same manner and are shown to have the same effect ultimately in a great many instances. The chronicity or the acuteness of the pulmonary disease which is thus dependent on the nervous system, are governed in a large measure, 1, by the virulency of the poison; 2, by the amount and frequency with which it is introduced; 3, by the persistency of its action, and 4, by the facility or difficulty with which it is excreted by the body. They all vary in this respect. Alcohol is quickly eliminated, but its harmfulness depends on its being taken frequently and continued for a long time. A single infection of syphilis permeates the body and the virus remains for years. Mercury and lead enter the body very gradually, but are excreted very slowly. The poisons of whooping cough, influenza and cerebro-spinal meningitis, having a selective affinity for the pulmonary nerves, are liable to be followed by a more speedy disease of the lungs. This is the case with those of typhoid fever, diphtheria, measles and mumps. Uric acid being a normal constituent of the blood, only becomes harmful when it accumulates persistently in excessive quantities.

DR. F. W. LANGDON of Cincinnati, presented a paper entitled

EPILEPSY AND OTHER CONVULSIVE DISEASES; A STUDY IN NEURODYNAMICS.

The anatomic digest accepts the neuron of Waldeyer as the anatomic and physiologic unit of the nervous system, especial attention being called to its more complex construction as elucidated by Max Schultze, Schaefer and Gowers. Physiologically, attention is directed to the later views that the cell-processes or their terminal endings are chiefly concerned in dynamo-genesis or conversion as opposed to the older doctrine that the "cell" (neuron-body) was the chief agent of action. Pathologically, objection was raised to the prevalent view that "chemical instability" or "explosion" of cell areas are the main factors in convulsive action. In its place, the view was advanced that definite defects of structure in the neuron-processes, chiefly those of the great pyramidal projection tracts, are responsible for the convulsive phenomena. The foregoing considerations, anatomic, physiologic and pathologic, would appear to justify the following propositions as a working hypothesis: 1. That epilepsy, the choreas and probably most convulsive disorders are the dynamic expression of an inhibitory insufficiency, not indications of over-production of nerve energy nor "explosions" due to a "molecular instability" *per se;* 2, that the cause of this inhibitory insufficiency is to be sought for in the end brushes of the collateral proccsses of various cortical neurons, the situation varying with the "type" of the disease, whether sensory, psychic, or motor; 3, that the defect consists most probably, in a *structural incompleteness* (small capacity, defective insulation, imperfect contact) or a *numerical deficiency*, or both, in the collateral processes of the neurons referred to; 4, defective collaterals may favor occurrence of convulsions in two days: (a) by impairing connection with other neurons (inhibitory, storage, etc.); (b) by increased resistance to "overflow currents," causing temporary overcharging of motor axis-cylinders. This conception of the anatomico-dynamic basis of convulsive phenomena I would call the "collateral theory." On this basis, cases of epilepsy are classed under three groups, each of which presents important differences as regards prognosis and treatment. 1. *Primary or developmental* type, compromising the "idiopathic." Cases under 20 years of age. In these, the younger the subject and the better the heredity and environment, the better the prognosis under intelligent treatment. Ultimate result depending on the possibility of promoting further and equable development of collateral communications with inhibitory mechanisms. 2. The *accidental* forms. Those due to trauma, syphilis, lead toxins, etc. The prognosis here varying with the longer or shorter duration and the possibility of removal of the cause; being always favorable so long as permanent structural changes in collaterals and inhibitory mechanisms have not occurred. 3. The *degenerative* type. The rare cases of adult life and old age (not accidental) belong in this category. Here palliation only is to be expected as in degenerative changes elsewhere. In all forms the rational indications for treatment are: To lessen the incoming sensory excitation, by diet, hygiene, occupation, medicines; and so lessen the intensity of motor responses which are not provided with suitable overflow and inhibitory mechanisms.

DR. IRVING C. ROSSE read a paper on

NEWSPAPER RABIES.

After referring to the way in which newspapers deal with the subject of hydrophobia and allied affections, Dr. Rosse stated that from bibliographic references and experimental research he felt the following conclusions were warranted: 1, that the notion of a toxico-rabid bite is an old one being mentioned by Homer, but not by Hypocrates; 2, but few physicians have seen a genuine case of this complex and badly elucidated affection; 3, among competent surgeons and neurologists there is a wide difference of opinion, and even irreconcilable diversity as to the existence of genuine hydrophobia in man; 4, there is also considerable diversity of opinion concerning the exact value of the Pasteur method; 5, there is a difference of opinion as to whether pseudo-hydrophobia ever produced death; 6, in view of the uncertain knowledge of the disease and aside from making sensational items of such matters, newspapers are not to blame for publishing statements inconsistent with biologic or medical facts, since they merely reflect current opinion, and holding the mirror up to nature gives us, so to speak, a radiograph of what is going on in the minds of medical men.

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INFORMATION WANTED.

It would greatly facilitate the prompt delivery of the JOURNAL to those members of the ASSOCIATION living in large cities, if they would kindly furnish this office with their street address in those cases where it is omitted from the wrapper of their JOURNAL, as we have been notified by the postmasters of the larger cities that second-class mail matter not having street address, would be placed in the general delivery to await call.

SATURDAY, JULY 4, 1896.

PANICKY SANITATION.

It has been published as a fact that a law has been proposed in the British colony of New Zealand prohibiting the admission of all tuberculous individuals and imposing heavy penalties on ship captains and steamship companies which furnish them transportation to the country and permit them to land. If carried out this proposition will be an advance on any sanitary precautions heretofore attempted and will doubtless meet with the approval of some of the more ardent sanitarians. New Zealand is a group of islands, a rather extensive one to be sure, with only comparatively limited means of communication with the rest of the world and it is possible to conceive of a much more perfect isolation there than is practicable in any continental territory. Whether the New Zealanders will be able to keep out the ubiquitous bacillus tuberculosis or do anything more than afford protection from foreign competition to the home produced article is a question, and on the grounds of ordinary humanity, taking this uncertainty into account there are some objections to the proposed enactment. Latent tuberculosis certainly can not be thus excluded, or any other unobtrusive form of the disease unless some tuberculin or other test is applied on passengers and others who reach the country by the ordinary routes of travel, or better through some consular agency before starting. Only in this way can the disorder be excluded; the few pronounced cases will hardly figure among the manifold other chances of admission of the germs. Then there are to be taken into account the sources of infection already existing in the country and the opportunities it may have of self propagation. Of course the plans must include the extirpation of these. When all is done and the islanders have adapted themselves to the new conditions, supposing these to be possible, is there not yet a possibility that they may be more than ever vulnerable to any accidental introduction of the infection, by reason of their lack of the possible immunity produced by familiarity with and habitual resistance to the microbe. That such an immunity exists in case of many diseases to some extent is highly possible from the fact of the quickness with which they spread in populations hitherto unaccustomed to them. Such immunity can be easily accounted for by the law of natural selection alone, to which there is no reason to believe tuberculosis forms any exception. If New Zealand, or any other country, has the climatic and other local conditions favorable to tubercular disease and if it already exists there as is undoubtedly the case, the exclusion of pronounced cases by the severest legal enactments and penalties will be a very poor method of defense as compared with proper hygienic local regulations. If on the other hand, its climate is such as to make it a desirable sanitarium for consumptives it would be almost a crime against humanity to exclude them from its benefits, by measures that can at best be insufficient for preventing the introduction of the disease and inexcusable in so far as it already existed in the country.

It is true that it is said that tuberculosis has increased among the natives of the Riviera and some other regions resorted to by consumptives, but these localities have nevertheless not lost their climatic advantages and tuberculous invalids still find benefit from residence there. It is not unfair to presume therefore that the natives have not fully availed themselves of their hygienic privileges, or that they have not yet acquired the immunity possessed by residents of less favored localities. There are few disorders that in a general way are more amenable to local sanitary and hygienic measures than is tuberculosis, and there is hardly one that is more generally distributed or harder to control by isolation. There are also probably very few other serious diseases the effective contagion of which is more dependent upon the susceptibility of the individual; it would be hard to find many or indeed any adults in this and most other civilized countries who have not been repeatedly exposed to its germs. Indeed, if what apparently competent observers state is true, that 18 per cent. of domestic cattle are infected with tuberculosis, it might be hard to find a weaned or bottle-fed infant that had not repeatedly imbibed the contagion, and yet the race survives, the average longevity increases and the population question still troubles the Malthusians.

It must not be inferred that it is intended in these remarks to object to or disparage any reasonable attempt to protect the public against so great a scourge as tuberculosis. It is not necessary however for the State, or the public, to treat the consumptive as a leper, and such extreme measures as the one noticed are not only not humane, but can not be said to be in the true line of progress. They obscure and rather tend to the neglect of the less obtrusive but far more efficient local hygiene that is the true defense against the disease. Such measures can be justly characterized as panicky legislation, and cowardice is not an element that favors success in strife with disease, and inhumanity which is its common accessory, is undeserving of it. Tuberculosis does not increase where it is properly managed, and even with the prevalent carelessness in regard to disinfection or destruction of sputa, indiscriminate expectoration, etc., it is no greater a scourge in long settled communities than it has been in years past. With the present enlightenment as to its causes and prevention, there is no reason why it should not decrease with the employment of early rational precautions against infection.

THE QUESTION OF PHYSICAL EXAMINATION.

At the recent meeting at Philadelphia of the Association of Military Surgeons of the United States, during the discussion of the paper prepared and read by MAJOR PAUL R. BROWN, Surgeon U. S. Army, on "Modern Methods of Anthropometric Identification, so far as the United States Soldier is Concerned," in which he very earnestly advocated the system based on anatomic and descriptive data devised by BERTILLON, of whose work he is the translator, COLONEL CHARLES H. ALDEN, the Assistant Surgeon-General of the U.S. Army, and others of that Department, declared their preference for the method now in vogue in the Army of recording prominent marks, scars and peculiarities as proofs of identity, for the reason among others that the French plan proposed was primarily associated with the recognition of criminals. CAPTAIN MYLES STANDISH, Mass. V. M., said that the mere fact that BERTILLON'S method was employed in connection with criminals would make it difficult or impossible to adopt it in this country, and CAPTAIN ARTHUR R. JARRETT, N. Y. N. G., was also of opinion that in his State the men would feel it an indignity to be measured and inspected by the same procedure as was employed for criminals, which caused MAJOR HAVARD of the Army to remark that this objection reminded him of MARTIN LUTHER'S reply, when he was reproved for playing dance music, that he did not see why the devil should have all the good tunes.

The trend of the discussion illustrated one of the difficulties experienced in this country in enforcing any salutary regulation. The sentimental objection is alleged that the liberty of the individual is encroached upon by requirements special to one particular occupation or to one class of persons, and resistance is upheld to the point of establishing the license to do as each one pleases without regard to the interests of others or to the better control of public affairs. Only in recent years has the practice obtained of uniforming railroad employés; still later that of requiring letter-carriers to wear a distinctive dress; and only within the past year has COLONEL WARING been able to clothe the force of the New York Street Cleaning Department in a prescribed uniform. The writer recalls the almost rebellious refusal of the female nurses of the Maryland State Hospital for the Insane, of which DR. ROHÉ was Superintendent, to wear a uniform dress, and he only succeeded by inducing the prettiest of the lot to try on a most becoming and coquettish costume, with which she was so satisfied that she concluded to keep it on, all the others quickly following suit.

Municipal administration in this country is hampered more by this intolerance of restraint, however justifiable, than by any other cause. The same individuals, who in Great Britain, Germany, France, Italy and Russia, conform with no apparent reluctance to the most stringent requirements, are the most defiant of rules of propriety as soon as they fall within the limits of this law-contemning country. It is only necessary to watch the Irish and German drivers of beer-trucks, grocer-wagons and butcher-carts turning the corners of public thoroughfares at full speed without regard for feeble pedestrians, and offensively unclean Italian and Russian laborers crowding into public conveyances to realize how the lax administration of our cities has transformed the alien serf into a very unwholesome variety of American boor. Within a few weeks, the Board of Health of New York nerved itself to issue a regulation that "spitting on the floor of public conveyances is a nuisance, is frequently the means of communicating disease, and is hereby forbidden," which was reinforced by an order of the General Manager of the several street railway lines that "employés of the company are required to call the attention of passengers violating the above order of the Health Department either in the cars, waiting-rooms, or on the stairways and station platforms of the company, to the provisions of the same." The fulmination was printed on cards which have been hung where they can scarcely be seen, employés are supremely indifferent to the injunction and the spitters continue their disgusting practice.

It can not be asserted that indifference and hostility to sanitary and other municipal regulations are inherent to the republican form of government, since both in France and Switzerland, the latter venerable among republics, the citizens render the same prompt obedi-

ence as the Chinaman, who obeys the law because it is the law, in the same spirit as his child who obeys him because it is his duty to obey. During our civil war, an American traveling in Europe became acquainted with a young Swiss merchant who was lamenting that he had been called upon to perform his military service in the field at a time when his business required his presence, and who, when asked by the American, "Why do you not hire a substitute?" as so many thousands of the citizens of the Great Republic were doing at that very time, replied, "Hire a substitute! Why, it is my duty to go"—and he went.

Recurring to the initiatory text, which suggested this acticle, the alleged objection to the personal indignity and humiliation of a physical examination is really only a pretext, and intended to conceal the very physical defects it is the prime object of the examination to discover. There is no more important duty of the medical officers of the army, navy and marine-hospital service than this of physical examination. Upon its proper performance depends the efficiency of the personnel of the several services. It secures the retention of the fittest—of those least predisposed to disease and most resistant to the morbific influences of climate and occupation—of the most vigorous and best able to perform arduous and exacting labor. The recognition of deserters, convicts and other undesirable recruits is only incidental and based upon information obtained originally with another object. "So far as the indignity and humiliation are concerned," said Major Valery Havard, U. S. A., in supporting Major Brown's advocacy of the Bertillon method, "when a man is stripped and his marks and defects noted he has been subjected to as much indignity as he can be, and therefore I prefer the most scientific system based on anatomic data." Major Philip F. Harvey, of the U. S. Army, goes even farther, in that he proposes to prevent the enlistment of undesirable men by a study and interpretation of the marks of degeneracy, indicating moral defects and criminal tendencies in the individual.

The individual's body is his own most precious possession, but he has no right because of this exclusive ownership to exact concessions from other bodies that may be prejudicial to the general welfare. In some sequestered spot or solitary island, he might go clad or unclothed, and mutilate, disfigure or destroy it without let or hindrance, but where other bodies come within its sphere the inalienable property right has to be restricted. Examinations conducted in privacy by competent and experienced professional examiners, with every regard to decency and delicacy, can be no more objectionable than the diagnostic explorations of the attending physician; and the record of the shape of the nose and other features, the configuration of the body and limbs, and the other points of the congenital conformation of the individual are as proper as the noting of a scar on the left cheek, a wart on the nose, or an eagle and anchor and the letters A. B. in indelible ink on the left breast. It is gratifying to learn from medical officers of the National Guard of great States like New York, New Jersey and Pennsylvania, that they are aiming to establish the same system of physical examinations as prevail in the national services, and we trust that the recent discussion before the Association of Military Surgeons may have the effect of making the practice general in all the States and Territories, and that the decorous submission to requirements in this instance may lead to a better disposition to recognize the value of law and order in other matters, especially in those concerning the public health. It is not anticipated that any military surgeon will object to the most thorough physical inspection, though hardly to the extent of introducing a rectal speculum or urethral catheter or requiring the subject to urinate under observation as has been done in Europe. Soldiers and sailors of all men should be trained to regard their bodies in a manly spirit. Men bathe together without remark and the familar exposures of the barracks and bath-deck are neither provocative of libidinousness nor shamefacedness. The cadets at the U. S. Naval Academy are annually subjected to nude inspections, which are made matters of record and are invaluable elements of their physical history. Properly conducted physical examinations of the inmates of girls' schools and colleges would do much in the way of convincing parents and skeptical teachers of the progressive deformation of young women by faulty dress, and now that the injudicious use of the bicycle is distorting the plastic pelves of immature females, such examinations will be of incalculable benefit. The greater attention paid to the normal development of the body the better for the race, and the general adoption of Bertillon's system of physical inspection and registration by the National Guard of the United States will be the indirect means of better acquainting the members of that organization with their bodily selves.

THE PUBLIC HEALTH DEPARTMENT.

We have received the following letter from Dr. Jerome Cochran, State Health Officer of Alabama, Chairman of the Committee on a "Department and Secretary of Public Health" appointed by the Association some years since, of which the late Dr. C. G. Comegys was the first chairman:

Montgomery, Ala., June 29, 1896.

To the Editor: In the Journal of the 27th there is an editorial which has occasioned me no little surprise. It begins on page 1273 and is entitled "An Explanation Is in Order."

The explanation is very simple. After several years of unavailing work the Committee on Department of Public Health presented a report at the Atlanta meeting of the Association proposing a new departure in the effort to obtain

national public health legislation. This report is to be found in the JOURNAL for May 16, beginning on page 988. It was discussed by the ASSOCIATION and unanimously adopted with all of its recommendations. Among these recommendations is one authorizing us to invite the coöperation of the conference of State boards of health.

I accordingly attended the meeting of the conference in Chicago and laid before it the plan for a national health bureau which had been approved by the ASSOCIATION and asked the conference to approve said plan, which it did. I also requested that the conference recommend each State Board of Health to appoint one member of a committee to act with the committee of the AMERICAN MEDICAL ASSOCIATION in securing for the proposed bill the favorable consideration of Congress. This also the conference agreed to.

That is the whole story; and it seems not a little strange to me that the JOURNAL of the ASSOCIATION should begin in such hot haste to oppose the plans and orders of the ASSOCIATION. The United States mail brings Chicago in easy communication with Montgomery, so that it would have been easy for the Editor of the JOURNAL to have obtained all the facts from the chairman of the committee. I will venture to suggest that common justice dictates that you should give this explanation as prominent a place in the columns of the JOURNAL as was occupied by the hasty editorial complained of. I have the honor to remain yours truly,

JEROME COCHRAN, M.D., Chairman of Com.

We only reiterate a demand for what we believe the ASSOCIATION wants and what is expressed in the very name of the committee on a *Department and Secretary of Public Health*. The following extracts from the committee's report (printed in full in the JOURNAL for May 16, 1896) show that we have made no mistake. After reciting the previous failure to obtain a Board of Health, Dr. COCHRAN as chairmain on the Committee on a Department of Public Health, says:

"In the meantime, the Marine-Hospital Service, which in 1890 had already been invested with some important health functions, was by the Act of 1893 converted into a National Health Department with very large and far-reaching powers and abundant means. It is not called a department of public health, but is a Department of Public Health in fact.

. . . . . .

It seems to us to be a fundamental proposition that we shall have but one National Department of Public Health. This being conceded, one of three courses remain open to us.

1. We may devise and advocate a plan to deprive the Marine-Hospital Service of its public health functions, and for the establishment of an entirely new department; or,

2. We may accept the Marine-Hospital Service just as it stands as a department sufficient for our present use; or,

3. We may endeavor to improve the Marine-Hospital Service and make it a more satisfactory National Health Department than it now is.

It would seem that this last method promises to be the most fruitful of beneficent results; and the question then arises as to the modifications that may be wisely made in the existing law.

Such a scheme as this would probably command the approval and support of the National Conference of State Boards of Health, which Conference is quite as deeply interested in movements of this character as is the AMERICAN MEDICAL ASSOCIATION.

As the conclusion of the whole argument, we recommend that we be authorized to draw up a new bill along the lines we have indicated, and that we be authorized to invite the cooperation of the Conference of State Boards of Health and of the American Public Health Association in our endeavor to have the proposed bill enacted into law."

The following was the discussion thereon.

DR. HIBBERD—I move that the report of the committee be accepted, the plan outlined adopted, the committee continued and enlarged by the appointment of a member from each State. Seconded.

DR. I .N. LOVE—If I understand the proposition rightly, it provides for a Department of Public Health built upon the present foundation of the Marine-Hospital Service. I am therefore in favor of it. It is an elaboration, a building up in a stronger and more definite shape of the public health department and quarantive service which we already have. When we consider that every other department of life is represented in our National Conference Board, or Cabinet, and yet public health is not represented, surely the dignity of medicine and the best interests of the health of the community demand such recognition, and I think the most practical way in which to accomplish this great and good work is by building up that which we already have and crystallizing it in the shape of a more dignified body.

DR. SUMMERS, of St. Louis—I think, sir, it is time for this ASSOCIATION to demand of the United States of America that it should be represented in its Cabinet at Washington. We can learn a great deal from the old Christian mythology, where Gabriel was the Secretary of State, Michael the Archangel or Secretary of War, and Raphael the Secretary of Health, who flew with his wings close to the earth and shed healing in his path. Now, I say, the time has come when this ASSOCIATION in its power and dignity should rise and demand of the government of the United States that it create a department of public health, as has been done in all governments of the world. This is the solution of the question. Twenty-five years ago I joined DR. COCHRAN in his efforts in public health matters in Alabama, and it brought out the fact that it was possible for the State to take hold of medicine and govern it accordingly.

The report was then adopted.

It is entirely clear that the members thought they were supporting a measure to create a *Department* of Public Health. The proposition was understood to be as stated by DOCTOR LOVE, a DEPARTMENT OF PUBLIC HEALTH built *upon* the present foundation of the Marine-Hospital Service.

That is a very different proposition from the one advocated before the conference. The latter simply provides for a Division of Public Health in the Marine-Hospital Bureau, the chief thereof to be appointed by the SUPERVISING SURGEON GENERAL; that is to say in effect that some subordinate in a bureau, itself subordinate to the Treasury Department, has sufficient power, dignity and authority to represent the important interests which ought to be intrusted to him, with credit to the American Medical Profession.

We do not think the chairman quite understands the sentiment of the ASSOCIATION on that point.

Has he submitted any proposition to make the Marine-Hospital Bureau independent? That would seem a proper move, as by the words of the chairman, "It is not called a Department of Public Health, but is a Department of Public Health in fact." Why then seek to place the chief of the Public Health Service two removes further from departmental independence? The head of the present bureau is not now independent; if it be, as DR. COCHRAN says, the real health service, why not make its chief the chief in fact, instead of merely authorizing him to "appoint" somebody, or employ a new clerk?

There is rarely time to discuss these questions on the floor of the ASSOCIATION, especially when the report is in manuscript, and no one knows what is in it unless fortunate enough to have a front seat. The question then finds its appropriate place for discussion in the columns of the JOURNAL, and we sincerely hope that our esteemed friend, with that courtesy and tolerance that has always distinguished him, will welcome criticism and well-formed opinions from other members of the ASSOCIATION.

In conclusion we might inquire whether or not DOCTOR HIBBERD'S duly seconded motion to appoint one additional member of the committee from each State has been acted upon. That motion was surely wise, and according to the minutes it was adopted.

THE MEDICAL JOURNAL AND THE "READING NOTICE."

The manager of a medical journal has his troubles quite apart from those of securing leader writers. One of the most annoying and at the same time one of the most unnecessary, is the unceasing demand from those who should know better, that the reading columns of his journal shall frequently present articles descriptive and sometimes eulogistic of some pill, powder or potion. The article thus presented as a "reading notice" is usually written by some impecunious or unknown M.D., who, for a consideration or gratuitously, has furnished our advertiser with this wedge to force the journal.

The thin edge is inserted when the article is written as a scientific one. There is a phase in this matter that is not quite understood. If Editor Jones or Editor Smith shall, as many do, decline to publish the material, then the advertiser may make it a personal matter and withdraw the advertisement. This procedure, we are sorry to say, is growing more and more frequent.

Let us ask advertisers to look this matter squarely in the face. There are two sides. Editor Jones, we may say, has given much thought to this subject, and wishes his esteemed friend C. C., of Selldrugs & Co., a large and prosperous business, but he can not comply with the request of the Messrs. Selldrugs & Co. He tells them in effect that he has only advertising space for sale in the advertising department. The scientific department of his journal, he explains, is not intended for advertisements, and in fact he has no right to sell any part of it. To do so would be an open violation of an implied contract with his readers.

The editor, as he warms up to his subject, continues: "There is still another point of view; we are carrying your advertisement, my dear friends, and we thank you very much, but our rates are low, and we think we are giving you an equivalent, why should you ask us to insert two advertisements when you pay only for one? If I send my office boy to your drug palace and buy a hundred pills, are you obliged to yield to his demand that having honestly bought the pills, he must now have a pound of bon-bons and a box of cigarettes? You would, my dear Merchant Prince, resent the impudence of the boy. Suppose now that we go ourselves, or write you a note threatening to withdraw our patronage, even to the extent of buying our next box of pills from your hated rival. You would very likely," says Editor Jones, "tell me that you sold the pills at a low price, and if you furnished anything more it would be a gift. You would perhaps say aside to your partner that the editor was coming very close to levying blackmail. I have not put the case to you," said Editor Jones, "on any sentimental grounds, as from the well-known philanthropy and public spirit of your long-established house I might easily do, but I have chosen a simple commercial standpoint and the case is only overdrawn in one particular, that is the dealer has *all* the articles for sale; in the case of the *Medical Journal*, the manager has no right to sell or give away his scientific space; that part of the journal does not belong to him for that purpose; it is actually already paid for by the subscriber."

CORRESPONDENCE.

Our Journal.

MONTCLAIR, N. J., June 7, 1896.

To the Editor:—I have just voted to move the publication office of the JOURNAL to Washington, D. C., and was actuated by the following reasons:

1. The JOURNAL is the organ of a great national Association which should know no local prejudice nor be controlled by any local body of men.

2. Any serial publication must in some measure respond to the influence of its environment, therefore, in the case of a periodical whose aims are so broad and whose spirit must be so catholic as those which the JOURNAL must display, unless it shall fail of its high mission, its seat of publication should be the most cosmopolitan possible.

3. Washington is the most cosmopolitan city in this country. It can have, from the nature of its institutions and government, no strong local prejudices.

4. It is, furthermore, the center of scientific thought as well as the national capital. The fact that it is not a commercial center fosters the scientific and literary spirit, and makes it a delightful place of residence as well as an advantageous literary workshop.

5. It has certain advantages for literary work over any other city in this country, because it contains the Congressional library, the largest general library in America, and the Surgeon-General's library (which has been rendered so available to all scientific readers by the work of Dr. Billings and his assistants). Washington contains also various other libraries, as well as museums and laboratories.

6. These advantages must in the nature of things tend to increase as time goes on, so that it is quite conceivable that, even if the publication of the JOURNAL shall be continued at Chicago for the present, it will be forced to go to Washington finally. Should this prove to be the case, it is obvious that the move had better be made now than later on.

7. The unfortunate defection from the ranks of the AMERICAN MEDICAL ASSOCIATION bids fair to heal in good time. This promise of better things has been brought about greatly through the powerful influence of the JOURNAL. If the JOURNAL shall be moved farther East, a happy outcome of these complications will come more quickly.

8. The JOURNAL is the only prominent medical publication in this country which is not issued from the press of some private publishing firm. Its publishers are, or should be, the entire medical profession of America. It must, therefore, be published in the interests of no set or clique; its opinions must be quite unbiased by any local interest, any spirit of business or any private scheme.

9. There can be no question that the medical profession as well as the laity *need* in this country one powerful, well edited and liberally supported medical journal, which shall be an acknowledged authority upon scientific medicine, State medicine, hygiene and medical ethics.

10. The high grade of scholarship, the breadth of view and the business sagacity which have been shown of late in the management of the JOURNAL, give every promise that it is bound to become such a publication as has just been described; in short, an American medical journal of which Americans may be justly proud.

11. It will take this high place all the sooner if its seat of publication, its general surroundings and its support shall be as favorable as possible.

12. If the present rate of advance in the character of the JOURNAL shall be maintained the title should become THE AMERICAN MEDICAL JOURNAL, and in smaller type. The words THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION should appear upon the title page.

13. While it is true that the character of a publication is influenced by its environment it is also true that a publication exercises an influence upon the thoughts and action of those in whose midst it may be published, and this influence naturally increases with the growth and power of the publication; it would be well therefore that the JOURNAL should be published in Washington by reason of the restraining and enlightening influence its presence may have upon our legislators.

14. Great questions of national health, national hygiene and physical well-being are now engaging the attention of scientific men the world over, and as intimated above the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION should be in a position to test the alleged discoveries in these lines and to impress what else may be found valuable not only upon the profession but upon our public men as well.

15. The advance of the medical profession in America in learning, dignity, wealth and power has been marvelous during the past two decades. There is no probability that there can be in these respects a retrograde movement. The times are propitious. The future of American medicine is bright with hope. Let the JOURNAL seize the opportunity to place itself at the head of the profession and let each and every one of the members of the ASSOCIATION forgetting all local pride and all sectional prejudice do all that in us lies to advance no particular sect nor interest, no especial State, county or city but the power and good name of American medicine and the prosperity of its medical association. Let us be broad minded and patriotic and sink all sectional feeling in our common love of our profession and our devotion to the healing art.

RICHARD C. NEWTON, M.D.

A Testimonial to Prof. N. S. Davis.

POMFRET, CONN., June 30, 1896.

To the Editor:—D. L.'s letter in the JOURNAL of June 20 in regard to a memorial to Dr. N. S. Davis reminds me that I have in my possession a medal struck in 1846, on its face a medallion and the words "N. S. Davis," and on the reverse the inscription "AMERICAN MEDICAL ASSOCIATION," and the date "1846." This medal was given to me by Mrs. Williams of this town, whose husband, the late Dr. Lewis Williams, was a delegate to the 1846 meeting, which I think met in Louisville, Ky.

S. BURDEN OVERLOCK, M. D.

NOTE.—This convention met in New York in 1846.

Treatment of Typhoid Fever.

JUNE 8, 1896.

To the Editor:—I have been much interested in the discussion of the "Woodbridge" treatment of enteric fever, and I am greatly pleased to see that many realize the necessity for fulfilling what I have long considered the essential requirements in not only this, but most, if not all, intestinal disturbances, viz.: Rid the digestive canal, promptly and thoroughly, of all offending or decomposing matter, together with the products of decomposition, thus preventing their absorption; render the contents of the entire tract aseptic as far as possible, and lastly—this and the first being, to my mind, the prime consideration—inducing decided alkalinity, as it is in acid media that most, nearly all, the obnoxious microörganisms thrive best. The degree of alkalinity should be positive and sufficient, and as, within reasonable limits, there is no danger of overdoing the matter, large quantities of alkali, preferably bicarbonate of sodium, should be given with sufficient frequency to maintain the condition.

While practicing in San Diego, Cal., I had many cases of enteric fever to treat, not one of which failed to yield promptly to the course of treatment here indicated, barring two, which were moribund as the result of intestinal hemorrhage when I first saw them.

I had recently on my hands a puny infant to treat, whose surroundings were in the highest degree unfavorable, suffering from entero-peritonitis, to which I gave freely sod. bic., 2 drams, and sod. et pot. tart., 1 dram, in milk every two hours. When I first saw the child it was to all appearances nearly dead; thighs flexed upon the abdomen; too weak to even cry; abdomen distended almost to bursting; temperature 106.5, pulse too rapid and weak to accurately count. I promptly got it under the influence of that most reliable and efficient of all stimulants, nitro-glycerin, and then began the administration of alkalies. It began to respond to treatment at once, free evacuations of most offensive material soon taking place, followed by reduction in temperature and tympanites. Ten days later the child had practically recovered. In fact I have found that in all cases of acute intestinal trouble, even when profuse diarrhea is present, brisk cathartics afford the most prompt and certain relief. With them moderate doses of anodynes may be given, but not to the extent of inhibiting catharsis.

While on this subject permit me to invite attention to the great and decided efficacy of large quantities of alkalies in chronic digestive disorders. Particularly in those disturbances from which the users of tobacco and alcohol suffer, will this be found the case. To many such I have frequently given doses of one to two ounces of bicarbonate of sodium, fre-

quently repeated, not only with great and prompt relief to the induced trouble, but, in not a few instances, with at least a temporary overcoming of the causative trouble as well. As in nearly every case of digestive trouble there is a condition of hyperacidity of the gastric juice, is not the giving of alkalies the rational procedure? In fact is not the "requisite degree of acidity of the gastric juice" one of the numerous "bugbears" in the path toward "rational therapeutics"?

H. W. YEMANS, M.D.

Orrhotherapy in Diphtheria.

To the Editor:—The statistics for my paper on page 1, of this JOURNAL, were collected for me by Dr. Wm. R. Parkes, who had taken everything that could be found in my own journals and in the extensive files at the Newberry Library. It should be kept in mind by the reader that all statistics whether favorable or unfavorable to the use of antitoxin in diphtheria have been used and I have attempted to present an impartial statement. If I have failed to give the credit to antitoxin that many of my readers think is due, it is only because such credit is not borne out by the statistics and I beg the reader to make a careful analysis of the table. It should be specially observed that in nearly all statistics the comparison of the death rate in diphtheria has been made for the latter part of 1894 or for 1895 where antitoxin was used, with *previous* years when antitoxin was not used. As shown in observation 8 of the table Behring's statistics for Berlin prove that the death rate for diphtheria in 1895, whether antitoxin was used or not, was very much less than in previous years, it being only 14 per cent. in 4,479 cases treated in Berlin without antitoxin. If, therefore, statistics of all the patients treated with antitoxin in the latter part of 1894 or in 1895 could have been compared with those treated without antitoxin in the same period, it would appear from these statistics that the death rate in the latter would have been less than in the former.

Yours truly, J. FETCHER INGALS, M.D.

[Received after the article was in press.]

The Bracelin Remedy for Diphtheria.

[After all the talk in the newspapers on the subject, and elsewhere, we are sure our readers will gladly know that Dr. Bracelin is still in the ranks of the profession and repudiates the term "secret" as applied to his treatment.]—ED.

CHICAGO, ILL., June 29, 1896.

To the Editor:—Diphtheria, one of the most common and the most fatal of all acute infectious diseases from which the human family suffers, has been the *bête noire* of the medical profession.

For years investigators have been studying the disease so as to learn the cause which produces it, and, if possible, to discover a remedy which would remove the cause or modify or neutralize its effects, but without any satisfactory results. At length, after years of patient study and observation, two German scientists discovered that a certain kind of bacteria was invariably to be found in the diphtheritic deposit. They made known their discovery and now the Klebs-Löffler bacillus is looked upon as the specific cause of the disease. Since the discovery of microbic cause of the disease different antiseptics known to be destructive to bacteria have been used with varying degrees of success, but on the whole with unsatisfactory results.

Medical journals and daily newspapers were filled with reports of wonderful cures effected by the different methods of treatment adopted, yet the average death rate has remained about the same. The last aspirant for professional honors in the treatment of diphtheria, antitoxin, and most generally accepted by the profession as a successful remedy, does not appear to be so useful as it was at first believed it would be. Clinical tests as reported by some are favorable; as reported by others very unfavorable. According to some reports the death rate has been lowered, but others again show that there has been no appreciable lowering of the rate of mortality. So many authentic records of sudden deaths following immediately after it had been injected, and apparently caused by the remedy, as also the constitutional disturbances undoubtedly produced by it have made many of the profession halt in their advocacy of such a dangerous remedy, even if it had proved more successful in curing the disease than it has been, they feeling that it is not safe nor advisable to use such a dangerous remedy.

In my opinion diphtheria is a self-limited disease of specific origin. If, after the appearance of the disease, auto-infection can be prevented the efforts of nature will, unaided, effect a cure, but if the products of decomposition containing the specific poison of the disease (whether we believe this to be the Klebs-Löffler bacillus or the ptomaines produced by it) are allowed to enter the circulation the disease increases in virulence, the powers of resistance are weakened and the victim dies.

Theoretically, a remedy to be successful in the treatment of diphtheria should be one which would be constitutional as well as local in effect. It should be destructive to the specific cause as found in the diphtheritic deposits, prevent decomposition of the diphtheritic membrane and destroy or prevent formation of the ptomaines which cause auto-infection. But before treatment has been commenced there may have been a greater amount of diphtheritic poison in the system than nature unaided is able to destroy. The remedy must therefore be a constitutional as well as a local one, so that entering the system it may assist nature in her efforts to destroy or neutralize the poison already there. Such a remedy would be an ideal one and should, in my opinion, meet the requirements necessary for the successful treatment of diphtheria.

In January, 1893, I discovered a remedy which appears to meet all the requirements of the ideal remedy. I have been experimenting with, testing clinically and improving on the original idea, until now I believe it is as near a specific for diphtheria as it is possible for a remedy to be for any disease. Since that time I have treated a large number of diphtheria cases in all stages of the disease and have only lost about one per cent., and I believe I have verified my theory that, if chlorin gas, corrected, should prove to be a safe bactericide for diphtheria, it would also be an effective remedy for all diseases of the respiratory organs of a microbic nature. This theory has been fully confirmed by the experience of many physicians beside myself who have used chlorin gas as prepared by me. It is too much to expect that such a small death rate can always be maintained, but I believe that by the use of this remedy the death rate will be less than 5 per cent. Not one who has used it as a prophylactic when exposed to the disease has been attacked by diphtheria. This is the best evidence of its efficiency as a prophylactic. As it is used by inhalation, it not only acts upon the diseased tissue locally, but being a vapor the remedial agent enters the lungs, passes into the circulation with the oxygen and materially aids nature in destroying the systemic poison. It is simple, easy to use, and absolutely safe; there is no danger of any harmful result following its use, or evil being caused by it. The remedy has been successfully used in a number of diseases of the throat and lungs, pneumonia, hay fever, asthma, laryngitis, common colds, bronchitis, whooping-cough, catarrh, consumption, etc. All cases of consumption in the first or second stages where it has been used, have recovered and are now well. Consumptive cases require, in addition to the inhalations, appropriate constitutional and supportive treatment on the usual lines. It has failed to cure in the last stages of the disease, but affords great relief to the sufferer. I have reason

to believe that if used on the first appearance of any symptoms of consumption that comparatively few will die of this much dreaded disease.

Pure drugs and careful manipulation in the process of manufacture are necessary in order to attain an efficient remedy. If made of poor materials, improperly combined, the remedy will prove a failure; but properly made it will prove to be all I claim for it. I have therefore made arrangements with a firm of reliable manufacturing chemists in Chicago to have it made under my personal supervision, and I have removed to this city for that purpose. Every bottle which now goes out will be guaranteed perfectly pure and of full strength. It will be distributed by Mr. J. J. Russell, 167 Dearborn St., Chicago, from whom the genuine remedy can always be procured. On every bottle will be found the formula and none will be genuine without my signature.

The remedy consists essentially of chlorin, deprived of its suffocating, irritating qualities by an emollient corrective. The value of the "corrective" is not so much due to the agents used as to the process of manufacture in making the combination. Properly made the results will be satisfactory, if improperly combined the results will be disappointing. This is the result of my repeated trials and clinical experiments carried on during a period of over three years. Two liquids are used, which are for convenience named "Bracelin Chlorin Bactericide," "No. One" and "No. Two." "B. C. B. No. 1" is set free by the corrected chlorin in "B. C. B. No. 2." "B. C. B. No. 2" is added to "B. C. B. No. 1" in the proportion of one to five parts slightly warmed and the vapor inhaled as directed. Some diseases, such as diphtheria and pneumonia, require its use once each hour, others but four or five times a day. I am now prepared to give my formula to the profession for trial in the teatment of diphtheria and throat and lung diseases, viz:

FORMULA OF BRACELIN'S CHLORIN BACTERICIDE.

Solution No. 1.

Solution Zinc chlorid	20 parts.
Solution Arsenic chlorid	30 parts.
Hydrochloric acid	1 part.
Water	49 parts.

Solution No. 2.

Solution chlorinated Soda, Standardized to 2.6 per cent. available.

Chlorin	70 parts.
Corrective	30 parts.

NOTE:—The corrective consists of menthol, camphor, eucalyptol and salicylate of methyl dissolved in alcohol and water. It will, I think, require no special argument to convince the profession that so chemically unstable a compound can only be prepared satisfactorily by careful and competent hands, and as already stated, I shall hereafter personally supervise its manufacture for the use of physicians.

P. M. BRACELIN, M.D.

PUBLIC HEALTH.

Yellow Fever at Rio Janeiro.—The *Revista de Ciencias Medicas* for May 20 states that there were 451 cases during the first fortnight of March, with 395 deaths.

An Expensive Investigation.—It was stated in the House of Commons last week that the total cost of the Vaccination Commission up to March 31 last, had been about $84,000.

Cholera in Egypt.—The *Progrès Médical*, June 6, states that the total number of cases of cholera reported that date is 3,030, of which 2,523 resulted fatally. Malta has announced a seven-day quarantine for ships from Egypt, extending it to twenty-one days if there are passengers on board.

Board of Health Summer Corps.—Fifty physicians, who will serve in the summer corps, were appointed by the Board of Health, of New York city at its meeting June 23. They are employed to attend to the sick in the poorer quarters and teach proper methods of sanitation. The announcement that the President of the Board of Health has selected forty rear tenements to be abated as nuisances shows that reform is at last becoming something more than a mere name in New York.

Deleti ab Variola.—The Berlin correspondent of the *Medical Press and Circular*, in his notes of the recent Jenner centennial celebration in Germany, records that Professor Virchow, who opened the proceedings in the name of the Committee of Honor, said, in his address, that as an ethnologist he was impelled to mention an ethnologic fact in the history of protective vaccination: "All the peoples that had not been reached by vaccination, or that had not accepted it had disappeared from the face of the earth—destroyed by the 'smallpox'"—a statement which, if correctly quoted, must be subject to many exceptions.

Poison in Black Hair Dyes.—The *Journal D'Hygiène* of June 11, warns the public that several black hair dyes recently analyzed have been found to contain paraphenylenediamin, a derivative of the nitro-analins, which accounts for the serious eye troubles, boils and eczema which have been reported as following occasionally their application. The subject recalls the recent remark of an elderly Paris physician who was being rallied upon his youthful locks: "You young doctors drive us to dye our hair nowadays, as gray hairs no longer command respect."

The Use of Salts of Copper in the Manufacture of Canned Vegetables.—Professor Duclaux states that the public should be warned of the dangers of using canned vegetables that have been colored artificially with salts of copper. The natural yellow color of cooked vegetables would be esthetic enough for most people if they knew that there was peril in the bright green ones. He urges hygienists to secure the passage of an ordinance announcing that while the salts of copper are not poisonous enough for the authorities to prohibit their use, still they affect some persons unpleasantly. Consequently the manufacturers must use them at their own risk and be responsible for damages, even when it is proved that the can contained no more copper than others which produced no bad effects.—*Semaine Médicale*, June 6.

Population of London in 1896.—The *Lancet*, June 6, has some of the preliminary statistics of the census held in London on March 29, 1896. The population then obtained by count, and since then adopted by the Registrar-General, was 4,435,955, or some 14,000 in excess of the estimate up for the middle of 1896. This error is so small that for statistic purposes it might well be disregarded. In Inner London, it was found that there was an actual decrease in the total population, chiefly caused by the absorption of old residential properties for business purposes and the removal of families to the suburbs. This is the first quiquennial census that has ever been taken in London, all other previous ones having been at intervals of ten years. It was authorized by special legislation matured in 1894.

Another Shrinkage in "Estimated" Population.—Even the city of London, it appears, has been over-estimating its population. The recent census shows some 15,000 less than the estimate formed on the basis of 1891. As pointed out by the *St. James Gazette* the difference is small, but important, as it shows that the previous fall in the rate of increase is maintained. The population is growing at a less and less rapid pace. At the beginning of the century it used to increase by more than 20 per cent. in the ten years between successive censuses; in 1881–1891 that rate had fallen to 10.4 per cent., the lowest on record; and now it is still less. The movement is not part of a general decline; it is peculiar to London, and seems to indicate that the huge overgrowth of the metropolis has begun to

cure itself. No town can go on growing indefinitely, and even London—monstrous as it is—has not fulfilled the expectations of earlier statisticians. Two hundred years ago it appeared to be growing so fast that Sir William Petty, one of the earliest pioneers in demographical research, reckoned that by 1840 the population would reach 10,000,000, supposing it to continue at the same rate. He thought however, that a natural limit would be reached before then, and placed it in the year 1890, by which time he calculated London would contain something over 5,000,000 inhabitants and the rest of England only 4,500,000. He was very nearly right about the total, which actually was about 9,000,000, but London accounted for less than one-half. Since then it has nearly reached its maximum, which, curiously enough, seems likely to prove a real natural limit. For the four years 1871–74 the average birth rate was 35.2; for the four years 1891–94 it was only 30.9. There has been a gradual and almost continual fall from year to year, which has not been counterbalanced by the simultaneous but slighter fall in the death rate from 22.7 to 19.9. Fewer people die in proportion to the population, but still fewer are born. This is explained by the increasing disinclination to marry. The marriage rates for the two periods contrasted are 19.6 and 17.3 respectively.

Bad Plumbing in New York.—The New York State Board of Health was, on June 15, in receipt of a complaint from the Board of Regents that the health of the 100 clerks, most of whom are young women, was endangered by the vile odors given off by the defective plumbing fixtures of the Capitol building. The Secretary of the Health Office, Dr. Smeltzer, is reported to have said that nothing can be done as there has been no money set aside for sanitary repairs by the late legislature. Incidentally, and in similar vein, complaints have been heard in even higher official circles, regarding the character of the plumbing work done in the government buildings belonging to the navy, at the navy yard and elsewhere. Cheapness of work has for a long time been the order of the day. Second-rate labor has, as a rule, been employed and light weight material has been put in; and there is no expert re-inspection to pass upon the work before the bills are passed.

July Suicides.—Commenting upon the fact—again emphasized by a recent "blue book"—that attempted suicides occur in July with far greater frequency than at the beginning or end of the year, *Hospital*, June 20, says it is a well known fact that in July in consequence of the great heat and the stagnant condition of the atmosphere, the physical vitality is generally very low and the depression of the nervous system has reached its deepest. No laboratory experiments are required to prove these contentions. Everybody is aware that in July he is for the most part "played out," and is looking forward to his annual holiday with eagerness. An important question is whether or not anything can be done to combat the natural depression of July. No doubt the earlier taking of the summer holiday would be a step in the right direction; only if this be taken at midsummer a further fortnight will be needed early in the fall, and that is costly in a double sense. The most practicable remedy, according to *Hospital*, July depression is a suitable nerve tonic; and perhaps the best and most easily obtainable of all nerve tonics for summer weather is the sluicing of the head and spine with cold water every day, or even twice a day. If any man who is disposed to commit suicide will give himself a preliminary shower bath, it is highly probable that he will change his mind before the "toweling" is finished.

No Shade for Greater New York.—At the first meeting in 1873 of the American Public Health Association, the president, Dr. Stephen Smith, read a paper on the "Effects of High Temperature upon the Public Health of New York and Measures of Prevention," in which he advocated the cultivation of shade trees in the streets, on the ground that they would tend to diminish the mortality caused by excessive heat, by affording protection from the direct rays of the sun; by preventing the paved surfaces from becoming heated; by enveloping the city with an immense evaporating surface which tends powerfully to cool the lower stratum of the air; by equalizing humidity; by the absorption of malarial emanations from the earth; by purifying the air in its absorption of gases deleterious to man and the emission of gases necessary to his existence. Twenty-three years later a society, called the Tree Planting Association of New York, is formed for this very purpose. But that ruthless iconoclast, the *New York Sun*, summarily squelches the project with the assertion that trees once abounded in New York streets "as they still abound in Brooklyn and other semi-rural towns, but they have succumbed to resistless forces, and it is hopeless to try and restore them without a radical remodeling of existing conditions." And so the denizen of the Greater New York, which will, of course, not be a "semi-rural town," may no longer do the Tityrus act—*sub tegmine fagi*—but must go abroad, even unto New Jersey for his shade trees.

Aftermath of the St. Louis Tornado.—Already, according to the *Medical Review*, the effects of the great tornado in St. Louis are beginning to show their influence upon the death rate, as foreshadowed in the JOURNAL of June 6. The *Review* says a number of deaths have been observed among young as well as old, in healthy and in sick individuals, where death was attributed to fear during and in consequence of the tornado. Several suicides have been reported "which to an extent were undoubtedly due to an intense disturbance of the *psyche* of the unfortunate individuals by the storm and its direct destructive consequences. The impression upon the nervous system of susceptible individuals will probably not be entirely wiped out for months or years, and the study of the nervous phenomena resulting therefrom will be interesting, profitable and instructive. Nor will the subject be exhausted by the resulting affections of the nervous system alone; but the direct effect of the storm upon the course of other ailments and diseases will be equally interesting to note." Dr. W. B. Outten, editor of the *Railway Surgeon*, proposes to study these phenomena and has sent a request to various physicians of the city to relate their experience as to nervous symptoms manifested by their patients in consequence of experiences in the tornado.

Smallpox in Texas.—Smallpox has been cropping out here and there in Texas within the recent past, having been introduced in the first place from New Orleans. It must be that there has been a relaxation of the usual vigilance of the health authorities of our sister State; smallpox ought not to get out. Instead of everybody shutting doors against an infection, the infection must be circumscribed and not allowed to escape; the order is reversed from the old days of shotgun; at least that's the way it is done in Texas. As soon as a case appears it is quarantined, and all who have been knowingly exposed are quarantined also. In that way there is usually very few secondary cases. But it got a good start in Smith county before it was discovered; and in all thirty-eight cases occurred. What we wished to call attention to, though, in this connection, was the remarkably small mortality. Only one death occurred out of thirty-eight cases treated, and that was in a man of seventy-five years of age—a case of hemorrhagic variety. Dr. D. H. Connally, the county physician of Smith county, deserves much credit for such successful treatment. The average death rate of smallpox is about 25 per cent.; at Camp Jenner, among the refugee negroes, it was nearly 30 per cent.; a fact attributable, no doubt, to the use of tents with two and three cases in each, and the sides pegged down. The Texas authorities do these things better; treat smallpox as nearly in the open air as possible—weather permitting. The scare is about over, however, now, the last cases reported being in

Liberty county; infection supposed to have been carried from Orange, where, we learn, the county physician employed a negro doctor to do what he ought to have done himself.—*Texas Medical Journal*, June, 1896.

Health Reports.—The following health reports have been received in the office of the Supervising Surgeon-General Marine-Hospital Service:

SMALLPOX—UNITED STATES.

Florida: Key West, June 25 to 29, 5 cases, 1 death; Pensacola, June 13 to 20 1 case.

SMALLPOX—FOREIGN.

Bombay, India, May 19 to 26, 17 deaths.
Calcutta, India, May 9 to 16, 3 deaths.
Callao, Peru, May 17 to 31, 17 deaths.
Genoa, Italy, June 6 to 13, 3 cases.
Licata, Italy, May 31 to June 6, 3 deaths.
Madras, India, May 9 to 15, 2 deaths.
Madrid, Spain, June 6 to 13, 19 deaths.
Montevideo, Uruguay, May 16 to 23, 1 case.
Moscow, Russia, May 23 to June 6, 2 cases, 2 deaths.
Odessa, Russia, May 25 to June 6, 2 cases.
Prague, Bohemia, May 31 to June 6, 3 cases.
Rio de Janeiro, May 23 to 30, 1 case, 1 death.
Santiago, Cuba, June 6 to 20, 70 deaths. Smallpox epidemic here—over 900 cases existing on June 20.
St. Petersburg, Russia, May 31 to June 6, 16 cases, 5 deaths.
Tuxpan, Mexico, May 31 to June 13, 4 deaths.
Warsaw, Russia, May 31 to 6, 4 deaths.

CHOLERA.

Alexandria, Egypt, May 29 to June 3, 49 deaths.
Cairo, May 29 to June 3, 152 deaths. Other Egyptian towns June 3, 338 deaths. From beginning of epidemic to June 3, there have been 3,112 cases and 2,597 deaths in Egypt.
Bombay, India, May 19 to 26, 22 deaths.
Calcutta, India, May 9 to 16, 120 deaths.

YELLOW FEVER.

Brazil: Rio de Janeiro, May 23 to 30, 23 deaths.
Cuba: Cardenas, June 6 to 13, 3 cases, 1 death; Havana, June 13 to 20, 25 cases, 11 deaths; Sagua la Grande, June 6 to 13, 41 cases, 4 deaths; Santiago, June 6 to 20, 12 deaths.

NECROLOGY.

A TRIBUTE TO THE MEMORY OF DR. WM. ANDERSON.—At a regular meeting of the Indiana County (Pa.) Medical Society held May 12, 1896, Drs. James McMullen, Luther S. Clagelt and I. P. Klingensmith were appointed a committee to prepare a "Tribute to the Memory of Dr. Wm. Anderson" and forward a copy of the same for publication in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

Dr. Wm. Anderson was born June 6, 1825, in Green Township, Pa. His parents immigrated to this country from County Derry, Ireland, in 1817 and settled in the eastern part of Indiana County where he passed his early life, working on the farm and attending at intervals the district schools. A higher course of instruction was entered upon at the Blairsville Academy and finished at a classical academy at Indiana. After two years of office study with Dr. James M. Taylor of Indiana, he entered October, 1850, the Jefferson Medical College, Philadelphia, graduating March 6, 1852, attending however a third course at his alma mater in 1868-69. On graduating he located at Indiana where he continued to reside until his death March 29, 1896, aged 70 years. His practice was general. He had been a member of the Indiana County Medical Society since its organization in 1858, and was its first secretary, its second president, and represented it at different times in the Medical Society of the State of Pennsylvania and in the AMERICAN MEDICAL ASSOCIATION. He had been a member of the State Society since 1862, was one of the vice-presidents in 1864 and the president in 1865. Since 1868 he has been a member of the AMERICAN MEDICAL ASSOCIATION and was a member of the International Medical Congress that met at Philadelphia in September, 1876; a member of the Ninth International Medical Congress which met at Washington, D. C., September, 1887, and also of the Pan-American Medical Congress which met at Washington, D. C., September, 1893. Several months before the date of his death, Dr. Anderson was seized with an attack of la grippe, which persistently clung to him and brought about his demise. He was connected with the United Presbyterian Church from youth. Being of a mild genial disposition everybody loved him and he had words of encouragement for all with whom he came in contact. He was noted for his industry in the societies and associations having for their object the free interchange of opinions on medical subjects. He was a frequent contributor to the medical literature of his day. Among his more notable productions are his monographs on Sclerosis of the Nerve Centers, Ozena, Nervous Diseases, Bacteria, Tobacco and Hygiene, in which much original research and thought is shown. The most valuable, perhaps, of Dr. Anderson's literary labors is entitled, "A Brief Biographical Sketch of the Medical Profession of Indiana County, Pa.," published in 1892. It contains 269 biographies.

In Dr. Anderson were happily combined calmness of manner with firmness of character, strictly honest with his patients and honorable with the members of his profession. His strict conscientiousness was one of his most marked characteristics.

THOMAS FERRIS COCK, M.D., of New York City, member of the AMERICAN MEDICAL ASSOCIATION since 1848, died June 11, at his country-place at Cold Spring Harbor, Long Island. He was a native of New York City, born there July 1, 1819. His father, Dr. Thomas Cock was for more than thirty years an officer, and part of the time president, of the College of Physicians and Surgeons, N. Y. He was graduated in arts from Haverford College; LL.D. at the same in 1886; M.D., at University of Pennsylvania in 1840. He settled in New York, and made obstetrics his special life-work. He was early a member in the New York County and State Medical Societies, and assisted in the formation of the Academy of Medicine and Pathologic Society. He served for a time at the Northern Dispensary. He was on the Visiting staff at Bellevue Hospital as early as 1849, going thence in 1855 to the city hospital, in whose service he remained at the time of his decease on the consulting staff. He was consulting physician at the asylum for Lying-in Women since 1841, and at the New York Infirmary for Women and Children since 1854, and at the State Hospital for women since 1855, about which year he issued his little manual of obstetrics. For the past ten years he had not been in active practice.

WALTER FISHER, M.D., assistant-surgeon and Captain U. S. A., died at Fort Meade, S. Dakota, June 8. He was at one time stationed at Fort Columbus, Governors Island, N. Y. His remains were interred at Oswego, N. Y.

THOMAS HUN, M.D., at Albany, N. Y., June 18, aged 88 years. In 1827 he entered the medical department of the University of Pennsylvania from which he graduated in 1830. He then returned to Albany and began practice. In 1833 he went to Paris to complete his education and remained six years. He returned in 1839 and accepted the professorship of the institute of medicine in the Albany Medical college.

HENRY SALZER, M.D., at Baltimore, Md., June 19, aged 55 years. He was born in Germany and educated in the Universities of Würzburg and Giessen, graduating at Giessen in 1866. He practiced in Germany about three years and then came to Baltimore, where he had since practiced.

LOUIS OCTAVE HUARD, M.D. (Tulane University Medical Department, New Orleans, La., 1857), at New Orleans, June 17, aged 67 years. He spent ten years in Paris, where he acquitted himself with highest honors, and was one of the few survivers of the famous French medical practitioners in Louisiana. Dr. Huard was honored with the red cross of Geneva for his devotion during the epidemic in France.

FRANK M. TEMPLE, M.D. (Western Reserve University Med-

ical Department, Cleveland, Ohio, 1880 and Department of Medicine of the University of Pennsylvania, Philadelphia, Pa., 1884) at Fairview, Pa., June 17, of pneumonia.——T. D. Kernan, M.D. (Department of Medicine University of Pennsylvania, Philadelphia, Pa., 1853) at Marion, Va., June 18.——George H. Calkins, M.D. (Northwestern University Medical School, Chicago, Ills., 1866) at Waupaca, Wis., June 25, aged 66 years.

Prof. P. Stoltz. Sixteen years ago he retired from active life as an eminent obstetrician and instructor at Strasburg and Nancy, to the picturesque mountain village where he was born. He was so popular, however, that many patients followed him there, from all parts of the country, till his death last month at the age of 92. One of the addresses at the funeral was by a former pupil, whose father had also been Stoltz's pupil in his day.

SOCIETY NEWS.

The North Missouri Medical Association at its meeting in Moberly, Mo., June 17, elected the following officers: President, C. A. Jennings: First Vice-President, W. MacAllister; Second Vice-President, J. D. Brummel; Treasurer, Robert Haley; Recording Secretary, George N. Lance; Corresponding Secretary, G. O. Cupaidge; Executive Council, J. H. P. Baker, W. T. Lindley, C. P. Clapp, D. R. Stratton. The next meeting will be held in Moberly in June, 1897.

The Allegany County Medical Society at its annual session, held in Cumberland, Md., June 18, elected the following officers for the ensuing year: President, M. A. R. F. Carr, Cumberland: First Vice-President, C. C. Jacobs, Frostburg; Second Vice-President, E. T. Duke, Cumberland; Third Vice-President, S. A. Boucher, Barton; Secretary, H. W. Hodgson, Cumberland; Treasurer, W. J. Craigen, Cumberland.

The Maryland State Medical Society, at its annual meeting elected officers for the ensuing year as follows: President, N. D. Blake, of Martinsburg, Secretary of State Board of Health; Vice-Presidents, D. C. Louchery, of Clarksburg; W. W. Golden, of Elkins; L. D. Ruppert, of Nutallsburg, and H. B. Stout, of Parkersburg; Secretary, G. A. Aschman of Wheeling; Treasurer, J. W. Johnston of Davis.

The American Microscopical Society (formerly American Society of Microscopists).—The next meeting of the Society will be held at Pittsburg, Pa., August 18–20, 1896. The Society will be the first National Society to meet in the new Carnegie Library building. A preliminary program will be published on July 15, 1896, and the Society requests communications of anything new or interesting. The officers are: President, A. Clifford Mercer, Syracuse, N. Y.; Secretary, William C. Krauss, Buffalo, N. Y.; Treasurer, Magnus Pflaum, Pittsburg, Pa.

Mississippi Valley Medical Association, meeting at St. Paul, Minn., Oct. 20, 21, 22, 23, 1896. H. O. Walker, President, Detroit, Mich.; Merrill B. Ricketts, First Vice-President, Cincinnati, Ohio; William F. Barclay, Second Vice-President, Pittsburg, Pa.; H. W. Loeb, Secretary, 3559 Olive Street, St. Louis, Mo.; Harold N. Moyer, Treasurer, Chicago, Ill. C. A. Wheaton, Chairman Committee of Arrangements, St. Paul, Minn. Executive Committee: Wm. N. Wishard, Indianapolis; X. C. Scott, Cleveland; Geo. J. Cook, Indianapolis; J. M. Mathews, Louisville; I. N. Love, St. Louis; A. M. Owen, Evansville; Wm. T. Belfield, Chicago; C. S. Cole, New York; C. A. L. Reed, Cincinnati; R. Stansbury Sutton, Pittsburg.

Colorado State Medical Society.—This Society held its annual meeting at Denver, Colo,, June 16, 17, 18, I. B. Perkins, President, in the chair. Dr. Perkins in his address spoke briefly of the progress that had been made in bacteriology and of the success that had been met with in the use of antitoxin. The speaker expressed his regret that more success had not been met with in their efforts to have a national sanitarium established in Colorado and urged the committee to continue their work in that line. Among the papers read were the following: "Bicycle Hernia," Geo. W. Miel; "A Rapid Method of Castration," W. P. Munn; "Radical Operation for Inguinal Hernia," W. W. Grant; 'Symphysiotomy," T. Mitchell Burns; "The Management of Puerperal Sepsis," W. A. Jayne; "Supernumerary Oviducts and Typical Hydatid of Morgagni, with a Large Fibroid Uterine Tumor—Hysterectomy," H. G. Wetherill; "The Diagnosis of Tumor of the Brain," J. T. Eskridge. The following officers were elected for the ensuing year: Robert B. Levy, President; H. R. Bull, First Vice-President; Dr. Finney, Second Vice-President; S. D. Van Meter, Third Vice-President; H. R. Whitney, Corresponding Secretary; Laura Liebhardt, Recording Secretary; W. F. McClelland, Treasurer. The various standing committees were reappointed.

The Northern "Tri-State" Medical Association will hold its annual session at Algola, Ind., July 21. The following papers will be read: "The Need of Abdominal Section as an Aid to the General Practitioner to Diagnose Obscure Abdominal Troubles," J. H. Carstens, Detroit, Mich.; "Salicylate of Sodium in Septic Conditions," Hugo O. Pantzer, Indianapolis, Ind.; "Modern Brain Operations," Allen DeVilbiss, Toledo, Ohio; "Some Considerations in the Treatment of Acute Otitis Media," E. A. Bulson, Ft. Wayne, Ind.; "Embryonic Miscarriage," J. R. Dodge, Hudson, Mich.; "Management of Vesical Calculus," F. J. Hodges, Anderson, Ind.; "The Cause and Treatment of Color-Blindness," F. C. Mayson, Hillsdale, Mich.; "Purpura Hemorrhagica," Frank M. Guyer, Hillsdale, Mich.; "The Differential Diagnosis of Insanity," C. B. Burr, Flint, Mich.; "Diffuse Cellulitis of Hand and Forearm," W. W. Brand, Toledo, Ohio; "A Case of Brain Tumor, with Exhibition of Specimens," G. W. McCaskey, Ft. Wayne, Ind.; "Asepsis and Antisepsis—Which or Both," J. B. Greene, Mishawaka, Ind.; "Aseptic Technique in Pelvic and Abdominal Operations Outside of Hospitals," C. N. Smith, Toledo, Ohio; "Conservative Surgery in Tuberculosis of the Testicle," J. B. Murphy, Chicago, Ill.; "The Differential Diagnosis of Insanity," C. B. Burr, Flint, Mich.; "A Case of Brain Tumor, with Exhibition of Specimen," G. W. McCaskey, Ft. Wayne, Ind.; "Obstruction of the Bowels," Hal C. Wyman, Detroit, Mich.; "Diagnosis of Typhoid Fever," W. C. Chapman, Toledo, Ohio.

The Minnesota State Medical Society held its twenty-eighth annual meeting at Minneapolis June 17, 18 and 19, Dr. Frank Allport, Minneapolis, President. There was a large attendance and much enthusiasm was evinced. President Allport in his address referred to the present coroner system as a relic and of no use.

The Society adopted the following resolutions concerning anti-vivisection:

Whereas, Science within recent years has received untold benefit and has made phenomenal progress from the legitimate practice of vivisection; and

Whereas, Humanity has profited and is destined to profit immeasurably by the discoveries in physiology, pathology and bacteriology which have been made possible by the scientific use of living animals; and

Whereas, Certain organizations, self-styled anti-vivisectionists, inspired by motives more sentimental than sound, with minds moved by emotional influences and hysterical arguments rather than by scientific facts, are seeking to strike a blow at the interest of science by the introduction into the Congress of the United States a bill restricting or abolishing vivisection in the District of Columbia; and

Whereas, The introduction of this measure is but a step preparatory to the presentation of other and similar measures in our State legislatures; therefore, be it

Resolved, That this Society denounces such attempted legislation as mischievous to the medical profession, as suicidal to the interests of society, as destructive to science, and as per-

versive of those moral standards which maintain a true relationship of things;

Resolved, That this Society petitions the senators and representatives of this State in Congress to use their utmost efforts for the defeat of this obnoxious measure.

It was decided to hold the next annual meeting at Mankato. Officers were elected as follows: President, W. D. Flynn of Redwood Falls; First Vice-President, David O. Thomas, Minneapolis; Second Vice-President, D. M. Jones, Gaylor; Third Vice-President, Dr. Williams, Lake City; Secretary, Ignatius Donnelly, St. Paul, re-elected; Treasurer, R. J. Hill, Minneapolis, re-elected; Censors, W. W. Mayo, Rochester, and Franklin Staples, Stillwater.

The Association of Surgeons of the Louisville, New Albany and Chicago Railway System held a meeting at West Baden Springs, June 4. Seventeen surgeons employed by the company were present. Dr. John G. Davis was elected president, Dr. Dudley S. Reynolds, vice-president and Dr. Samuel L. Ensminger, secretary and treasurer. Dr. George F. Beasley of Lafayette reported the case of a youth who had compound fracture of the frontal bone, with loss of bone and extensive injury to soft parts two years ago and recently became epileptic. Pulsation could be felt over the point of injury and pressure caused pain. On making incision and raising the parts covering the opening in the cranium he found the soft parts all intimately connected in a cicatricial mass and adherent to the brain integument. Occipito-frontalis muscle fascia, dura and pia mater firmly united and cicatrized. The bony edges of the opening were irregular and thickened with nodulated growths turned inward pressing on the brain. He carefully separated the brain from the adherent cicatrix, removed the exostoses and used gold foil as a covering for the brain and to prevent union again with the cicatrix. The operation was performed under strict antiseptic rules and succeeded so well that at the time the Doctor reported the case, about two weeks subsequently, there had been no more epilepsy, and the wound had healed without discharge of any kind and the patient was in a manner well.

Dr. Dudley S. Reynolds of Louisville briefly recited the case of a negro boy, 16 years of age, who had frontal headache and was suddenly seized with edema of the eyelids and the left side of the face. The eyes did not seem to protrude from the orbit, although the edema was such as to firmly close the lids. Examination of the left nasal passage showed exudation of pus at the anterior extremity of the middle turbinate. Careful examination of the locality from whence the pus came, with the symptoms already described led him to suspect abscess of the frontal cells. Using a bone drill 4 millimeters in diameter, an opening was made at the external anterior attachment of the middle turbinate, when a large quantity of offensive, cream-colored pus escaped. The cavity was injected with a solution of bichlorid of mercury and chlorid of sodium. The next day the edema had disappeared from the face and the eyelids were opened by the voluntary efforts of the patient, though still somewhat swollen. He had Hutchinson's teeth, and was given 10 grains iodid of potassium every four hours. He appeared at the clinic irregularly for about three weeks and was then lost sight of. Four months later he returned with a tender swelling at the base of the nose. On discovering fluctuation an incision was made, followed by the discharge of a large quantity of cream-colored pus and a sequestrum of bone of irregular outline about one-eighth of an inch thick in its heaviest portion; about three-fourths of an inch in length and between three-eighths and one-half inch wide. This was removed, the incision enlarged and the cavity freely washed with the bichlorid solution. He was cautioned about the necessity of taking the iodid, which had been abandoned. The wound continued to discharge for about six weeks, when a uniform depression of the whole extent of the left half of the frontal bone came on. He has no bony projection of the brow, owing to the loss of the supra-orbital process; but has recently begun to suffer with epilepsy and it is supposed that cicatricial changes in the meninges at the site of the abscess may account for the epilepsy.

The report and discussion of cases engaged the attention of the Association until the close of the session. The meeting was one of unusual interest and profit to all present. The Association will hold its next meeting at Cedar Lake, July 8–9, 1897.

The Ohio State Medical Society and Anti-Vivisection Legislation.—James E. Pilcher, M.D., Ph.D., Captain in the Medical Department of the United States Army, Professor of Military Surgery in the Ohio Medical University, in his remarks before the fifty-first annual meeting of the Ohio State Medical Society, May 27, 1896, said: Humanity is fallible. The most striking example is the existence of the absurd anti-vivisection movement, which has attained an unreasonable prominence through the success of its advocates in getting before the United States Senate a measure directed against vivisection, under the misleading title of "A bill for the further prevention of cruelty to animals in the District of Columbia." This movement of the self-styled anti-vivisectionists has gathered so much momentum in its misdirected career of misrepresentation that the medical profession must, in self-defense, take a decided stand for the preservation of its own liberties and the best interest of suffering humanity. There is no profession in which humanity is so much a part of the daily life of its practitioners as medicine. The absurdity of placing such persons in the attitude of defense against an accusation of cruelty or inhumanity of any kind is evident to every one.

The most rabid anti-vivisectionist will masticate his cutlet of veal or his shoulder of lamb, all regardless of the joyous young life that has been rudely terminated merely to gratify the animal appetite of the alleged defender of our dumb animals. The sportsman inflicts untold agony upon the victims of his prowess, but we hear of no movement looking to the prohibition of hunting. The anti-vivisectionist nestles luxuriously in his furs and his wife waxes gorgeous in her headgear garnished with the plunder of feathered songsters—both the spoil of the rapacity and cruelty of man; while the shoe trade, based entirely upon the products of the death of millions of God's most harmless creatures, is prosperous in the extreme.

When the anti-vivisectionist becomes a strict vegetarian; when he avoids all amusements resulting from animal slavery or suffering; when he clothes himself entirely in garments of vegetable and mineral composition; when he suppresses all practices, sportive and mercenary, by which pain is inflicted upon animals, he may properly begin to inquire into vivisection with a view to ascertaining whether it is humanitarian or cruel. In the war of the rebellion, 3,273 out of 3,717 cases of wounds of the intestines were fatal. It was demonstrated a few years ago by experiments on dogs that abdominal section and intestinal suture in such cases was a feasible and successful operation, and the operative procedure was experimentally elaborated, so that by it the mortality in gunshot wounds of the intestines has been reduced from 90 down to 10 per cent. The brain, which as well as the abdomen, was formerly regarded as forbidden ground to the surgeon, has, by the vivisection experiments of Ferrier and others, been brought within the realm of curative art. The work of Aristotle, Realdus Columbus, Andreas Cæsalpinus, William Harvey, and Marcello Malphigi in discovering the circulation of the blood was entirely conducted by experiments upon lower animals. The experiments of Vesalius, Hooke and Lower gave us artificial respiration. Transfusion of blood was directly the offspring of vivisectional experiment. The entire system of antiseptic and aseptic surgery, the greatest humanitarian triumph in the world's history, is based upon the practice of vivisection. The bacillus of anthrax, the bacterium of tubercle, the micro-

organism of diphtheria, the spirillum of relapsing fever, the streptococcus of erysipelas and puerperal fever, and many other specific agents in disease have been discovered entirely through experiments upon lower animals. The antitoxin treatment of diphtheria, the Pasteur inoculation cure of hydrophobia, the prevention of smallpox by vaccination, and many others of the most important therapeutic procedures of modern medicine are due to vivisection, while still many more are the subjects of observation, which will ultimately result in the discovery of curative procedures.

While vivisection experiments are always beneficial they are never cruel. Even were the medical student the heartless creature represented by the anti-vivisectionists, he would prefer, for his own convenience, to silence the cries and subdue the struggles of his subjects by an anesthetic. All this emphasizes the deceptive and incorrect character of the efforts to embarrass, if not prohibit, the future of these genuinely philanthropic as well as scientific studies. The dangerous movement looking to this end, initiated in the District of Columbia, has met with astounding success, and it behooves all true lovers of scientific progress to unite in the attempt to prevent the enactment of the bill now before the United States Senate for this purpose; for, should this movement be successful in the District, it would not only put an end to most important work in various scientific departments of the government and the medical schools of Washington, but it would be the beginning of a movement jeopardizing scientific study throughout the entire Union.

The Ohio State Medical Society adopted the following resolutions:

Resolved, That the Ohio State Medical Society earnestly joins in the protest of the American Medical Association as expressed in the resolutions adopted at the recent meeting of that representative body of American physicians and surgeons held in the city of Atlanta.

Resolved, That a copy of these resolutions be sent to the Senators and Representatives of the State of Ohio in the Congress of the United States, and that they are hereby requested to use their influence in opposition to the proposed legislation, "unless it shall first be shown by an impartial investigation that cruel and unnecessary experiments are being performed in the District of Columbia, and that existing laws do not provide suitable punishment for cruelty to domestic animals."

The following amendment, proposed by Dr. L. B. Tuckerman, of Cleveland, was accepted by Dr. Pilcher, and the resolutions as amended were unanimously adopted:

Resolved, That a delegate be appointed by this society to go to Washington and interview the Senators and Representatives in person in behalf of these resolutions, and that one hundred dollars be appropriated to pay his expenses.

MISCELLANY.

Ivy Poison.—Recent experiments show that the poison of the poison ivy is a volatile oil. Hence, water will not remove the poison from the surface as well as alcohol.

Disturbed Equilibrium.—"Isn't that too much mustard for so little meat?" exclaimed Charles Lamb as he noted the approach of the plaster.

Argon in the Breath.—Kellas concludes from his experiments that exhaled air contains more argon than before inhalation; from this he infers that it is an important element in the animal economy.

Dr. J. H. Kellogg, of the Battle Creek Sanitarium, formally opened and dedicated the Workingmen's Home and Medical Sanitarium in Chicago, June 28. Addresses were made by Dr. Bayard Holmes and others.

Physical Degeneration in Italy.—A Milanese writer asserts that 45 per cent. of the young men of Italy are unable to enter the military service on account of their lack of the physical requirements.—*Revista de Ciencias Medicas*, May 20.

His Consolation.—It is related of the late Professor Sappey, who was far from being an orator, that he used to console himself with the remark that his diffidence in speaking only caused suffering to himself alone, while the fluency of some physicians causes countless others to suffer.—*Journ. de Méd. de Paris*, June 7.

Not Chemicals.—The supreme court of Louisiana is of the opinion that soda, seltz and similar drinks are not chemicals, and it holds, in the case of the Crescent City Seltz and Mineral Water Co. v. City of New Orleans, April 6, 1896, that the making of soda, seltz and similar drinks is not the manufacturing of chemicals, within the constitutional exemption of that State of property employed in manufacturing chemicals.

A Rare Effect of Tobacco.—J. W. Scott. M.D., reports a case of convulsions, epileptiform in character, due to the use of tobacco. For two months he had one or two convulsions a week and they were growing progressi vely worse in spite of treatment. With the discontinuance of tobacco the convulsions ceased and have not returned.—*Southwestern Medical Record.*

Correction.—In issue of June 20, it was stated that "Dr. Curran Pope will lecture upon Diseases of the Mind and Nervous System; Dr. Pope resigns from the Hospital College of Medicine where he held the same position as the one in the Louisville School." This is an error, as he now holds a regular full professorship in the Louisville Medical College.

A Cockade and Crests Preferred!—The subjoined advertisement appears under "special" in the *Glasgow Evening News*. It is too good to be buried in the columns of a daily newspaper: "Doctor's Cockade.—Wanted from Cab Owners, by Doctor who has recently become surgeon in a Volunteer Regiment, estimates for hire of a Brougham three hours a day; driver must wear a Cockade: Brougham with one or two crests on doors preferred. Apply No. 10,737, News Office."

The Treatment of Cystitis.—L. Grant Baldwin, M.D., says; "Having excluded in the diagnosis, as causative factors, new growths, foreign bodies and tuberculosis, if the case is an acute one, example an operative case where a catheter has been used in an uncleanly manner, I have found that relief can be obtained in twelve hours and often in a much shorter time by the administration of sandalwood oil, together with benzoic acid, and a cure is practically obtained in from two days to a week."—*Brooklyn Medical Journal*, June, 1896.

Latent Gonorrhea.—Dr. Rosenwasser says of the gonococcus of Neisser: The locations of choice are the urethra and vaginal portion of the cervix. A person may in time become accustomed to his own brood of germs so that they cease giving trouble. Transplant them to new soil and they at once effect the recipient with pristine vigor. Then if these regenerated germs are returned to the original owner they will initiate as vicious action as though they had never been there before. This is his explanation of "latent" and "recurrent" gonorrhea. —*Cleveland Medical Gazette*, June, 1896.

International Bacteriologic "Concours."—As a memorial to Pasteur, the *Circulo Médico Argentino* of Buenos Aires, offers prizes of $400 and $200 for the best original and unpublished bacteriologic investigations or studies reported to the President, Senor Gregorio Aroaz Alfaro, before May 31, 1897. The reports to be in Spanish or French. For further particulars see the *Crónico Médica* of Lima, April 15.

Improved Eye Glasses for School Children and Artisans.—The *Revue Gén. d'Ophtalmologie* for May, describes some spectacles for school children which have a celluloid trap cover for each glass that falls down over them whenever the head droops forward, and springs back into place as soon as the head is held upright. The other is a working glass for cases of excessive myopia. It is a metal plate pierced with stenopeic openings in

the direction of the twelve principal meridians, radiating from around the pupil. It improves the sight to such an extent that myopia of 10 D. is corrected to 1 and —4 D. It also proves useful in irregular astigmatism.

The Academie de Medecine of Paris.—At the session of the Académie held June 9, M. Roux was named as a member *vice* M. Pasteur deceased. At the same session Dr. Marcel Baudoin in the name of the Medical Press Association of France, M. Cornil, President, asked the Académie to become represented at the Fête to celebrate the fiftieth anniversary of the discovery of anesthesia. This fête will be held on the occasion of the meeting of the French Congress of Surgery in October next. In response the Académie has designated M. Cornil as its representative on that occasion.

Serum Treatment of Diphtheria in Cracow.—Dr. Stapa has presented to the Cracow Medical Society a report of the results obtained by the serum treatment of diphtheria in the Children's Hospital of that city. During the year 1895 the number of children subjected to it was 258. Of these the mortality was 22 per cent. This compares very favorably with the mortality in the ten previous years, which was as high as 56.3 per cent., there being 709 deaths out of a total of 1,354 patients who were treated by other methods. Laryngeal croup occurred in 165 cases, and a rash having the appearance of scarlet fever and lasting from two to sixteen days in fifty-eight cases. It was noticed that certain samples always produced rash. No effect on the occurrence of albuminuria by the serum could be shown.

Parenchymatous Goitre Treated with Hypodermic Injections of Durante's Solution of Iodo-Iodid.—Reyes, of Palermo, has treated twenty-eight cases of parenchymatous goitre in this way, and the goitre rapidly subsided in size, the general health visibly improved, the patient gained in weight, while there were none of the unfavorable results that sometimes occur with thyroid medication. The formula used was that proposed by Professor Durante, of Rome, for tuberculosis, "solution iodo-iodurée," given in the *Semaine Médicale*, 1894, p. 252. At first two injections of two to five grams each were made during the week, then one, and later one in two weeks.—*Semaine Médicale*, May 13.

Substitute for Yellow Phosphorus in the Manufacture of Matches.—Gurowitz announced at the meeting of the K. K. Ges. der Aerzte of Vienna, May 15, that he had discovered a substitute for the dangerous yellow phosphorus in matches, which is perfectly harmless, is easily applied to wooden and wax matches, lights on any rough surface, and has a very high self-lighting point, 150 to 160 degrees C. It is made by melting together pulverized without danger and the other ingredients are entirely sulphur and red phosphorus; the substance thus formed can be harmless. The members of the board of health were so pleased with their investigation of it that they at once petitioned the government to forbid henceforth the use of the poisonous phosphorus altogether.—*Wiener klin. Rundschau*, May 24.

Medical Appropriations by the Fifty-Second Congress.—An act of Congress (No. 213) making appropriation for sundry civil expenses for the year ending June 30, 1897, appropriates the following sums for the purposes named: For preservation and repair of buildings, etc., at U. S. Marine Hospital and Quarantine Stations, $30,000; special for Marine Hospital at Boston, Mass., $1,850; at Chicago, Ill., $8,950; at Cincinnati, Ohio, $1,000; at Detroit, Mich., $1,300; at Louisville, Ky., $1,500; at New Orleans, La., $2,150; at Port Townsend, Wash., $6,150; at San Francisco, Cal., $300; at St. Louis, Mo., $1,860; at Wilmington, N. C., $1,200; at Vineyard Haven, Mass., $1,500. Special Quarantine Stations at Reedy Island, Del., $1,200; at Brunswick, Ga., $800; at Gulf, $350; at South Atlantic, $15,750; at San Diego, Cal., $350; at San Francisco, Cal., $5,000; at Port Townsend, Wash., $3,500. Ordinary expenses of the quarantine service, including pay of officers and employes, $131,000; Government Hospital for the Insane, Washington, D. C., $293,851; Garfield Memorial Hospital, Washington, D. C., $19,000; Providence Hospital, Washington, D. C., $19,000. For pay of surgeons, attendants, and other expenses of the hospitals at the National Homes for Disabled Soldiers at Dayton, Ohio, $55,000; at Milwaukee, Wis., $28,000; at Togus, Me., $25,800; at Hampton, Va., $30,000; at Leavenworth, Kan., $30,000; at Santa Monica, Cal., $20,000; at Marion, Ind., $24,000. Hospital at Leavenworth (Kansas) prison, $28,000. Index catalogue of the library of the Surgeon-General's office, $12,000. The President is also authorized in case of epidemics of cholera, etc., to use the unexpended balance of appropriation of March 2, 1895, in aid of State and local boards of health, or otherwise in suppressing the spread of the same.

The Harvard Medical Alumni Association held its sixth annual banquet at Boston, Mass., June 23. The meeting was of unusual interest because of the presence of Theobald Smith, M.D., pathologist of the Massachusetts Board of Health and the new professor of comparative pathology in the Harvard Medical School. Dr. George B. Shattuck, President of the Association presided and opened the post-prandial exercises. He said the Association now numbered 1,321 members, seventy-six having joined since June 1, 1896. He continued: "I can not, as your president, refrain from all mention of this very generous, useful and intelligent endowment in the medical school. Let me read you the text of the donor's deed of gift that you may know just what his wishes and objects were in creating this foundation. 'It is my wish to testify to my deep interest in the advancement of medical science and the higher medical education; an interest originating in the fact that my father was a physician. I therefore offer to the President and Fellows of Harvard college the sum of $100,000 in cash, payable July 1, 1896, as a fund for the endowment of a professorship of comparative pathology in the medical department of Harvard University. I desire that this fund shall be forever known as the —— fund, in memory of my father, —— M.D.,[1] and that the professorship shall also bear his name. It is furthermore my wish that the income of the fund shall be applied first to the payment of the salary of the —— professor of comparative pathology, who shall also be a member of the medical faculty and appointed to office in the same manner as are other professors in that body, and who shall devote his time to the duties of his professorship, not engaging in private practice without the recommendation of the medical faculty and consent of the President and Fellows.'" Dr. Theobald Smith was introduced. He read a technical paper on "Comparative Pathology in Its Relation to Human Medicine." In conclusion he said he considered it most advisable for the members of the medical profession to take a more active interest in public affairs. The following officers were elected: Dr. Shattuck, President, and Dr. Walter Ela, Secretary, now occupying office for a three years' term; Vice-Presidents, Drs. Gustavus L. Simmons, Sacramento, Cal.; William W. Seymour, Troy, N. Y.; John W. Parsons, Portsmouth, N. H.; Alternate Vice-President, Dr. Thomas W. Huntindon, Sacramento; Secretary, Augustus Thorndike, Boston; Councillors for term ending 1900, Lincoln R. Stone, Newton; J. T. G. Nichols, Cambridge; Robert W. Lovett, Boston.

Wanted—Improved Pocket Cuspidors.—The *Journal de Méd. et de Chir.* for May, asks why it is not possible to educate the public until every one with even a catarrhal cold or influenza will no more think of leaving the house without his pocket expectorator than he would go without his handkerchief. Invalids who have learned to use the portable cuspidors of a sanitarium are never content without one afterward. But their

[1] The name of the donor was withheld at his request.

comparatively high price, $1.60, and the difficulty of procuring them, has prevented their general adoption. Only one store in Paris was found where they were for sale. Something cheap, light and inconspicuous is needed, and there is a fortune waiting for the inventor who will provide something that will find favor in the eyes of an expectorating world, and be the means of saving the lives of thousands yet unborn. The sanitary spit mugs now in use in some hospitals, although ornamental and useful, are scarcely attractive enough for the general public.

Two New Parasitic Cutaneous Diseases in Russia.—Recent numbers of *Wratsch* (48, 52, 3) contain descriptions of a skin disease produced by the larva of a fly (Gastrophilus hæmorrhoidalis L. or G. pecorum Fb.) which prevails in the provinces near the Volga. Exposed places, the face, hands and neck, are affected in lines, 15 cm. long, resembling the scratch of a needle, and in each is found the 1 mm. long larva. The hair of the skin is frequently covered with the eggs, which wash off easily, so that only a few of the larvæ find their way under the skin. One writer has found the lesions in the mouth, nose and beneath the conjunctiva. The disease resembles Neumann's "creeping eruption." In the province of Twer there is still another parasite that affects the skin, a still undescribed filaria several inches long. It burrows in the hand, producing a boil, and resulting sometimes in extensive inflammation, anchylosis and even gangrene of separate fingers.—*Centralblatt f. Chirurgie*, May 23.

Practical Notes.

Optic Atrophy.—Dr. Culbertson recommends glonoin in conjunction with strychnin, in all forms of optic atrophy, retinitis pigmentosa, hereditary atrophy, atrophic choroiditis and all the toxic amblyopias. Dose, 1-50 grain given internally.—*Am. Jour. of Ophthalmology*, June, 1896.

Erysipelas and its Treatment.—Dr. Bedford Brown says (*New England Medical Monthly*, June, 1896) symptoms usually attributed to inflammation of the brain are probably due to blood poisoning from the ptomaines of the streptococcus, after having been rapidly absorbed and transmitted throughout the circulation.

Treatment of Menstrual Nervous Troubles with Ingestion of Ovarian Tissue.—Landau stated at the meeting of the Berlin Medical Association, June 3, that he had been administering ovarian tissue from animals to patients suffering from the nervous disturbances caused by the suppression of the menses after extirpation of the uterus or its annexes, or the menopause. In each case it had been followed by the disappearance of the nervous troubles, at least temporarily.—Reported in the *Semaine Médicale* of June 10.

Pseudo-Erysipelas after the Instillation of 1-120 Grain of Atropin.—H. McI. Morton, M.D., reports a case: The infiltration of both upper and lower lids was so great that the oculo-orbital and oculo-malar sulci were completely obliterated, and the cheeks were intensely swollen to the angles of the mouth. There was much pain of a severe, burning character. The great amount of infiltration and the redness looked not unlike rhus poisoning. The patient has not been out of the house, however, and the relation of cause and effect was too marked to permit of any doubt as to the cause of the trouble. The trouble disappeared in a few days, under cold compresses, and a solution of lead, water and laudanum.—*Annals of Ophthalmology and Otology*, June, 1896.

Plenge's Method of Hardening with Formaldehyde and Making Frozen Sections for Rapid Diagnosis.—1. A piece of the tissue as thin as possible is hardened in a 4 per cent. solution of formaldehyde for one-half to one hour, or longer if thick. 2. The frozen sections are made with Jung's lever microtome. 3. They are taken up in water which has been boiled to expel the air, or better, in 50 per cent. alcohol. 4. They are stained with the analin dyes. 5. They are rinsed with water, alcohol, oil or Canada balsam. This method is used with admirable results at the Heidelberg Path.-Anat. Institute. It is not adapted, however, to normal placentæ, pure fatty tissues, solid bones, bone marrow, papillary tumors, normal testes and the small intestines, nor to normal lung tissue which is difficult to treat in this way.—*Centralbl. f. Chir.*, April 25, from *Munch. Med. Woch.*, No. 4.

Extensive Resections for Tuberculosis of the Foot and Wrist.—Bardenheuer and Wolff substitute extensive resections for amputations in a large proportion of cases of tuberculosis of the foot and wrist. Their method of resecting the wrist insures a much more solid union between the metacarpal bones and the bone of the forearm than is the case with the usual methods. They cut the upper end of the metacarpal bones in the shape of a wedge, with a wedge-shaped surface to correspond on the end of the bone of the forearm. This secures an exceedingly close and secure junction and a strong bony anchylosis is formed, which is much to be preferred to a movable joint with nothing to support it. They have performed the operation eight times with complete success in each.—From the "Chirurgencongress," in the *Semaine Médicale*, June 6.

An Ideal Excipient for Ophthalmic Unguents.—Dr. Allen Jamieson of Edinburgh reports in the *British Journal of Dermatology*, April, the following combination as an ideal ophthalmic salve: Lanolin (Liebreich), 3 drams; almond oil, ½ dram; distilled water, ½ dram. Mix. If smeared thinly on the lids this occasions no unpleasantness, and it may be employed when it is desirable to use a salve to prevent the lids becoming glued together by an increase of the lachrymal secretion. It is, however, better as a rule to add a couple of grains of boric acid to correct any slight tendency to rancidity, though this is not prone to happen, even if the ointment be kept for a time. In eczema of the lips the salve forms an excellent medium for the yellow oxid of mercury so beneficial in such conditions. Two grains may be added to the half ounce. According to the testimony of patients, the salve gives a pleasant sensation of coolness without trace of smarting or irritation. Its curative influence, the author says, is equal if not superior to that of any other eye salve prepared with other bases.

Some Common Affections of the Heart and Their Treatment.—Dr. H. W. Rogers says: In regard to those cases considered purely functional, it may be a question whether many of them do not initiate the more serious lesions found later in life. Usually no murmurs are found on auscultation, but almost invariably a marked accentuation of the second sound at the aortic orifice which means loss of elasticity in the aorta. There are few conditions of the pulse pathognomonic of a particular cardiac lesion. The nervous mechanism plays an important part in its modification. In most cases, however, a rapid pulse means a weak myocardium. A slow pulse, on the contrary, means a heart which is overburdened by some form of resistance in the circulation, but a myocardium which in most instances is essentially strong. Of the diet he says: Limitation of starchy foods and sweets and the employment of rapidly appropriated proteids is the general plan. Digitalis he considers the ideal heart tonic. Strychnin is one of the most potent remedies, but its action is rapid and there is danger if used too frequently or too long. No better combination than morphin, strychnin and nitro-glycerin can be employed in acute attacks, especially those designated as angina pectoris.—*Cleveland Journal of Medicine*, June, 1896.

Hospitals.

METROPOLITAN THROAT HOSPITAL, NEW YORK.—The 29th annual report shows the number of new patients who received treatment at the hospital during the year was 2,286, and 610

surgical operations were performed. Dr. Clinton Wagner is medical superintendent.

APPOINTMENT.—Dr. J. Clement Clark has been appointed by the board of directors first assistant physician of the Maryland Hospital for the Insane at Spring Grove, Md., to succeed Dr. J. Percy Wade, who has been made superintendent.

INFANTS' SUMMER HOSPITAL.—The formal opening of the Infants' Summer Hospital at Ontario Beach, Rochester, N. Y., took place June 23. This is its tenth season of beneficent work.

Philadelphia.

DR. A. C. ABBOTT has been elected professor of hygiene in the faculty of the University of Pennsylvania, to succeed Dr. John S. Billings, resigned.

DR. JOSEPH MCFARLAND has been elected professor of pathology in the Medico-Chirurgical College to the place made vacant by the resignation of Dr. E. B. Sangree.

PROF. WILLIAM THOMSON has resigned the chair of Ophthalmology in the Jefferson Medical College after twenty-four years connection with the school.

THE MEDICAL COUNCIL OF PENNSYLVANIA, which through the State Boards of Examiners, and Licensers, examines all physicians who wish to enter upon medical practice in this State, including graduates of our own schools, has adopted a rule that all students matriculating in medical colleges of the State of Pennsylvania, who intend after graduation to practice medicine in this commonwealth, will be obliged, on and after the term beginning in the fall of 1896, to provide themselves prior to matriculation with a certificate of preliminary examination. The preliminary examination which is now made compulsory and uniform in its application, requires attainment of a satisfactory average in the following branches: Arithmetic, grammar, orthography, American history and English composition. However, the diploma of a college, academy or seminary, normal school or high school, a teacher's permanent certificate, or a student's certificate of examination for admission to the freshman class in any college, shall be accepted in lieu of examination.

AT THE JUNE MEETING of the Philadelphia Chapter of the Alumni Association of the Jefferson Medical College, Dr. Emanuel J. Stout read a paper on "Extra-Genital Chancres;" Dr. J. Abbott Cantrell reported upon the "Clinical Aspects of the Tubercular Syphiloderm." Dr. John Lindsay read a communication on the "Treatment of Syphilis" which lead to a general discussion of the subject by Drs. Horwitz, J. M. Barton, Joseph Hearn, L. Wolff, J. Chalmers DaCosta, E. E. Graham, W. S. Jones and H. W. Stelwagon. A reception at the Penn Club and a social entertainment concluded the evening's exercises.

THE PHILADELPHIA COUNTY MEDICAL SOCIETY held its last meeting for the season June 27, when Dr. A. J. Downes exhibited his collapsible and removable bobbins for all forms of intestinal approximation. He also demonstrated a new continuous double-knot intestinal suture and a new abdominal retractor. Dr. Aug. A. Eshner read a communication entitled "Progress in Organotherapy."

THE TRUSTEES OF JEFFERSON MEDICAL COLLEGE on the 29th ult., elected Dr. George E. DeSchweinitz, Professor of Ophthalmology, to succeed Dr. William Thomson. Drs. D. Braden Kyle and W. S. Jones were made Clinical Professors of Laryngology and H. F. Harris, Assistant Professor of Bacteriology and Pathology, at the same meeting.

MENTAL AUTOMATISM.—The annals of the Coroner's office contain many interesting and remarkable cases of suicide which may be made to contribute something toward the solution of psychologic problems, and especially that of automatism and the imitative faculty or power of example in influencing human action. A middle-aged woman in this city, becoming disheartened, recently ended her life by the very unusual method of swallowing hydrochloric acid. A man living in the same neighborhood, after attending the funeral, purchased some of the same corrosive poison in a drug store on his way home and soon after reaching his own house swallowed the poison and soon afterward died. The connection of the two cases seems to have been merely accidental and there is nothing to warrant the idea that there had been any previous agreement between the two.

THE PUBLIC SERVICES.

Army Changes. Official List of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from June 20 to June 26, 1896.

Capt. Walter D. McCaw, Asst. Surgeon (Ft. Ringgold, Texas), is granted leave of absence for one month, to take effect on or about July 5.

Major Louis M. Maus, Surgeon (Ft. Sam Houston, Texas), is granted leave of absence for two months, to take effect on or about August 1, 1896.

Major Daniel M. Appel, Surgeon, is relieved from duty at Ft. Porter, N. Y., and ordered to the new post near Little Rock, Ark., for duty.

Capt. Aaron H. Appel, Asst. Surgeon, is relieved from duty as examiner of recruits at Chicago, Ill., and ordered to Ft. Porter, N. Y., for duty.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending June 27, 1896.

Asst. Surgeon S. B. Palmer, detached from the New York laboratory June 29.

P. A. Surgeon George Rothganger, detached from the "Independence." July 15, and ordered to the "Oregon."

Marine-Hospital Changes. Official list of changes of station, and duties of Medical Officers of the U. S. Marine-Hospital Service, for the twenty days ended June 20, 1896.

P. A. Surgeon W. P. McIntosh, to proceed from Louisville, Ky., to Cincinnati, Ohio, to inspect unserviceable property; then to rejoin station, June 13, 1896.

P. A. Surgeon J. C. Perry, granted leave of absence for twenty days, June 20, 1896.

Asst. Surgeon C. H. Gardner, order of May 27, 1896, directing him to report for examination, is revoked, June 5, 1896.

Asst. Surgeon Rupert Blue, to proceed from San Francisco, Cal., to Angel Island quarantine station for duty, June 18, 1896.

Change of Address.

Alton, C. D., from Hartford, Conn., to Undercliff, Lake Placid, N. Y.

Busey, S. C., from Washington, D. C., to Atlantic Hotel Narragansett Pier, R. I., until Sept. 1, 1896; Brown, R. A., from Tupelo, Miss., to Paris, Tenn.

Donelson, C. P., from 818 Warren Avenue to 927 Monroe Street, Chicago.

Gates, W. S., from 1279 Wolcott St. to 2725 N. Lincoln Street, Chicago.

Henderson, H. C., from Chicago to Milford, Ill.

Isbester, R. T., from 636 Washington Boul. to 1923 Indiana Avenue, Chicago, Ill.

Meadows, J. E., from Lisbon to Manghan, La.

Polhler, F. T., from Minneapolis to Waseca, Minn.; Packard, J. H., from Devon to 26 So. 18th Street, Philadelphia, Pa.

Rhoden, J. C., from Ponca, Neb., to Elkpoint, S. Dakota.

Wilson, A. M., from 27 Union Depot to 229 Park Ave., Kansas City, Mo.

LETTERS RECEIVED.

Alport, Frank, (2) Minneapolis, Minn.; Atkinson, W. B., (2) Philadelphia, Pa.; Apollinaris Company, Ltd., The, (2) London, England; Acker, T. J., Croton-on-Hindson, N. Y.

Bodine, J. M., (2) Louisville, Ky.; Brown, Bedford, Alexandria, Va.; Belt, E. Oliver, Washington D. C.

Cleary, W. P., New York, N. Y.; Cox, C. C., College Park, Ga.; Chilton, E. Y., Howard Lake, Minn.; Cole, A. B., Washington, D. C.; Claiborne, J. Herbert, New York, N. Y.; Carpenter, J. G., Stanford, Ky.; Carroll, C. C., Poughkeepsie, N. Y.

De Hart, J. N., Round Lake, N. Y.; Davis, Stebbins, & Co., Boston, Mass.; David, Alfred, Atlantic Mine, Mich.

Edmonson, G. J., Maroa, Ill.

Fuerth, Geo., Detroit, Mich.; Farwell & Rhines, Watertown, N. Y.

Guthrie, W. A., Franklin, Ky.; Garceau, Edgar, Boston, Mass.

Hayes, R. H., Union Springs, Ala.; Holmes, Bayard, Chicago, Ill.; Howe, Lucien, Buffalo, N. Y.; Hill, Warren B., Milwaukee, Wis.; Hamilton, Hugh, Harrisburg, Pa.

Johnson, H. L. E., Washington, D. C.; Jonas, A. F., (2) Omaha, Neb.

Krause, Wm. C., Buffalo, N. Y.; Klingensmith, I. P., Blairsville, Pa.

Larkins, E. L., Terre Haute, Ind.; Lloyd, Wm. S., Philadelphia, Pa.; Lee, Elmer, Chicago, Ill.; Lord, J. P., Omaha, Neb.; Loeb, Hanau W., St. Louis, Mo.

Marshall, John S., (2) Kankakee, Ill.; Mouton, G. C., Rayne, La.; McCartney National Bank, The, Green Bay, Wis.; Moore, J. N., Atlantic Mine, Mich.; Montgomery, E. E., Philadelphia, Pa.; McCurdy, S. L., Pittsburg, Pa.; Mills, H. B., Philadelphia, Pa.; Moore, C. T., Marissa, Ill.

Nicholson, Wm. Perrin, Atlanta, Ga.

Prewitt, T. F., St. Louis, Mo.; Parke, Davis & Co., Detroit, Mich.; Parmele, Chas. Roome, New York, N. Y.; Pilcher, Jas. E., Columbus, Ohio; Paquin, Paul, St. Louis, Mo.

Ross, John D., Williamsburg, Pa.; Roy, Dunbar, Atlanta, Ga.; Ridlon, John, Chicago, Ill.; Rosenthal, Edwin, Philadelphia, Pa.

Sillman, W. A. B., Baltimore, Md.; Seidler, W. F., Newark, N. J.; Shoemaker, John V., Philadelphia, Pa.; Smith, Q. C., Austin, Texas; Schiffelin & Co., New York, N. Y.; Savage, A. D., New York, N. Y.; Slaughter, A. W., (2) Green Bay, Wis.; Schwalbe, J., Berlin, Germany.

Tiffany, Flavel B., Kansas City, Mo.

Whittaker, Thos., New York, N. Y.; White, J. L., Bloomington, Ill.; Wyckoff, R. M., (2) Brooklyn, N. Y.; Waxham, F. E., Denver, Colo.; Ward, M. R., Pittsburg, Pa.; Whitford, Wm. Chicago, Ill.; Wilkinson, A. D., Lincoln, Neb.; Wood, H. D., Angola, Ind.

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ORIGINAL ARTICLES.

CLINICAL NOTES UPON SPASMODIC TORTICOLIS; WITH SPECIAL REFERENCE TO TREATMENT.

Read in the Section on Practice of Medicine, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5-8, 1896.

BY ASA FLANDERS PATTEE, A.M., M.D.

MEMBER MASSACHUSETTS MEDICAL SOCIETY; PRESIDENT BOSTON THERAPEUTICAL SOCIETY; PROFESSOR EMERITUS OF MATERIA MEDICA, COLLEGE OF PHYSICIANS AND SURGEONS, AND CONSULTING PHYSICIAN TO UNION GENERAL HOSPITAL.

BOSTON, MASS.

Torticollis (wryneck) is due to a spasmodic condition of the cervical muscles, chiefly those supplied by the spinal accessory nerves. The name is derived from two Latin words, *tortus*, twisted, and *collum*, neck. The terms *tic rotatoire*, *Nickrampf*, etc., are used as expressive of the spasm, muscles affected, tenacity, etc.

This abnormal contraction of the cervical muscles is directly the result of irritation of the external cervical branch of the spinal accessory nerve, which having two different origins, a spinal and cerebral, has two distinct functions. The spinal or motor branch supplies the motor power to the sterno-cleido-mastoid and trapezius muscles, and communicates with the first, second, third, and fourth cervical nerves, its roots being traced between the anterior and posterior roots of the first five cervical nerves. As we have seen, wryneck proper is an affection of the sterno-cleido-mastoid and trapezius muscles, but in cases of long standing and great severity, especially in bilateral affections, the splenius capitis, scaleni and platysma myoides may become implicated from continuity of nerve fiber, and contiguity of muscle tissue.

This affection presents the objective phenomena peculiar to all spasmodic conditions of the muscles supplied by the peripheral nervous system. The most frequent and simple exhibition of other nervous irritation of the same nature may be seen in the facial spasm of the trigeminus, upper third, in spasmodic closure of the eyelids, with twitching and contortions of the forehead.

To torticollis proper, medical literature has devoted comparatively small space, the sentiment being conveyed that wryneck, being of reflex origin and generally an obscure and complicated one, when it is once well established in the individual, is the condition of a lifetime. Its clinical history is certainly that of permanency.

Wryneck may be divided into three classes, dependent upon the degree of severity, nature of spasm, and muscles involved. The partial or limited contraction of the cervical muscles due to cold, exposure, strain or rheumatism, and which disappears after a period more or less brief, under the administration of heat, liniments, friction, etc., is a condition commonly known as "stiff neck"; a painful state with which all are familiar, most of us having had personal experience, and does not come within the province of torticollis proper; the former being a condition of the muscle substance itself, while the latter is dependent for its abnormal condition upon the nerve.

In this affection we have the two forms of spasms, the tonic, which is a state of permanent rigidity and immobility of the muscles, and the clonic or tetanic spasm, which consists in alternate contraction and relaxation. The movements are varied and accentuated in accordance with the muscles involved. If it is the trapezius, unilaterly, the head is drawn backward against the shoulder of the affected side, the chin is twisted to the opposite direction, and if the spasm assumes the tonic form, the head is permanently fixed, and can hardly be forced into its normal position; nor will it remain so under any restraint the patient may be able to endure. If the splenius be affected we find the head drawn back against that side, and the enlarged muscle may be felt protruding beyond the cervical edge of the trapezius.

While tetanic spasms are due to the irritability of the peripheral nerves, and may attack any one or part of the superficial muscles of the head or face as well, and their duplicity of action leaves no doubt that all spasms of the external superficial muscles are of the same nature, and are directly due to the same cause, this should by no means warrant us in the conclusion that they may all have the same origin, primal or remote; on the contrary, I think, we may properly make the assertion that irritability of the superficial nerves is the result of causes not always easily ascertained; being sometimes very remote, the nervous irritability being a symptom in the strictest sense of the word. Nerve irritation may be at any point of its course, and the spinal accessory being a complex nerve, having its action in the medulla as well as in the spinal cord, renders it a very difficult matter to locate the exact place of irritation; and owing to the complexity of the nerve branches and their anastosmoses with the pneumogastric, we may have a reflex action from gastric disturbances, or by some lesion of the upper cervical vertebræ. In such an event the cause may be sufficiently obvious to enable one to act intelligently in attempting a cure, while in very many other instances we are obliged to grope in the dark. In this, as in all other peripheral neuroses, pathologic proof is absent.

Contraction of any muscle must be recognized as an exhibition of contractile fiber in response to nerve stimulus, and it is only when it ceases to become rhythmic in its action, or refuses to act altogether, that we have what we term a pathologic condition. The only visible result of nerve irritation that we have to go by is change in shape and mobility of muscle as a whole. Wryneck, as with the majority of peripheral nerve affections, is more convincing in its identity than the *raison d'être*.

Case 1.—My first case of torticollis was in 1857, the last year of my student life, and occurred in a woman aged 33. Her trouble came on without any apparent cause; first showing itself in merely a tendency to stiff neck at times and without any appreciable provocation. It had continued for about seven years, increasing in severity. At the time I saw her the neck was drawn around with a combination of tonic and clonic form of spasm, being twisted with a jerk and remaining in the tonic condition for a day or two, never assuming the normal state, but would be working back and forth. Her general health was fair; objective symptoms nothing to require attention with the exception of a large ulcer inside the left leg. This ulcer was not of the varicose form, but was what is termed by the laity a "fever sore"; it was two inches by two and one-half, and had been in existence for three years; a non-irritable, chronic ulcer. There were no varicose veins, no history of syphilis, no disease of the periosteum. The best of surgical and medical skill had been employed. As an incentive for me to do my best I was told that if I cured Mrs. B. I should have my room rent free for the next six months.

Without regard to etiology or pathology I began the following treatment: A poultice of pulverized ginger, mustard, capsicum, cloves and cinnamon, mixed with cold water and applied to the spine twice daily, from the first cervical down six inches, for one hour at a time. This was for the purpose of promoting counter-irritation, and also by the absorption of the oils these ingredients contained, to promote stimulation of the deeper nerves, carrying it by reflex action back to the nerve roots.

For internal medication I gave the following:

℞. Pulv. capsici,
" myrrhæ . . . . . ãã 18 (gr. iij)
" cinnamomi . . . . . .
" asafetidæ . . . . . ãã 2.00 (grs. xxx)
" sapo. . . . . .

Mix. Divide into thirty pills. Take ten pills after every meal.

This dose seems almost cruel as we prescribe to-day, but we must remember that this was an incident of thirty-nine years ago, a period very different from the present time of concentrated medicines; but a period too, which had remedies quite as efficient in their action as at the present time of artistic preparations. I dressed the ulcer with an ointment made up of lard and powdered cinnamon, of each half a pound, with sufficient quantity of whale oil to make it of proper consistency. This was applid to the ulcer twice daily. This treatment was kept up for months without change, and the result was a perfect and permanent cure, both of the torticollis and the chronic ulcer of the leg.

While the origin of torticollis may be sometimes as apparent to the physician as the door-plate on his own door, yet I intend to show in the following cases that it may be so swaddled about by the environments of disease obscurely located, that treating for an ordinary cause may result in ignominious failure, as shown in the following:

Case 2.—An American woman, aged 35; mother of three healthy children, had been troubled with spasmodic torticollis for three years, or since the birth of her last child. Reckoning from that period as the beginning of her trouble, one would be very liable to attribute the cause to some lesion, more or less important, of the generative organs. Such had been her experience with those whom she had consulted. And her symptoms were typical of such a trouble, only rather more exaggerated than ordinarily met with. Her head would give a sudden and emphatic jerk to the right, then turn as quickly toward the left, where it would remain a minute, then as quickly be jerked back into the normal position. Here it would remain for about ten minutes, generally, though sometimes it would rotate back in a minute or two, and go over the same routine again; keeping up a constant succession of these motions. She was compelled to wear a leather collar buckled tightly around the neck, embracing the face up to the ears, and fastened with a strap under her arms to keep her head in position. But even with this appliance the muscles were in a state of clonic spasm most of the time, unless under the influence of a powerful opiate, which she was compelled to take at night in order to obtain any rest at all. Her treatment had been varied, prompted by all sorts of theories as to the origin of the trouble, but the benefit had been slight, and only temporary at the most. As this period antedated the day of hysterectomy, and ovariotomy was almost unknown, her womb and ovaries were not removed. No definite cause had been assigned. I had the advantages accruing from the experiments of those who had attempted a cure in her case; and it certainly abridged whatever experimenting I might otherwise have done. She had her own teeth, but upon examination it was shown that although few were missing, nearly every one was more or less in a state of decay; still, as they had never troubled her to any great extent it was not surprising that as a cause of her trouble they had been overlooked. Examination then determined me to act upon the decidedly strong suggestion which their appearance seemed to offer. I extracted all of her teeth, gave a mouth-wash of a 1 per cent. solution of potassæ chlorate, and internally, .07 (1 grain) of sulphate of zinc in two ounces of water, after every meal. In less than one week, or as soon as the soreness had subsided, a great improvement became apparent. She continued the treatment for three weeks, at which time the gums had completely healed; the clonic spasms had nearly disappeared, and in three months from the time her teeth were removed she was perfectly well, and there was no relapse. There is no question as to the cause being anything else than reflex irritation from the decayed teeth.

Case 3.—Mrs. S., aged 25, had spasmodic torticollis dating from birth of child, six years previous. She had been under treatment of specialists at different times for months together. The patient seemed to be well nourished, and all the organic functions normal. The bowels were regular, no indigestion, no headache, no spinal irritation, no laceration of uterus or perineum, and appetite good. I gave a pill composed of zinc sulphate .07 (1 grain), extract of valerian .12 (2 grains). One to be taken after every meal. A poultice of mustard, ginger, cayenne pepper, cinnamon and cloves was applied to all of the back, behind the ears, over the chest and throat the greater part of the day; keeping it on one spot sufficiently long to irritate the part, then removing it to another, the object being to keep every inch of the skin in a constant state of irritation, from the first dorsal vertebra upward and the same region in front. The poultice was mixed with cold water. Improvement commenced after the treatment had been in operation for two weeks, and at the end of four months the patient was well. There was no assignable cause for this case, and I would not have been surprised to see a relapse, as a result of cold or exposure; but the cure remained complete.

Case 4.—At the risk of repetition I now present another case to further illustrate what decayed and decaying teeth will do for a person of nervous temperament (or any other temperament, as for that); as such apparently simple causes are generally overlooked; and, again, to show that it is not always necessary that the process of decay should have advanced to any very perceptible degree in order to produce the mischief. This was a case of trigeminal neuralgia of three years' standing, in a woman of 28, and had resisted every means employed by competent physicians. The teeth were apparently all sound, and she had her full complement; but they were quite crowded, owing to size. From some seemingly trivial indications, but which from previous experience I considered to be fraught with meaning, I ordered their extraction. The mouth was washed with a 1 per cent. solution of potassæ chlorate every two hours. The neuralgic condition began at once to disappear, and in three weeks she was well. No relapse. This shows what may be brought by sound teeth when they press upon the terminal nerves.

Case 5.—Another case in the same category will, I trust, be sufficient for my purpose. This was a case of facial paralysis with partial paralysis of the left arm, cured by extraction of all the teeth in both upper and lower jaw. They were nearly all carious. The paralysis was caused by reflex irritation from the carious teeth.

Case 6.—Mr. W. S., aged 25; a drummer for a silverware manufactory. Family history good; no symptoms of gout, rheumatism, or tuberculosis on either side of the house. He had never had any illnes, and habbits were good; organic functions all perfect. After riding several hours on a hot, dusty day, and sneezing a great deal from irritation caused by the dust on the mucous membranc of the nose, he began having slight contraction of the scaleni muscles. He paid little attention to it for several months, when it became very annoying; he then applied to a physician for relief. He was given some sort of stimulating liniment, and anti-rheumatic remedies; these he used for several weeks, but without any appreciable benefit. He then took a two months' course of massage. After this he tried faradic, galvanic, and static electricity for several weeks, but the spasms still continued unabated. When I first saw him he had been experimenting for over a year. It

seemed that as the various new-fangled fads etc., had all been tried: there was little left to be employed but good judgment and common sense. The only treatment I gave—as his general health seemed to be perfect—was a hot shower bath night and morning, fifteen minutes at a time on the neck and shoulders. This treatment brought about the most brilliant results, and at the end of six weeks he was perfectly free from trouble, and there has been no relapse.

Case 7.—Mr. J. L. W., aged 38, a banker, had been ill with spasmodic torticollis for two years. He had been under numerous forms of treatment, and particularly the celebrated mud baths. This was quite a unique case in one respect, viz.: A part of the time the trouble would be confined to one side exclusively for two and three weeks, when it would turn to the other side for the same period, leaving the previously affected side apparently as well as ever it was.

I began treatment by giving hypodermically one drop of the following solution:

R. Aurii et sodii chloridi	1 gr.	07
Sodii arsenias	1 gr.	07
Sodii bromidi	3 grs.	19
Aquæ dest.	1 oz.	31 00

Mix.

Injecting five drops of this into the belly of the muscles twice a day in rotation; going over the same muscle on each side, beginning, for instance, at the origin of the muscle and gradually going over its whole length, then taking up another in the same way. The strictest antiseptic precaution was observed. He had considerable brachial neuralgia; otherwise was free from pain. No inflammation or abscess was ever produced by these injections, and but slight pain. This treatment was continued with great regularity for five weeks; the improvement was gradual, but even and permanent, and resulted in a complete cure, without any recurrence at the end of fifteen months.

Case 8.—J. B., a boy aged 9 years, was playing "leap frog" when by accident he was kicked in the neck; but from all appearance he was not particularly injured, and made no complaint until about two weeks afterward, when his head began to twitch backward, yet so slightly that it was hardly noticeable; but in the course of several weeks it became a continual cause of complaint. He was under treatment for six months with various mixtures of liniments, ointments, oils, plasters, electricity, etc., previous to my seeing him; but they had produced no perceptible benefit. Stomach and bowels in good condition, urine normal. I applied the following ointment to his neck:

R. Aurii et sodii chloridi	5 grs.	32
Ammonii hydrochloras	10 grs.	64
Aquæ, well rubbed in	1 drm.	4 00
Adipis benzoas.	1 oz.	31 00

Mix, and apply about ten grains three times daily.

R. Ammonii hydrochloras . . . . grs. v .32

To be taken every three hours in a wineglass of water.

This treatment was continued for six weeks with marked improvement. Then ammonia hypophosphite was substituted for the hydrochlorate, in three grain doses for two weeks. Considering the severity of the case his recovery was unusually expeditious, a cure being affected in six weeks.

Case 9.—H. M., a man of 76 years. This man had been employed in a granary for ten years; previous to that he had been in a brewery, and I think there was reason for supposing his blood had become contaminated by micrococci from diseased grain. His face was bloated, and he was always more or less asthmatic. Aside from this, there was a red blotch over his hands and arms. He complained of constant pain in the region of neck and shoulders; the brachial region was the nervous part affected. Soon after first seeing him he was exposed to a severe March storm, and aside from the wetting he was chilled. Driving all day had strained this part of the muscular system, and when I saw him that night I found a condition of acute muscular rheumatism, as one would naturally expect. Proper treatment removed the acute symptoms, but in their place was established, right before my eyes, as it were, a decided case of bilateral torticollis, implicating the whole brachial region (as had the previous attack of rheumatism, which had been removed apparently to give place to this condition). His sufferings were intense; not for one moment during the twenty-four hours was he permitted to rest, save when under the temporary influence of powerful anodynes. In addition to this a persistent cough set in; his breathing became very labored, showing, to my mind, a complication of the phrenic nerve, to which might be traced the spasmodic condition of the cervical plexus. The treatment was the following:

R. Fl. ext. cimicifugæ	
Tr. gelsemii	
Tr. guaiaci	āā gtt. x .65

Mix.

The above amount to be given every three hours in a wineglass of milk. Hypodermic injections of hot water, to which .65 (grains x) of salt were added, were made every day into the clavicular origin of the sterno-cleido-mastoid muscles of both sides. This course of treatment was continued every day for two weeks, with marked improvement. After that time the injections were discontinued, but the internal treatment was kept up for three months, and at the end of that time there was no further medicine required for he was perfectly well.

Case 10.—Thomas W., a sober, working man of 45, was suddenly leveled to the ground and rendered unconscious by some means then unknown to him, one night in December, 1894. (It was afterward shown that he was struck by a sandbag.) Consciousness returned after about forty-eight hours, but with it the inability to move his head. Constant pain was felt in the occiput and down the back and sides of the neck, extending by flashes down his arms to the elbows, with numbness of the finger-ends. Upon being lifted in bed he was seized with spasms which twisted his head from one side to the other in quick rotation, then backward over the scapula, with such force that it seemed his neck would be broken. This condition lasted for twenty-four hours, when the patient became unconscious from exhaustion. There must have been some irritating lesion of the spinal cord, extending to the cortical substance of the brain, and the question might be raised whether this was a case of torticollis proper, or of spasms caused by injury to the brain. The pulse and temperature were normal throughout. I gave 4.00 (1 dram) of liquor ammonii acetatis with .65 (10 drops) of tinct. gelsemium every three hours. Hot compresses to the occipital and cervical regions were constantly applied. In about five hours the spasms were very decidedly abated, and in the course of a couple of weeks the pains had all ceased; but there was still to be noticed a tendency to spasmodic contraction of the muscles. I ordered tincture of lobelia be rubbed on the parts, and had him take .32 (5 drops) of the same every three hours. This seemed to act so nicely that in the course of a week the spasmodic tendency had disappeared; but I continued the treatment one week longer, so as to ensure a perfect recovery.

In conclusion, I will copy the following case from one reported in my paper, on "Nerve Vibration and Excitation," as read in the Section on Practical Medicine, Materia Medica and Therapeutics, at the thirty-sixth annual meeting of the American Medical Association, held in New Orleans, La., April 29, 1885:

A married woman, aged 29; of extremely nervous temperament, and suffering from mental trouble brought on by death of a child. Electricity had been applied by a competent person, but this seemed only to aggravate the case. The muscles of the right side were affected. This condition had existed for several months. Not only the sterno-mastoid, but the deeper groups of muscles were involved. As the motor filaments of the pharyngeal branches of the pneumogastric are derived from the spinal accessory, I directed my treatment to the base of the occipital bone, across to the upper part of the sterno-mastoid, following the course of the nerve as closely as possible.

The treatments were daily, and of fifteen minutes duration. The percuteur was firmly held against the surface, though not pressed down, so that the whole force of the blow might be obtained. Eight cells of the battery were employed, and I used the olive-pointed hammer, tracing the course of the nerve upward and downward, and over the clavicular portion of the trapezius muscle. At the end of the first sitting the muscles of the neck were a trifle relaxed, the patient being able to turn her head slightly; but the next day found the old condition almost reinstated. However on going over the same treatment I found the improvement still more marked than that of the day previous, and, to cut a long story short, the condition steadily improved under every treatment, the deterioration between times being less noticeable. At the end of three weeks the patient presented no signs

of wryneck, and the corresponding muscles of the other side had regained their normal condition. varied the treatment somewhat, as the case progressed, by passing the hammer down either side of the spinous processes, pausing a moment at each. The entire cerebro spinal nervous system seemed to respond favorably to this treatment, and the result was complete restoration to health, and no inclination to return of the torticollis, so far.

This patient had already gone through the usual list of nerve remedies. I ordered that all accessory treatment should be stopped, save good nourishing food, pleasant surroundings, and all other necessary and proper hygienic conditions.

While it is patent to the practical physician that in the treatment of disease in general there can be no prearranged method which shall be applied with positive certainty to all cases, the routine of treatment fitting the condition as surely as a certain size of glove will fit a correspondingly sized hand, this uncertainty is still yet more apparent when we have to deal with diseases of the peripheral nervous system, and is most plainly illustrated in wryneck. I have seen many cases in which treatment has been a complete failure; cases which had been submitted to braces and various complicated devices; but they were used without accomplishing the desired result. The surgeon's knife has also been powerless to help. Nor am I alone in my experience and consequent conclusions. Physicians of wide repute and acknowledged skill corroborate my opinion. Dr. A. McLane Hamilton says on the subject: Braces and apparatus are often worse than useless, increasing not only the patient's discomfort, but aggravating the malady. This opinion is also expressed by Dr. James Ross, Dr. M. Rosenthal, Dr. Gower, and many other acknowledged authorities. Professor Erb, in speaking of the various devices, and surgical operations says: The division of the nerve is an objectionable proceeding, partly on account of the resulting paralysis, and partly because it has been tried and has failed in effecting a cure, and has increased the spasms with unabated violence.

Dr. C. M. Barr says: Instruments intended to forcibly check the spasms can not be worn any length of time. . . they do no good. I have in my own practice seen ten cases that have had various operations performed on the nerves and muscles, and the result has been the reverse of successful, in fact, disastrous.

I have collected statistics from many sources, amounting to between four hundred and five hundred cases in which surgical operations in one way and another have been performed in torticollis, without deriving the slightest benefit therefrom; in fact the conditions were worse than before the operation.

THE FREQUENT DEPENDENCE OF INSOMNIA, MENTAL DEPRESSION AND OTHER NEURASTHENIC SYMPTOMS UPON DISEASE OF THE GASTRO-INTESTINAL TRACT.

Read in the Section on Practice of Medicine, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

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The group of nerve derangements formerly classed under the terms nervous exhaustion and nervous prostration, and of late more appropriately labeled neurasthenia, is after all a rather vague and indeterminate entity. It has not yet any recognized pathology, and even its etiology is still in dispute. There are not wanting authors, now, who insist that neurasthenia is only another name for toxemia, and that the ptomaines and leucomaines absorbed from an infected or diseased alimentary canal are responsible for all the symptoms which it has so long been the fashion to ascribe to mental overstrain, sexual excesses or other prodigal waste of the vital and nerve forces.

Still others believe that too much food and too little exercise—too much alimentation and not enough oxygenation—cause an overcharging of the blood with uric acid, as well as other products of suboxidation, and that hence arise all or most of these nerve ills which, as is well known, afflict chiefly persons who live a luxurious, or at least a sedentary life, being relatively uncommon among those who use their muscles largely, while they eat and drink abstemiously. Haig,[1] the great exponent of the uric acid theory, believes that butchers' meat, especially when taken in excess, is the most active cause, and he brings forward a very strong array of evidence in proof of his views; but it is probable that he goes too far.

My own belief is, that while any of the various influences just recited may, even singly and alone, produce, under certain conditions, some of the forms or manifestations of neurasthenia, especially in persons who have inherited a tendency thereto, a number of them have usually combined to develop the more aggravated types. Granted, that there are always predisposing conditions, it must now be admitted that the rôle of the indigestions and other morbid states of the alimentary tract, is most important in the causation of these nerve ails. It is an every day observation of physicians who have much to do with nervous patients that their well-being and comfort depend largely upon the condition of their stomachs and bowels.

To give this discussion a more definite and practical character, it will be best to consider here a few of the more marked and familiar symptoms of neurasthenia, rather than that elusive entity as a whole. Let us take, for instance, the mental depression, nervous erethism and insomnia, some one or all of which may always be observed in the severer cases. In the hundreds of neurasthenics who have annually come under my care in that Mecca of American invalids, Atlantic City, the symptoms just named have usually been the most pronounced and troublesome.

They may arise as a result of any of the graver forms of gastro-intestinal disease, such as cancer, gastric ulcer, chronic gastritis and dilatation of the stomach, through the lowered nutrition which such affections induce. Whether this be brought about directly as a result of a starving of the nerve centers, the blood which nourishes them having itself become impoverished, or whether the poisoning primarily of the blood and secondarily of all the tissues, by products of the fermentation, putrefaction and sub-oxidation which such diseases of the alimentary canal greatly promote, is a question which need not be entered upon here. My object in this paper is the more practical one of emphasizing the importance of the part played by stomach and intestinal diseases in a large and most important class of nervous affections.

Cancer and ulcer are apt to be recognized and to receive special attention at a comparatively early stage

of their progress, on account of the pain and frequent vomiting which they usually evoke. Gastric catarrh, however, is unfortunately often allowed to proceed to a late and serious stage before it is diagnosticated and the proper treatment begun; while atony and dilatation of the stomach, when only moderate in degree, are very generally overlooked, except by the specialist. This is much to be regretted, since, while generally curable, or at least capable of great amelioration, in the beginning, they are very intractable, as well as sadly afflicting, in their more advanced stages. Moreover, there is no reason now, why every practitioner who is fairly adept in the art of percussion, should not be able to recognize them even without the use of a tube or other intra-gastric instrumentation. A method of establishing the diagnosis in such cases, as well as in the various forms and degrees of gastroptosis, or stomach displacement, by external examination, has been described by me in a previous contribution.[2]

Constipation and its immediate sequelæ have disastrous and far reaching effects in causing disturbances of the nervous system, among which the neurasthenic symptoms now under consideration are prominent. This would of itself furnish abundant material for a separate paper, and can only be mentioned here in passing, though it will be referred to again under the head of acid dyspepsia, which is one of the conditions upon which it most frequently depends.

The so-called gastric neuroses, that is, on the one hand, a diminished secretion of hydrochloric acid with or without a decrease of the other constituents of the normal gastric juice, and on the other hand, an excessive secretion of hydrochloric acid, along with usually a hypersecretion of the digestive ferments as well, are also of importance in this connection.

The former condition is admittedly very infrequent in comparison with the latter. Diminished or absent secretion of the gastric juice, especially of its acid constituent, is constantly found as a result of advanced gastric catarrh. It means, then, an organic and virtually incurable disease, though by the proper administration of the acid and pepsin artificially, much can be done in such cases toward compensating for the defect. It is possible that in many cases in which the absence of hydrochloric acid has been observed for short intervals, alternating with periods of excess of the same acid, such absence has been the result of the prolonged and free administration of alkalies, either in substance or in the form of the Carlsbad and other mineral waters which are very rich in the soda salts. These salts, too long given, are known to have such an effect.

It so happens that in a large number of chemic examinations of the stomach contents, I have rarely ever found an absence of free hydrochloric acid, without either a coincident gastric catarrh or cancer. Two notable exceptions were one case of sea-sickness and one of brain tumor.

It was an early observation of mine that neurasthenic patients, while they generally craved nervines and narcotics, and had sometimes taken too much of them before going to the seashore, rarely made any permanent favorable progress as a result of the administration of such drugs, and that, on the other hand, they often gained remarkably in nerve tone and in the ability to obtain sound and refreshing sleep after having been put on a restricted diet together with calomel, even in the smallest doses, to correct a furred tongue and remove the congeries of symptoms popularly known as biliousness. Hydrochloric acid given with the same purpose, often brought about the same wonderful improvement in their sleep and mental condition. The appetite and digestion were helped at the same time, and following up the treatment with such nerve tonics as iron, strychnin and the phosphates or hypophosphites, often assisted in making very gratifying cures.

A series of such favorable cases, in which insomnia and the associated nervous phenomena were very promptly relieved by the administration of hydrochloric acid, awakened hopes that an unfailing remedy had been discovered for all that class of ailments. Then came a number of cases in which hydrochloric acid not only gave no relief whatever, but even seemed to aggravate the trouble. Not being familiar at that time with the vagaries of the gastric secretion and their intimate connection with deranged intestinal peristalsis, autointoxication, uricacidemia and other abnormalities of digestion and assimilation, I was wholly at a loss to explain these diverse effects of the same drug in the same doses, upon patients suffering from apparently identical symptoms.

But we all know now that very often there is an excess of hydrochloric acid in the gastric juice. This is true not only in many cases of manifest and clearly recognized disturbance of stomach function, especially those in which pains or marked discomfort after eating are the chief symptoms, along with constipation as a rule, but also in the cases of nervous patients who claim to have good digestion and insist that they can eat anything. The latter may have large appetites, often amounting to bulimia, and though they suffer from intestinal flatulence, emphatically object to being considered dyspeptics.

The German writers call this form of disordered secretion hyperacidity, and the French term it hyperchlorhydria. English authors have described it under the name of acid dyspepsia. The administration of hydrochloric acid in the usual manner after meals in this affection, can scarcely fail to increase still further the amount of acid in the already too acid chyme about passing on into the bowel, where it is destined to work all manner of mischief, inhibiting or greatly diminishing the activity of the pancreatic and intestinal ferments, and probably provoking such a spastic condition of the peristaltic apparatus as to bring about the constipation which is so constant an accompaniment of hyperacidity. The interference with intestinal digestion favors the development of the fermentation and putrefaction which are the plague of patients thus afflicted. The poisonous products thus engendered not only absorb directly into the blood, causing anemia, with disastrous effects as well to the nerve centers and many other structures, but also the gaseous portion of them over-distends the intestines, exciting colics, or at least sleep-disturbing pains, besides, when allowed to go on long enough, so paralyzing the muscular coats of the bowel and permanently dilating the tube as to render the constipation very difficult if not impossible to cure.

My note books show that a very large preponderance of the nervous patients who have come under my care and whose cases seemed serious enough to warrant the analysis of their stomach contents, after the usual Ewald test breakfast, were found to have an excess of hydrochloric acid.

By its great relative frequency, its insidiousness

and often unsuspected beginnings, and its serious results when not actively combatted, hyperacidity is probably the cause, directly and indirectly, of more nervous derangements and ill health generally, than any other one disease of the gastro-intestinal tract. Hence this form of indigestion merits here a somewhat more detailed consideration.

When the gastric juice contains an excess of hydrochloric acid, the first symptom ordinarily observed, apart from gastric pain or discomfort, which may or may not be present, is usually constipation. My notes show that this is almost constant and proportioned in degree to the amount of the hyperacidity, though very exceptionally I have observed cases in which the bowel movements were regular or even excessive. In seeking for a rational explanation of the manner in which constipation is caused in these cases, I have been led by a large number of observed facts to infer that in the earlier stages of the affection the superacid stomach contents, as already intimated, often excite contractions of an irregular or spastic character in the muscular coats of the bowels, thus interfering with the normal peristaltic action. By careful palpation one can often feel contracted portions of intestine as hard cords under the fingers. Experienced masseurs sometimes report the same observation to me in these cases of hyperacidity. Such patients usually do not respond well to the ordinary purgatives, and even the milder laxatives, unless combined with alkalies, as in the popular aperient waters, are apt to produce unsatisfactory results with much griping pain. Rough massage with the usual exciting accompaniments of slapping, percussion, etc., often fails to effect any good results, while neutralizing the acidity by substantial doses of alkalies given one or two hours after meals, with the help of mild galvanic treatment and gentle rubbing and kneading of the abdomen, often overcomes the constipation without the administration of any laxative medicines whatever.

Left to itself, or wrongly treated, this constipation of hyperacidity causes intestinal flatulency, retention and absorption of the various products of fermentation and putrefaction, with a resulting endless chain of nervous derangements and other morbid effects. The autointoxication thus originated may provoke not only insomnia, mental depression and many other functional disturbances, but also, according to Bouchard[3] and his followers, various other diseases as well.

Pressure of the fecal masses upon the lower abdominal and pelvic nerve plexuses, as well as, in the case of women, upon the ovaries, probably effects a more direct injury in many cases, and is at least the cause of numerous reflex symptoms. Hyperacidity is the nearly constant accompaniment of gastric ulcer, and is doubtless a factor in its causation. It also tends to develop in time, if severe and uncontrolled by treatment, the serious condition known as Reichmann's disease, or a continuous hypersecretion of the gastric juice, as well as ultimately the still worse state of marked dilatation of the stomach.

Recent experiments by Turck,[4] of Chicago, demonstrate that in at least that form of acute gastritis which can be set up artificially in animals, there is constantly found an excess of hydrochloric acid during the earlier stages of the morbid process. Boas[5] and some of the other recent German authors now admit the existence of an acid gastritis which they look upon as a separate and exceptional form of inflammation of the stomach; but it is a question whether, in view of Turck's observations and the analogies afforded by catarrhal processes in other organs, this form does not constantly precede the more familiar atrophic type of chronic gastritis.

It might be inferred with considerable plausibility that hyperchlorhydria is only the congestive stage of acid gastritis and the earliest stage of chronic gastritis glandularis; and possibly this may be true. But, unquestionably, such a hyperemic condition of the gastric mucous membrane with excessive secretion, may exist temporarily as a result of the generally hyperesthetic state of the nerve centers and many of the nerve endings so frequently observed in the worst forms of neurasthenia.

Hyperacidity of the gastric juice merits especial consideration in this connection for the further reason that some of the methods of treatment which are most in vogue in cases of insomnia, mental depression, etc., tend directly to increase the secretion of the hydrochloric acid and thus in the end to aggravate the malady. Thus, the tonics and stimulants which are almost universally prescribed as a matter of routine in neurasthenia, are probably all or nearly all excitants of gastric secretion, and therefore when the nervous affection is either dependent upon, or complicated with, hyperacidity, the result must often be disappointing. Mathieu[6] asserts very positively that alcoholic liquors, spices and condiments of all kinds, and such drugs as the iodids, bromids, ferruginous salts and the mineral and organic acids, all excite an increased secretion of hydrochloric acid. It is more than probable that strychnin, phosphorus, arsenic and the other metals in their usual therapeutic doses, have the same effect. In regard to several of these, I have myself noted in numerous cases an increase of hyperacidity while they were being administered.

For the determination of the amount of hydrochloric acid in the gastric juice there has not yet been discovered any reliable method except the quantitative chemic analysis of a definite number of cubic centimeters of a sample of the stomach contents obtained at a certain interval after a test meal, usually one hour after the Ewald test breakfast, which consists of two ounces of bread and a half pint of either water or weak tea. In Germany especially, many elaborate experiments have been made with the view of finding some fixed relation between the acidity of the urine at different times of the day and the proportion of hydrochloric acid in the gastric juice, but so far with only partial success. Both Boas[7] and Riegel[8] quote the experiments of Quincke, Sticker and Hüber in this direction, but do not consider the claim established that the relation is sufficiently constant to be a safe guide. I have tested the matter in a number of cases and found the results too varying to be reliable.

Chemic and microscopic examinations of the stomach contents need to be made also at times during the treatment of hyperchlorhydria to note the results. It is especially important during the administration of large doses of alkalies (which have proved one of the most effective means of relieving as well as curing this affection), to watch the results very carefully. It is well also to test the urine frequently to see that it does not become entirely alkalin, and even to make an occasional microscopic examination of the blood, since a too prolonged or vigorous pushing of even the milder alkalin salts is capable of doing harm.

But the treatment of either neurasthenia or any of

the digestive disorders with which it is so generally associated, forms no part of the scope of this paper. My purpose will have been fully accomplished if the suggestions already offered shall lead to a fuller recognition, in our every day work, of the intimate connection existing between the functional nervous affections and diseased conditions in the alimentary canal, as well as show the great practical importance of a more exact study of the latter by the recent scientific methods.

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5 "Diagnostik u. Therapie der Magenkrankheiten," von Dr. I. Boas, Leipzig, 1894.
6 "Diseases of the Stomach and Intestines," by Albert Mathieu, New York, 1894.
7 Boas, loc. cit.
8 "Die Erkrankungen des Magens," by von Prof. F. Riegel, Vienna, 1896.

THE RELATION OF ASCITES TO DISEASES OF THE KIDNEYS, AND PARACENTESIS ABDOMINALIS AS A REMEDY.

Read in the Section on Practice of Medicine, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

BY W. F. McNUTT, M.D.

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The accumulation of fluid in the abdominal cavity with or without dropsy was recognized by the earliest medical writers. Hippocrates was, from his many references to the subject, evidently familiar with dropsy and the accumulation of fluid into the serous sacs. Erasistratus's master, Chrysippus, must have been a contemporary of Hippocrates. According to Galen this famous physician, Erasistratus wrote a work on dropsy and taught that all varieties depended upon obstruction of the liver. Galen himself taught that diseases of other organs might also be responsible for dropsical effusions, and that they not infrequently had their origin in the morbid state of the blood. Asclepiades, who seems to have been a voluminous writer, according to what can be gathered of his views from Celsus and Galen, divided all dropsies into acute and chronic, not designating the particular viscera whose disease caused the dropsy. Probably Avicenna in his "Canon Medicinæ," is the first to include disease of the kidneys as a cause of dropsy. It is questionable whether he (from postmortem examinations) had a definite knowledge of the connection between pathologic conditions of the kidneys and dropsy. He makes the statement, however, that the kidneys from the induration of their structure fail to separate urine, hence dropsy. We have no knowledge as to what means he had for diagnosing diseases of the kidneys. While many writers since the days of Willis have been particularly interested in dropsy and effusions, it is quite safe to say that before Dr. Bright's time the relation between diseases of the kidneys and dropsy with effusion into the serous cavities was very vague. Scattered through the liferature of dropsy one finds a reference here and there to disease of the kidneys as a cause, but from the vague language of the writer it is easy to see he had no definite knowledge of the relations. Hippocrates says: "The most of them [dropsies] commence from the flanks and loins, but some from the liver; in those which derive their origin from the flanks and loins the feet swell, protracted diarrheas supervene, which neither remove the pains in the flanks and loins nor soften the belly." Adams thinks: "Hippocrates refers one species of dropsy to disease of the parts situated in the loins, by which Galen and Stephanus agree that he means the jejunum, mesaraic veins and kidneys." Ægeneta says: "For the most part it [ascites] arises from hardness and scirrhus about the spleen and liver and from chronic defluxions about the intestines." Aretæus says: "Dropsy is sometimes occasioned suddenly by a copious cold draught, when on account of thirst, much cold water is swallowed and the fluid is transferred to the peritoneum; by which means the innate heat in the cavities is congealed, and then the dropsies which formerly were converted into air and dissipated, flow into the cavities." Aretæus no doubt diagnosed ovarian tumors as ascities. "This other form of dropsy is known. Small and numerous bladders, full of fluid, are contained in the place where ascites is found; but they also float in a copious fluid, of which this is a proof; for if you perforate the abdomen so as to evacuate the fluid, after a small discharge of the fluid, a bladder within will block up the passage; but if you push the instrument farther in, the discharge will be renewed. This species then is not of a mild character, for there is no ready passage by which the bladders might escape. It is said, however, that in certain cases such bladders have come out by the bowels. I have never seen such a case, and therefore write nothing of them; for I am unable to tell whether the discharge be from the colon or the stomach." To Bright, more than to any other writer, are we indebted for the establishment of the relations between the diseases of the kidneys and dropsy. He described the structural lesions of the kidneys that give albuminous urine. Every writer and practitioner now recognizes the important part that diseases of the kidneys play in dropsy and the frequency of effusion into the serous sacs in cases of renal anasarca. No writer, however, seems to have given the proportional frequency of ascites, hydropericardium and hydrothorax in renal dropsy. No one is surprised to find ascites developing in hepatic or right heart obstructions or in peritonitis or cancer of any abdominal organ for instance, but in the absence of any of these conditions, why should ascites occur in renal lesions more frequently than does hydrothorax or hydropericardium; yet the daily experience of every practioner finds it to be the fact. In renal diseases, barring the inflammations, pleuritis, pericarditis, arachnitis and peritonitis, we find effusions into the abdominal cavities much more often than into any of the other cavities; to be sure, in some cases of ascites with Bright's there may also be an indurated or nutmeg liver or a chronic peritonitis which a postmortem would be necessary to reveal. The heart in the following case is normal and there is not an indication of disturbance of the liver.

The patient, a man of 58, blonde, family history good, rather muscular, temperate habits, but has had a life of exposure, first in the United States army as a young man during the late unpleasant episode in our history, and since as a mining prospector and owner. By the aid of his wife and a friend he was brought to this city, thinking, as he expressed it, there might be another straw to grasp at. When I saw him last, September 30, there was an extreme anasarca, great abdominal distention from ascitio

fluid, the most distressing dyspnea, respiration fifty-five, pulse feeble and very rapid, face cyanosed, headache and vomiting. Urine, twenty-five ounces per day, light colored, 1012 specific gravity and coagulated almost solid in test tube; epithelial and granular casts; he weighed 185 pounds on the hotel scales. It seemed scarcely possible that the man could live many days. I returned to my office and got a trocar, put him on the bed on his side, well braced up, as he could not lie down, put a Kelly pad under him and tapped him. The trocar remained in for several hours and the fluid continued to run from the opening for three days, when it ceased, by which time the anasarca had disappeared and the patient weighed 130 pounds, having lost fifty-five pounds in the three and one-half days. The abdomen soon commenced refilling, and on October 15 he was again tapped, draining off the fluid, eight quarts. It promptly collected again, and on the 20th we obtained six and one-half quarts. From this time he began to improve in strength and the urine increased to forty ounces, and for a few days to seventy. The fluid was again collecting, but more slowly this time, November 19 we again tapped him, this time getting eight and one-half quarts; by the 27th he was again quite distended and was again tapped; the canula was left in thirty-six hours, during which time we collected thirteen quarts of ascitic fluid. December 10, I tapped him again, not leaving the canula in this time, and taking off six and one-half quarts; eight days afterward, viz.: December 8 it was necessary to tap him again; the canula was left in forty-eight hours and fluid escaped from the opening twenty-four hours more, most of it was conducted into a bucket by the Kelly pad; we collected eighteen quarts and the bed clothes were several times saturated. It is safe to say that in those three days twenty quarts of fluid escaped from the abdominal cavity. December 22 we drew off eight quarts. By January 8 it was again necessary to tap him; left the trocar in four days and collected thirteen quarts, and on the 28th we got four quarts; February 10 I drew off four quarts. I have not been able to find an explanation in any of our pathologies of this morbid propensity of the peritoneum in Bright's. In this individual case the peritoneum poured out 506 fluid ounces from December 1 to December 8, eight days; over two and one-half ounces per hour; and no discoverable obstruction to the portal circulation, and no effusion into any of the other serous cavities. It scarcely seems possible that we could have obstructions to the portal circulation sufficient to produce or assist in producing ascites and that the urine should be light in color and of light specific gravity. In order to make ourselves believe that we understood this form of ascites and anasarca we call it hydremic, which conveys about as much exact knowledge of this morbid process as that convenient word, idiopathic, gives us in regard to the real cause of the disease. Never having been able to find any satisfactory explanation of this renal ascites and why it occurs so much more frequently than hydrothorax and hydropericardium, I have watched this case with a great deal of interest. No doubt the hydremic condition of the blood and the nutritive disturbance of the capillaries are factors in renal dropsy, but only secondary factors, the primary factor is mechanical, though not in the same sense as in obstruction of the heart and liver. The peritoneum in Bright's pours out fluid more often than does the pleura or pericardium, because it is more pendent, it requires more arterial force to drive the blood through the capillaries of the peritoneum into the veins than through the capillaries of the pleura or pericardium. The abdominal veins are numerous and without valves, and edema into the abdominal walls seems to obstruct the venous circulation. When a dropsical patient sits up all day his feet are greatly swollen at night owing to their pendent position; after remaining in bed all night the swelling has disappeared by the morning. The patient is hydremic, but the fact that swelling occurred during the day when the feet were pendent and disappeared when the patient was in a horizontal position shows that this form of dropsy, too, is primarily at least, mechanical. With hydroperitoneum and perhaps with all dropsies there are two mechanical factors, the one as we have seen, pendent—gravity; the other is compression. No sooner has the blood serum escaped from the distended, weakened capillaries and veins than its accumulation in the lymph spaces outside the capillaries faster than it can be taken up by the lymphatics compresses the capillaries and offers mechanical resistance to the passage of the blood into the veins. In this case I noticed that as soon as the abdominal walls would become edematous the accumulation of fluid in the cavity was rapid. After the tapping of January 8 I packed the abdomen with hot applications of alcohol and water and bandaged, making quite a little compression. I thought by supporting the abdominal walls by bandage and stimulating the blood vessels by alcoholic stupes we might prevent the rapid pouring out of fluid by the mural peritoneum. It will be noticed in the next twenty days, only four quarts of fluid were obtained by the tapping of the 28th and from the 28th to February 10 we had only four quarts. During all the time the urine averaged about forty ounces with from 1 to 2 per cent. of albumin, and about two hundred grains of urea daily. The ascitic fluid usually contained about one-half of 1 per cent. of albumin. Since the first tapping, when the patient lost fifty-five pounds in the three and one-half days, we have taken by the various tappings sixty-eight quarts, 136 pounds, which added to the 55 pounds makes 191 pounds. From September 30 to February 10, 132 days, or 3,168 hours, the 191 pounds is 3,058 ounces, almost an ounce an hour. The patient has not been tapped since February 10, is still weak (April 10) but much better than he was before the first tapping. His diet has been largely milk and a prescription of carbonate of iron and sulphur is the only medicine that seems to agree with his stomach or to be of use to him. He always feels better while taking this prescription and the urine falls off when it is stopped. Too frequently, tapping is resorted to by many practitioners as a last resort; to my mind and in my experience it is the most important remedial measure we possess in these cases of renal ascites and anasarca, stimulating stupes and bandaging and gentle friction and massage are remedies for the prevention of the accumulation of ascitic fluids in Bright's disease. In this case the fact that the patient is living is owing entirely to tapping. He could not have lived many days in the condition in which I found him, nor would it have been possible to relieve him by cathartic medicine. There is still nearly 1 per cent. albumin in the urine, but it is not impossible for the kidneys to recover. In one case of cirrhosis of the liver, in which I was called in consultation, with the idea that tapping

ought to be done as a last resort to prolonging life, after repeated tappings collateral circulation was established and the patient lived three years. Paulus evidently approved of tapping and gives explicit directions as follows: "And it having been there shown that ascites alone falls under the province of surgery, we are now going to give an account of it. Wherefore we must make the patient stand erect, or if that can not be done, we must cause him to be seated, or if he is so weak that this can not be done, we must abandon the operation entirely. If then the man be standing erect we give orders to the assistants standing behind to press with their hands and push downward the swelling to the pubes. Then taking a sharp-pointed knife or lancet, if the dropsy is among the intestines, in the perpendicular line of the navel, and about three fingers' breadth distance from it we divide the hypogastrium as far as the peritoneum. But if the liver be primarily affected we must make our incision on the left side of the navel, or if the spleen, on the right, for we must not make an incision in that part on which the patient is disposed to lie. And having dissected with the point of the instrument the skin that lies over it, we divide the peritoneum a little above the first incision until the instrument comes to an empty space. After this we introduce through the incision of the abdomen and peritoneum a copper tube, having an opening like those of writing pens, and by this we must abstract the fluid in proportion to the strength; feeling the pulse and then removing the tube, we stop the flow of fluid (for it will stop immediately from the alteration of the incision) and, for the sake of security, we introduce a twisted tent into the incision of the abdominal parietes alone; and having placed the man in a recumbent posture and recruited him, we may next day again evacuate through the tube a small quantity of fluid proportionate to his strength; and thus in like manner, until very little be left, avoiding by all means a sudden evacuation, for some ignorant persons having evacuated the vital spirit with the fluid have immediately killed the patient."

REPORT OF A CASE OF CHRONIC TUBERCULOUS PERITONITIS

WITH REMARKS ON DIAGNOSIS AND TREATMENT OF THE DISEASE.

Read in the Section on Practice of Medicine, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

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A. S., male, age 55, born in the United States, occupation laborer, was admitted to the Arapahoe County Hospital, Denver, Jan. 10, 1896. His father died from violence and his mother from old age. One sister died of tuberculosis. He had been strong and robust up to three years before, having spent much of his life on the Western plains. He contracted syphilis when a young man. For many years he drank whisky more or less continuously. Three years previous to admission he noticed that the abdomen, feet and legs were swollen, and that he was short of breath. Some abdominal swelling had existed off and on since that time.

About a week before admission, while doing some heavy work, he was taken suddenly with sharp pains in the back and abdomen, especially in the lower part. He was obliged to take to his bed. On admission to the hospital, he still complained of pain, especially in the back. There was considerable ascites but no swelling of the feet and legs. The body was considerably emaciated, the face thin and the eyes sunken; there was no jaundice although the eyes looked muddy. The liver dullness was moderately increased upward. The ascites prevented any satisfactory abdominal examination. The examination of the heart, lungs and urine was negative. The pulse varied between 80 and 100. The temperature was usually below normal, and never rose above 100. The respirations were from 20 to 26. Within ten days after admission, the ascites had increased very considerably, and jaundice was plainly apparent over the whole body. As the ascites and jaundice increased, he grew progressively weaker, and more emaciated. He was inclined to be drowsy. The scrotum, feet and legs became quite edematous. The superficial veins of the abdomen and thorax were enlarged. He vomited occasionally after eating.

A report was requested, but not obtained, on the bacteriologic examination of the contents of the stomach after a test meal. As a rule there was no severe pain excepting in the lower part of the back. One attack of severe abdominal pain occurred, lasting about twenty-four hours and requiring turpentine stupes. The bowels moved regularly under sodium phosphate, which was being administered. The stools were clay colored after jaundice developed. One examination of the urine showed a faint trace of albumin with hyalin casts; the other examinations revealed nothing abnormal but bile pigment. He stated that frequent and difficult urination had troubled him previously at times.

The treatment was palliative. The attending surgeon was asked to withdraw the abdominal fluid in order to give some relief possibly to the patient, and to aid in the differential diagnosis. The surgeon, however, counseled against it. Death occurred February 11 from gradually increasing asthenia.

AUTOPSY.

The following autopsy was performed twenty-four hours after death by Dr. E. R. Axtell, pathologist to the hospital: The body is that of an adult male, apparent age between 50 and 60 years. The body is well developed, but poorly nourished. The skin shows much jaundice. Postmortem staining, and rigidity well marked.

On opening the abdomen, fully a gallon of serous fluid, deeply stained with bile, escapes, while apparently half that quantity remains behind in the dependent portions. Within the chest, the heart, lungs and pleuræ are found normal, excepting that all the tissues of the chest, especially the aorta, are bile stained.

The intestines are matted together into a mass the size of a child's head and lie in the middle line on the spinal column. They are only slightly distended, and the serous surface is studded with miliary tubercles varying in size from a millet seed to a grain of wheat. This tuberculous infiltration extends over all the abdominal organs as well as over the anterior wall of the abdomen.

The omentum is rolled into an elongated mass, twice as long as it is wide, and lies across the upper part of the abdomen underneath the stomach and just left of the portal fissure. On section this mass shows tuberculous infiltration, but no cheesy areas are found.

The liver is normal except for a large scar, undoubtedly syphilitic, on the upper surface of the right lobe. The spleen is normal. The stomach is normal except that the serous surface shows less tuberculous nodules than the surrounding tissue. The kidneys seem normal to the naked eye. The brain and cord were not examined. Cause of death tuberculous peritonitis.

A positive diagnosis was not made during life. It was supposed to lie between cirrhosis of the liver and cancer accompanied by limited peritonitis. In favor of cirrhosis were the following points: 1, history of steady indulgence in alcohol and of having had syphilis; 2, the development of marked ascites with only slight and slowly developing edema of other parts; 3, gastro-intestinal symptoms and jaundice; 4, the hepatic facies; 5, the increased liver dullness; 6, the length of time from the first symptoms to death.

Opposed to cirrhosis were the following points: 1, the history of swelling of feet and legs occurring simultaneously with the previous attack of ascites three years before; 2, the rapidly increasing jaundice toward the close of life would scarcely be expected excepting with the hypertrophic or biliary cirrhosis, a form not borne out by the other symptoms.

In favor of cancer were the following points: 1, age; 2, marked cachexia and wasting at the last; 3, negatively, the inability to exclude tumor in the gastric region on account of the ascites.

Opposed to cancer were: 1, the slow course of the disease (three years); 2, the absence of tumors in other parts of the body; 3, the extent to which ascites developed, which is usually slight unless associated with cirrhosis.

Had aspiration been resorted to, as it unquestionably should have been, it is more than likely that the omental tumor lying across the upper part of the abdomen, together with the smaller masses, some of which must have been palpable, although such conditions occur in both cancerous and tuberculous peritonitis, would have turned the balance in favor of tuberculous peritionitis as a diagnosis, all the evidence being taken into account, although opposed to it was the fact that no tuberculosis of the lungs or other parts could be demonstrated.

According to Strumpell, tubercle bacilli are not usually present in the exudation of tuberculous peritonitis, so that a bacteriologic examination of the ascitic fluid would probably have been useless as a diagnostic point.

It is interesting to study the probable starting point of the disease in this case. It could not have been part of a general tuberculous process. In such cases the peritoneum is usually affected through the intestines and mesentery. As in women, the disease often extends from the Fallopian tubes, so in man the prostate gland and seminal vesicles may be the starting point. The age, the history of frequent and sometimes difficult urination, and of the pain being especially located in the lower abdomen and back seem to point to the possibility of these structures having been the commencing point of the disease in this case. However, it is not improbable that the peritoneum as a whole may have been the primary seat of the process.

Out of 357 cases collected from literature in Vol. II of Johns Hopkins Hospital reports, only twenty-five were over 50 years of age. The present case was 55 years old.

The absolute covering of all tissue in the abdominal cavity by tubercles was an interesting feature in this case, as well as the tumor-like masses, especially the omental tumor in the upper part of the abdomen. Indeed the condition was not far removed from the one described by Osler where "In rare cases the tumor formations may be due to great retraction or thickening of the intestinal coils. The small intestine is found shortened, the wall enormously thickened, and the entire coil may form a firm knot close against the spine, giving on examination the idea of a solid mass. Not the small intestine only but the entire bowel, from the duodenum to the rectum, has been found forming such hard nodular tumor." In this case a large solid mass of intestinal coil was removed and exhibited in the lecture room.

Tuberculous peritonitis is of special interest in a diagnostic point of view from the great diversity of symptoms it presents, as well as from its simulation of other diseased conditions. It has repeatedly been found present in abdominal and pelvic operations without having been suspected. On the other hand, the onset may be so sudden and the symptoms so severe as to be considered ordinary acute peritonitis or even hernia. The ascites is usually limited in amount, but when it is large, cirrhosis of the liver may be simulated and suspected particularly if the patient has been an alcoholic. Moreover, cirrhosis often becomes complicated by tuberculous peritonitis before death. Again with moderate continuous fever, slow development, tympany and abdominal pain, typhoid fever, is simulated; while in some cases a peculiar pigmentation of the skin has caused the diagnosis of Addison's disease to be made.

Perhaps the most difficult feature of the diagnosis of tuberculous peritonitis arises from the frequent occurrence of tumors or tumor-like masses in the abdominal cavity. Osler in his text book on medicine speaks particularly of them. The rolled up and hardened omentum which may lie across the upper portion of the abdomen or below this region may simulate cancerous peritonitis although this condition is far more likely to occur in the former disease than the latter. When the fluid is sacculated, it is apt to be located in the middle zone of the abdomen, and in women ovarian tumor is simulated. The simularity must be great, for Osler says that in fully 33 per cent. of the recorded cases of laparotomy in tuberculous peritonitis, the diagnosis of ovarian cyst had been made; moreover tuberculous peritonitis is often associated with tuberculous disease of the tubes. Rotch in his pediatrics says "that most doubtful cases of abdominal tumors in children are tubercular."

Great diagnostic importance is placed on the personal history and on finding evidence in other parts of the body of old tuberculous lesions especially in the pleura, the apex of one lung, the testis in the male and the Fallopian tube in women. No reliance can be placed on the personal appearance, as a patient with this disease may appear well nourished and in good health.

Regarding treatment, the concensus of opinion today seems to be that it should be both medical and surgical; that if after rest and appropriate constitutional treatment, there is no progress and especially if the ascites increases or is already considerable, aspiration or siphonage should be done. If after one or two withdrawals, the fluid tends to return, especially if the case seems to be at all desperate, laparotomy should be resorted to. At times after withdrawing the fluid the cure seems complete, at other times there is temporary improvement, while again it happens that the tuberculous process is arrested in the peritoneum only to break out afresh in some other and probably more dangerous tissue.

INTESTINAL ANTISEPSIS, DIET AND CASTRATION IN RELATION TO EPILEPSY.

Read in the Section on Practice of Medicine, at the Forty-seventh Annual Meeting of the American Medical Association held at Atlanta, Ga., May 5–8, 1896.

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The effort has been in the present paper to offer as briefly as possible some individual conclusions as to the advisability of employing the three methods enumerated in the title.

Pages have been filled, and can be again filled, with observations and statistics relating to the epileptic symptom. I leave aside now all that class of work and present these three as newer methods and those which to my mind promise, especially in young cases, rather better results than any plan with drugs as usually employed.

The first attack in many instances is after excessive eating, as in the following case: A girl of 14 ate heartily and hastily at dinner, then took a pint of peanuts on her way to school and, soon after the session opened, had a fit. She vomited large chunks of beef and a great quantity of other food. A second fit occurred three months later after another, though less, overindulgence in food; and they recurred at intervals, always with a similar apparent cause, though after the establishment of the habit the excess required was slight.

The person manifestly, in order to guide against excess and putrefaction as much as possible, ought from the outset of the child's life to have suitable food in right amount at proper intervals.

The gluttony of this class of persons is well known. Unrestricted they nearly all overeat. A sample supper recorded from an actual case, taken at random when no restraint was used was as follows: Boy of 14, six slices of bread and butter; one bowl of hulled corn and milk; three saucers of apple sauce; two cups of cocoa; three cookies.

Many such instances might be cited, though I am fully aware that the initial attack, when not traumatic, is not always traceable to the digestive overbalance.

To regulate and control the food of the child, when there is known to be danger, are rational methods of treatment and have actually proved effective in many instances. I have tested many drugs to a degree and still have observations going on, but I believe more fully in prevention of this trouble than in a possible cure, and the suggestion has many times presented itself as to whether or not the good effects of certain drugs in special cases may be more due to their tendency to correct either putrefactive changes or parasitic influences than to any other quality. With this in view I have a number under various methods of drug treatment, but not as yet conclusive results to record. Auto-intoxication in diseases has received much well merited attention.

We are taught in the main merely a suitable choice of food, cleanliness, right living and to prevent putrefactive changes as far as we can by drugs or other methods. We have merely the same principles to follow when putrefaction takes places instead of wholesome digestion as in the instances where we seek relief from parasitic products and from other sepsis or toxins.

Intestinal parasites are unquestionably common. They are not conducive to the health of the child and it would be well if all could be removed. Doubtless such forms of life have their place in the economy of nature; but inside the human subject that place should eventually be taken by nutrient solutions, unsapped by even microörganisms, for the strengthening of the surrounding body. Dog breeders well know that all dogs have worms and that vermifuge will prevent or cure fits. The relatively longer intestinal tract in dogs very likely increases the animal's liability to have a fit. Chickens from incubators are apt to be abnormal, to have fits, deformities, etc., but I can not say that they have fewer intestinal parasites than the ordinary chicken. It is claimed that no dog can be reared free from such residents, whatever precaution may be taken with food and care; but I am of the opinion that no case has, as yet, been adequately tested to determine this point.

For purposes of disinfection and for destroying a part of the parasitic life large injections into the bowels, large draughts of water and perhaps the use of the ozone preparations give promise of some favorable results. Keeping the bowels open by suitable food and manner of life, massage of the abdomen, baths to aid digestion, and the measures before outlined, will certainly afford us a better outlook than the over-medication which has hitherto prevailed.

I have twenty-two cases of castration to report, twenty in males and two in females. I was first led to do a castration by my desire to do something to prevent masturbation in certain few boys who were also epileptic, and the habit is not as likely to become offensive in the non-epileptic. Castration as well as circumcision, which, if not God-given rites, are certainly worthy to have come from the mind of Deity conscious of the need of correcting a structural error, have bitter opponents. I would not be so unreasoning as to expect all men to agree even upon the most self-evident proposition. The opponents of vaccination are howling with as much persistency in the face of the most convincing statistics as they did at the beginning of the century when Jenner was promulgating his beliefs. The operation is old. I need not go into its history though a volume might be written thereon.

There is no doubt that the custom prevails in Eastern countries, as formerly, of emasculating certain youths to serve as safe attendants upon the royal women, and among another class for the purpose of keeping the youthful qualities of the voice.

As to the method of operation I may be allowed briefly to suggest that it seems an advantage to make one very small incision in the median line of the scrotum and then squeeze out each testicle successively through the opening. The cut is then easily closed with one stitch and the place being painted with co. tr. benzoin, always heals at once. There will be some induration of the stumps beneath the surface but this gradually absorbs and in a very few days the patient is in a safe position. I hardly dare to claim priority of use of this operation, but I certainly originated and used it without knowing of its application in any other quarter.

The effects of castration are, as far as I have observed them, as follows: The masturbation, which is the most important, finally ceases in all cases. Sometimes it persists for months with varying intensity, but it is not obtrusive even in these instances and eventually the habit is dropped. The boy gets plumper and has a clearer complexion. The voice is milder and pleas-

anter and remains so if the case is a young one, at least for a few years, and probably permanently. The boy is less inclined to violence and domineering. The possibility of reproduction is of course eliminated. I consider this a most useful safeguard. I can not understand why any parent having such a son as we are considering should hesitate to have him castrated even if there were no other object than the last one named. No parent understanding the probability of inheritance in such a nervous case, ought to care to run the risk of becoming a grandparent. Sentiment is very wrong on most matters until set right by reason and education. So it is here. There is, however, some hope for spread of intelligence in such a matter as this, but judging from past progress I conclude that a hundred years of deliberation is likely to leave the public in much the same state of intelligence as at the present day. There has always been some fear among medical men that a male masturbator being castrated would fall into lasciviousness or into some other immorality worse than his first state. I do not find this fear substantiated in my cases. We had two boys who were kleptomaniacs as well as epileptic masturbators. For some weeks after the operation this manifestation was exaggerated, but it subsided entirely in a few weeks and only slight and infrequent traces have appeared for a year in one case and two in another. I find that these boys after operation do not entice other boys to masturbate. They have no tendency to think of sexual matters. The smutty story mania disappears and other unpleasant and gross manifestations are happily wanting.

The effect upon the force and frequency of the fits seems in all cases to be noticeable. There have been the same periods of fits and about the same length of period, but each fit has been less in time and milder in type.

Two females have been under my observations both of whom were castrated between the ages of 16 and 20. Certainly no general deductions can be made from so few cases but so far as my experience goes with them, I feel that the operation is not as thoroughly useful as with boys. There are, however, plenty of arguments to show that it is fully justifiable and might even be very desirable. To prevent conception is a very great desideratum, but to encourage the woman to safe and indiscriminate indulgence, which such a case would often be inclined to, would certainly be bad. The first two of these methods cut off in the offspring much of the unintellectualized emotional life which eventuate in the various neurotic disorders. The last is especially adapted to all those instances where we feel certain that marriage would never be proper.

DISCUSSION.

DR. G. W. WENSTER, of Chicago—I assume that in the light of the most recent pathology, epilepsy may be said to be a condition of cortical instability. That is its essential underlying condition. It is characterized during the attacks by convulsive seizures, attended by loss of consciousness. If, then, we have, as a basis of the epilepsy, cortical instability, we must further recognize the fact that cortical instability may be influenced in many ways, directly, by the blood circulating in the cortical portion of the brain; and probably by uric acid and other waste products from the blood. This has led Haig and his supporters to hold that a large number of cases of epilepsy are due to uric acid circulating in the blood. The cortical portion of the brain may not only be influenced directly in the manner stated, but also by trauma, producing Jacksonian epilepsy. It may be influenced reflexly, and it is a matter of common knowledge that certain errors of refraction may produce epilepsy, and it was for this reason that a certain gentleman in New York a few years ago offered glasses or division of ocular muscles for the cure of all cases of epilepsy. We also know that in young boys irritation of the penis may result in epileptic seizures. I have seen the case of a child who was having as many as twelve to eighteen attacks in twenty-four hours, that had continued for a year and a half, cured simply by circumcision, we must remember, then, that we may have epilepsy as a reflex condition excited from the genital organs, from the eyes, from the intestines.

DR. LOUIS FAUGERES BISHOP, of New York—It seems to me that in discussing epilepsy as a reflex result of irritation we are going backward. Epilepsy is an essential disease of the cortex of the brain, and the fact that a certain small proportion of cases are aggravated by local irritation is acknowledged by all. But I think the stund taken now in the Vanderbilt clinic, where they have seen many thousand cases of epilepsy, and they have been referred to various specialists for various kinds of treatment. We have had them circumcised, trephined, the nose and eyes treated, and so on. We think that a reflex cause of epilepsy is a very small factor and that it is hardly justifiable even to trephine. Our cures from trephining have all been temporary, and certainly if you trephine in a case where the source of irritation is right at the cortex, and you find that in spite of removal of that area the cure is only temporary, you would feel that anything like castration was hardly justifiable.

DR. WENSTER, of Chicago—The point which I insisted upon in the beginning of my remarks was, that the essential condition in epilepsy is one of cortical instability. That that brain, and the individual of which it forms a part, is what it is from two sources, heredity and environment; and that, given a child with a brain in this condition of cortical instability, treatment of the eye, castration, or anything else, will not change it, and we must recognize this cortical instability to begin with.

EARLY DIAGNOSIS OF CARCINOMA OF THE STOMACH BY MEANS OF CHEMIC ANALYSIS OF THE GASTRIC CONTENTS.

Read in the Section on Practice of Medicine, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5-8, 1896.

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The question of how to arrive at an early diagnosis of cancer of the stomach is certainly one which has attracted considerable interest in recent years, and hence concentrated efforts in the study of this peculiarly interesting disease. The reason of this becomes apparent in view of the fact that not infrequently cases come under one's observation which present few and indefinite objective symptoms and a vague sense of disturbance in the digestive process as the only subjective symptom of ailments which in their later stages prove unmistakably to be cancerous.

To proceed in the ordinary way, to palpate, percuss and gather the history of the case, is insufficient and often ends in negative and disappointing results. Such failures can, to a great extent, be obviated by supplementing the usual method of diagnosis with a process of chemic analysis to which the stomach contents are subjected.

The time was, not long since, when the absence of hydrochloric acid from the stomach contents was regarded as a symptom almost pathognomonic of car-

cinoma. This symptom in itself does not now receive the diagnostic prominence it did in the past, for the reason that this acid may be absent in both acute[1] and chronic gastritis in which no neoplasm exists as a causative factor.

At the present time there is a tendency to attribute great diagnostic importance to the existence, in the gastric contents, of lactic acid. It may scarcely seem necessary to say that the presence or absence *per se* of one or the other of these acids is no positive sign of the existence or non-existence of cancer of the stomach. The constant absence of hydrochloric and the contstant presence of lactic acid, in connection with certain other symptoms or conditions are of the highest diagnostic import. This point I shall endeavor to emphasize by the citation of a case or two, further on, which at the same time illustrates characteristics of cases most difficult of diagnosis.

Preparatory to the investigation of the gastric juice all medication is to be excluded for a day or two previous to the administration of the test breakfast which consists of a light biscuit or small piece of toast and a cup of weak tea or glass of water (it is well to note here that after the test breakfast the HCl may be absent and may reappear when a meal of steak, potatoes etc., is used): this should be given from one to two hours before the removal of the stomach contents which should be forced, or expressed, through the stomach tube without the addition of water and the stomach may then be lavaged in the usual manner before the tube is withdrawn.

The quantity of the expressed gastric contents is noted, then filtered and the reaction determined; if this be neutral or alkalin no acid tests need be applied; if acid, the total acidity may at once be ascertained by the process of titration; or one or more of the tests for free hydrochloric acid may be used. Those most commonly employed are the anilin dyes of which Günzburg's test dimethylamidoazobenzol, Congo-red and tropeolin are preferred. Tropeolin, an orange colored powder, is dark yellowish red in saturated aqueous or alcoholic solutions and in the presence of free HCl (1 in 4,000) changes to a dark brown; the acid salts give it a light straw yellow.

Congo-red is changed to a sky blue by the presence of hydrochloric acid. It is more delicate than tropeolin and is not affected by acid salts. A paper has been prepared containing this substance and is used in the same manner as litmus paper.

The first mentioned test, Günzburg's,[2] possesses several important advantages over those just described. This reagent has a pale yellow color and is fairly stable when kept in a dark place. Its superior value chiefly lies in the simplicity of its application, the reliability of its action, which is not interfered with by the presence of albuminates, giving it in this latter respect a distinction accorded to none other of this group; it has no effect on salts or organic acids. To a drop of the reagent in a porcelain dish is added a drop of stomach contents and slowly heated over an alcohol lamp; if free HCl is present, even in so minute a quantity as 1 in 20,000, there is produced a bright red tinge along the edges or delicate stripes through the drop. Overheating, especially when albuminous matter is abundant, produces a brownish or reddish coloration in the center of the drop, which, however, is easily distinguished from the characteristic reaction of HCl. Should there be any doubt as to the character of the reaction it is advisable to make use of a control test which may consist of an indefinitely dilute hydrochloric acid solution. This reaction is always a distinctive one though varying from a bright red to a pale rose color, depending on the degree of hydrochloric acidity. By a little further detail the test can be rendered quantitative by diluting the gastric contents one-third, one-sixth, one-tenth and so on with water, noting between what two successive dilutions the reaction no longer appears the limit of which we know to be in the neighborhood of 1 in 20,000. Another test which has lately come to our notice is the dimethylamidoazobenzol.[3] It consists of the addition of one or two drops of the reagent to one or two drams of the stomach juice, which changes to a red color when HCl is present. The stability of the reagent, its delicacy and extreme simplicity of application, make it one of the most, if not the most preferable of all tests.

As a high degree of acidity of the stomach contents does not in itself indicate the presence of HCl, yet possessing pathologic significance, it becomes important that the total acidity be determined. This is accomplished by the process of titration which is as follows: A deci-normal soda solution is allowed to flow from a burette, drop by drop, into a small glass beaker containing 5 or 10 c.c. of the filtered stomach contents and one or two drops of phenolphthalein solution. When the acid reaction is overcome the contents in the beaker changes to a red color, and the reading from the burette indicates in c.c. or fractions thereof the amount of the standard solution required to neutralize, from which the percentage of acidity can readily be calculated. To illustrate: Suppose it would require 3 c.c. of the deci-normal soda solution to neutralize 10 c.c. of gastric contents; it is thus apparent that the total acidity is 3 or in other words 30 per cent. In place of the phenolphthalein, litmus paper or better the litmus pencil can be used, but these require more labor and care. The normal total acidity ranges from 40 to 65 per cent. and a deviation in either direction from these figures is regarded as abnormal.

As it is not intended in this paper to dilate on the significance of a high or low degree of acidity of the gastric juice, and omitting the citation of the class of diseases occurring in each condition, we come to the consideration of lactic, the principal of the organic acids. The presence of the organic acids in the early stage of gastric digestion may be and usually is normal; it is, on the contrary, when found in the later stage of the digestive process, attributed to morbid influences. This is not difficult to comprehend when it is remembered that the prolonged sojourn of food tends to fermentation in the stomach due to pathologic alterations, notably such as occur in carcinoma of this viscus. But inasmuch as we do not at this time wish to deal with the etiology and pathology of cancer of the stomach, it is perhaps sufficient to state that there is a preponderance of evidence indicating the presence of lactic acid in cancerous diseases of this locality fully as often as the demonstrated absence of the hydrochloric.

Boas, in 1893, was first in calling attention to the value of lactic acid in the diagnosis of the disease under consideration. He further made the observation that this acid is produced in all test meals in which

[1] Ewald, p. 290.
[2] Phloroglucin 2, vanillin 1, and absolute alcohol 30.
[3] Fisher and Philipp, Anal. Pharm. 23, § 434.

bread or meat enters as a constituent; and he therefore resorts to a breakfast of 1 to 2 liters of a thin oatmeal gruel sprinkled with a little sodium chlorid; this is expressed from the stomach an hour later and Uffelmann's test applied. This test is based on the reaction of lactic acid on a diluted neutral ferric chlorid solution. It is a very simple method and the reagent can be freshly prepared for every application in the following manner: To 1 dram of a 5 per cent. aqueous carbolic acid solution add one or two drops tinct. ferri chloridi which turns it to a beautiful amethyst blue. When a solution containing lactic acid is brought in contact with this reagent thus prepared it assumes a canary yellow. The reaction is very characteristic and limited experience will enable the tyro in this line to make the proper distinction between this and various other shades of yellow which may be caused by such substances as sugar, alcohol, and particularly the phosphates. When the stomach juice has a decided yellowish color, the test may be unsatisfactory, necessitating a modification which can be effected by obtaining an ethereal extract, which is then subjected to the usual method. The fatty acids react to Uffelmann's reagent by giving a tawny yellow with a reddish tinge. This is particularly so in the case of butyric acid which can also be demonstrated by the presence of minute oily drops forming in an aqueous solution of the residue of an ethereal extract to which calcium chlorid has been added.

Acetic acid can best be detected by the sense of smell unless present in a very minute quantity. Peptones and propeptones (test applies to both) may be readily demonstrated by the biuret reaction. This consists of the action of a dilute cupric sulphate solution on the peptones or propeptones, producing in an alkalin medium a purple red color, while albumin simply shows a bluish violet.

In this connection it was interesting to note in my work that when the heat and acid tests showed large quantities of albumin, a correspondingly feeble biuret reaction took place, and vice versa, so that by testing for the one the presence or absence of the other could be quite accurately predicted. It seems that peptones are formed whenever pepsin is contained in acid contents, though HCl be absent. Hence no great diagnostic significance attaches to these products.

Examination of the blood will often lend very material aid in differentiating carcinoma of the stomach from the pernicious anemia caused by atrophy of the glandular apparatus of the stomach. In cases of cancer of the stomach that have reached a stage where it may be confounded with the pernicious anemia dependent upon glandular atrophy, there is always a polynuclear leucocytosis of varying degree, poikilocytosis, a considerable loss of hemoglobin, a diminution of the number of red cells, which, however, is not as marked as in cases of pernicious anemia of glandular atrophy.

The practicable application of the foregoing at once becomes apparent when we recall experiences in diagnosis of stomach diseases where, for example, a carcinomatous affection has been called in turn, "a little stomach trouble," "dyspepsia," "chronic catarrh," etc., until the disease has made such progress in its development that longer failure in its recognition would be almost impossible. For, does it not seem reasonable that an organ having undergone structural changes, should first evince that fact by an alteration in its function? If so, we may reasonably expect pathologic changes in the secretions at a comparatively early period, the clinical significance of which is now more correctly interpreted.

As before stated, it is common knowledge that for some years too great a value has been placed on the absence of HCl, the hitherto almost certain symptom of gastric carcinoma. Now, it is generally recognized that any morbid process which involves the deeper structures, and especially the peptic glands of the mucous membrane, may be followed by the cessation of the formation of this acid, and therefore can not be regarded with the importance of the past, for it is also a well-known fact that in a great majority of cases of hepatic cirrhosis there is a complete absence of HCl.

It has been stated, too, that the production of lactic acid was caused by stagnation, and Boas and his followers affirm that in no disease in which stagnation of stomach contents occurs is there so much lactic acid ferment developed as in cancer of the stomach. Notwithstanding, this observation has been corroborated by other authority, to unqualifiedly assert that the absence of the mineral and the presence of the organic acid is positively indicative of cancer, would be too strong a statement. In support of this view it is pertinent to call attention to the case of Noorden,[4] of Frankfort. He found HCl absent and lactic acid present in enormous quantity in a case of gastric ulcer that had perforated into the pancreas.

In chronic gastritis and atrophy of the mucosa due to any cause, there may be a diminished or entire absence of HCl; and if the latter acts merely as an antiseptic, as has been suggested, thereby preventing the formation of lactic acid, it may readily be seen that the acid symptoms are insufficient in themselves for positive diagnosis. But when these are associated with any one or two of certain other symptoms, as cachexia, loss in weight, pain or tumor, scarcely a doubt remains as to the nature of the disease. Unfortunately, it often happens that none of the last mentioned symptoms become manifest until the disease has progressed toward its fatal end, the time having long gone by when surgical means might have offered the only avenue of escape from the inevitable doom. When vomiting, great diminution in weight, tumors, etc., have declared themselves, the disease has passed beyond human intervention. In view of the foregoing, the time may not be far distant when tumors (cancers) will be removed from the stomach with far greater frequency than they are at the present time. And to make this possible is, I believe, the province of medicine—to clear and illumine the way on the line indicated.

To give statistics illustrative of what others have accomplished in this field, would no doubt be interesting, but time forbids. We will therefore conclude this paper by citing two cases which quite accurately represent a large proportion of cases in which none of the symptoms formerly relied upon are visible, but whose gastric juice nevertheless, in connection with the conditions before mentioned, bears us a message of great diagnostic value.

Case 1.—Mr. E. M., aged 68, normal weight 200, tall and complexion light, married and father of several children. Lived an active out-door life and enjoyed good health until the time of the illness of which we are writing. With the exception of being an excessive smoker, personal habits were good. Heredity, negative. The existing difficulty first manifested itself nine months ago. The first symptom noticed was a disturbance in the digestive process; then sour eructations, loss of appetite

[4] Medizinische Blätter, Feb. 7, 1895, No. 6, p. 87.

and constipation; later, diminution in weight, fatigue and antipathy to meats. These symptoms were variously characterized as dyspepsia, catarrh of stomach, etc., and of course empirically treated. At this time, the chief subjective symptoms were anorexia, general weakness, increased flow of saliva, and a vague sense of disturbance in the epigastrium; had vomited a few times. Examination revealed no tumor and no cachexia; the lungs showed no abnormality and the liver occupied its normal relation, but the heart action was weak.

The stomach contents were expressed at intervals of once or twice a week and tested for HCl and lactic acid; the former was always absent, and the latter invariably present. The total acidity averaged 50 per cent. Under the influence of the lavage and carefully directed diet with strychnia, the patient made considerable improvement subjectively, but the circulation continued feeble. A month later, there was vomiting of the characteristic coffee-ground variety. An induration of small size could now be made out in the epigastric region. Left kidney was movable and easily defined. An abundance of uric acid was in the urine.

From this time on the case progressed rapidly in developing tumor and cachexia, reaching its fatal termination on Dec. 21,



FIGURE 1.

1895. The autopsy revealed carcinoma involving approximately one-third of the stomach from the pyloric end, on the posterior side. The pylorus was a hard mass, and on opening, a concentric tumor became visible which completely filled that end of the stomach. To the posterior surface of the cardiac extremity of the stomach the left kidney was adherent, and on the latter when removed, appeared a cyst one and one half inches in diameter containing a clear fluid. The stomach was considerably dilated.

Case 2.—Saw this case first on June 6, 1895, when the following history was furnished: Mr. J. C., aged 40, of slender build and light complexion; married five years and father of one child. Patient has never had any serious illness. During the last two or three years his general appearance was not indicative of good health. For about two months he mildly complained of a stomach difficulty. For this he received treatment and his family the assurance of his early recovery. All this was promised up to within three days of his death, when the case came under my observation. Patient was confined to his bed since the 18th of last May, when he experienced a gnawing sensation in epigastric region and considerable prostration. In a short time vomiting, fever and thirst supervened, for which large quantities of ice and morphia had been administered, though he had at no time complained of pain. Emaciated rapidly, and soon vomited enormous quantities of a grumous material at frequent intervals.

Examination revealed no tumor, no pain, only tenderness in the epigastrium on pressure.

The circulation had become enfeebled to such an extent that patient died from exhaustion on June 10, 1895. The gastric contents contained neither HCl nor lactic acid, though the tests were applied daily. The following shows[5] both the chemic and microscopic analysis of the stomach fluid:

Hydrochloric acid, Günzburg's was negative, dimethylamidoazobenzol was negative; degree of alkalinity, 36 (Ewald's method); lactic acid, negative; albumin, present; peptones, negative; propeptone, negative; blood, present; bile pigment, negative.

Microscopic examination: White and red blood corpuscles, present; flat and cylindric epithelium, present; several varieties of bacteria, but no sarcinæ ventriculi.



FIGURE 2.

Autopsy showed three inches of the pyloric extremity of stomach to be a carcinomatous mass with the characteristic blue and gray color and thick gritty hardness. The pylorus was almost closed and the stomach considerably dilated. Photograph No. 1 presents a good anterior view, and No. 2 the interior, the incision being through the posterior surface.

Finally, I will state with confidence that the diagnosis in Case 1 was made on evidence furnished by the chemic analysis of the chyme, in conjunction with the only constitutional symptom present—general weakness which refused to be modified in the least degree by medication. The method crudely outlined necessitates increased labor and the knowledge of certain technique, which will yield results, I believe, that

[5] For the preparation of this table I am indebted to the kindness of Dr. R. J. Wenner.

will amply justify the efforts expended in so fascinating a field as this one.

DISCUSSION.

DR. JAMES B. HERRICK, of Chicago—I believe it is true that Congo-red has been proven to be a reliable test for free hydrochloric acid, and negative results may be assumed to exclude this acid as well as other mineral acids. I am glad to see that the author does not rely alone upon examination of the contents of the stomach for proof of the existence of carcinoma. He justly calls attention to the value of blood examination and the presence of leucocytosis as confirmatory of the diagnosis of carcinoma. The presence of cachexia and other signs must not be ignored. He calls attention to the fact that free hydrochloric acid is frequently absent in many other affections than carcinoma, and it is also true that some of the later writers have found lactic acid in the stomach contents where no carcinoma was present. For instance, in Professor Osler's clinic there was a case of non-malignant obstruction of the pylorus in which lactic acid was found. So we are forced to look upon examinations of the stomach contents, at least in so far as hydrochloric and lactic acid are concerned, chiefly as confirmatory tests.

DR. WAINWRIGHT, of Kansas City, Mo.—I have had some experience with analysis of the stomach contents the past four or five years in clinic work. Several times I have made an early diagnosis based on a chemic analysis of the contents of the stomach, but I have never yet been able to induce a patient to be operated upon with only such evidence of carcinoma of the stomach. Later when a tumor could be felt and there was cachexia, making the diagnosis very plain to all, the patients were willing to submit to an operation, but it was too late to derive any benefit. The most satisfaction which I have derived from this analysis has been in cases of obscure tumors of the abdomen. During the past winter my attention was called to two or three cases of tumor located in the left hypochondriac region which every physician who examined the patients pronounced tumor connected with the spleen or other organ beside the stomach, yet by analysis of the gastric contents, etc., I was able in each instance to positively locate the tumor in the walls of the stomach, and this diagnosis was afterward confirmed by autopsy. If we are able, as I believe we are, to make a diagnosis of carcinoma of the stomach in the early stage by careful analysis of its contents and functions, I think the time will soon come when surgeons will relieve these cases by operating early.

DR. PAUL PAQUIN, of St. Louis—Although we have many maladies of the stomach, we are yet hardly in a position to make a proper diagnosis. Perhaps the time has not yet arrived for making a positive diagnosis of the diseases of the stomach purely by chemic or bacteriologic analysis; yet in my judgment such analysis is of the greatest importance, especially as giving confirmatory evidence. Such analysis has been a part of my work for some years past, and I am delighted to know that we are progressing in that line. I am, however, of the opinion that we are inclined sometimes to neglect physical symptoms, and to consider too much and too strongly the results obtained by analysis. We must consider that in no other organ except the alimentary canal do we get such chemic changes as are produced by the ingestion of food, beverages, and so on, and we can not depend upon the findings of the chemist and microscopist as a basis for therapeutics. But before this analysis was introduced in the work of the physician for the purpose of diagnosis, he certainly was a great deal more at sea than now, and we have to-day workers like the essayist who are leading up to the ground which we must finally occupy in order to diagnosticate many of the diseases of the alimentary canal.

DR. WEBER—It is gratifying to observe the endorsement of this paper as indicated by the discussion which leaves little or nothing to be added. It may be emphasized, however, that when you find a well defined tumor, cachexia, and great loss of weight, that patient is past surgical or any other help, and most of us will decline to resort to operative measures at such a stage. The second case which I reported, was most interesting for the reason that no tumor was discoverable by palpation or physical means to within a day of death, and, contrary to the rule, there was absence every day of lactic acid. Another case to which I referred showed enormous quantities of lactic acid, and the autopsy proved it to be an ulcer of the stomach. Hence the conclusion in my paper seemed justifiable—that the acid symptoms in themselves are not always reliable, but when taken in connection with other facts are of the greatest value.

THE PRACTICE OF PHARMACY AS A LIBERAL PROFESSION.

Delivered In the Section on Materia Medica, Pharmacy and Therapeutics, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

BY F. E. STEWART, M.D., PH.G.

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Pharmacy is a branch of medical science and practice. It belongs to that part of medical science formerly known as pharmacology, or the science of drugs. Unfortunately the term pharmacology has been used in a restricted sense, being applied more particularly to experimental vivisection of animals for determining the physiologic effects of drugs. The word pharmacodynamics more properly describes that branch of medical science. Gould defines pharmacology as "A treatise on the nature and properties of substances used as medicines, or those employed in their preparation," and according to the same authority, pharmacodynamics is "The science of the powers and effects of medicines."

H. C. Wood, in the introduction to his classic work on materia medica and therapeutics, clearly defines the meaning of terms used in this connection by saying, "Although pharmacy, or the science of preparing medicine, is entirely distinct from therapeutics, or the science of the application of medicine to the cure of diseases, it is evident that some acquaintance with the former is necessary to the correct appreciation of the latter. Further, as a basis of both studies, must first come a knowledge of materia medica or the substances used as medicine. Pharmacology is the general term employed to embrace these three divisions."

Hermann, professor of physiology in the University of Zurich, and one of the leading authorities in experimental vivisection, in the introduction to his "Experimental Pharmacology," a hand-book of methods for studying the physiologic action of drugs, says: "Pharmacology in its widest scope embraces the study of drugs from all possible points of view, and the information thereby acquired may be useful under the most diverse conditions; to the physician, to enable the recognition and proper treatment of cases of poisoning, or to permit of the use of drugs for therapeutic purposes; to the public, to permit the avoidance of noxious substances; to the physiologist and pathologist, to enable the application of information derived from the study of the action of poisons to the advancement of their sciences. The study of pharmacology can therefore be limited according as one or more of these points of view occupy the first place in the mind of the investigator. The public desires to know only what substances are poisonous, that they may be avoided, while their modus operandi is a matter of

indifference. Those poisons which are suitable for use at the bedside will prove most interesting to clinicians."

"Pure pharmacology is best advanced by the avoidance of any special stand-point, in order that all of its bearings may be equally appreciated, and still more, since the advancement of pure science is always retarded by a search for that only which promises immediately practical results. The history of the progress of the sciences teaches that nearly all the most important discoveries, even those subsequently of the greatest practical value, resulted from investigations untrammeled by a continuous mindfulness of the merely practical. Thus physiology has rendered such inestimable assistance to the progress of practical medicine that she can well be regarded as her handmaid; but, nevertheless, physiology is a pure science, which, like physics and chemistry, should be studied for its worth, without being hampered by doubts as to whether its results are immediately applicable to practical medicine or not. So also pharmacology is growing more and more worthy of occupying a similar position, though it must be acknowledged that as yet, it is not bounded by such sharply drawn lines as to constitute a distinct science. Much, however, can be gained in this direction by constantly bearing in mind that pharmacology has for its object the recognition and study of all changes which a foreign body can undergo or produce, otherwise than traumatically, in the organism, while the questions as to whether the substance under study can be ever likely to prove a poison to man, or whether it has properties which warrant its use as a medicant, should be kept in the background."

"Consequently every substance which possesses any active properties should prove of interest to the investigator in the domain of pharmacology; while naturally those substances will be preferred which are either quite unknown, which show results entirely novel, or whose action admits of predetermination from a theoretic point of view, as from the stand-point of chemical composition. And it should, moreover, be remembered, that even substances which themselves evoke no symptoms in the organism, may form worthy subjects of pharmacologic investigation as throwing possible light, in the changes which they undergo in the system, on the behavior of other more active poisons."

If pharmacy is a department of science, its practice is a medical art. It therefore follows as a natural sequence that pharmacy must be regarded in the light of a medical specialty, and the pharmacist is under the same obligation to science, to the profession, and to suffering humanity as the physician.

Now medicine is a liberal profession. It is distinguished from a mercantile pursuit in that service to humanity (not money-making) is its primary object. What business or profession is there like medicine in this respect, viz., that it seeks to remove the cause for its very existence. And yet we behold such unselfishness and devotion to humanity in preventive medicine, which leaves no stone unturned to ascertain and subdue the causes of disease which the physician gains a livelihood by treating. Indeed, medicine owes its high position among the vocations of men to its philanthropic aim, seeking in every way to relieve and prevent human suffering, devoting itself to original research, and publishing its results for the benefit of science, constantly sacrificing self-interest to aid others, and neglecting, for philanthropic reasons, to take advantage of many opportunities for gain.

If what I have said is true then pharmacy can never be recognized as a liberal profession, until it becomes part of the medical profession, for it can not, from the very nature of things, become a profession by itself. Pharmacy is directly dependent upon therapeutics, and is like a body without a soul when divorced therefrom.

Pharmacy can find its *higher* advancement, not by catering to an unenlightened public, unfitted to appreciate it either from a scientific or professional standpoint, but by working with physicians to a common end, that end being the promotion of progress in pharmacology as a science, the advancement of pharmacy as a profession, and the study of means to prevent and alleviate human suffering. By serving this end pharmacy will find its true position among the liberal professions.

As a trade pharmacy would seek to create a fictitious demand for drugs by exaggerating their importance as curative agents, thus pandering to the morbid tendency of the public to dose itself for real or imaginary diseases. As a profession it will join with the medical profession in efforts to relieve the public of the necessity of taking medicine. Coöperation between the physician and pharmacist is absolutely indispensable to the advancement of pharmacologic science, for as already said, neither therapeutics or pharmacy as science or practice can exist alone.

The science of medicine professes to exhibit what is actually known, or may be learned, in the forms of exact observation, precise definition, fixed terminology, classified arrangement and rational explanation. To promote the progress of the science of drugs it is therefore necessary for both professions to publish the results of their discoveries for the benefit of science. It is just as reprehensible for physicians to neglect the publication of the results they obtain from the use of drugs, or their preparations, as it is for the pharmacist to restrain the knowledge of the same from general use, by means of secret formulas, protected from legitimate competition by fanciful names, which latter are registered as trade marks, at the Patent office in Washington. How can the demands of science be satisfied unless the knowlege of every substance used in medicine, together with its method of preparation and application to the cure of disease is published, and its manufacture and sale open to legitimate competition?

"In every civilized country[1] there is some recognized official list of drugs and their preparations known as the pharmacopeia. In most places this being prepared with the sanction of the government, partakes of the nature of a law, but in the United States conformity to it depends upon the voluntary action of the professions, of medicine and pharmacy by a representative convention of which it was originally prepared and is decennially revised."

The position and responsibility of the physician and pharmacist in relation to the pharmacopeia is the next point to which I desire to call your attention. On the analysis of 27,000 prescriptions recently made by Prof. Patch, President of the American Pharmaceutical Association, it was shown that the pharma-

[1] A treatise on Therapeutics comprising Materia Medica and Toxicology by H. C. Wood, Jr., M.D. Third Ed., p. 17, Philadelphia, J. & B. Lippincott & Co., 1860.

copeia was sadly neglected by physicians. Only seventeen vegetable drugs were prescribed, and more than one hundred drugs of vegetable origin neglected. Ten metals were honored, but more than ten were left out in the cold. In fact the entire materia medica comprised by these 27,000 prescriptions consisted of the following drugs and preparations, viz:

Acetanilid; antikamnia; antifibrin; antipyrin; aristol; phenacetin; acid arsenious; acid boric; acid carbolic; acid hydrochloric; acid salicylic; acid sulphuric; acids, twenty-five other kinds; aconite and its preparations; ammonium salts, chlorid, carbonate, bromid, etc.; belladonna, its preparations and alkaloids; bismuth salts, principally the subnitrate; brandy; camphor and its preparations; cascara sagrada and its preparations; chloroform, its preparations and combinations; cinchona and its preparations, combinations and alkaloids; digitalis and preparations; gentian and preparations; ginger and preparations; glycyrrhiza and preparations; hyoscyamus and preparations; iodin and preparations; lead salts and preparations; mercury, its salts and preparations; nux vomica, its preparations and alkaloids; potassium salts and preparations; rhubarb, its preparations and combinations.

In this study of 27,000 prescriptions from nineteen drug stores distributed between Chicago, Philadelphia, Bayonne, N. J., Boston, Washington, Baltimore, Denver, San Francisco, New Orleans, Cincinnati and St. Louis, 11.25 per cent. were proprietary articles, not including many elixirs, pills, tablets, fluid extracts, etc., which were of specified manufacture.

An analysis of 10,000 prescriptions, made by the committee on revision of the United States Pharmacopeia of the Illinois Pharmaceutical Association, shows that in 2,613 prescriptions, or about one-fourth of the whole number, proprietary remedies were prescribed. Many proprietary articles are of the greatest value. They are often the products of manufacturing houses provided with the very best facilities of manufacturing. Many of them represent the researches of the most learned chemists, extended over years of careful investigation. In fact it is fair to assume that some of our proprietary medicines advertised to the medical profession in the medical journals represent the van of progress in pharmacy. To be sure, some of them are of comparatively little value, and should find a place in the lumber room with the trash in company with much of what is now official in the pharmacopeia. But that is no argument against those that are of value in either case.

Now assuming that the proprietary medicine referred to are valuable pharmaceutic preparations, it is evident that a place should be found for them in the next revision of the pharmacopeia. It is equally evident that they can not be admitted as proprietary medicines, unless the medical profession shall endorse a system which withholds from general use that entire class of preparations. Such an endorsement on the part of the medical profession would be a complete surrender of the altruistic ideal that distinguishes the practice of medicine as a liberal profession, and an endorsement of a most dangerous form of commercialism.

From what has been said above, it is very evident that affiliation between physicians and pharmacists is of first importance to promoting progress in the knowledge of pharmacology, to improving our pharmacopeia, and to the rescue of medical and pharmaceutic practice from the grasp of the proprietary medicine trade, which is now encroaching upon the domain of the pharmacist and the physician. But, you say, there are unsurmountable obstacles to affiliation between the pharmacists and physicians. They are at war with one another everywhere. Physicians charge that pharmacists prescribe over the counter, and that the practice is unjustifiable, as they are not competent to do so either by education or training, and it is an unwarranted interference with the physician's prerogative to treat the sick. But the pharmacist can urge with equal propriety that the physician is not competent, either by education or training to compound and dispense his own medicine, and for him to do so is an unwarranted interference with the prerogative of the pharmacist. But there is a great deal of difference between the deep blue sea and the dry land, though one overlaps the other on the beach. Now it seems to me that this question of interference between the pharmacist and physician is something of the same nature. Both may wade with impunity in the shallow waters along the shore, and do no real harm to each other, or to the public at large. But there are depths in pharmacy capable of drowning the venturesome physician; and the pharmacist who attempts to climb the high mountains of diagnosis and treatment is sure, sooner or later, to fall and break his neck. Yet in some countries these prerogatives are protected by law, and both physician and pharmacist must keep on his own side of the fence.

But, say the physicians, we can never unite with pharmacists until they no longer renew our prescriptions without our authority. It is damaging to our reputation and purse, and a very unfriendly act to say the least about it. But physicians lose sight of the fact that both professions are servants to the public, and if the patient is refused the privilege of having his prescription renewed, he will seek another physician and another pharmacist. Not until the public is educated to appreciate the necessity of consulting the physician before renewing prescriptions will the prescription-renewing nuisance be abated. Pharmacists, to a great extent, are powerless in the matter. And the medical profession has done much to foster the abuse by prescribing ready-made nostrums, so the fault is not entirely with the public either.

Physicians complain bitterly that pharmacists sell "patent" medicines and thus make themselves the agents of the nostrum monger. But the proprietary medicine business owes its present standing in the community more to the medical profession than to the pharmacist. More than ten per cent. of the medicine prescribed by the physicians in the United States are so-called "patent" medicines, and the physician is just as much to blame for prescribing them, as the pharmacist for selling them. I can see no good reason why harmony can not be restored between the pharmacist and physician. Once in touch, and working for a common object, many of the evils now complained of will rectify themselves in time, and the public will soon feel the influence of a united profession, and respect the calling of both physician and pharmacist more highly in consequence.

Two questions naturally present themselves at this juncture, 1, How can coöperation between physicians and pharmacists be secured? 2, What are the best plans for promoting progress in the science of pharmacology, and the useful arts of pharmacy and therapeutics? The answers to these questions merge into each other, so we will consider them together.

First of all, State medical and pharmaceutic societies would do well to imitate the example of the national medical and pharmaceutic societies in the matter of interchange of delegates. Sections on pharmacology should be established in State societies, and physicians and pharmacists should join in debate regarding drugs and their properties. Local pharmaceutic societies should be formed, to meet in conference with the local medical societies at least quarterly. In places where that is impractical, the local pharmacists might be invited to attend the meetings of the county medical societies, and join in debates on subjects of mutual interest. These interesting debates when published in the medical and pharmaceutic journals would benefit the entire profession. Collective investigations of new drugs and preparations both pharmaceutically and therapeutically might be undertaken in which both professions could take part. The manufacturing houses might be invited to join in this work, by establishing scientific departments for original research, and members of these departments invited to join in these conferences. By means of a common object, harmony would be secured between all concerned. The result of such coöperation in promoting progress in our knowledge of drugs upon the next revision of the pharmacopœia can easily be conceived. The next move of importance would be the abolition of the proprietary system as applied to medicine. The existence of the proprietary system as a legal factor seems to be due to a misunderstanding of the patent and trade mark laws, not only by pharmacists and physicians, but by the courts as well. That such a misunderstanding exists will be apparent on considering the verdict of the House Committee on Patents on this important matter.

A few years ago I accompanied a committee from the State Pharmaceutical Society of Delaware to Washington, for the purpose of asking the United States Congress to define a trade mark, and inform us in regard to its application. We were referred to the House Committee on Patents, of which the Hon. Benj. Butterworth was then chairman. After listening to our petition and considering the matter during more than two hours' debate, the following verdict was reached:

1. The registration of an alleged trade mark does not make it valid. Registration is merely to give notice that the thing registered is *claimed* as a trade mark. The validity of the claim can only be settled by the courts.

2. The proper use of a trade mark in no wise restricts the free use by others of the article of merchandise to which it is affixed. It confers on the user no privilege to the exclusive use of an invention of the kind conferred by the patent law, otherwise we should have the anomaly of laws diametrically opposing one another. The patent law grants to the inventor the exclusive use of his invention for a limited time, and then only on the publication of exact knowledge of the invention by a proper application for a patent, whereby the public may manufacture it when the patent expires. The use of a trade mark on the contrary, is unlimited in duration, and no publition is required when it is used on an invention.

3. The public has a perfect right to manufacture and sell any article of commerce not patented, and to do so under its proper or generic name whether a trade mark is used in connection with the article or not. For this reason courts have held that names describing articles can not be used as trade marks on the articles they describe. Otherwise the use of trade marks would be a hindrance to competition, while the proper use of trade marks promotes competition by distinguishing between one brand of an article and another brand of the same article, thus stimulating manufacturers to improvement in processes and methods of manufacture for the purpose of excelling each other in producing the same articles of a better quality and at a lower price.

4. While not constituting itself an interpreter of law, yet the House Committee on Patents as individuals, did not hesitate to affirm the position above described, and so instructed the Associated Press reporter who was present.

The question why the courts have so frequently made contrary decisions is not a difficult one to answer. There are several reasons to account for it. Judges, as well as doctors, often make mistakes in diagnosis, and one is not more infallible than the other. Again many cases of alleged infringement of trade mark have been decided against the defendants because of the element of fraud involved. It is manifestly unjust for the courts to protect an alleged trade mark when it consists of the only name by which an article (not patented) is known to the market, because, by so doing, the manufacturer is given an unfair advantage over the public in the making and selling of an article to which all have equal right.

On the other hand it would be rank injustice both to the manufacturer and the public to permit the counterfeitng of trade marks, labels and packages, to the injury of all parties concerned. The question that has been decided in most cases brought before the courts, has been whether the goods were counterfeit, not whether the alleged trade mark was a valid trade mark. In the "Syrup of Figs" case the question was decided on its merits, Judge Swan rightly maintaining that the name "Syrup of Figs" was either deceptive or descriptive. If the former the plaintiff had no standing in court, if the latter no infringement of trade mark existed.

The principle that underlies the subject, however, is the copyright or right to copy. The House of Lords, and following the precedent, the Supreme Court of the United States, decided that authors and inventors have no natural right, or right at common law, to prevent others from copying their respective writings and discoveries. The right, when it exists at all, is a creature of statute and of grant, and subject to the terms of the statutes and grants. The other side of the bitter controversy known as the "copyright war," claim that authors and inventors have a natural or common law right to their writings and discoveries, irrespective of the copyright and patent laws. Judges who believe the latter will naturally be influenced in their decisions accordingly, and may grant a protection never intended by our law makers.

But as one learned author truly said, if the right to the exclusive use of writings and discoveries is a natural right, then it exists forever, for who can limit it? Then the inventors of pens, ink, paper, and every article of commerce, ought to have been protected in their alleged "rights" for all time, and the same "rights" should have been continued to their heirs. This would have created an aristocracy that would have owned the entire property of the world in time, and the remainder of mankind would have been the slaves of those great monopolists. Either that or the

remainder of mankind, being in the majority, would have finally revolted, and put an end to the monopoly. And what is the use of a "right" if it can not be maintained?

If we are to have patented medicines, let there be appointed a medical board in connection with the patent office to see to it that the patent law is made to promote progress in science and practice, not to hinder it. Grant no patents except when new and useful articles are really invented, and do not permit patents on mere aggregation of old and well-known drugs, that any pharmacist or physician, with a proper knowledge of his art, would naturally devise in practicing his profession. And let there be an end to the registration as trade marks of the only names by which articles are known, for it creates and maintains perpetual monopoly and such monopoly is contrary to the very spirit of the American constitution.

The latest move by the proprietary medicine manufacturers is to prevent what they call substitution upon the part of the druggists. The recent action of the analin dye house of Bayer & Co., in relation to phenacetin, illustrates one phase of this. That house is undertaking what the *Chemist and Druggist* (an English drug periodical) calls a "monopoly crusade." Having registered the word "phenacetin" in Germany that house now proposes to force the entire world to recognize it as a trade mark, and to prevent other manufacturers from making and selling the article under the name, phenacetin.

The *Chemist and Druggist* says that "no rights granted to Messrs. Bayer & Co., by the German Imperial Patent Office can effect their claims in this country (England). Strange though it may seem, the British Patent and Trade Marks Act are not yet 'made in Germany,' nor is Britain as yet in the position of a tributary state to the Fatherland." But when one considers that the United States Patent Office granted Bayer & Co., a patent on phenacetin as a product, and recognized the word as a trade mark, it seems strange indeed that we did allow our patent and trade mark laws to be "made in Germany" and actually become tributary to a German analin dye house.

Now a word about that tribute. Phenacetin can be purchased in England for $1.25 a pound or thereabouts, but in the United States we are forced to pay $16.00 a pound for it. In other words we are paying a tribute of over fourteen dollars a pound to a German house or to its American agent for phenacetin, when we can import it, or make it in this country to sell with fair profit at about a dollar a pound.

If any pharmacist attempts to import phenacetin into the United States, he is at once arrested for smuggling. If he makes it for sale he has a law suit on his hands for infringement of patent. He can not offer for sale any phenacetin except that of Bayer & Co., without falling into the clutches of the law. Of what law? Of the law of the United States which ought to protect American citizens, not foreign as against American interests.

Are these our patent and trade mark laws? Either the laws are not clear, or the fault is with the patent office and the courts; or possibly all are at fault. The fact that some of the best judges in America give decisions opposed to any such rendering of the law shows the confusion existing on the subject.

Now, what is substitution? Messrs. Bayer & Co. tell us that it is the use of any other brand of phenacetin in place of their brand of it. The druggist who protests against this outrageous monopoly, and attempts to furnish our patients with some other brand of phenacetin at a reasonable price, is guilty of substitution, and should be condemned by the profession as a criminal, according to the rendering of the law, and in that rendering every proprietary medicine concern in the world will say, Amen. That is no exaggeration, and before we condemn druggists for substituting where proprietary medicines are prescribed, we ought to understand what is meant by substitution, or we may find ourselves endorsing a scheme of which we may have cause to be ashamed.

Is phenacetin a trade mark? How can it be and yet be the only name by which the article is generally known? Is it not a proper and descriptive appellation of the article? It is an axiom in law that the descriptive name can not be a trade mark. As its proper or descriptive name we have regarded it, not dreaming for a moment that we thereby necessarily specified the brand of Bayer & Co., by using the name phenacetin in our prescriptions, thus endorsing a gigantic monopoly. This is our only excuse as physicians. We have been deceived. But let us be deceived no longer. Let us arise and demand that the true working forumla of every medicine we prescribe shall be published, and that phenacetin and every other preparation shall be provided with names free to all pharmacists under which they can be made and sold. Then if each manufacturer chooses to employ a fanciful "coined" word of his own devising as a trade mark thereon it can do no harm, for no monopoly of the product is engendered thereby, and competition will restrain the price within reasonable limits; while at the same time the trade mark will truly be what it was designed to be, viz., a protection to the public against counterfeits and substitutes.

The well-known names of the preparations now on the market have become by use descriptive and should be so regarded. I can see no objection to the use by Bayer & Co., of a fanciful designation as a trade mark on their brand of phenacetin if the true name of the article always appears on the label, and its use is free to all other manufacturers.

Laws against the adulteration of foods and drugs are excellent aids in helping along the common cause, if properly enforced. But they are calculated to do much harm if manipulated by politicians for personal ends. The same applies to a national law to prevent the transit of adulterated products from State to State. The proper enforcement of such laws would finally end in abolishing secrecy in medicine altogether—a most desirable end. The patenting of pharmaceutic machinery, processes and appliances, may not be open to serious objection, but locking up medicinal substances themselves to exclusive monopoly should never be permitted.

In my paper read before the Section of State Medicine last year,[2] I suggested a compromise measure for the purpose of permitting an inventor of a new and useful compound to retain the name and secret of manufacture of his invention for a limited time, provided the true working formula thereof be placed in the hands of a national committee of physicians and pharmacists, and the article marketed only under the sanction of the committee. I suggested that the system remain as it now is, only with the exceptions that a censorship shall be exercised over the market by a committee of

2. The Proprietary System and Its Remedy. JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, Sept. 14, 1895, p. 450.

competent physicians and pharmacists, the monopoly to be limited in time, and the system to be made scientific by providing it with a proper nomenclature and by the final publication of every invention whereby all pharmacists may manufacture the same when the patents expire.

I also suggested that every manufacturing house open a scientific department manned by competent physicians and pharmacists, who can be held responsible to the profession for their utterances, and for the representations made by respective houses in labels, in circulars, in advertisements, and in contribution of these houses to scientific literature.

Now as to the complexion of the committee. I suggested that it consists of one member each of the American Medical and American Pharmaceutical Associations, and one member each from the medical department of the Army, Navy and Marine Hospital service, to which might be appropriately added as Chairman the Commissioner or Secretary of Public Health, if such an office is finally created by Congress.

Commenting on this compromise, Dr. Henry D. Holton in his Address on State Medicine, delivered at Baltimore, May, 1895, said: "The question of proprietary medicine which interests every family of the land, is an evil which in spite of the continuous maledictions that have been hurled against it by all scientific medicine, both as organizations and as individuals, has continued to thrive, until at the present time it is intrenched behind millions of money and is held in high esteem by the people because of its ability to hide its worthless character or possible dangerous combination behind a trade mark. If the manufacturers of these nostrums were obliged to deposit with the Public Health Department, under certain restrictions, as suggested by Dr. Stewart, the formula from which they are prepared, it would do more to eradicate this stupendous swindle from the land than all the fulminations that could be hurled at it for centuries; it would have an equally elevating effect upon the science of pharmacy which is so indispensable to our success."

The following excerpt from the President's address, delivered at the annual meeting of the Pharmaceutical Association of the Province of Quebec, held in Montreal, June 11, 1895, contains in a nutshell a great deal of truth in regard to "patent" medicines and also suggests another plan for curtailing their sale:

"Patent medicines are a curse to the physicians, the pharmacists and the public. They are an unjust and direct opposition to the physicians by preventing the sick from obtaining proper advice; they deprive the pharmacist of the sale of his own preparations, and force him to keep in stock a large number of preparations which have only a limited sale, and they are injurious to the public which allowing itself to be cajoled by the certificates of cure which are the compliments of the advertisement, purchases the famous remedy which oftener does more injury than good."

"We should have in this country, as in most European countries, a commission composed of physicians and pharmacists. All demands for copyrights or patents for medicinal preparations should be submitted to this committee, with the formula, and after examination a report should be made to the government recommending or rejecting the demand. This would diminish the number of patent medicines, and the public would know that those the sale of which was allowed, would be of superior quality and incontestable value."

The introduction of a line of simple household remedies bearing the true formula of each preparation on the label, to be used in place of secret nostrums, would be a step in the right direction. Such a line might be added to the National Formulary. The adoption of the United States Pharmacopeia and the National Formulary as a text-book in all medical and pharmaceutic colleges would certainly do much to elevate medical and pharmaceutic practice and cause all parties to adhere more closely to recognized standards.

In my paper, read before this Section at the Milwaukee meeting, in 1893, I suggested that a laboratory be established in Washington for the purpose of investigating the materia medica of the world under the auspices of the Government. The paper was well received by the American Medical Association and a memorial was sent to the U. S. Congress praying that the plan be carried into effect.

It has also been proposed that a National Department of Public Health be created, and a Secretary of Public Health be added to the President's Cabinet.

Now all these suggestions have merits and objections, and the same may be said concerning any plan that can be devised by human ingenuity. In considering these plans it may be well to refer for a moment to the objections and the objectors. One class of objectors own stock in proprietary medicines. They may be divided into three classes, viz., proprietary medicine manufacturers themselves, stockholders in proprietary medicine corporations engaged in the practice of medicine and pharmacy, and professional men who either hold stock in the names of their wives or other members of their families, or whose wives have invested some of their own capital in the business. I have been met with objections from all three classes. Another class of objectors are always looking "for a nigger in the wood pile." No matter who reads a paper on the subject, they always insist that he has "some ax to grind." But it is time for us to rise above the level where self-interest and petty jealousy paralyze endeavor. Something ought to be done to check the demoralizing drift of the times.

This section was originally organized for the purpose of elevating pharmacy and therapeutics, and promoting progress in the science of pharmacology. It represents in delegate capacity the entire medical and pharmaceutic professions of the United States. I hope therefore that my paper may be honored by a full discussion and referred to a committee in which both professions are represented. And I hope this committee will formulate a set of resolutions worded in language that can be endorsed by the entire press of this country, medical, secular and religious, expressing the sense of the Association in regard to the true place pharmacy should occupy in its relation to medicine. It is not my object to attack gentlemen engaged in the patent medicine business or to cast reflections on any one. As business men, physicians, pharmacists, teachers, writers, journalists, we should all condemn the proprietary system because it hinders the progress of medical science and arts.

A series of resolutions formulated in the spirit of devotion to humanity which we are supposed to possess, as members of a learned and liberal profession, could not fail to meet the approval of all right-thinking men everywhere. Such a set of resolutions officially sent to the State and local medical and pharma-

ceutic associations would be of value in guiding physicians and pharmacists in their relation to each other and to the public at large, and if written in a spirit of fairness to all would do much in the education of the public to a higher appreciation of medical science and practice in both departments, pharmaceutic and therapeutic.

THE METHODIC DESCRIPTION OF A SURGICAL DISEASE.

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No art, no study has ever become a science until it had evolved its methods and its laws. The great effect and the use of these are to cover and govern a multitude of details which otherwise have to be remembered separately; also to facilitate the understanding between writers and readers.

Students sorely need a methodical guide to lead them in the intricate labyrinths of surgical descriptions, and yet those labyrinths are really only so because we lack the knowledge or the charts of their construction, or an Ariadne's thread which will be a sure guide in, through and out of the apparently innumerable turns and meanders. Upon close study it is found that in the diseased as in the healthy state nature's laws are less numereus, less complicated, more simple than we think, after we have succeeded in recognizing them, reading them, understanding them and remembering them.

Another object of this method is to assist students in remembering thoroughly, easily and intelligently; also how it is done and should be done. Although most likely and truly imperfect to the mind of many readers, the following description can not fail to assist the student of surgery; the thread may be coarse, may be made up of pieces, different materials tied together, but it is a thread none the less and as such most precious if constantly held in hand. The best of all methods or guides would be the one which all would agree to follow, however susceptible of improvement it might be.

The innumerable and complicated facts of surgical diseases can be better learned and remembered by adopting a uniform and rigorous method in their description. The guide should be inexorably systematic and always the same for each and every surgical disease. This may be dry, monotonous and hard but it will be of the greatest assistance to those who have to learn and to remember. Indeed all text-books on surgical diseases have almost the same great divisions and headings in describing a disease, but it is in the details and smaller things under those headings that the students need systematic and uniform assistance. It is to be borne in mind that the students of surgery who read a text book are to remember for ever all he reads; therefore, all superfluous words, remarks and dissertations had better be omitted so as to leave the the facts as simple and prominent as possible; but the guide must not interfere with extensive descriptions when deemed desirable. Students of ordinary intelligence can readily supply in their own minds connecting words and even sentences.

The guide describing a surgical disease should be followed more or less closely, according to the importance of the disease or of the facts connected with it. If some facts are of no importance they should be skipped and stress should be laid up on those facts only which present a practical bearing or scientific interest. It is essential to follow the guide systematically, as one fact is so intimately connected with the following one that the place where to say it can not very well be altered without disturbing the harmony of the whole. There is a place for everything and everything should be said in its place. We should say at the beginning what belongs there and not say it in the middle of the description. Again, we must say in the middle of it what belongs there and not say it at the end. It is most discouraging to read a fact concerning the prognosis, for instance here, then another a few lines further and a third one a few lines further again, separated by facts relating to symptoms, cause, etc.; instead of saying together all that pertains to prognosis where it should be said.

It may seem difficult and complicated at first, but after the guide has been committed thoroughly to memory, so as to have it at the tongue's end without hesitating to think, it will be seen how smoothly it works and how much it will assist. It is impossible to forget or skip anything as every few words almost in the guide call for an answer at its proper place, which answer is easily remembered by one who has studied the disease two or three times with this severe system and training. Students in surgery must learn how to spell, read, write and remember surgery as children learn how to spell, read, write and remember the language they speak.

According to cases, the course of the whole description or of a part of it only may be changed or inverted, but this should be done as seldom as possible so as to preserve the general application and utility of the method, even at the cost of a little apparent awkwardness, which will disappear with time and custom.

The order of description may jar against the present accepted ideas and some just objections will be made, some facts may seem to be forced in, but on the whole they are few and are fully compensated by other gains.

GUIDE TO DESCRIBE METHODICALLY A SURGICAL DISEASE.

(An ordinary or typical and uncomplicated case.)

We will first describe the guide or course to be followed in describing methodically a general surgical disease. The type adopted should be an ordinary or uncomplicated case. This means that all points and features which are not observed frequently in the disease should be left out, to be described with all other rare or exceptional points and features, with the forms, varieties and complications of the disease. This is very important as it relieves the description of many confusing and apparently contradicting statements which so harass and perplex students. Yet these points being often of importance must be studied, but by themselves and where the attention is laid on them with all profit.

The description should begin by the *synonyms* or various names of the disease and their *etymology*.

The History is often most interesting as showing the efforts required to bring the knowledge of the disease to the present state. When possible it should be divided into periods marked by, and named after, the great steps which have characterized positive progress. The names of the investigators and writers must be given with the date of their contributions and the points or features they have specially investigated and

cleared. It is but sheer justice to the pioneers who have contributed to build the knowledge from which we are now deriving reputation and profit. This teaches the reader and student that by thus profiting by the labors of their predecessors they are incurring the obligation to make efforts to contribute themselves to the common stock for those who follow.

The definition of a disease is described after its cause or its pathology, its symptoms, course, duration, termination, prognosis, or after several of these features combined.

The frequency should be described here in a general way, only, as this feature will often return in describing the causes, lesions, symptoms, etc. The division of the disease or subject into various parts is important if it is at all complicated. A general description should be made of all the points common to the various diseases and then each division should be described separately as a separate disease.

ETIOLOGY OR CAUSES.

The etiology or causes of diseases should be divided into the two great divisions, the external and the internal causes.

The external causes are all those originating outside of the patient. They comprise the following headings. The geographic, meteorologic and atmospheric causes include the mention of the effects of latitude, longitude, altitude, climate, seasons, rains, storms, changes, sudden or slow, of the effects of the thermometer, barometer, hygrometer; of the influence of day and night air, etc., as a cause of the disease. Telluric causes call for the description of the action of dry soil, damp soil, wet soil, marshy soil, defective drainage, sandy soil, clay soil, calcareous soil. Zymotic, microbic, infectious, contagious, epidemic, endemic, sporadic causes should be mentioned specially; also the presence or absence of parasites as causes. The physical causes or agents may be traumatic (blow or fall), or may be the action of direct heat or cold, or of dampness or of wet on the part diseased. Chemical causes or agents call for the statement of the action of the various gases, fluids, solids, metals or metalloids, organic substances susceptible of producing the disease. Hygienic causes or agents comprise the description of the effects of the various characters and conditions of the air we breathe, the water we drink, the food we eat, the clothing, the housing, and all such. Therapeutic causes or agents are those which cause serious disorders or real diseases by their action in overdoses, or in normal doses, but on subjects of peculiar susceptibility.

The internal causes include all those which are inherent to the patient himself. They comprise the following headings: Sex. Age: Congenitality, infancy, childhood, youth, maturity or manhood, middle age, old age and decrepit age. Races. Nationalities. Anatomic causes or peculiar conditions of the part as a cause of the disease; of the skin, connective tissue, adipose tissue, tendons, muscles, fascia, periosteum, bones, medulla, arteries, veins, capillaries, lymphatic vessels, lymphatic glands, nerves, organs special to the region. The side most commonly affected must be mentioned. The weight, the height, the breadth of neck, shoulders, chest at inspiration and at expiration, the abdomen, the hip. Physiologic causes include the effects of the constitution, temperament, idiosyncrasies, heredity (ascending, descending, collateral), trades, professions, habits, social condition, mental and psychic conditions (such as emotions, fright, antipathy, suggestion, grief, anger). Pathologic causes form the group of symptomatic diseases or diseases due to other diseases, directly or indirectly, *i. e.*, due to previous diseases, medical or surgical, of which the actual disease may be a sequel or a consequence, or to traumatism, or injuries, or surgical operations. These diseases may be of some of the organs or of the blood or fluids of the body (hematologic causes); each organ and fluid and its diseases should be reviewed and its effects noted as a cause of the present disease. Metastatic causes must be here mentioned.

All the above causes may be predisposing or determining; exciting, or instrumental, or controling, or final, or ultimate; efficient or not; or primary, or idiopathic; or secondary, or symptomatic.

For each cause we must state its frequency and degree of importance.

PATHOLOGY OR PATHOLOGIC ANATOMY.

The lesions of each stage should be described as those of a separate disease.

The lesions are macroscopic or microscopic.

The lesions of the main diseased organ must be first described; they comprise the following: 1, the description of the alterations of the normal physical characters, *i. e.*, of the size, situation, direction, mobility, shape; the alterations of the normal structure, *i. e.*, of the color, consistency, envelopes or coats, stroma, proper tissue (cells, fibers, tubes), capillaries; the alterations of the normal chemic composition of the parts (inorganics, organics). All these may be decreased, increased, perverted. 2, the alterations due to new pathologic products. These may be gaseous (traumatic emphysema in fractures without lesions of the air passages); they may be fluid, serous (edema, dropsy) or due to blood or pus; they may be solid or semi-solid (exudations or deposits of fibrin, fibrino-plastic lymph or matter, or false membranes); they may be new envelopes (where none existed before), new stroma, new cells and arrangement, new fibers and arrangement, new deposits (granular, fatty, calcareous, pigmentary, melanotic; germs; parasites), finally new capillaries and new nerve fibrils. 3, alterations due to new chemical elements, inorganics, organics; gases, fluids, solids, metals, metalloids, etc.

The lesions of the region, *i. e.*, of the neighboring organs, comprise the lesions of the skin, connective tissue, adipose tissue, tendons, muscles, fasciæ, periosteum, bones, medulla, arteries, veins, capillaries, lymphatic vessels, lymphatic glands, nerves, of the organ special to the region, if any. These we must describe as above, lesions of each stage, of the normal physical characters, etc. The lesions of the distant organs, or the organs at large, comprise those of the organs of circulation (blood and lymphatic system), respiration, innervation, urination, digestion, generation of special sense (eye, ear, nose, taste, skin). In each we must describe the lesions of each stage, of the normal physical characters, etc. For each pathologic feature we must state the frequency and the importance.

PATHOLOGIC PHYSIOLOGY.

Diseased organs have altered functions. The physiologic alterations of each stage should be described as a separate disease. The possible lesions are the

following: 1, the alterations in the normal characters of the physical or mechanical phenomena of the functions of the organ; these usually affect the movements or contractions of the muscular fibers; they are decreased, increased or perverted; 2, the alterations in the characters of the chemical and vital phenomena, or action of the peculiar secretions and excretions, which will be more fully described further; 3, the alterations by new or abnormal phenomena, which may be physical, chemical or vital; 4, the alterations in the functions of the region, *i.e.*, of the neighboring organs, which may also be physical, mechanical, chemical or vital; 5, the alterations of the functions of the organs at large, *i.e.*, organs of circulation, respiration, etc.; 6, the mode of repair or of reproduction of injured and lost parts.

For each phenomenon, state the frequency and importance.

SYMPTOMS.

The symptoms to be described are local, regional and general.

The local symptoms may be subjective, physical, functional.

The subjective symptoms are those felt by the patient only and which can not be detected by the surgeon; they consist in pain, sensations of heaviness, of heat, of cold, of pricking.

The physical symptoms are those detected by the sight, touch, hearing, smell, taste.

By the sight we detect and describe the general appearance of the part, its attitude, the muscular movements, the color, transparency, shape (form or deformity of the parts); the sphygmographic tracing of the part, of the pulse, of the heart; we make the comparison with other side.

By the touch and by palpation we detect and describe the temperature, the consistency, the presence of emphysema, crepitus, crepitation, fluctuation, mobility of the part, of pulsations with or without expansion, of displacement. By mensuration we determine and describe the changes in the normal length or breadth or circumference of the parts. By probing, the course, depth and bottom of a sinus and the presence of a foreign body. By percussion we detect and describe the presence or absence of resonance, the dullness, the absence of elasticity. By the exploring needle we determine the presence of a liquid, and of its nature by its macroscopic and microscopic examinations.

By the hearing or auscultation, we detect and describe the alterations in the character of the normal sounds of the diseased part, and the alterations due to new or pathologic sounds.

By the smell we may detect the alcoholic breath, the fetid breath of diseases of the mouth, throat and lungs, the fetid sputum, the odor of suppuration under a dressing, the odor of blood, of incontinence of urine, of fecal matter, of gangrene, of peculiar remedies.

The fluids or secretions, normal or abnormal, presented by the diseased parts, must be described (see description of a fluid, further), also the microscopic examination of the secretions or of particles of tissues (as described in pathologic anatomy). In some cases the condition of the blood must be described (as a fluid).

Tests with inoculations, with hypodermic injections, and graftings, with fluids or particles, before or after cultures, on the same subject or other subjects, or the lower animals, must be described as parts of symptomatology.

The functional symptoms are produced by the impairment of the functions of the diseased parts; they are physical or mechanical, chemical or vital. they are decreased, increased or perverted (as above). For each symptom state the frequency and importance.

The regional symptoms or symptoms presented by the neighboring organs are subjective, physical, functional, and should be described after the same method as explained above.

For each of these symptoms state the frequency and the importance.

The general symptoms are those presented by the facial expression, the general attitude of the patient; by the organs at large, organs of circulation, respiration, etc. They may be subjective, physical, functional; they must be described as above explained. For each of these symptoms also state the frequency and importance.

The symptoms of each stage of the disease must be described; they are also local, regional, general; and in each of these cases subjective, physical, functional. For each also we must state the frequency and importance.

The stages are the premonitory, the prodromic, the incipient or début; the developed or established state (as described above), the terminal stage, whose symptoms vary with the termination.

COURSE.

The course of the disease must be stated as suracute, acute, subacute, subchronic, chronic or long chronic, stationary. State the frequency and importance of each.

DURATION.

The duration must be described in considering the disease as a whole and then of each stage; state the most frequent duration and the duration of each stage.

TERMINATION.

The termination must be described as cure, stationary, chronic state, death. State also the frequency of each.

DIAGNOSIS.

The diagnosis presents the following parts to describe:

1. Enumerate the diagnostic signs by which the disease may be recognized; these are derived from frequency, causes, symptoms, course, duration; also from the effects of the treatment. State the frequency and importance of each. Pathognomonic signs must always be given precedence above the others.

2. Enumerate the other diseases resembling the disease under study.

3. Make the differential diagnosis between these diseases by comparing and weighing the importance and value of each sign in each disease (frequency, intensity, peculiarity).

4. Diagnose or establish the stage, the course, the duration, the tendency to termination without or with proper line of treatment, the form and variety, the complications.

5. The diagnosis may be a diagnosis by anticipation when animals are inoculated to determine the true nature of the supposed case and determine what is to be expected in the case of the patient who has been subjected to the same cause, as for inoculations in rabies and in tuberculosis with tuberculin.

6. The retrospective diagnosis, that is the diagnosis of the true nature of the disease with which a patient

has been affected, is based upon the clinical history and the sequelæ or consequences of the disease: spots, cicatrices, impairment of the functions, etc.

PROGNOSIS.

The prognosis must state the general prognosis of the final termination of the disease; of its duration; the possibility of relapses and of sequelæ; for each we must state the frequency and importance of each point.

TREATMENT.

The description of the treatment of the disease embraces the following points: The prophylactic and preventive treatment, the abortive treatment, the removal of the offending cause, the specific treatment, the curative, the palliative, the symptomatic treatment or the treatment of the symptoms, or treatment on general principles.

In each case state the means employed. These may be hygienic (diet, rest, etc.); they may be medical and remedial (medicines of all kinds); they may be surgical (topical or operative, of a minor or a major nature). The treatment may be by the mouth, by the rectum, by enema, by hypodermic injections, by intravenous injections. State the efficacy of each. The description of the treatment of each stage is indicated above.

RELAPSES, SEQUELÆ, CONSEQUENCES, RECURRENCES.

The description of relapses, sequelæ and consequences must be stated carefully; state also the frequency, causes, symptoms, course, duration, termination, diagnosis, prognosis, treatment, sequelæ and consequences of sequelæ, forms and varieties, complications of sequelæ, recurrences; in a word, describe them like separate diseases.

(To be continued.)

MEDICAL LONDON.

NOTES FROM MY SKETCH BOOK.

BY L. HARRISON METTLER, A.M., M.D.
CHICAGO, ILL.

It is demonstrably true that distance lends enchantment, for three thousand miles of ocean does increase one's transatlantic veneration. Europe and America are veritable El Dorados when viewed respectively from the opposing shores. The philosopher of Chelsea would have been less of a hero-worshiper had he been more of a traveler. Plato's Republic was a beautiful thing to dream of in the groves of the Academy, but out here in America it seems to have drawbacks that reveal many imperfections. A medical code of ethics is "a thing of beauty and a joy forever" until—well, until you discover your high-code neighbors underbidding for your patients. Medical matters are strictly scientific abroad, you fondly imagine, until you plant your feet upon foreign soil. London with its hundred and thirty or more hospitals is far from being the medical Elysium for everybody there, as we had foolishly fancied. The wail of our insular brother against *hospitalism* is quite as loud and lugubrious as our own. "Too many hospitals and too many dispensaries" is the first response of the unhappy practitioner, when asked to tell us something of medical London. And yet with all this hospital material, post-graduate education is not what it might be. Absence of governmental control and encouragement, over-intense individualism, and want of proper centralization are given as a few of the causes of the inferiority of London as a post-graduate medical center. As compared with Germany, laboratory teaching in England is sadly deficient. There are no endowments; there is no university teaching. There is abundance of hospital material, but it is not made use of as it should be. In the Poor-law infirmaries there are no less than 12,000 beds unused for the clinical teaching of the students. The same is true of many of the fever hospitals. All of which goes to show that medical matters in London are as much in need of readjustment as they are with us. The particular attraction for an American physician in the metropolis is the large number of special and general hospitals and the abundance and variety of clinical material that may be observed.

Every tourist, upon first arriving in London, sets out at once to visit Westminster Abbey and the Parliament buildings. As he approaches the end of Westminster Bridge, the view from which inspired Wordsworth to exclaim, "Earth has not anything to show more fair," he looks away across the river and immediately inquires about the magnificent row of buildings rising from the Albert Embankment, directly opposite the Parliament Houses. If he is a physician his interest will be quickened upon being told that those seven elegant, modern-looking structures constitute the famous St. Thomas's Hospital, an ancient Foundation by Richard, Prior of Bermondsey, in the year 1213, for Converts and Poor Children. In 1215 it was remodeled by Peter de Rupibus, Bishop of Winchester, for canons regular. Like other religious houses, it was surrendered to Henry VIII. in the thirtieth year of his reign, purchased by the citizens of London in 1544, and opened for the reception of patients in November, 1552, under a charter from the Crown. The ancient site of the hospital was in the borough of Southwark, at the southern extremity of the famous old London Bridge, near Guy's Hospital. In 1862 a railroad corporation bought the site and the hospital removed temporarily to Newington in Surrey. It was in 1868 that the foundation stone of the present magnificent edifice or edifices was laid with royal ceremony by the Queen. Her Majesty opened the hospital June 21, 1871. It contains about 600 beds and is prepared for the reception of all kinds of cases. Surgery receives special attention under its roof. The income of the hospital, derived largely from rents and donations, is about £45,000, but from this a large deduction has to be made, leaving about £33,000 for hospital purposes. The lover of the historical will find much to entertain him within a few steps of the hospital. Lambeth Palace, for six centuries and a half the city residence of the Archbishops of Canterbury, the famous Lollards' Tower and Prison full of sad memories, the Chapel, the gay and notorious Vauxhall, Bedlam, Astley's Amphitheater, Lambeth Ferry made famous by Macaulay in his description of the midnight flight from Whitehall of the Queen of James II and her infant son, and Vauxhall Bridge, erroneously associated with the name of Guy Vaux or Fawkes of the notorious Gunpowder Plot, are all in the immediate vicinity.

A few steps to the southwest of St. Thomas's stands the famous Bethlehem or Bethlem Hospital, vulgarly

called Bedlam. Even the general physician will visit this institution, if for no other reason than its remarkable history. Its name is derived from a priory of canons belonging to the Order of the Star of Bethlem, established in a monastery near Bethlehem, and caring especially for the sick and the insane. The badge of the order was a star worn on the mantle. The hospital was founded at the Dissolution, by Henry VIII., upon the endowments of a priory established by Simon Fitz-Mary, a sheriff of London in 1246, who gave to it all the land he owned in Bishopsgate Without, and there in Liverpool Street erected the first Bethlem Hospital. More correctly speaking it was a "dungeon house" for furious lunatics, whence it became popularly known as Bedlam. It was only large enough to contain sixty patients and it was the first institution devoted to the insane in England of which there is any record. In 1675 it was removed to Moorfields, where a building was erected to accommodate one hundred and fifty-two inmates. After many additions had been made to it from time to time, it was thought best in 1814 to change its site again and to erect the buildings which it now occupies in St. George's Fields, Southwark. The architecture of the main structure is imposing. Its cupola resembles that of St. Paul's Cathedral. The hospital now accommodates about 400 patients of both sexes, and it receives *gratis*, all poor lunatics who are likely to be cured within one year and who are not fit applicants for a county lunatic asylum. The better class of educated patients are preferred, and the treatment is along the lines of kindness and consideration. The women are provided with pianos, needlework, embroidery and knitting; the men with bagatelle and billiard tables, newspapers and periodicals. In 1888, 171 patients were discharged as benefited and 139 as actually cured. Such results were never obtained by the old restraining and torturing methods of treatment. The income of the hospital in 1888 was over £25,000. A small number of male and female patients are now admitted on a uniform payment of £2, 2s per week. The name of Bedlam used to be synonymous with all the horrors and tortures of the Inquisition. The complete change in the modern method of treating the wretched inmates, the employment of gentleness, kindness and persuasion with all the corresponding better results, have hardly yet sufficed to remove the odium attached to the name Bedlam. The earliest legislation in regard to the insane poor was in 1744, George the Second's time, when any two justices were given the power to arrest pauper lunatics found at large and to chain and incarcerate in "some secure place" within their parish of settlement. Up to this time enactments were made only for the custodial care of the insane considered too dangerous to be at large. They were allowed to overrun the country much to the annoyance ofttimes of the people and to the distressing neglect of themselves. Shakespeare avails himself of this state of affairs to enable Edgar in King Lear to assume a disguise:



ST. THOMAS' HOSPITAL, LONDON.

"Whiles I may 'scape,
I will preserve myself; and am bethought
To take the basest and most poorest shape,
That ever penury, in contempt of man,
Brought near to beast; my face I'll grime with filth;
Blanket my loins; elf all my hair in knots;
And with presented nakedness out-face
The winds and persecutions of the sky.
The country gives me proof and precedent
Of bedlam beggars, who, with warring voices,
Strike in their numb'd and mortified bare arms

Pins, wooden pricks, nails, sprigs of rosemary;
And with this horrible object, from low farms,
Poor pelting villages, sheep-cotes and mills,
Sometime with lunatic bans, sometime with prayers,
Enforce their charity."

Until a very few years ago the lunatics of Bedlam were one of the exhibitions of the metropolis. In Hogarth's "Rake's Progress" the last scene represents a number of fine ladies screening with affected prudery by means of their fans, a half-naked, fettered madman whom they have come to see. Henry Carey, an author who lived a century earlier and who wrote "Sally in our Alley," speaks of Bedlam as one of the most popular resorts. Once he followed, out of curiosity, a gay young cockney couple—such as Sally and her lover—through their day's festivities and noticed that the latter treated his sweetheart *seriatim*, to the following amusements, namely, "a sight of Bedlam, the puppet shows, the flying chairs (? swings) and all the elegancies of Moorfields." This exhibition of the insane, heavily manacled and chained, or kept in cages of iron, afforded Bethlem Hospital a considerable revenue in fees, down to the year 1770. To further add to the funds of the hospital in the olden time, partially convalescent patients, with badges affixed to their arms and known as "Tom-o'-Bedlams" or "Bedlam Beggars," were turned out to wander and beg in the streets. The practice was stopped, however, before 1675.

A short walk northeastward from Bethlehem Hospital brings one to the southern extremity of old London Bridge and the famous old Borough of Southwark. Who does not recall with dear old Chaucer

"That, in that seson on a day,
In Southwerk at the Tabard as I lay,
Redy to wenden on my pilgrimage
To Canterbury with devoute corage,
At night was come into that hostelrie
Wel nine and twenty in a compagnie."

and who does not remember Tooley Street where dwelt the three tailors who began their petition to Parliament with "We the people of England?" In this Borough the immortal Sam Weller was first discovered to the world officiating as "boots" at the White Hart Inn; here also stood the church of St. George's and the Marshalsea Prison so familiar to poor Little Dorrit. Not far away rises the church of St. Mary Overy, second in interest only to Westminster and containing the graves of the poet John Gower, of Edmund Shakespeare brother of the dramatist, of Fletcher, of Henslow and of Philip Massinger. Ah! but this is a famous old district and the medical tourist who is fond of historical memories and literary anecdotes will be sorely tempted to divide his attentions between Guy's Hospital, which lies in the heart of old Southwark and the other sights of the borough. Passing down St. Thomas's Street (named from St. Thomas's hospital that used to stand here) one soon comes in front of an old-fashioned archway and a row of old-time buildings. The hospital forms a hollow square in the midst of a noisy, odoriferous, bustling part of London and surrounds a quiet, well-shaded courtyard. It was founded in 1721 by Thomas Guy, the son of a lighterman at Horselydown, who became a bookseller in Lombard street and made a large fortune by printing and selling Bibles and by speculation in the South Sea Company. At first Guy gave much money to St. Thomas's hospital but he afterward bought (at a rental of £30 a year) of the government of that Hospital a lease for 999 years of the land on which he built Guy's Hospital at a cost of nearly £20,000. At his death he bequeathed to it £210,499. The testator's benefactions constituted the largest sum that had ever been given up to that time by any one person for charitable purposes. A very pretty way to ease one's conscience in the disposal of wealth obtained by the discreditable practice of purchasing the prize tickets of seamen at a large discount and subsequently investing them in South Sea stock! Soon after Guy's death, the executors procured an act of parliament, incorporating themselves and 51 other gentlemen, named by the founder, as president and governors of the hospital. At first the number of patients amounted to 402. In 1829 a further endowment was made to the hospital of nearly £200,000 by a Mr. Hunt of Petersham, thus making accommodation for 100 additional inmates. Other benefactors have bestowed about £10,000 more. Until quite recently the annual income of the hospital amounted to £40,000, but through the depreciated values of property and landed estates it is now scarcely £25,000. Nevertheless the expenditure for hospital purposes is £34,500. The wards contain some 600 beds. The out-patient departments are especially rich in clinical material and owing to the location of the hospital a large number of accident cases are received daily. The yearly average of patients received in the hospital is 3,000, while the out-patients that are relieved amount almost to 50,000.

Situated in the heart of an old, malodorous, thickly populated district of London, the dispensary work of this famous hospital interested me exceedingly. The hospital building consists of two quadrangles, with two wings extending from the front to the street. The west wing is quite elegant and uniform in its architecture but the rest of the edifice while regular is rather ancient looking. The courtyard might be kept in a little more attractive state with flowers and lawns, though the noble old trees give it an agreeable shade. The medical school associated with the hospital is one of the best in London and contains about 400 students. The anatomical museum especially awakened my admiration. It is unusually rich in specimens and its arrangement is unique, affording the greatest amount of facility for the study and examination of its contents. In the Chapel of the Hospital is an admirable statue of Thomas Guy in marble and the grave of Sir Astley Cooper.

St. George's Hospital, near the gay and fashionable Hyde Park Corner, was founded in 1733, contains 350 beds, has associated with it a very good medical school, and is chiefly interesting to visitors as the place where the renowned John Hunter practiced and died (1793). The London Hospital dates from 1740 and expends about £51,000 per annum in the relief of suffering. It contains 790 beds. There are many other hospitals deserving more than a passing notice, but those I have already mentioned are the most renowned and must suffice.

The practitioners of London have their offices in their residences, and usually upon the ground floor. They make less effort than we Americans do to adorn them with attractive hangings and luxurious furnishings. With crowded desks, piles of journals, charts, scientific apparatuses and other paraphernalia lying about, the offices of our London confreres have a distinctively professional and business-like appearance. The London medical man dislikes exceedingly

to talk "shop" outside of his office, whereas within his sanctum I have invariably found him full of medical chat and medical opinions. Certain parts of the city, notably in and around Cavendish Square, seem to be the favorite haunts of the medical fraternity. Here are to be seen many modern as well as old-time residences, upon whose doors hang many an old-fashioned brass knocker and ample brass plate bearing the legend "Mr. A." or "Dr. B." to indicate the home of the surgeon or physician. With proper introductions one will find the medical profession of London a most hospitable set of men. A morning call will be equivalent to staying and taking lunch with the whole family; an invitation to accompany your host to an operation will probably mean a drive to several hospitals with your generous host as guide and informant; a polite request to "drop in" upon a certain evening is an indication that you are expected to come in full dress and participate in a reception. The cordiality of our English cousins is shown by the invitations, programs, announcements of social events and society meetings that are poured in upon you during your stay in the capital. Many London physicians make a habit of keeping open house upon a special evening of each week. A table is set and the ladies of the household assist in entertaining. There is a fine *esprit de corps* amongst the London medical men, as is shown in many ways, but especially in the matter of fees. There is very little if any underbidding. Consultants are extremely considerate of those by whom they are called. An unusual courtesy is extended to one another, both in public and in private. Professional etiquette and gentlemanly demeanor are never lost sight of, as I had frequent opportunity to observe in the various medical society meetings and social relaxations.

At one of the meetings of the Royal Medical and Chirurgical Society which I attended, I was impressed with the comfortable furnishing of the apartment on Berners Street, the dignity and appropriate ceremoniousness of conduct, the courteousness yet freedom of debate, and the friendly sociability after the meeting had adjourned. In the middle of the well carpeted and heavily-draped room stood a great tall, old-fashioned stove in which blazed and crackled a cheering log fire. At the head of the room stood the throne-like president's desk, having above it a large shield ornamented with the royal arms. On either side were the desks of the secretary and treasurer. The readers of the papers and most of the audience, which numbered about fifty, were in full evening dress suits. Sir E. H. Sieveking occupied the chair, presiding in a most courtly and dignified manner. One of the papers was upon gastro-enterostomy, and as an American I was naturally much gratified to hear the author pay a high compliment to our American surgeons, especially to our fellow citizen, Dr. Nicholas Senn. He said that the latter had now made the operation so perfect that scarcely any more could be desired or suggested. The second paper was upon cicatricial transplantations and was most liberally illustrated with photographs and patients. After adjournment we all assembled in a neighboring room and partook of the light collation of sandwiches and coffee, which served to banish any stiff formality. This is a fair illustration of the average medical society meeting in London. One of the most active and interesting societies to attend is the British Gynecological Society, which holds its meetings fortnightly in a building in Chandos Street, near Cavendish Square. The gynecologists I found to be a pugnacious set of men and to be an observer of one of their fortnightly tilts is as exhilarating as to have been present, I presume, at a medieval tourney. What with the Clinical Society of London, the Medical Society of London, the Obstetrical Society of London, the Hunterian Society, the Harveian Society and a host of others, one need never be at a loss for a battle field whenever he may feel medically pugnacious while staying in London. He will always find there able combatants and strong bulwarks ready to entertain him.

4544 Lake Avenue.

REPORT OF A CASE OF PERIHEPATITIS AND PLEURISY RESULTING FROM INJURY.

Read by Title in the Section on Practice of Medicine at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

BY J. M. G. CARTER, M.D., Sc.D., PH.D.

PROFESSOR OF PREVENTIVE AND CLINICAL MEDICINE IN THE COLLEGE OF PHYSICIANS AND SURGEONS, CHICAGO; FELLOW OF THE AMERICAN ACADEMY OF MEDICINE, ETC.

WAUKEGAN, ILL.

The case which is the subject of this paper was that of a farmer's daughter of German descent, aged 15 years. She was in good health although rather under weight as compared with girls of her age, and had passed the period of puberty. Her parents were strong robust people.

On Sept. 15, 1895, she fell from a tree a few feet, 10 or 12, and struck her right side against a stone, receiving an injury which stunned her. At the time I saw the patient, two hours after the accident, the pulse was 130, respirations 40, temperature normal. The seventh and eighth ribs on the right side were fractured.

A bandage was put around the thorax, and remedies administered to secure rest. On the following day the pulse was 120, temperature 102 and respiration 30. Considerable tenderness was manifested over the liver and injury of that organ was suspected. The succeeding day all the symptoms were increased in severity. Perihepatitis was diagnosed. In a week icterus occurred. The symptoms were those of perihepatitis with disturbances of respiration especially marked. No points of peculiar interest presented and it was hoped that two weeks would see the case fully convalescent.

At the end of two weeks the temperature had not subsided; the pulse was 130, respiration 30. The skin was clear, bowels in good condition, but the urine was high-colored and contained indican in excess with some increase of urates. The ribs seemed to be united and the perihepatitis had apparently subsided. What could account for the continued elevation of temperature and rapidity of pulse and respiration? Careful examination of the right thoracic region had been made frequently but no marked evidence of pleurisy had appeared. Could it be inflammation deeply seated in or about the liver or an obscure pleurisy? A thorough examination was instituted to determine this point. Finally, I thought I could detect that there was a slight reduction of the clearness of the respiratory mumur. Believing I had to deal with secondary pleurisy, I placed the patient on appropriate treatment. The pulse, respiration and temperature remained high. In two days from time of

diagnosing pleurisy, the symptoms and physical signs were well marked, and the patient passed along as in an ordinary case of secondary pleurisy, the only peculiarity being a gradual increase in the rapidity of the pulse. At the end of ten days, October 11, nearly four weeks from the time of the accident I decided that it was necessary to remove the effusion. The family, objected. Tuesday she had a chill; the family consented to let me perform paracentesis. Wednesday, October 16, I operated removing two quarts of pus. All the symptoms abated and the chills ceased. The temperature fell to 99.5. The pulse, which had reached 160, dropped to 120 in the minute. Nov. 2, 1895, the temperature was 102.5, respirations 40, the pulse 150. I decided to operate the second time. I plunged a trocar and canula between the sixth and seventh ribs, just posterior to the axillary line. The first operation was performed with an aspirator; but as I wished to introduce a drainage tube, the second operation was performed as described. The trocar was withdrawn and the canula left in place. Three pints of pus were removed and a No. 7 (Am.) soft rubber catheter passed through the canula into the pleural cavity, under proper aseptic precautions. The canula was withdrawn leaving the tube in place. A safety pin was passed through one wall of the catheter, a string tied to each end of this and the strings held in place by strips of adhesive plaster. The temperature and rapid respirations abated at once and within two or three weeks both were normal and the pulse had fallen to 120.

Malt, cod liver oil and iron tonics were administered and she gradually improved. It was not until Jan. 2, 1896, that the pus ceased flowing and only one inch of the tube remained within the chest wall; the tube was removed and the opening closed antiseptically. The patient has remained well, but the adhesion of the pleural walls has left the right side smaller than the left and cause the right shoulder to fall considerably below the level of the left; improvement is noticeable however, and at the present writing (April) she has very little deformity.

GUNSHOT WOUND OF THE CHEST; REPORT OF A CASE; RECOVERY.

BY J. LUE SUTHERLAND, M.D.
GRAND ISLAND, NEB.

Fritz Thavenet, aged 9 years, by the accidental discharge of a small target rifle in his own hands, consequently at close range, was shot through the chest from front to back. The ball, a 22-caliber, conical, entered one inch below and one-half inch to the left of the tip of the ensiform cartilage and almost touching the costal arch at a point exactly opposite the costo-cartilaginous articulation of the seventh rib. It ranged upward, backward and a very little outward, emerged between the ribs, at the point shown in photograph,and lodged in the trapezius muscle from which it was easily extracted. A line drawn horizontally around the chest at this point is just four and one-half inches above the entrance wound. His condition one hour after receiving the wound was, pulse 84, respiration 26 and rather shallow; temperature not taken, but seemed to be slightly subnormal and there was a general pallor of the skin, but no vomiting; and when asked if he felt sick at the stomach replied, "not much." Hemorrhage was slight. Air escaped with a bubbling sound when the ball was cut down upon and removed. The first dressing consisted in rendering both wounds as aseptic as possible, loosely plugging them with iodoform gauze, covering with large thick pads of gauze and absorbent cotton and the application of a roller bandage around the chest sufficiently firm to slightly restrict respiratory movement. This dressing was not disturbed for twenty hours, during which time, and for forty-eight hours after, he was given nothing but liquids in very limited quantities, and he was kept in a recumbent position with



head and shoulders elevated. At the second dressing, the wound in the back was covered with fresh pads and allowed to close, but the entrance wound was cleansed and plugged at each dressing for eight days. His recovery was rapid and without event; the temperature at no time was above 100 F. and at the present writing, sixteen days from the receipt of the injury, he says he feels as well as ever, there being no pain or discomfort. The wound in the back is completely healed and the one in front, having been burned with the powder, suppurated a little and is not yet closed. He was permitted to be up on the fourth day, was out of the house the greater part of the time after the sixth day, came to town, a distance of over a mile, on the tenth day.

A study of the anatomy of the parts will show that it is possible that the stomach was not wounded, but the question naturally arises, where was the left border of the liver at this time? If either of these organs were wounded, notwithstanding the smallness of the missile, there certainly would have been symptoms indicative of the fact.

The apparent miraculous escape of the stomach from injury can be accounted for by an anatomical fact and a physical condition, viz: The patient being only 9 years old the natural position of the stomach approaches more nearly the perpendicular than it does in adult life; consequently instead of the supe-



rior curvature we have an irregular oblique line, the upper third of which lies to the left of the median line. In harmony with this in this particular case is the fact that his breakfast that morning was small, consisting wholly of wheaten pancakes, and as full four hours had elapsed before the shooting, stomach digestion had advanced to such a degree as to leave that organ almost empty, but whatever of its contents there was yet remaining, it was in the most dependent part and by its weight would thus aid in dragging the stomach downward, diminishing the size at the cardiac extremity, increasing its perpendicularity and carrying the entire organ toward the left, as the boy was standing at the time of the accident.

Taken in all its bearings it was a narrow escape between the stomach on one side and the left border of the liver upon the other. The descending aorta must have been uncomfortably near the track of the bullet also, not to mention other minor but none the less vital organs in the immediate region of the wound.

THE SILK LIGATURE IN URETHRAL STRICTURE.

BY J. D. THOMAS, M.D.

Professor Genito-Urinary and Venereal Diseases Western Pennsylvania Medical College, Medical Department Western University; and Genito-Urinary Surgeon to South Side Hospital.

PITTSBURG, PA.

Recently in operating upon a case of urethral strictures in conjunction with my colleague, Dr. H. R. O'Conner, at the South Side Hospital, we met with a difficulty somewhat out of the ordinary. The case was one of urinary fistula—the fistula opening upon the left side of the scrotum and due to the strictures. Beginning two inches from the meatus and involving the urethra from this point backward for the distance of another inch was a stricture that would admit nothing larger than a filiform ("a filiform stricture"). After the filiform was passed through this and into the bladder an opening was made in the perineum. An effort was now made to pass a tunneled Maisonneuve urethratome (No. 6 F.) over the filiform in order to cut the anterior stricture internally, but the stricture tissue was found so rigid that the shaft of the urethratome could not be made enter the lumen of the stricture with ordinary pressure. As a *dernier ressort* an attempt was then made to divulse the stricture by pushing the instrument with sufficient force to accomplish the object in view, but this proved a failure, for, instead of the Maisonneuve entering the stricture the penis (rather a small one) was simply crowded backward into the perineum. The filiform was now withdrawn and after the removal of the tunneled tip from the urethratome the regular screw guide was attached, thus giving the entering part of the instrument more of the wedge form, but with this change no better success was met with. This instrument again was removed, a filiform passed and the smallest tunneled instrument in our possession used, hoping to divulse or dilate sufficiently to allow the cutting instrument to pass. This, again, was a failure. It now suggested itself to me that to pass a silk ligature through the urethra the stricture might be sawed (Abbe's method for the esophagus) sufficiently to permit the urethratome to pass. This proved a success and was accomplished by tying a small-sized ligature around the bulbous end of the filiform, already in the urethra, and drawing the filiform with the thread out through the perineal opening. This left one end of the string projecting from the meatus, the other from the perineal wound, and by taking hold of these two ends and resorting to a sawing motion while an assistant made pressure on the under surface of the penis at the location of the stricture, we were soon able to secure sufficient room for the introduction of the Maisonneuve urethratome. The ligature was threaded through the tunneled end of the urethratome and utilized as a guide.

77 and 79 South Thirteenth Street.

SOCIETY PROCEEDINGS.

Twenty-Fifth Annual Congress of the Surgeons of Germany.

The quadricentennial "Chirurgencongress" was celebrated at Berlin in May with great festivities; among them we note a series of tableaux in the Opera House, representing the history of surgery in Germany. The Association formally adopted the proposition to coöperate in the formation of an International Congress of Surgery. The six opening addresses were all on subjects that have been created or revolutionized in the last two decades, and presented by the men who have contributed most, perhaps, to their development.

Professor Bruns reviewed the

EVOLUTION OF THE MODERN SURGICAL TREATMENT OF GOITRE

from the time only twenty years ago when Lücke wrote that "Surgeons generally dread and avoid an operation" and the first tedious process of extirpation, requiring sometimes 200 ligatures, to the popular Billroth-Kocher total extirpation, an absolutely certain, bloodless and artistic operation. Then came the loss of life from cachexia strumipriva after these supposed successful operations. Bruns himself was the first to become convinced that the insignificant thyroid gland was after all an important secreting organ, and that the organism suffered severely when its secretions were withdrawn. In the revulsion that followed this discovery, an old method was revived, producing atrophy of the thyroid gland by ligating the thyroid arteries. This method not proving satisfactory, enucleation, attempted by Porta in 1840, was improved by Socin, and now comprises with resection and partial extirpation, the modern surgical treatment of goitre, varied or combined to suit individual cases, and no longer considered dangerous. In Bruns' 400 cases since 1883, the fatalities have only been 1½ per cent. with none in his last 150 cases. Partial extirpation is very frequently followed by a return of the goitre, but seldom to such an extent as to necessitate a second operation. Only a dozen cases are known in 800 operations (Socin, Krönlein, Kappeler, &c.). He considers therefore the present surgical treatment of goitre as eminently successful, but still more valuable is the thyroid medication, which has proved a prompt and certain cure for hyperplastic goitre. In 300 cases of goitre of various kinds, 100 were effectively relieved and the growth materially diminished. In another 100 cases the growth was only relatively diminished, but the accompanying troubles were relieved until an operation became unnecessary. Thyroid medication is also an invaluable preliminary to an operation, especially to enucleations and resections. It decreases the amount of blood in the region and effectively prevents hemorrhage. As was stated in an article in the Journal, April 4, page 662, Bruns considers that the success of enucleations depends upon finding and enucleating the capsule without injury to the surrounding tissue. It is the standard operation in well developed cystic and nodular goitre, and it is indispensable in double goitre, where the remaining tissue must be carefully preserved. But it must be strictly avoided if the nodules are not distinctly separate from the surrounding tissue, or if there are extensive adherences. In such cases there is sure to be profuse and almost uncontrollable bleeding, and it is often impossible to complete the operation. Bruns' experience in 200 cases of enucleations was that the bleeding was scarcely noticeable in 70 per cent.; considerable in 20 per cent. and so profuse in 10 per cent. that the operation had to be abandoned. Post-operative hemorrhage followed in 8 per cent. Enucleation may also seriously affect the functions of the gland if the nodules are very numerous, requiring many ligatures. Resection is to be preferred in such cases. Hemorrhages can be controlled with it and sound tissue preserved, while the operation can be varied and modified in many ways to suit each case, leaving the hilus, the isthmus or the upper or lower pole as may be required, and combined with enucleations if necessary. Bruns concluded with the statement that the experiments he had been making on goitrous animals with Baumann have thrown some light on the finer processes which occur during thyroid medication.

Professor Esmarch of Kiel, announced that his amputations of limbs and external genital organs were absolutely bloodless, owing to his

METHOD OF DRIVING THE BLOOD OUT OF THE LIMB AND PREVENTING ITS RETURN UNTIL THE OPERATION IS COMPLETE,

and the final bandage applied. He uses a thin bandage of pure brown rubber, winding from below upward, although linen or cotton bandages wound on dry, and afterward wet, will answer the purpose. If there is any inflammation or thrombosis, he first holds the limb in a perpendicular position until it grows pale. He arrests the arterial blood with a woven rubber bandage 5 cm. wide and 140 cm. long, strong enough to compress the femoral artery in the most muscular man to such a degree that no blood can flow into the limb, fastening it with a buckle. He restricts the use of the rubber tube he invented for this purpose to operations on the scrotum and penis, and to exarticulations of the hip and shoulder joints or amputations below them. After an amputation the larger blood vessels are seized with the torsion forceps and ligated. After the wound is closed and a well-fitting, firmly compressing bandage applied, the limb is held perpendicularly and the elastic bandage rapidly removed. The patient is then placed in bed with the limb still held in this position for fifteen minutes longer, when it is lowered to a horizontal position, and there is usually no question of hemorrhage. If the bandage over the wound has not been properly applied it may be stained by blood trickling through, but this can almost always be stopped by a pad of cotton laid over the place, held firm with a rubber bandage if necessary. In the majority of cases the blood that exudes is found later when the permanent bandage is removed, in the form of a thin narrow red strip lying over the healed wound. No knowledge of anatomy is required to wind up a limb with an elastic bandage like this, while considerable skill is required to apply a tourniquet so as to do good and not harm, which is the great advantage of the former in cases of traumatism when unskilled hands render the first aid. Many lives have already been saved by them, and especially with the elastic suspenders Esmarch invented and described at the time the Czar Alexander II. died from this cause. Many operations on the internal organs, the uterus and rectum, have been much facilitated by this method of driving the blood from part of the body to another, and it is in itself a cure for certain aneurysms (W. Reid), for pseudoarthrosis (Helferich, Dumreicher), for local tuberculosis (Bier), for snake bites (Fayrer) and it prevents death from excessive hemorrhage by autotransfusion, sending the blood back to the heart (P. Muller).

Professor Wölfler reviewed the history and achievements of

SURGERY OF THE STOMACH AND INTESTINES

in a comprehensive address. He said of the Murphy button that it would certainly be exclusively used if it were not for the objection that the side anastomosis can not be made deep enough on account of the swell of the button, and that there is danger to the organism from the presence of an unresolvable foreign body. He consequently advises Winiwarter's method of side apposition of the separated and closed ends of the intestine, as his own experience with it has been very favorable. The union secured is the strongest and most perfect we have. He recommends Madelung's needle for suturing and adds that all agree that as broad spaces as possible should be left, the stitches taken in sound tissue, and the mucous membrane included in the suture, while the special resistance of the submucosa must be borne in mind. The statistics of resec-

tion of the intestines are 39.5 per cent. mortality in total of cases; or 42 per cent. in 85 resections during 1875 to 1888, and 36 per cent in 161 resections during 1888 to 1895, which shows an improvement of 6 per cent. during the latter period. Examining these statistics we find that out of 221 resections, 84 were of the small intestine, with a mortality of 30 per cent.; 69 were ileo-cecal resections, with a mortality of 42 per cent., and 81 resections of the colon, with a mortality of 49 per cent.—the proportion of successes diminishing with the length of the mesenterium. Beside these figures Körte has had no fatality in 9 cecum resections and Czerny only one in 8 cases. The figures of resection with artificial anus are 78 cases, with 78 recoveries. Goetz reports 68.2 per cent. recoveries in 71 cases, and another report mentions 63 per cent. cures in 127 cases. Resection for tuberculosis of the intestines shows 73 per cent. recoveries in 34 cases, 65 per cent. cured in 20 cases of cicatricial stricture, and 46 recoveries in 114 resections for neoplasms of the intestine. The mortality was greatest, 54 per cent. cases of carcinoma, and least with artificial anus. Rydygier reports a mortality of 23 per cent. in 17 resections for chronic intussusception. The favorable results obtained in local or subserous tuberculosis of the cecum are worthy of note, the operative mortality being only 8 to 10 per cent. Many surgeons report the permanency of the cure effected, some of their successful operations dating from one to seventeen years, most of them cases of carcinoma. Equally promising are the reports of recovery without relapses in tuberculosis of the cecum, dating from one to five years. The classic method of resectio pylori is practiced with increasing success by the most experienced surgeons. Some prefer the Kocher modification, which implants the duodenum in the stomach, instead of the circular union of the open ends. It is still to be seen whether this is a permanent improvement over the old method. The operative results of resectio pylori have improved so much lately that there is no longer any discussion as to the relative merits of this operation and gastroenterostomy. The indications for each are entirely different, but resectio pylori lengthens life more than the other, even when a relapse occurs. Wölfler's statistics include the experience of fifteen operators beside himself. In a total of 92 cases of resectio pylori the mortality was 56.4 per cent. From 1888 to 1896 the percentage was only 21.2 per cent in 173 operations. This favorable showing is due to the fact that some of the operators, Kocher, Krönlein, Gersuny and Mikulicz secured immediate recovery in 84.75 per cent. of their cases. Resectio pylori on account of cicatricial formations has a more favorable showing than the cases of carcinoma—10 per cent. The proportion between them is as 25 per cent. to 31.9 per cent. It is interesting to know that the cicatrix formed at the pylorus after resection assumes the function of the physiologic pylorus, as Rosenheim has demonstrated. Also that the motor function is improved in carcinoma, while the secreting function of the mucous membrane is not improved. It would be of great service in forming a final opinion on this subject to learn the experience of those patients whose digestion has continued good for years after resection of the stomach. As to the permanent results, it is established that patients operated upon for carcinoma of the pylorus have survived many years in undisturbed good health. I find twenty-four cases on record where patients have lived from two to eight years afterward. Time has restricted the indications for resectio pylori and enlarged the scope of gastroenterostomy. All are in accord in regard to the suture in the latter; the only question is the entering point. Some, like König, Hahn, Lauenstein, cling to the original method, gastroenterostomia retrocolica (Hacker's). The immediate results of each are about equal, 45 to 42 per cent. If in gastroenterostomia antecolica a loop of the small intestine with a long mesenterium is taken, the colon is not compressed and the contents of the stomach will not escape. This also prevents the formation of the dreaded spur. When the front wall of the stomach is diseased, or the mesenterium of the small intestine is too thin, the Hacker or Brenner method is to be preferred. It is impossible to decide at present which is to be the operation of the future, the retrocolica or the antecolica. The results of gastroenterostomy reported up to 1888 show a mortality of 55.6 per cent. in the 45 operations (against 56.4 per cent. in resectio pylori). Since 1888 the mortality in the 219 operations has been 36 per cent. (against 31.2 in resectio pylori). The mortality in 195 cases of carcinoma was 30 per cent. Without cicatricial formations 20.9 per cent. in the last eight years. But single operators have secured much more favorable results than this.

Cases of carcinoma in which the stenosis appears early and death is imminent, call for a prompt operation, and Wölfler described several cases where he had relieved patients actually at the point of death from starvation, and restored them to their usual occupations for 1½ and 2¼ years afterward. Any one who has witnessed the gratitude of such a patient will never abandon gastroenterostomy. As is generally known it produces a normal chemic action of the stomach in cases of benign stenosis, and conduces to permanent recovery. The results of entero-anastomosis (Maisonevue-Ilacker operation of incomplete scraping out of the intestine), stand in the same proportion to those obtained in resection of the intestine, as the results of gastroenterostomy to resection of the pylorus. The most conservative treatment of stenosis of the pylorus or intestines is evidently plastic surgery. In Wölfler's collection of 50 cases the mortality is only 26 per cent. There are no reports on record of relapses. Unfortunately its application is limited, as the rule is inevitable here too, that the stitches must be taken in sound tissue. The last ten years have also seen much improvement in the lesser operations on the stomach and intestines. A better and more easily closed fistula is produced now in gastrotomy, partly because we make it smaller, but principally because we have transformed it into a canal opening upward and easily closed. (Witzel, Frank). As a consequence there can be no question now of opening the stomach a second time. The immediate results have also become much more favorable. Mannaberg states that the mortality from 1849 to 1883 was 66.7 per cent. in 162 cases. From 1883 to 1886 36.9 per cent. in 111 cases. The mortality from cicatricial stenosis of the cardiac orifice of the stomach is much less, and Wölfler's own experience has been that these figures are too high, and he believes that the next few years will see them very much reduced. In regard to colostomy the progress has been that now, instead of the tedious lumbar colostomy we make colostomia iliaca, and divide the intestine obliquely (Madeling and Schinzinger, 1881), or in some other way ensure that the part leading to it is separated from the part leading away from it, while we keep the opening of the latter open (Maydl) by scraping and draining the rectum in the modern sense of the term. The part leading to it must be continent of course. There does not seem to be much difference between the results of intra or extra peritoneal colostomy. Both show less operative infection as methods improve with time. Up to 1877 the mortality was 42 per cent; to 1887 29 per cent. and to 1895 27 per cent. The experience of 120 years with colostomy in cases of carcinoma shows that 18 persons survived three to six years; 28 lived three years, 43 lived two years, and 36 died within eleven months of the operation, out of 120 cases collected by Bryant. The farther down and nearer the rectum that the carcinoma is located the longer the patient survives. Wölfler dismissed jejunostomy with the remark that it was yet too untried for a final judgment, but that it was indicated in certain forms of stenosis of the pylorus and cardia.

PROFESSOR LANGENBUCH, "the inventor of cholecystectomy," terminated his sketch of

SURGERY OF THE BILE SYSTEM,

with the suggestion that the arteria mesenterica superior should

be ligated in operations on the liver, as ligating the portal vein produces a congestion of the intestinal walls that may lead to collapse and death. It is easy to find the strongly pulsating artery by lifting the colon and pushing the small intestine to the left, when it will protrude between the pancreas and the small intestine. It is also advisable to ligate this artery as a preliminary measure to ligating the artery and veins of the liver.

Among the numerous other speakers was König, "Tuberculosis of the Joints;" Sonnenburg, "Appendicitis" (with a record of 200 operations); Kehr, "Surgery on the Gall Bladder" (record of 200 cases operated); "Jürgens on his discovery of the "Sporozoa of Certain Kinds of Sarcoma," with which he has successfully inoculated animals, in spite of the difficulty that sporozoa will not develop on the usual mediums, and Angerer on the "After-results of Thiersch's Extirpation of the Trigeminus; twenty-six cases." In sixteen cases, four years have passed since the operation, seven have been permanently freed from pain, there were seven relapses, while three required a second operation. Krause's intracranial operation is indicated if the pain continues after the trigeminus is extirpated. Angerer recommends extirpating the sound branches also as a preventive measure. Helferich advises extirpating the nerve as far in as possible, as the central end is the one affected, and warns against allowing the nerve to escape from the forceps. He mentioned a desperate case in which he had performed a Krause operation on the Gasserian ganglion with success. Krause added that more than half of the cases of nerves extracted terminated in a relapse, and he believed that fully as good results were attained by simple section or resection as with the Thiersch operation. It can also be resorted to later if necessary.

Professor Hasse described his successful treatment of inoperable carcinoma with parenchymatous injections of alcohol. In four cases declared inoperable by eminent surgeons he had extirpated the breast and then prevented relapses with his injections of alcohol, securing complete recovery.

Mitchell District Medical Society.

Meeting held at Shelbyville, Ind., June 29 and 30, 1896.

Dr. Edmund Andrews of Chicago, the President, in the chair. In the absence of the Secretary, Dr. Geo. W. Burton of Mitchell, Dr. J. W. Rucker of Shelbyville, was made Secretary *pro tem.*

The first three papers on the program were read and discussed together. The first by Dr. J. A. Thompson of Cincinnati, was a scientific but clear and practical paper on "The Diagnosis and Treatment of Acute Purulent Otitis Media." The writer opposed the use of leeches and the ordinary methods of irrigating the ear, favoring incisions in the tympanic membrane and packing the canal with iodoform gauze.

The next paper, by Dr. F. C. Heath of Indianapolis, was a brief statement of the peculiarities of "Influenza Otitis" and some remarks upon its treatment. Dr. Max Thorner of Cincinnati, then followed with an instructive paper on "Serious Complications of Suppuration of the Middle Ear." He showed that from one-third to one-half of all brain abscesses are of otitic origin. Among the other complications mentioned were sinus thrombosis, meningitis, caries, necrosis, hemorrhage and the general cachexia from a protracted suppuration.

The discussion was opened by Dr. Dudley Reynolds of Louisville, who opposed the use of water, leeches, hot or cold applications, favoring peroxid of hydrogen, paracentesis, politzeration and the internal use of the salicylates.

Dr. Thompson in closing defended his method of incising the membrane. Dr. Heath held that the satisfactory results obtained more than justified the use of water, leeches, hot and cold applications and other measures advocated in his paper His position was endorsed by Dr. Thorner, who also showed that incising the membrane may carry infection into the middle ear, an epidermal surface being extremely difficult to disinfect.

Dr. J. G. Sherrill of Louisville, presented the subject of "Intestinal Anastomosis." He favored lateral anastomosis by means of the clamp devised by Dr. H. H. Grant. Its advantages are: 1, no change in the direction of the fecal circulation; 2, no foreign body; 3, less danger of contraction of the gut; 4, nearest to the natural method of repair; 5, means of performance always at hand.

Dr. Eastman of Indianapolis, expressed his preference for end to end anastomosis, using iron-dyed silk in the Czerny-Lembert suture.

Dr. Hall of Cincinnati, thought the method advocated by the essayist better than the Murphy button in emergency work and less likely to cause impaction. As to suture he would use catgut, running stitch.

Dr. Ransohoff of Cincinnati, had lost several cases with the Murphy button and while they were bad cases and might have died under any method, he believed the button was a foreign body and likely to cause obstruction.

Dr. Matthews of Louisville, believed the tendency was now toward lateral anastomosis and that Dr. Grant's method was sure, clean and easily learned.

Dr. Katto of Decatur, Ill., spoke of a method of end to end anastomosis by invagination.

"The Necessity for Opening the Cranium after Injuries Producing Coma and Convulsions," was the subject of a paper by Dr. W. B. Fletcher of Indianapolis. He exhibited a number of calves' brains and skulls, showing lesions principally at the base of the brain from blows on the top of the head and marked shattering of the inner tables of the skull where there was little evidence of injury outside. The paper was discussed by Drs. Reynolds, Parsons, Sherrill and Ransohoff, who cited cases confirming the writer's statement's.

Dr. S. C. Ayres of Cincinnati, presented a thoughtful paper on "Artificial Ripening of Cataract." His method is trituration of the cornea with the smooth-rounded handle of a Graefe knife, previously moistened with Pavy's solution.

Dr. Reynolds feared injury to cornea by this method and preferred applying a needle directly to the lens. He claimed good results however in extracting immature cataracts.

Dr. Rice of Indianapolis, objected to the method of Dr. Reynolds as liable to cause sympathetic ophthalmia. He said that Fuchs had shown that contact was all that was necessary, the essential thing being separation of fibers of the lens to allow infiltration of aqueous or vitreous. Dr. Ayres in closing said that there need be no fear of injuring the cornea if the method he advocated was carefully carried out.

A case of gallstones was reported by Dr. Edwin Ricketts of Cincinnati. The main point in the discussion was as to their location, Dr. Eastman contending that they were always in the cystic duct while Dr. Ricketts held that they were found, occasionally at least, in the common duct.

In the evening a very enjoyable reception was given by the Shelby County Medical Society. It was attended by a large number of the citizens.

At the morning session, second day, President Andrews read his address on the

new weapons in war and their effects on military surgery.

He showed that the new smokeless powder is effective at greater distance than the old. The guns are far more destructive. All open ground can now be swept with a storm of bullets. The famous old charges of cavalry and infantry can never occur again. The new tactics require thinner and longer lines. Each company has men trained in first aid to the wounded. The surgeons' camps and field hospitals must be

in gorges, hollows and behind hills to avoid the long range guns.

There are new difficulties in bringing up ammunition as well as disposing of the wounded. The question of antisepsis and asepsis is a grave one. The dependence must be on hot water, granite pans, rubber pouches, sublimated gauze, etc. The paper was briefly discussed by Dr. A. W. Brayton of Indianapolis. Following this, DR. JOSEPH RANSOHOFF of Cincinnati read an essay on "The Radical Cure of Umbilical Hernia by Omphalectomy." Four cases were reported operated on within the year without recurrence, up to date. The salient features of the operation proposed are excision of the ring, suture of the recti and buried metallic sutures. This paper was brief, clear and well received.

Under the title "Credulity and Skepticism in Medicine," DR. W. G. MCFADDEN of Shelbyville vigorously opposed the general use of new remedies until their true qualities were proven by those using them in hospitals, and censured the over-zealous gynecologists. In the discussion by Drs. Culbertson, Ricketts, Sterne, Reamy, Reynolds and Hall, issue was taken with the author, especially by the gynecologists.

In the afternoon session DR. W. M. CATTO of Decatur, Ill., reported twelve cases of "Puerperal Eclampsia" seen in fifteen years, about one to every 150 confinements. Most of these recovered. The treatment advocated was elimination by bleeding, purging, diuresis and diaphoresis.

DR. REAMY opposed bleeding as dangerous treatment and advocated veratrium viride as safer and as effective. DR. C. K. BRUNER of Greenfield reported his experience with veratrium, confirming Dr. Reamy. In closing, DR. CATTO said he feared the drug more than the lance. The following paper was also read: "The Value of Certain Therapeutics in Functional and Organic Diseases of the Nervous System," by DR. CURRAN POPE of Louisville; "Cerebral Arterio-Sclerosis and Its Relation to Apoplexies," by DR. A. E. STERNE of Indianapolis; "Treatment of Typhoid Fever," by DR. J. C. CULBERTSON of Cincinnati; "The Similarities between Albuminuria and Glycosuria" by DR. GUIDO BELL of Indianapolis, and "Nicotin Amblyopia," by DR. R. C. HEFLEBOWER of Cincinnati.

The election of officers resulted as follows: President, Dr. Samuel Kennedy, Shelbyville, Ind.; vice-president, Dr. J. Garland Sherrill, Louisville; corresponding secretary, Dr. J. W. Rucker, Shelbyville; permanent secretary, Dr. Geo. W. Burton, Mitchell; chairman program committee, Dr. F. C. Heath, Indianapolis: executive committee, Dr. S. C. Ayres, Cincinnati, Dr. Thomas J. Whiting, Nokomis, Dr. Dudley S. Reynolds, Louisville, Dr. F. C. Heath, Indianapolis, and Dr. A. J. Banker, Columbus, Ind.

British Orthopedic Society.

This society met at Birmingham, Eng., on May 30, 1896. The New General Hospital, the General, the Children's and the Royal Orthopedic Hospitals were visited by the members.

MR. WM. THOMAS showed cases of congenital torticollis, severe lateral curvature in a male adult, congenital abscence of metacarpus and phalanges, double congenital displacement of the hip and talipes treated by tarsectomy.

DR. WARDEN showed a case of partial abscence of the fibula, marked lateral bending of the tibia, associated with congenital talipes valgus.

MR. E. LUKE FREER brought before the meeting a case of double congenital talipes equino-varus which was successfully treated by tenotomy, wrenching and manipulation. He also showed a case of rhachitis adolescentium. The girl was aged 16 years and had been under his care for severe genu valgum when 4 years of age, and had worn instruments for four years with no material improvement. A double osteotomy was then done and she continued to wear supports for three years more. Mr. Freer then lost sight of her for eight years and a few months since she was brought to him again in a condition of pronounced genua vara. He also showed a case of knock-knee which had been treated by osteotomy, and another case of very severe congenital talipes equino-varus.

The above cases were discussed by Mr. Keetley, who stated that in his opinion Mr. Thomas' case of lateral curvature in the male adult was probably due to sciatica. Mr. Openshaw referred to cases of congenital dislocation which had been under his care in which he had operated by Lorenz's method with success, except in one instance, in which he carried out Hoffa's procedure, the patient dying from shock.

MR. ROBERT JONES brought forward a case of recrudescent rickets and gave the following history. The patient, a girl of 16 years, was admitted into the Southern Hospital, Liverpool; the family history was good. She was the second of four daughters and her sisters were of moderate physique, strong and free from deformity. She passed an uneventful childhood and there was never any suspicion of rickets. At the age of 7 she felt rather poorly and was ordered change of air. On her return, twelve months later, it was noted she had developed knock-knee. She had no fever and no particular ailment when first attacked, but since the genu valgum appeared her back had been painful. Up to two years ago she was able to walk comfortably, but since then her symptoms had been much aggravated and she had been quite unable to stand or walk. She had always been a dainty feeder and was said never to have made a good meal. On examination it was found that the left parietal bone was slightly flattened, so that the head was asymmetrical. The sutures were closed but the sulci were well marked, especially that between the frontal and parietal bones. The palate was arched and all the teeth except the wisdoms were present. The lower jaw was thickened at the angles and pointed at the chin. The circumference of the head was twenty and one-half inches. The chest was somewhat barrel-shaped, the ribs were beaded, and Harrison's sulcus was marked. The heart and lungs were normal. There was also some rib deformity, due to a slight lateral curvature. The abdomen was large and prominent; the abdominal muscles were flabby. In addition to a lateral curve to the left, there was very marked lordosis, accompanied by rigidity. The angles of the scapulæ were prominent. There was nothing very noticeable about the clavicles or humeri. The radii were enormously thickened at the lower end so that the appearance was somewhat that of a very bad Colles' fracture. Supination was much interfered with, pronation to a slighter degree. The arms were very thin and poorly developed, but she had a fairly good grasp. The pelvis appeared to be normal; there was considerable enlargement of the lower end of the femora, and the internal condyles were very prominent and elongated so that on extension of the limbs, there was an exceptional knock-knee, the leg forming an obtuse angle of 135 degrees with the thigh. This deformity was more marked on the left than on the right side. There was also flexion deformity of the knees and it was impossible to get the legs perfectly extended. Flexion perfect and the knock-knee disappeared. Further, there was flexion deformity of 25 degrees at the hips. The feet were in varus position, and this was due to an acute bend at the lower end of the tibia just above the ankle joint, and also to a great thickening at the lower ends of the fibula. The sacrum was curved and prominent. The child was very stunted in growth and small for her age, and ill nourished. She was fairly intelligent, but could not walk or stand at all. There was one ninth albumin in the urine.

MR. JONES—Attention has been drawn in this country to either late or recrudescent rickets by Dremitt, Clutton, Lucas and others, and the rarity of the condition has been generally admitted. I am convinced, however that its rarity is overstated. Without being able to verify the precise number I

have certainly seen between twenty and thirty cases. In most of these the lower extremities are alone affected. In some, as in the present case, the head, chest and upper extremities participate in the deformities. In all, the enlargements are more or less shared by the epiphysial ends of bone. They therefore differ from the cases of Clement Lucas in the fact that the deformities are not confined to the shafts of the bones. Clutton, in the description of his case, draws attention to the fact that the shafts of the bones of the forearm were not bent and that this was another confirmation of the fact that the upper limbs bend in infantile rickets from the inability of the little patients to assume the erect position. In the case I report, the forearms are characteristically bent; the deformities starting long after the patient had ceased to crawl. This bears out several observations I have made with regard to the etiology of knock-knee; the deformity characteristic of rickets arising and developing while the patient remained in bed. In none of the reported cases do I note any reference to flexion deformities at the hip and knee, symptoms which I have frequently observed. From my experience I should conclude that: 1, late rickets is generally recrudescent; 2, that epiphyseal enlargements are an essential feature; 3, that while static influences bear an important part in the production of the limb deformities they are not essential factors; 4, that in addition to the common deformities of rickets, flexion deformities are found in the hip and knee and frequently limitations of movement in other joints; 5, that contrary to the experience gained from the cases of Clutton, Pitts and others, the skull and face may exhibit rhachitic deformities; 6, that the sacrum generally presents an angular projection about its middle.

Mr. A. H. Tubby remarked that although late rickets was accepted by many authors as a veritable disease, yet he had not come across any microscopic examination of the epiphyses of bones proving its identity with rickets of infancy.

After votes of thanks were passed to the Birmingham members for their hospitable reception and to the Birmingham Medical Institute for allowing the use of the rooms, the proceedings terminated.

SELECTIONS.

Exploration of the Duodenum by Intubation.—In the *Bulletin of the Johns Hopkins Hospital*, April, Dr. J.C. Hemmeter reports that he has been engaged in working out a new diagnostic procedure, which he calls "Intubation of the Duodenum." This is not an analogous procedure to the passage of a rigid tube into the larynx in occlusion of the lumen of that passage by pseudo-membrane or edema. It is possible that intubation of the duodenum may be interpreted as meaning the insertion of a rigid tube through the pylorus, to secure permeability in the duodenum in cases of stenosis resulting from cicatricial contraction or of stenosis resulting from neoplasm. The intubation referred to in this report, however, is simply the passage under normal conditions of a tube through the mouth, esophagus, stomach and pylorus into the duodenum. Dr. Hemmeter's explanation is as follows:

"The possibility of this procedure occured to me during a long series of experiments in the biologic laboratory, in which it was attempted to get a method of registering the peristalsis of the stomach upon the kymograph. We use a deglutible apparatus which consisted of a very soft rubber bag having the shape of the stomach kymograph, which was passed into the stomach in the collapsed state and then blown up so that it applied closely to the walls of the organ. In this manner the muscular contraction of the stomach, the impulse of the aorta and the respiratory movements were registered through a writing apparatus connected with a manometer to which the esophageal tube leading into the intragastric bag was attached. In one or two cases it was discovered beyond a doubt that this intragastric bag had slipped the duodenum, which was evidenced not only by the length of the tube, but also by the fact that when the bag was blown up the stomach was not distended, the patient complaining of pain in the region of the gall bladder by the distension. From a large number of very accurate measurements on living and dead subjects, male and female, it has been found that the average length of the esophagus, or rather the length from the incisors to the deepest part of the stomach, is 59 centimeters. The average length of the stomach in its longest direction is 18 to 22 centimeters. The greatest width is 7 to 8 centimeters. Under normal conditions, therefore, there is no physical reason why a tube can not be passed into the duodenum, presuming that the tube does not kink or turn in the stomach, which it will unfortunately do. The esophagus takes a nearly perpendicular course until near the bifurcation of the bronchi it begins its spiral turn, which brings it to the left of the aorta. In that region it has a very gradual swelling, so that it there assumes a spindle shape. About the level of the tenth thoracic vertebra the esophagus begins to narrow down until its narrowest portion is reached, at what is called the hiatus. The foramen esophageum is about 8 centimeters behind the articulation which the sternal end of the tenth rib makes with the base of the ensiform cartilage. From this point the subphrenic portion of the esophagus passes decidedly to the left, expanding in a funnel-shaped manner. This deviation causes a deflection of the tube. To avoid this deflection it occurred to me to fill the stomach with a rubber bag, the superior surface of which contains a groove running longitudinally. After the bag is inflated the tube is passed down and finds its way along the groove and enters the pylorus. Now the sphincter of the pylorus is not an absolute sphincter. The sphincter of the bladder will retain water; not so the pyloric sphincter."

In the discussion that followed in the Hospital Medical Society, Dr. Howard A. Kelly briefly referred to his two diagnostic intestinal instruments, the sigmoidoscope and the proctoscope. He said, "My practical interest is entirely in endoscopic progress at the other end of the body. As I have had some questions to discuss relative to priority lately, I realize how important it is to get on record in time, so I will show you what I have done to meet Dr. Hemmeter. Those of you who have been in my clinic have seen my proctoscope and sigmoidoscope in use. They have been very successfully employed in a number of cases in diagnosing and treating diseases of the whole of the rectum and a large part of the sigmoid. The following case illustrates their use: A doctor in New York swallowed his teeth one night. They stayed in his stomach quite a while and then he felt them pass the pylorus; then they rested at the ileo-cecal valve for a long time. Then they were traced from the ileo-cecal valve to the sigmoid flexure, where they lodged. Here they could be felt by the doctor himself as well as by Dr. Wyeth. He came down to Baltimore to me one evening for an examination by my method, but as the rectum was too full of fecal matter for an examination at that time I ordered an active purge. The next day he came and I passed a long coloscope into the rectum, while he was in the knee-breast position; he felt the instrument strike his ribs and was well satisfied that he had passed the teeth during the night on account of the purge. I certainly found nothing abnormal. The difficulty usually is that the expansion of the bowel ceases in the sigmoid. I now have an instrument in my operating room which is made to reach from the anus to the splenic flexure. The plan of construction is this: A long metal tube with a piece of glass in the proximal end has set in one side a small electric lamp which is connected with a storage battery. On the other side is an opening attached to a Davidson syringe with which the bowel can be inflated; under inflation we can follow the bowel up to the splenic flexure, and

sometimes with a prism we can see around into the transverse colon."

The Recent Serum Tragedy at Berlin; Official Report.—Professor Ehrlich's official report on the serum used in the sad Langerhans case has been published by the Prussian *Cultus-minister*. Ehrlich comes to the conclusion that the serum was entirely normal in its constitution. He says: "In the Langerhans case No. 216 of the Höchst works was used. This No. 216 had been officially tested on December 16, 1895, and passed on for sale on December 18, the examination having demonstrated the required 100 immunizing units per cubic centimeter, perfect sterility, and the prescribed admixture of carbolic acid. Immediately after the announcement of the death this serum was subjected to a careful reëxamination. As the legal authorities had disposed of the remainder of the bottle used for the injection, samples of the same pass number that had remained at the station were taken, and also bottles of the same number from the stock of the Charité Dispensary, where Professor Langerhans's bottle had come from. The serum again showed the required 100 units per cubic centimeter, and bacteriologic examination proved it to be free from germs, so that there can be no question of any subsequent formation of poisonous bacterial products. By a number of experiments on animals the admixture of carbolic acid was shown to be no higher than permitted. Thus, on reëxamination too, the serum answered to the tests exacted. Nevertheless, it seemed important to ascertain whether, perhaps, toxic effects produced by this number had been noticed anywhere else. About 1,300 portions of this serum had been brought on the market, and if it really contained toxic substances it seemed extraordinary that no one had drawn attention to the dangerous qualities of this particular number. Researches were made in the hospitals that had received No. 216 serum from the Höchst works (serum depôt of the Royal Charité Dispensary, Julius Hospital in Würzburg, General Hospital in Hamburg, sick club of the Royal Dockyards in Kiel, Municipal Hospital in Madgeburg, Krefeld Hospital); in none of these places had any special, much less any toxic, effect of the serum been observed. According to the statement of the director of one of these hospitals, a child of 18 months had been given a dose of 16 c. cm. without showing any alarming symptoms. This is at least ten times the dose used for Professor Langerhans's child. The director of the Hamburg Hospital gave an account of immunizing experiments on children. He says that four bottles of the No. 216 serum were used for immunizing children in the eye department; not only were no ill effects observed, but it might be confidently asserted that none existed. Thus the clinical communications also contradict the assumption that substances of strong toxic action were contained in the serum. On the contrary, the No. 216 serum has shown itself to be a preparation answering to all the tests at present exacted, and perfectly normal in its constitution."—*British Medical Journal.*

Orphol.—Dr. Edmond Chaumier, physician to the Sanatorium of Touraine, and director of the Animal Vaccine Establishment of Tours, France, has written an article on the use of orphol for intestinal antisepsis, and in surgery, of which the following is a summary:

All the various substances employed for the purposes of intestinal antisepsis, calomel, carbolic acid, creosote, boric acid, carbon, iodoform, etc., are useful; but all have their disadvantages. Thus calomel, whilst it has an antiseptic action and cleans out the putrefying matter, may lead to a catharsis and an absorption of mercury that may be dangerous.

Naphthol has none of these drawbacks, and possesses certain important advantages of its own. In typhoid fever it keeps the tongue moist, lessens the stupor, delirium, subsultus, and all the ataxo-adynamic symptoms of auto-intoxication. Its use diminishes the number of microbes in the intestinal tract.

Together with naphthol, Dr. Bouchard employed the salicylate of bismuth. This causes ringing of the ears, on account of the absorption of the salicylic acid into which it is decomposed in the intestines. The caustic taste of the naphthol renders it necessary to administer it in capsules; given otherwise it is vomited.

These inconveniences have led me to try another naphthol compound, orphol, which is a naphthalate of bismuth. It is a grey powder that has neither the penetrating odor nor the burning taste of naphthol. Jasenski's experiments have shown that orphol is decomposed in the intestinal canal into naphthol and bismuth. The naphthol acts as an antiseptci, and, if there is a diarrhea at the time, the bismuth set at liberty controls, but does not cause the obstinate constipation that the other bismuth salts do. Orphol stops the development of microbic life in the intestines, yet is perfectly harmless; 10 gms. (150 grains) given daily to dogs, and 5 gms. (75 grains) daily in the human subject have done no harm, even when continued for weeks. Jasenski recommends the drug in all maladies, acute or chronic, of the digestive tube. Hugo Engel regards it as the best intestinal antiseptic, and has given it in large doses both to children and to adults.

Orphol contains 26.5 per cent. of naphthol, and 73.5 per cent. of oxid of bismuth. Bouchard having demonstrated that to obtain intestinal antisepsis in the adult, 2.5 gms. (37½ grains) of naphthol daily are required. Ten gms. (150 grains) of orphol would be the quantity necessary to obtain a like result. This dose can be given without difficulty; but experience has shown that 5 gms. (75 grains) daily has almost always been sufficient.

In cancer of the stomach antisepsis necessarily plays a large part in the treatment; and orphol is to be employed in preference to all other drugs, from the fact that it in no way irritates the diseased tissues. It may be given in half gm. (7½ grains) doses dry in capsules or with syrup. It may also be employed in suspension for lavage of the stomach. Ten gms. (150 grains) in suspension in a liter (1 quart) of water used after washing with plain water and repeated twice a day. In gastric ulcer it has been highly recommended by Wilcox, and may be used in capsules, or in suspension, as in cancer.

As an antiseptic and germicide it is commended in all morbid conditions of the stomach and intestines due to fermentation, putrefaction, or the infection by special germs.

Wilcox has found great benefit from the use of orphol in typhoid fever. Dr. Hueppe recommends orphol in cholera, he having treated a large number of cases with it in the hospitals of Hamburg. Nencki, Schubenke, Blackstein, and Petkewitsch have administered it with success in the choleriform diarrheas. Jasenski, in six cases of intestinal catarrh, effected cures in two to five days. It was successful even in old chronic cases.

For surgical antiseptic applications orphol would seem to be especially indicated, in the place of iodoform, salol, etc. The accidents so common with iodoform would certainly not occur. It should be very useful also in burns. Being antiseptic, it is as efficacious and more useful than bismuth. I have used it as a powder in the treatment of the ulcerations of the thighs and genitals in children, either pure or mixed with talcum. In impetigo I use orphol with vaselin, 1 to 10, with much success.

The Dangers of Diphtheria Antitoxin.—At a meeting of the Société Médicale des Hôpitaux (*Semaine Médicale*, April 29, 1896) held on April 24, M. Variot made a brief communication concerning a case of death following the use of antitoxic serum. A child aged 18 months had a slight attack of pharyngeal diphtheria, followed by croup, with spasm of the glottis. Intubation was resorted to, and 20 c.cm. of antidiphtherial serum was introduced in two doses; the child died in forty-eight hours, with a temperature of 104.9 F. On *postmortem* exam-

ination no special cause for the death was found in the pharynx or larynx, from which the membrane had disappeared. Without affirming that the antidiphtherial serum was the cause of death in this case M. Variot suggests that it may possibly have had something to do with the production of the high temperature, and throws out the suggestion that there may be, in certain serums, a fever-producing body which can not, however, be recognized by chemical analysis. Fully recognizing, as he does, the enormous value of this serum, he desires to have this point settled at once. A colleague, M. Sevestre, who has had very extended experience of the use of serum, has never observed any such accident among his cases, and he thought that this must be looked upon as quite an exceptional case: he therefore did not think it right, until the proof of the nexus between the serum and the high temperature could be more fully demonstrated, that the serum should get the blame. There can be little doubt that with some serums, and in the hands of some physicins, a larger percentage of high temperatures have been observed than in others. This statement does not apply to the slight initial rise of temperature which frequently follows the introduction of antitoxic serum and precedes the fall which is now by most people looked upon as a somewhat favorable sign, indicating as it does that the serum is exerting its specific effect on those cells that have been overstimulated and paralyzed by the toxin. It applies rather to the secondary fever which is usually associated with the rashes, the joint pains, and the other sequelæ, which are said to be associated with the use of this subtance, and which appears to be due to the fact that the skin may be stimulated to excrete the products formed by the tissue cells under the influence of the antitoxic serum, and perhaps also of the toxin. The second possibility is that there may be some irritant matter in the serum, under certain conditions, which may determine these results. In view, however, of the fact that only one patient in every two or three ever has the slightest symptoms which could in any way be ascribed to the serum, and as some physicians treat case after case without the occurrence of any such symptoms, only one occurring here and there, may it not be that idiosyncrasy plays an important part in determining the effects mentioned? Coming, however, to the special cases in which death has been ascribed to the injection of antitoxin, it must be borne in mind that diphtheria has always been looked upon as one of the most treacherous diseases with which a physician ever has to deal. Patients who appear to be on the high road to recovery have succumbed with symptoms of heart failure, of pyrexia, and various forms of paralysis. It is too much to hope that antitoxin, especially when administered in the later stages of the disease, can prevent the fatal issue of a number of such cases of diphtheria that come up for treatment. The death rate will be and has been diminished by the use of the remedy in the early stages of the disease even in severe cases, but when not given until the later stages we must always expect a certain proportion of accidents similar to those with which we have hitherto been only too familiar before the introduction of antitoxic serum.—*British Med. Jour.*

The "Open air" Treatment of Phthisis.—At a recent meeting of the South Eastern Branch of the British Medical Association, Dr. Arkle read a paper on this subject, with special reference to *Heilanstalten* or sanatoria. He drew attention to the great number of cured phthisical cases which were observed by persons who made a large series of postmortem examinations on old town dwellers, male and female, and remarked that it was almost usual at such necropsies to find, either from old cicatrices, calcareous nodules or old caseous foci, evidences of an attack of tubercle in early life. Probably the majority of these patients had thrown off the attack without any special treatment. Could anything be learnt from observations on the life-history of the tubercle bacillus in the laboratory or from a study of the disease as it was seen clinically? Points of importance seemed to be the somewhat limited range of temperature at which this particular organism flourished in the laboratory, the dangers which arose from the dissemination of the bacillus or its dried spores in every day life, and the ease with which these latter could be counteracted. Clinically, the very considerable amount of digestive disturbance which was so common in cases of phthisis was referred to, and the great repugnance these patients had to fatty foods. From the observation of these two points, in the natural history of the disease, the author urged that treatment in a sanatorium offered the best prospects of success. The essentials of a good sanatorium were then enumerated, special reference being made to the facilities for keeping the patients in the open air, in the construction of such an establishment, and to the care which must be taken to disinfect all sputa and other dejecta. Attention was also called to the system of "hardening" patients which was carried on in these institutions. In the climatic treatment of phthisis the sea, the dry land, mountains and valleys, hot dry air, cold dry air, all varieties of elevation, temperature, and situation had their advocates, but without doubt the most important quality must be the purity of the air in the locality where the patient was treated. The author considered that with proper care and selection suitable places could be found in the British Isles. In the matter of diet and medicinal treatment the digestive functions were kept active and vigorous, as much milk taken as possible in addition to a good full diet, the patient being kept as long as possible in the open air in the day and with the windows of his sleeping room open at night; little then remained to be done except to prevent him contaminating his surroundings with sputa or other tuberculous dejecta. Inasmuch as pure air, antisepticism and nourishment were the chief potent factors which were offered (under certain restrictions) by any health resort, due thought ought to be given to every individual case before it was decided to banish such patients from our shores.—*Brit. Med. Journal.*

Practical Notes.

Rubella.—One of the most interesting features of rubella is the constant presence of glandular enlargements. So constant is the occurrence of this symptom that the diagnosis should be made with caution when it is not present. The glands most frequently involved are the cervical, the post-cervical, and the sub-occipital. A nest of small glands found low in the neck behind the sterno-mastoid is especially characteristic of this disease. Although rubella is an extremely mild disease, the peculiar glandular enlargements, the marked eruption, and its close simulation of other more serious diseases render it of considerable interest.—*Arch. Pediatrics*, June 1896.

Cystin.—Dr. E. Cutler says of cystin: It is not as rare as thought and is of clinical importance. Cystinic rheumatism is so called because cystin predominates in the blood. It is probably a normal body if kept in solution in the blood by sufficient water supplied to the system. Cases where cystin is found oftenest are those in which sulphur has largely entered into the food *i.e.*, yolks of eggs. Treatment of the condition consists in removing sulphur foods as far as possible from the diet. Supply menstruum in abundance; distilled water is best. Give lemon juice as a solvent.—*Med. Bulletin*, June 6.

Sponge Grafting in the Orbit for Support of Artificial Eye.—Dr. E. Oliver Belt has performed the operation in five cases with fairly good results. He says: The operation is a simple one, and is performed as follows: The eyeball is removed by the ordinary method under strict asepsis. After all hemorrhage is arrested, the socket is washed out with formalin solution, 1 in 1,000, followed by sterilized salt solution. A globe of fine, soft, sponge about three-fourths the size of the eyeball (previ-

ously sterilized in 5 per cent. formalin solution and rinsed in the salt solution) is then inserted into the socket, or capsule of Tenon. The conjunctiva is brought together and sewed with rat-tail sutures. The eyelids are then closed with compress and bandage. In a few weeks the sponge is filled with new tissue, which in time becomes firm, solid flesh, making a full orbit and a fine support for the artificial eye. The sponge fibers are apparently absorbed.—*Medical News*, June 27.

Transient Bulbar Paralysis Caused by Malaria.—Orlandi describes in the *Riforma Medica*, several cases of apparently severe progressive bulbar paralysis, following an attack of pernicious malaria, all cured by large hypodermic injections of quinin.

Treatment of Acute Infectious Diarrhea in Infants.—Dr. H. M. McClanahan says: Stop the food supply. Remove the products of imperfect digestion from the intestinal tract by irrigation, continued until the water returns free from admixture of fecal matter. Inject solution of 20 grains of tannic acid in a pint or more of sterilized water and have it retained in the bowel about an hour. When vomiting persists the stomach should be washed out also. To neutralize the toxins calomel in 1-10 grain doses hourly for the first twenty-four hours is recommended. First among antipyretics is the cooled bath. When watery discharges continue after the irrigation, hypodermics of 1-100 grain of morphin and 1-800 grain of atropia can be given. Stimulants are indicated in the severe cases and whisky is the best that can be given. After the urgent symptoms have subsided the child can be nourished with the white of an egg stirred in cold water, or the mixture recommended by Jacobi: Five ounces of barley water; the white of one egg; one or two teaspoonfuls of brandy or whisky; some salt and sugar. A teaspoonful every five or ten minutes as indicated. No milk should be given for several days.—*Am. Jour. of Obstetrics and Diseases of Women and Children*, June 1896.

The Differential Diagnosis of Vascular and Muscular Tinnitus Aurium.—One variety is caused by the flow of blood through the irregular-calibered blood vessels of the internal ear and those in the neighborhood, producing vibrations by the passage of the blood. This I have named vascular tinnitus aurium. The other variety is produced by the action of diseased muscles of the middle ear, producing vibrations by alternate contractions and relaxations. This I have named muscular tinnitus aurium. Many persons, who are partially deaf and experience excessive noise in their ears, will hear a conversation in a moving railroad coach better than in a quiet room. This is positive proof that all such persons are afflicted with muscular tinnitus aurium. The sound or sounds that are formed in the internal ear and its neighborhood, *i. e.*, vascular tinnitus aurium, will not be decreased in any degree by extrinsic noises of any kind. It is often of the utmost importance to be able to differentiate between the two kinds of tinnitus, for a treatment or procedure that would be of great value to a patient suffering from the muscular variety would be decidedly injurious, if not disastrous, to one suffering from the vascular variety, and vice versa.—THOS. F. RUMBOLD, M.D., in *St. Louis Medical and Surgical Journal*, June, 1896.

Rapid Cure of Soft Chancres by Electric Heat (Not Cautery).—The Paris correspondent of the London *Lancet* sends the following note to the issue for June 6, under the title of a new treatment of soft chancres by heat:

Dr. Audry, of the Toulouse Faculty, has devised a modification for the heat treatment of soft chancres introduced three years ago by Dr. Welander, of Stockholm. Dr. Audry employs radiant heat supplied by the thermo-cautery, the button of which is held for a few seconds at a distance of three or four millimeters from the sore previously washed and dried. Should the point of the thermo-cautery be fine it must be brought to a white heat; if larger, to a dull red heat. Exposure to this radiated heat for the period indicated has the effect of thoroughly drying the ulcer, on the edges of which there now appear sanguinolent striæ. Too long exposure determines a raising of the surrounding epidermis and a reddening of the skin. A single seance is stated to be usually sufficient to transform the chancre into a simple ulcer, which soon cicatrizes under the influence of any antiseptic powder. The rapidity of the healing is due to the absence of the scab that always follows the direct application of actual or chemic heat. The pain is said to be quite endurable, being less than when the actual cautery is employed.

Symptoms of Incipient Exophthalmic Goitre.—It is very important to be able to distinguish this disease from the first, instead of waiting for the exophthalmus and goitre to appear. An article in the *Journ. des Pract.* for May describes several early signs by which it may be recognized. Principal among them is a series of ocular troubles, a lack of synergic action in the lid and brow when the ball is turned abruptly upward, incomplete occlusion of the palpebral fissure, pulsation in the lids, muscular paralyses and sometimes diplopia or photophobia. There are also disturbances in the nervous system; beside a general irritability; there are often cramps, neuralgias, hyperesthesias, insomnia, choreic movements and sensations of excessive heat. The tremor, which is rarely absent from the first, has a specific character in its rapid vibrations. If there are no accompanying symptoms of hysteria, this tremor is of great diagnostic value. The general symptoms that may occur are numerous and various, from dyspepsia, bulimia, gastric and diarrheic crises to genital troubles and edema resembling myxedema. Other disturbances indicate the participation of the medulla oblongata, suffering from lack of the normal secretions of the thyroid gland, polyuria, albuminuria and dyspnea. Pregnancy is one of the most important predisposing causes of this disease, and it may also appear as a complication of neurasthenia, chorea, epilepsy, paralysis agitans, syringomyelia, general paralysis and various psychoses, especially tabes and hysteria. It is also a possible complication of diabetes, sclerodermia, acromegalia, mollities ossium and chlorosis.—*Revue Int. de Méd. et de Chir.*, June 10.

The Limits of Vaginal as Compared with Abdominal Exploratory Section.—Dr. Henry C. Coe says his experience leads him to select the abdominal method of exploration in the following conditions: "1. In the case of neoplasms or obscure enlargements which are situated in the abdominal cavity, or have risen above the pelvic brim, especially if they are more or less adherent. 2. In ascites of doubtful origin, more particularly when tuberculous or malignant disease is suspected. 3. In cases of disease of the adnexa in which the latter are situated near or above the pelvic brim, as established by bimanual palpation. 4. In cases in which the history and symptoms point to general intestinal adhesions, and above all, when appendical complications are suspected. 5. In ectopic gestation before rupture, when the sac is high up, at the side or in front of the uterus, instead of in Douglas's pouch. 6. In case of intractable pelvic and abdominal pain of obscure origin, including the so-called neuroses. On the other hand, explorative vaginal section should be preferred: 1. In all cases in which the presence of pus within the pelvis is suspected, as in pyosalpinx, pelvic abscess proper, suppurating dermoids and cysto-adenomata, and hematocele. 2. In the case of small intra-pelvic tumors situated in the pouch of Douglas, or at least readily accessible from below. Impacted ovarian cysts, dermoids, and fibroids belong to this category. 3. Adherent adnexa situated in the true pelvis. 4. Unruptured ectopic sacs in the same locality. 5. Circumscribed exudates and indurations in the broad ligaments or behind the uterus, especially when associated with displacement and fixation of the lateral organ."—*N. Y. Polyclinic*, June, 1896.

Epiphysial Separation of Lower End of Femur.—Dr. Richard H. Harte says in regard to diagnosis: There are two forms of injury with which it is likely to be confounded, *i. e.*, dislocation of the knee joint and fracture of the femur above the con-

dyle. Traumatic luxations of the knee are a rare injury in early life. If the separation is compound there is little difficulty in diagnosis; when simple the abnormal mobility will serve to distinguish it from dislocation in which the movements of the leg on the thigh are restricted in a marked degree. Fractures in this part of the bone are rare at any time of life and especially so in persons under maturity. The age of the individual and the character of the crepitus will assist in determining the position of the injury. If the crepitus is of the dry, grating character, it can be easily distinguished from the soft moist crepitus caused by rubbing the diaphysis against the cartilaginous head of the tibia.—*American Journal of Medical Sciences*, June, 1896.

Artificial Ear Drum Membranes.—Dr. Vincent Gometz says: The artificial drum membrane was first used by the laity in 1640 and afterward by the profession. It has been made of a variety of materials. Tearsley, in 1841, selected a cotton pellet for the purpose. It is first slightly moistened and placed in the same position where it will best improve the hearing. This will be found by experiments. Toynbee, in 1853, introduced an artificial membrane, consisting of a thin rubber disc attached to a fine wire. Lucas has covered the wire with rubber tubing to prevent the unpleasant rattling in the ear. Gruber uses a similar piece of rubber as that of Toynbee but attaches to it a piece of silk thread to withdraw it from the ear. Artificial drums are sometimes made of tin foil, used in the same manner as cotton. Ordinary blotting paper answers the purpose very well. The indications for the use of the artificial drum membrane are as follows: 1, when a drum cavity needs protecting from the air; 2, whenever the ossicula are detached from each other, the result of destruction of their ligaments or from failure of the membrane to keep them in proper contact, or even a severance of continuity consequent on relaxation of the ligaments or absence of the incus, with a gap existing between the membranes and the stapes (the latter also may be in a state of subluxation from relaxation of its annular ligament), the artificial membrane keeps it properly in position.—*New Polyclinic*, June, 1896.

Treatment of Antrum Disease.—Dr. John E. Bacon describes his method of operation. It consists in cleansing and medicating the cavity through a small puncture in its inner wall in the inferior meatus of the nose, which can be made without general anesthesia and without pain. The instruments are a steel trocar and canula, two silver tubes, a silver wash tube, and a hard rubber syringe with rubber tube connections made to fit the canula and wash tubes. Cleanse the nares with the antiseptic spray, cocainize the inferior turbinal and floor on the side to be operated upon, insert a rubber operating speculum well into the nostril and place the trocar beneath the inferior turbinal about one and one-fourth inches from the skin margin; by bending the septum to the opposite side the point of the trocar will point obliquely into the cavity of the antrum. A slight tap with a leaden or rawhide mallet will cause the trocar to penetrate the thin bone which constitutes the inner wall of the cavity. Care must be taken not to penetrate too deeply and so wound the opposite side of the antrum, as serious hemorrhage might result. In most cases the trocar can be pushed through the thin bony wall with the fingers alone, and this should be done, when possible, to avoid the mental shock which the blow with the mallet sometimes gives. The trocar may now be withdrawn, leaving the canula in place, and the rubber tube may be attached to the canula and the cavity syringed out with warm sterilized normal salt solution. The fluid will escape into the nose through the ostium maxillare and bring with it pus if any be present. After the cleansing, the trocar may be replaced and the nut removed, when the canula may be withdrawn over the trocar; now a silver tube is slipped over the trocar and the latter is withdrawn, leaving the silver tube in place, and this may remain as long as required without any irritation. This tube is exactly fitted by the silver wash tube, and the cleansing may be repeated without inconvenience. A solution of menthol and camphor in liquid albolene may be easily sprayed through the tube and aristol or other non-irritant powder may be blown into the antrum by the same means. It is imperative to thoroughly sterilize all instruments used, and to use only warm sterilized fluid in each case, to prevent infection.—*The Am. Therapist*, June, 1896.

Clinical Experience with Benzosol.—Concerning this remedy, which is a benzoate of guaiacol, the June issue of the *American Therapist* has a clinical report by Dr. J. V. Kofron of Cleveland, Ohio, which states that he has found the following favorable features: 1, the avoidance of the unpleasant eructations which so frequently occur after the administration of pure creosote or guaiacol, and 2, the liberation of the antiseptic guaiacol in the intestine where its action is especially desired in the treatment of septic conditions of the intestinal tract attended with fermentation. In the treatment of tubercular affections, the administration of benzosol affords a most pleasant and efficient method of obtaining the constitutional effects of creosote without the many unpleasant features of the latter drug. As it is entirely free from unpleasant taste or odor and is almost invariably retained by even a sensitive stomach, one can by this remedy push the dose much higher than when creosote itself is employed. In cases of incipient tubercular phthisis with considerable cough and expectoration, slight evening elevation of temperature, loss of appetite, furred tongue, etc., the administration of benzosol gr. iv four times a day serves to relieve the cough, reduces the amount of expectoration, brings down the hectic temperature, clears the tongue and increases the appetite. Similar results have been observed in cases of chronic bronchitis in which severe cough, profuse expectoration and dyspeptic symptoms have been predominant features. Very surprising to me have been the results obtained from the use of benzosol in the treatment of cases of tubercular diarrhea, in which the remedies usually administered proved of little value. In intestinal catarrh with flatulency, benzosol speedily and effectually checks undue fermentation, and it also affords a valuable intestinal antiseptic in cases of typhoid fever. In three cases of this latter disease in which this remedy was used exclusively, the following satisfactory results were noted: Temperature never rose above 103, tongue quite clean and usually moist, none of the patients exhibited tympanites or suffered from diarrhea, and none of them suffered from a relapse. "I have been desirous to test the efficiency of benzosol in the treatment of diabetes mellitus, as advocated by von Jaksch, Piatkowski and J. Blake White of New York city, but have not as yet had the desired opportunity. In conclusion, I wish to express my belief that we have in benzosol a valuable substitute for creosote in pulmonary affections, a safe and efficient intestinal antiseptic for the treatment of gastro-intestinal disorders attended with fermentation, and a useful remedy in sterilizing the bowel in typhoid fever."

On the Symptoms and Treatment of Angina Pectoris.—Sir Benjamin Richardson, in his *Asclepiad*, describes this affection as a disease of the sympathetic system rather than as a specific organic change in the heart or its vessels. He says, first, regarding the symptoms, that in the paroxysm the condition is simply terrible. It is in the chest that suffering seems to be concentrated. The chest is, as it were, pierced or transfixed through and through. The breath is held, and, as more than one of the sufferers has expressed it, it is as if the chest were in a vise, one blade of which was on the center of the back and the other on the sternum at its center. The chest feels as if it were filled and dilated with air which it is impossible to expel. The chest, in fact, can not be emptied, neither can it be

dilated or filled; and the coldness of the surface of the body, the whiteness and the fixity of the features, the condensation of water on the brow and running down the cheeks and the apparently rigid state of the limbs, all testify that there is no true breathing power. Yet it is not asphyxia that presents itself; it is rather syncopal unrest; and, indeed, there appears to be no exhaustion of air or any change for the better until there is a certain degree of relaxation of the diaphragm and of the muscles of the intercostal spaces. As to the treatment, nitroglycerin and nitrate of amyl, made into a mixture, so that it could be taken by the stomach slowly, he thinks, gives better effects than when it is inhaled, because when it is swallowed it seems to act favorably on the whole course of the sympathetic nervous system. As a mixture he has usually combined it with glycerin, putting 3 minims to a dram of glycerin, adding 3 drams of water and ordering that quantity, diluted further with an agreeable quantity of water, to be taken at intervals in the course of an hour. The effect of either of the remedies described above is, he says, often strikingly beneficial. Their action is to take off blood pressure and relax the arterial system, so that blood can flow more readily through the lungs, through the heart and through the general circulation. He fears neither remedy exerts a true curative action, for if it did we should really cure, whereas, as a rule, we only give relief.

Roentgen Photographs of Vesical and Renal Calculi.—D'Arsonval presented at the meeting of the Académie de Médecine, June 2, some Röntgen photographs of calculi taken by Gaiffe for Dr. Lavaux. In their experiments reported last February, they announced that it was possible to distinguish between the silhouette cast by a calculus and that cast by a rib, which was confirmed later by Chappuis and Chauvel. But these latest photographs possess an importance which will be readily recognized as they demonstrate that it will soon be possible to diagnose calculi in the urinary passages with absolute exactness. They not only show the existence of a calculus in the bladder, kidney or ureter, but it is possible to distinguish the substances of which it is composed, whether it is homogeneous or formed of different layers, whether the kernel is small or large and of what it is composed. The most interesting photograph from this point of view showed: 1, the silhouette cast by a calculus of pure uric acid; 2, that of a calculus the same size as the first, but composed exclusively of phosphate of ammonia and magnesia; 3, that of a calculus much larger than the others, formed of several distinct layers of uric acid in the center, with an outer layer, 4 mm. thick, entirely different in color, and composed exclusively of the triple phosphate; 4, the silhouette of a bone 1 cm. thick, and another of the index finger of one of the experimenters. The differences in the depth of shadow in this photograph are so marked that it is impossible to mistake the characteristics and kinds of the calculi. The tiny kernel of uric acid is distinctly visible, while the outer layers of the large calculus are represented by clearly defined rings. A second photograph showed another calculus with a kernel formed of urate of soda, inclosed in an outer layer of the triple phosphate, both very clearly defined in the photograph. A third represented a number of uric acid calculi lodged in the parenchyma of a kidney, one-half of which was 5 cm. thick. The rays passed through this thick layer of tough tissue and the calculi alone showed in the photograph. It will be a very simple matter, therefore, preliminary to an operation, to take the photograph of similar calculi, and then compare them with the results of photographs taken through the patient. This will provide most important points of comparison, as the results differ with each Crookes' tube. A recent special publication states that the indications for an operation vary according as the calculus is of primary or secondary formation. An exact diagnosis thus made preliminary to the operation, will be of great value, especially in the case of elderly persons and "prostatics," to determine beforehand the exact location and composition of the calculi. The progress accomplished in the last few months promises a speedy solution to the entire problem.—*Bulletin de l'Académie de Médecine*, June 2.

Actinomycosis Treated by Iodid of Potassium.—A well-written and laborious essay is one on the above subject in the *London Lancet* for June 6, by Mr. Malcolm Morris. The author is not only the editor of the *Practitioner*, but surgeon to St. Mary's Hospital, and his paper appears as a model of its kind in its care of preparation, in its judicial attitude and its utility to students. By one thing, it may be added, it has a bibliography extending beyond seventy numbers. The case, in brief, which responded favorably to the treatment, had the following salient points: "A single woman aged 59 years came under my care at St. Mary's Hospital on Nov. 18, 1895, with a large swelling over the lower jaw on the left side. About October 10 she first noticed a small nodule behind the ramus; it was just underneath the skin, and in about seven days began to discharge. It was very painful and continued to increase until she came to the hospital. The patient had for the greater part of her life been in service as a housemaid, but for about a year she had made her living as a needlewoman. She stated that she had never had to do with horses, cows or other animals nor with grain, hay or straw. There was no history of a blow or other injury and she could throw no light on the origin of the disease. Her record of previous illnesses showed nothing that could be interpreted as having any bearing on her condition, nor was there anything of significance in her family history. She had a large, dark red, nodular tumor with a sharply circumscribed edge on the left side of the face. It extended from the angle of the lower jaw forward to the corner of the mouth, upward to the zygomatic arch, and downward over the sterno-mastoid for about two inches. On the most prominent part, in the temporo-maxillary region, the surface of the mass was irregularly raised into nodules varying in size from a split pea to a small bean, each having a small opening at the top, the position of which was marked by a yellow bead of pus. On squeezing the nodules a little sero-purulent matter escaped. In this discharge were found firm yellowish-gray granules which microscopic examination showed to be masses of actinomyces or ray fungus. The skin over the whole mass was brawny and reddened. To the touch the swelling at first gave the impression of cartilaginous hardness, but on firm pressure between the fingers it was felt to be elastic. There was no fluctuation. Narrow spurs of infiltration also extended upward behind the lobe of the ear and backward to the posterior border of the sterno-mastoid. A hard lump of the size of a large hazel nut could be felt under the buccal mucous membrane. The structures forming the cheek were infiltrated and firmly fixed to the jaw, especially toward the angle, but the bone itself was not implicated. There were no teeth in either jaw except the left superior external incisor and canine. No enlargement of glands, either concatenate or supra-clavicular, could be felt on the left side of the neck, and there was no evidence of secondary growth. There was no trismus, but the patient complained of great pain, particularly on mastication, and the nodules were tender on pressure. She had a poor appetite and slept badly, but otherwise there was no disorder of the general health. The microscopic examination was conclusive; apart from this, however, the situation and appearances of the swelling were characteristic. The internal administration of iodid of potassium was begun on November 21, when the following mixture was ordered to be taken three times a day: Potassii iodidi, 15 gr.; spiritus ammoniæ aromatici, 20 minims; decoct. cinchonæ ad ℥j. For the first three days after the commencement of the treatment the pain was worse and the discharge was profuse, but after that the good effect was soon manifest. The pain abated, the swelling became paler and softer and began to shrink. After ten days of the treatment only slight traces of the fungus could be discovered in the discharge, which was very scanty. On December 16 the dose of iodid of potassium was increased to 20 gr., and on Jan. 27, 1896, to 30 gr. three times a day. The improvement continued, and, in short, the history of the case from the time the patient was brought under the influence of the iodid was a record of uninterrupted progress toward a cure. Together with the retrocession of the local process appetite and sleep returned and the woman felt better than she had done for a considerable time. At the beginning of February the swelling had nearly disappeared, the sinuses had healed up and only a trace of the disease was left." When last seen (May 28) the patient was well, but was still taking the iodid.

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SATURDAY, JULY 11, 1896.

THE CELLAR IN ITS HYGIENIC ASPECT.

The Legislature of the State of New York has for some time been considering the subject of bake-shops and bakers, the remedial enactments effected having had primarily the interests of the employes in view, with which as physicians we have no especial concern; but incidental to the investigation as to the hours they were required to work (one hundred to one hundred and thirty-two a week, the limit now fixed by law being sixty), it was discovered that one thousand and forty-nine of the one thousand and fifty-nine bake-shops investigated were in cellars, and that in seven hundred and thirteen of these the height from floor to ceiling was less than eight feet; and when it is further stated that six hundred and twenty-three of the number were found to be absolutely unhealthy and *only five positively clean*, it does become a matter with which physicians have most especial concern.

The word microbe has become domestic as well as professional, and parents and children discuss their deadly tiny enemies as glibly as learned professors describe their cultures and death-points. It is the age of the Lilliput and the terror inspired by these diminutive foes makes them indifferent to the visible presence of lusty Brobdingnagians. Theoretical speculations concerning germicides and blind dependence upon disinfectants cause people to forget the simple precautions of common sense hygiene and lose sight of the abundant store of health-preservers and germ-destroyers at hand with no other cost than the trifling labor of admitting them in the shape of air and sunlight.

The ingenuity of civilized man has been but little exercised in the direction of habitable homes for the intelligent product of centuries of education. The masses are gathered into buildings, where everything that can be is being done to enfeeble the inmates and dwarf their offspring, and to this end it seems to matter little what system of house-building prevails or in what locality.

Of all the abominations of modern residences, the cellar or underground basement, which characterizes our old cities, is the vilest. The city of Philadelphia, for instance, is completely undermined by these subterranean, dark, damp, moldy, foul-smelling receptacles for all kinds of household refuse, as well as coal, probably stowed wet, wood in the same condition and perishable provisions. The atmosphere of these murky underground apartments has a characteristic nauseous odor. Excepting a minority in first-class residences, they have either rotting wooden floors or none at all and the walls are the rough, untrimmed foundations of the house, seldom whitewashed or calcimined, and affording myriads of angles for the deposit of dust and molds. Many of these cellars are further contaminated by imperfectly closed and leaking drains and soil-pipes. The writer has in the course of many a sanitary inspection, to which the tenant was abusively hostile, discovered a condition of things, which while cement and whitewash might temporarily relieve, only a heavy fine could permanently remedy.

To the professional man, who is acquainted with the willful blindness of the many to their sanitary interests and their insane dependence upon drugs to nullify the mischief their neglect invites, it is not surprising that they not only allow their own homes to be endangered by a foul cellar, but are indifferent to the existence of other unhealthy cellars with which they have more or less direct relation. The underground bake-shop is an instance. Any passer-by can get a glimpse of the dirty, low-ceilinged hole in the ground, in which bread, cakes, pâtisserie and confectionery are prepared, from materials which have been stored there indefinitely, by unclean men from whose unwashed rags drops the sweat of heat and fatigue into the mixture they are molding. The official announcement that there were *only five positively clean* in over one thousand (1,049) investigated ought to provoke a revolt against any form of underground bakery or confectionery. PROFESSOR VAUGHAN rendered inestimable service to the community by showing some of the unclean ways by which ice-cream becomes poisonous, but is it not really a matter of surprise that any ice-cream manufactured in a cellar daily wet from melting ice and soiled by spilled flour, starch, eggs, sugar, gelatin, milk and other uncertain

ingredients, can be anything but poisonous? It was a wise sanitary advance which placed the kitchen in the uppermost stories of certain hotels and restaurants, but these are few beside the numerous sub-basement kitchens where weary cooks compound their culinary mysteries. The ordeal of fire is assumed to settle the mischief-making power of the ordinary microbe, but his coadjutor ptomaine is not so easily disposed of, and many a savory mess has endangered life, when the abused oyster, clam, lobster, prawn or frog had no prior claim to toxicity.

The investigation referred to showed another source of dirt and disease in the over-crowded underground sleeping-quarters of employes, which they further shared with dogs, cats and other domestic animals and noxious vermin—a state of things repulsively nasty if not positively dangerous. It is bad enough to have your morning roll and loaf of bread delivered by the dirty-handed driver of the baker's cart, but this is trivial beside the possible contaminations during the foul stages of their concoction.

The list of cellar nuisances can be greatly extended. It is the chosen home of the rag-picker and bone-gatherer. The corner grocer keeps his vegetables there which are unsold from day to day. The writer has encountered under-ground meat and game shops; and since the advent of the Italian fruit-peddler, he has made it his storage-place for bananas, grapes and the like, from which he wipes, in his own filthy fashion, the street dust of the day and the mold and mildew of the night to tempt unwary buyers on the morrow.

The alert modern sanitary inspector has no sinecure. Upon the proper housing of the population of a great city depends its vital condition. A local newspaper reporting a young witness in a great murder trial described her as "a typical New York flat-house child. Her face is slender and her limbs fragile. Although she is eleven years old, she could easily pass for eight or nine. Her voice was such a mere shred of articulation that it could not be heard a few feet away," and she was the daughter of a family of the better class, but she slept in a little cell dimly lighted from a shaft or well like others in which so many hundred thousand little children are being slowly smothered. The "apartment" has no cellar, but the same culpable defiance of common sense sanitation develops the typical flat-house child, and health authorities should wage war both upon the contracted windowless bedroom in which little Mary Cunningham was murdered and upon the dark damp cellar of the dwelling-house. An old medical officer of one of the national services, inspecting a large Government Hospital, astonished the junior officers by giving scant attention to the wards on which they had devoted so much time of preparation, while he pried into every corner of the basement and every cranny in the attic, and when they expressed their disappointment that he had only glanced at the especial objects of their pride, he said to them, "when the cellar and garret are in good condition, there need be no doubt about the rest of the building." Garrets are as apt to be neglected as cellars, but the greater inconvenience of access in a measure protects them from becoming receptacles of perishable articles and their very elevation secures better hygienic conditions. The cellar is the chief pestiferous site and the health officer should see that decayed flooring is replaced by cement, that the walls and ceilings are scraped and then thoroughly and repeatedly white-washed, that all leaking drains, soil and water pipes are repaired, that every destructible accumulation is removed, that the cellar-doors and other apertures are wildly opened in clear weather, and that when industrial occupations are permitted in them by law (and the effort should be made to reduce these to a minimum) they should be subjected to the most thorough weekly inspection, and the rigorous imposition of penalties upon landlords and tenants for neglect to remedy the nuisances reported. Perhaps the most effective way of having sanitary defects properly removed is for the health department to do the work required as it should be done by its own employes, the cost being charged to the delinquent owner or occupant.

THE HEMATOZOA OF MALARIAL FEVERS.

When LAVERAN in 1881 announced the discovery of a malarial hematozoon which in its full development was as large or larger than a red corpuscle, decorated with pigment granules often arranged in the form of a corona, and provided with flagella which stirred the neighboring blood discs by their oscillations, the medical world was probably more amused with the announcement than impressed with its value. Beside the perfected micro-parasite this French army surgeon described and figured a crescentic or banana shaped form which he considered an imperfect development, and oval or spherical, non-fillamented, degenerative or cadaveric forms, all containing pigment granules loosely scattered or variously aggregated. When it is remembered that HESCHL in 1850, and PLANER and FRERICHS in 1854, described pigment granules in the blood of malarial cases and noted their aggregation in cells or in small masses bound together by a hyaline connective it seems surprising that so little effort was made to verify LAVERAN'S observations. At the time, however, every trained microscopist was looking for the *bacillus malariæ*. KLEBS and TOMASSI-CRUDELI were credited with having found it, and as the likelihood was considered to be all in this direction, LAVERAN'S work was undervalued. He was credited with having mistaken degenerative characters in the blood corpuscles for phases in the life history of a hematozoon. In 1882 RICHARD came to his support

with observations on Algerian remittents, and three years later MARCHIAFAVA and CELLI in Italy, and COUNCILMAN and ABBOTT in this country, verified many of the observations. About the same time GOLGI, in studying quartan agues, discovered in the red corpuscles colorless plasmic bodies which as they grew larger became dotted with melanotic particles. He found that in a short time the normal constitution of the invaded red corpuscle became lost in its transformation into a colorless globule containing pigment. The dark particles became aggregated in the center and the colorless plasmic substance underwent fission in lines radiating to the circumference. The resulting segments or cellules, together with the central pigment, were then liberated into the current of the blood, and when this stage was reached a febrile paroxysm was imminent. After GOLGI's announcement the subject attracted general attention and the existence of LAVERAN's organism was acknowledged.

The latest study of the *Plasmodium* comes from the Medical Clinic of the Johns Hopkins Hospital as "an analysis of 616 cases of malarial fever with special reference to the relations existing between different types of hematozoa and different types of fever, by WILLIAM SIDNEY THAYER, M.D., and JOHN HEWETSON, M.D." These investigators describe and figure three types of micro-parasite, one associated with tertians, a second with quartans, the third with estivo-autumnal fevers. In their observations a clean cover-slip was brought lightly in contact with a drop of blood from the lobe of the ear. It was then placed on a perfectly clean slide and pressed gently to have the corpuscles spread side by side between the two surfaces.

In tertian ague a small hyaline body is found in the interior of the red corpuscle. It is actively ameboid, changing from a disc to a cross or star and sometimes to a ring by the fusing of pseudopodia. In a short time pigment granules, also having an active motion, appear in its substance, and the latter continues to increase until it fills and distends the shell of the red corpuscle. The pigment meanwhile collects in the center and segmentation by striation of the protoplasm takes place, the segments apparently becoming the small hyaline bodies which invade the red corpuscles for a new cycle of growth. Often the plasmic mass escapes from a ruptured cell before the segmentation is perfected. This parasite requires about forty-eight hours to complete its development, and is associated with relatively regular tertian paroxysms lasting ten or twelve hours, and usually presenting the classic stages of chill, fever and perspiration. Infection with two groups of tertian organisms maturing on different days gives rise to quotidian paroxysms.

In quartans the hyaline bodies are smaller than in tertians, but they are more refractive, the ameboid movements slower, and the pigment granules larger, darker, motionless and generally peripheral, but sometimes star-shaped and central. Ultimately the red corpuscles become filled, but not enlarged as by the tertian organism, and segmentation follows as described by GOLGI. A period of about seventy-two hours is required for this development. Infection with two groups causes a double quartan with intermission on the third day; with three groups a quotidian. In both of these forms some of the full grown organisms become flagellate or vacuolated as described by LAVERAN. The nature of the flagella has not yet been determined. Their discoverer considered them appendages of the perfected organism; later observers regard them as degenerative.

The organism of estivo-autumnal fevers when fully developed is rarely half the size of the red corpuscle. During its growth crenation of the corpuscle, brassy color, retraction of hemoglobin, and sometimes central aggregation of pigment are found; but probably the greater part of the development, including the segmentation, is carried on in the spleen and other internal organs. The cycle of development lasts from less than twenty-four to more than forty-eight hours. After the infection is five to seven days old the ovoid and crescentic bodies observed by LAVERAN in the remittents of Algeria are discovered. Quinin has less power over these than over the other forms. The Johns Hopkins investigators are satisfied that the crescents represent a very resisting form of the organism and that they may develop into the flagellate forms. Further observation is needful to determine their significance.

The presence of the plasmic bodies in the blood has been generally acknowledged, but occasionally there arises an investigator who questions their accepted meaning and denies their parasitic nature. The latest of these objectors is Surgeon Lieutenant-Colonel E. LAWRIE, who has been studying the subject at Hyderabad. From similarity of appearance, he considers the white blood cell of the frog to be the escaped nucleus of its red blood corpuscle, and he therefore concludes that the leucocytes of human blood are the nuclei of red cells liberated in the spleen by its blood forming action. The theory which he builds on this assumption, is that the spleen in its disabled condition in malarial disease is unable to turn out perfected non-nucleated red blood corpuscles, and that the plasmic bodies are merely the embryonic, or nucleated, corpuscles which escape from it into the general circulation; the plasmodium being, therefore, not a cause but a consequence of malarial fever.

The form in which these organisms exist outside the body, as in malarious soils, water or air, and the mode or modes of their entrance into the human system are wholly unknown. LANCISI and MCCULLOUGH explained the causation of malarial diseases on the theory of a miasmatic exhalation which disorganized the blood. Our modern researches recognize the disorganization of the blood, but call for a specific

entity as the cause. Investigation into the influence of the ameboid forms, so common in marsh waters on the corpuscles of living blood, appears to be now in order.

SIR HENRY HALFORD AND THE REVIEWER.

Noticing DR. WILLIAM M. MUNK'S "Life of SIR HENRY HALFORD," who was by his enemies dubbed the "Eel-backed Baronet" on account of his deep and oft-repeated bows, the *Saturday Review* (June 13) recalls the story told by MR. BRANSBY COOPER, in his "Life of SIR ASTLEY COOPER," of SIR HENRY'S three profound formal bows to LORD LIVERPOOL when he entered the room in which his lordship was lying on a sofa, utterly insensible, under the attack of apoplexy, from the effects of which he eventually died. The *Review* says that he seems to have contributed nothing to the science which, after all, lies behind the practice of medicine; he relied chiefly on his soothing manners and on what he delighted to call the *vis medicatrix naturæ*, and, in nearly every respect, he might be taken as the "glorified example of the successful medical tradesman." On the other hand, in one respect his profession remains indebted to him; during the long period that he served as President of the College of Physicians he labored hard and successfully to further the dignity and advantages of that great corporation. He was physician to four successive sovereigns, GEORGE III., GEORGE IV., WILLIAM IV., and QUEEN VICTORIA. For twenty-four years he was President of the Royal College of Physicians. In the first year of his practice his professional receipts amounted to £220. They increased annually, and in 1809, his eighteenth year of practice, they reached £9,850, thereafter always exceeding ten thousand a year.

We presume the *Saturday Review* has some good authority for the assertion that SIR HENRY HALFORD was the court physician mentioned by BRANSBY COOPER, but that writer does not say so. The exact quotation is as follows: "He had been seized with a fit of apoplexy while at breakfast. I felt his pulse, and was at once convinced of the necessity for bleeding, and I immediately bled him. He seemed somewhat relieved, for the pulse was less labored, but he did not speak. Shortly after this operation had been performed, one of the court physicians entered the room. He at once made three profound formal bows to LORD LIVERPOOL as he lay senseless on the sofa, to which we had now removed him, and then, turning to me, asked if I were aware of the grave responsibility I had taken upon myself in bleeding the Prime Minister of England before his arrival. I replied that I thought I should have incurred a far greater had I hesitated in doing that which was evidently necessary, and further that I had the sanction and support of DR. DREVER[1] for my conduct. He seemed, however, but ill pleased at what he considered a want of proper courtesy toward himself."[2] The action of the court physician toward MR. COOPER, which was evidently the occasion of his record of the bows, is easily explained when we recall that SIR ASTLEY COOPER had been summoned, and being absent, his nephew, BRANSBY COOPER, then an unknown young man, responded. It must have been a shock to one so long accustomed to the punctilio of the court. It is by no means clear from the record that SIR HENRY, if indeed the court physician mentioned was SIR HENRY HALFORD, was aware, on entering the room, of the comatose condition of the Premier. At any rate, it is a curious instance of the democratic tendency of the times, when we see a tory publication make bold to pillory a man seventy years after his death for an observance of the ordinary etiquette of the earlier half of the century.

SIR HENRY HALFORD was one of a very distinguished family of brothers, the sons of DR. JAMES VAUGHAN, a physician of Leicester. This gentleman had his sons educated with peculiar judgment, and expended his entire income in so doing. It is mentioned that not one of them asked or received further pecuniary assistance from the father after finishing their education and commencing their efforts in providing for themselves. HENRY VAUGHAN was graduated B.A. at Oxford in 1788 and M.D. in 1791. He had acquaintances and friends enough to borrow £1,000 on coming to London, and in 1793 was appointed physician to Middlesex Hospital, and was elected a Fellow of the College of Physicians in 1794. Such were his talents and abilities that at twenty-seven he was appointed Physician Extraordinary to the King. Having inherited a large property on the death of the widow of SIR CHARLES HALFORD, his name was changed from VAUGHAN to HALFORD. His skill in practice was acknowledged by his contemporaries, although no one ever claimed for him the merit of original discoveries. There are many physicians of exceeding skill and learning who are not discoverers, and few of large practice have the time to devote to path-finding. As an orator, he may without question be given the highest rank of any British physician, and in elegant literature he has had few superiors. His orations were models of elegant Latin, particularly the Harverian oration, delivered October, 1800, showing the connection between literature and medicine, and touching with pleasing reference the most illustrious characters of British medicine from LINACRE to WARREN. The stately oration in dedication of the new building of the Royal College of Physicians has the stamp of genius, and no one can read the scholarly essay "On the influence of some of the diseases of the body on the mind" without becoming deeply im-

[1] Lord Liverpool's family physician.

[2] Life of Sir Astley Cooper, Bart., by Bransby Blake Cooper. Vol. II., p. 222.

pressed with the innate goodness of the man and his amiability.

The sneer of the modern reviewer can not now seriously disturb the record of the life of one whose long and useful career was so many years connected with that of the Royal College, and to whom, if for nothing else, the modern medical man is indebted for a type of medical man distinguished above his fellows for deep learning, eloquence, wisdom and that politeness which comes from natural amiability and sweetness of temper.

COMMITMENT OF THE INSANE IN THE STATE OF NEW YORK.

On July 1, the new law, or codification of laws on the above subject, that was enacted by the Legislature of 1896, went into effect. It has generally been felt that that law handed the insane over bodily to the politicians; but the enactment is apparently thought by the Commissioner in Lunacy to be less malign in its probable future operation than has appeared at first sight. He hopes for the best; but it is probable that he will soon feel "the clutch of the ring." Under the new law, the procedure for commitments will be, in brief, as follows:

Application for the commitment of an alleged insane person may be made by any person with whom such insane person may reside or at whose house he or she may be, or by his or her father, mother, husband, wife, brother, sister or child or other next of kin, or by the superintendent of the poor of the county, the commissioners of charities of the counties of New York and Kings, or the overseer of the poor of the town or city wherein such insane person may be. The procedings are to be initiated by a petition of the applicant containing a statement of the facts upon which the allegation of insanity is based, signed and verified by him, to which must be annexed the certificate of lunacy executed by two legally qualified medical examiners. Such papers must then be presented to a judge of a court of record. *i. e.*, a justice of the supreme court, a county judge, a surrogate, or certain judges of city courts which are declared by statute to be courts of record.

Notice of the application should be served personally upon the alleged insane person, and if made by a county or municipal officer, upon the husband or wife, father or mother, or next of kin, if there be any residing within the county, of said person. *The judge may dispense with such personal service, or direct substituted service upon some person named by him.* In such case the judge is to attach to such petition a certificate, stating his reasons for dispensing with personal service, or if substituted service is directed, the name of the person to be served. The commissioner says:

"It is not expected that the examiners will do more than properly fill out the certificate of lunacy, as has been the custom heretofore, and the new form of certificate is substantially the same as has heretofore been in use. The examination must be made by two qualified medical examiners, jointly, and the certificate must be executed and dated upon the day of such joint examination. *The order of commitment must be granted within ten days from the date of the certificate.*

"The petition, the certificate of lunacy, and the various necessary orders, are printed as one form, and will be known as form 472 of the forms of the State Commission in Lunacy, and in ordering blanks it will only be necessary to refer to this form number. The parts of this form, five in number, while they are bound together, are so arranged as to permit of the insertion of additional papers of reference when required, and care should be taken that the page and line where matter is to be inserted are carefully indicated.

"It should be noted that the law requires that the petition and all the papers relating to the commitment of an insane person must be made *only* upon forms prescribed and furnished by the commission.

"It is respectfully suggested that in proceeding under the new statute it should be carefully read and its contents understood before final action is taken, and attention is particularly called to Section 60, of Chapter 545, Laws of 1896, which among other things provides as follows: No idiot shall be committed to or confined in a State hospital."

AN IMPERFECT LIST.

In the May–June issue of the *Bulletin* of the Johns Hopkins Hospital there is given what should be a very useful list of the scientific medical journals in public and private libraries in Baltimore. It includes besides medical journals a large number of scientific publications which are, as the compiler says, "somewhat remote from scientific medicine and biology," and omits many medical journals. In fact it is much fuller as regards foreign than American journals, and here it is open to criticism. A list purporting to be that of the "scientific medical journals," by wilful or inadvertent omission of certain journals that ought to be available in series in Baltimore libraries, while including others no better entitled to the term scientific, is open to the accusation of making invidious distinctions. Certainly some of the less than thirty existing American medical journals here included are no better entitled to be designated as scientific than a large number of those omitted of the series ought to be found in Baltimore libraries.

The phrase "somewhat remote from scientific medicine" covers the astronomic and mathematic publications included in the list, though the adjective "altogether" would have been more appropriate. The numerous natural history and physical publications may have a remote relation to medicine or may contain articles of some medical interest, and their appearance here is less objectionable.

The list is interesting, not only for its omissions of American medical journals, but also on account of

some of the European deficiencies. There is, aside from transactions, etc., a notable dearth of Italian and Scandinavian literature, and some special and general journals of note among the German and French publications are lacking. Such deficiencies are of course of less consequence in Baltimore, only forty miles away from the great medical library of the Surgeon-General's Office, but one can not help noticing them, if they occur in a city that has so many claims to be considered a center of medical learning and progress. It is probable, however, that the list is incomplete and will very soon need thorough revision; but as an experiment it is useful and suggestive. It would be well could it be followed by other similar publications of the resources of other centers in medical literature, more carefully and discriminatingly prepared and covering a wider field, including not only the foreign periodicals but a full series of those published in this country. There are undoubtedly some American medical publications of only moderate scientific interest, but there are many more than seems to be recognized at Baltimore that are indispensable to a reference library with any claims to completeness.

CORRESPONDENCE.

The Pan-American Medical Congress.

TOPEKA, KAN., June 27, 1896.

To the Editor:—Only yesterday my attention was called to the very invective letter under caption of the "Second Pan-American Congress," written by David Cerna, M.D., Ph.D., and published in the JOURNAL May 30. I have been a reader of the JOURNAL for a number of years, but by some coincidence I failed to notice this strange correspondence and was in blissful ignorance of all that had been written about me and my paper. One would suppose that I was guilty of some awful crime committed over two years since from reading this unkindly letter. The editor of the *Kansas Medical Journal*, published in this city, had requested me to write an editorial regarding the Pan-American Medical Congress, and when I handed the copy to the editor he kindly referred to the Cerna letter and asked if I had seen it. Had it not been for this coincidence I would probably not have seen it.

This is my first experience in public notoriety and I do not take very kindly to this method of getting my name before the public, but when a man, claiming to hold important positions in the profession, writes for publication such an article of unkind innuendoes without quoting a single word that I had written regarding my friends in Mexico, it is certainly my duty to at least acknowledge having carefully perused said letter, and perhaps ought not to give it any further consideration. However, when such grave charges as are found in this verbose letter, are made against a member of the profession, and not a word of information relative to the alleged crime, what answer can one give? The excuse made that space would not permit him to quote any part of my paper is the most unkind hit of all. Justice to myself would demand that the entire paper referred to be republished and furnished the profession, that they might judge for themselves regarding the enormity of the crime committed, but I will only briefly refer to some of the most emphatically incorrect points. Before doing this, however, I wish to preface this by saying that I have been appointed by Dr. Liceaga, and also by Dr. C. A. L. Reed, to act as vice-president for Kansas for the Second Pan-American Medical Congress. I accepted the appointment and this explains the editorial which I will again refer to in this letter.

I spent nearly three years in the Republic of Mexico, and I wish to say they were three years of great pleasure. During most of this time I held an official position, which brought me prominently in contact with the best people of Northern Mexico, and I have never had cause to complain of the constantly courteous, and I might say universally considerate, treatment of the rich as well as the poor people of that country. More than this, I have never, by written or spoken word, desired to convey to any one, that the Mexican people are not the most courteous and kindly in the human family, not even excepting our Southern neighbors. In this paper so kindly (?) referred to by Dr. Cerna, I had only the highest praise for the Mexican physicians as gentlemen and as scholars, and only spoke of their methods in the treatment of patients as being in many respects entirely different from our way of doing and jocularly referred to their easy-going habits and, perhaps, careless customs, but in every instance only brought out these facts to illustrate some thought. What I said was true, David Cerna, M.D., Ph.D. to the contrary notwithstanding. Having on several other occasions spoken in public of the kindliness of their people, it was but fair to history and fair to the profession of that country and ours, to speak of some features of the practice on that side of the Rio Grande which had not been before mentioned by any one, and I can assure my Mexican friends that it never occurred to me that I was not treating them in all respects fairly. I took that particular aspect of the subject which, perhaps, was not the most pleasing one, but with no intention of doing any one harm.

I have never had the pleasure of the acquaintance of David Cerna, M.D., Ph.D., but trust that I will meet him in Mexico, and feel assured from my slight knowledge of men and things, that he will fail to find me quite the wild and woolly animal that he has so invectively pictured me to be. Dr. Cerna's tactics in dragging Dr. Warfield into the controversy regarding the Pan-American Medical Congress, because the doctor found it served his purpose in writing a paper on "Typhus Fever of Northern Mexico," to speak of the habits of some of the people of that country, is absolutely reprehensible. Dr. Warfield can defend himself, if he should need any defense, but I do not think he does, as he told the truth, and any one doubting his statements may satisfy himself by a personal contact with the lower class of Mexican people. What has this fact to do with the success of the coming Congress? What has been said of Mexico may truthfully be said of other peoples, and of our own, under some circumstances.

In an article published in a monthly periodical which has an extensive circulation in Mexico and the United States, writing under the caption of "Mexico as a Field for Physicians and Surgeons," I had this to say of the country and people; "Never before in the history of this country have such opportunities been offered for the investment of money and the building of permanent homes by foreigners, as at the present time. Much may be said in explanation of this statement. Suffice it to say, that there are two special reasons for this happy condition of affairs: First, nearly every part of the republic has most magnificent railroad accommodations and telegraphic facilities, making the country completely civilized, and giving its inhabitants every modern accommodation for travel and communication; secondly, the government of Mexico, with that magnificent statesman and philanthropist, President Porfirio Diaz, and his loyal cabinet, who so ably manage the general government, together with the judiciary, among the most scholarly to be found anywhere on the continent, to say nothing of the governors and other officers who are loyal to their country, make this one of the most stable and law-abiding republics under the sun.

"The Mexican people are extremely confiding in their natural disposition, and at the same time they must be entirely satisfied regarding the sincerity of people who are strangers before complete confidence can be secured. In other words, they are very sagacious and discreet, making it necessary for physicians locating in any part of their republic to so conduct themselves that the poor as well as the rich may have no cause to question their good intentions. *In all the cities and larger towns may be found a sufficient number of native physicians to meet every ordinary demand. Many of these physicians are very scholarly and in every way competent to treat successfully the diseases prevalent in that country.* The requirements in their colleges are far in advance of American colleges, so far as the number of years of attendance is concerned. There is, however, an inexplicable fascination which takes possession of the people of that country in favor of foreign physicians, who have established a reputation for unusual skill, both in the practice of medicine and surgery. There has been a very serious prejudice on the part of the more educated against American physicians, but it is rapidly disappearing, the result of the marked advancement on the part of our medical colleges in the past few years."

The foregoing does not sound much like the "bear" Dr. Cerna would make you believe that I am. In the editorial, written before I saw Dr. Cerna's correspondence, and which will be published next week, I have the following to say:

"Dr. Milo Buel Ward of Topeka has received the appointment by both the American and Mexican authorities of the Pan-American Medical Congress, of vice-president for Kansas, and has been furnished a liberal supply of literature to be distributed to any who desire to contribute a paper or attend the meeting, which will be held in the City of Mexico, November 16 to 19, of this year. This literature includes special and gen- and regulations and appointment blanks, and will be of value and interest to all who intend to contribute or attend the meeting. Dr. Ward will gladly supply these papers to all who desire them. This Congress will be a meeting of medical men of great renown from all parts of America and should be attended by every lover of his profession who can possibly go. The extremely polite and ever courteous Mexican insures to all who attend this great meeting a most delightful entertainment and an ever to be remembered pleasant occasion. No one can appreciate the painstaking courtesy of the Mexican people and their ability to make the stay of their friends pleasant and highly enjoyable, unless they visit that country and learn these facts from personal intercourse with them.

"There is no doubt whatever but the second Pan-American Medical Congress will be one of the most enjoyable and profitable meetings of the medical profession which has ever been held on this continent. Kansas should certainly have a liberal number of representatives at this meeting, and the *Kansas Medical Journal* urges the members of the profession throughout the State to at once notify Dr. Ward if they will furnish a paper or attend the meeting. It is desirous on the part of the General Executive Committee that all who are planning to go shall notify them through their local vice-president, in order that the Executive Committee in Mexico may plan to entertain their visitors. Let us again urge our readers to act promptly and decisively regarding this important matter, that our great State with its large number of prominent and active workers in the medical profession may have honorable representation at the second Pan-American Medical Congress."

No further reply to the unkind accusations of David Cerna, M.D., Ph.D., seems to me necessary. I am very fond of that country and admire the intelligent, educated Mexican very much and expect to attend the Congress, and feel assured that my time will be pleasantly and profitably spent, and that all the members of the profession who can find it possible to attend will be repaid for the time and money spent.

Respectfully, MILO B. WARD.

Location of Journal.

CHICAGO, ILL., July 1, 1896.

To the Editor:—I wish to change my vote to Washington, D. C., for the reason that, having maturely considered the subject, I am of impression that the JOURNAL would gain a great deal by being published where its editorial rooms might be in close proximity to the Army Medical Museum, the great Army Medical Library, and the Smithsonian Institution. Financially, as I notice from the advertising columns, the principal support of the JOURNAL comes from east of the Alleghanies, I do not see that the ASSOCIATION would be any worse off; beside that, the editor might have the advantage for the ASSOCIATION of the bright writers of the many scientific departments of the Government, in addition to those now upon the staff; beside that, the power and influence of the ASSOCIATION in the matter of medical legislation would be very much greater with the JOURNAL published at the Capitol, where copies could be sent to members of committees of the House and of the Senate. It seems probable that but a short time will elapse before the ASSOCIATION will be compelled to have a standing committee on Congressional bills, like the British Medical Association, which now has a standing committee on Parliamentary bills. It must be obvious that in the neutral ground of the Capitol the JOURNAL could develop its greatest strength easier and more conspicuously than in any other city. As it can never be a local journal owing to its very nature, and as it is not in competition with local journals, it is all the more necessary that a neutral place of publication be selected. For these reasons, I wish my vote changed from Chicago to Washington.

E. J. DOERING, M.D.

Apply the Baconian Method.

DENVER, COLO., July 3, 1896.

To the Editor:—In the name of scientific medicine I feel it to be a duty to protest against the promulgation of such ideas as those advanced under the heading "Lycopersicum Cardiopathia" in the issue of the JOURNAL for June 27. In this article three pages of theory are offered us without, so far as I am able to find by careful examination, any facts whatever as a basis. In the first place, the substance which produces such dire results, acidum lycopersicum, is not mentioned by either Gould, Dunglison, Fowne, Roscoe and Schorlemmer or any authority that I have consulted, while the article itself gives no further proof of its existence than the bare statement that it has been found in the tomato.

I submit that a single case, carefully observed and recorded, of any disturbance of any kind, if such ever existed, from the ingestion of this universally used article of food, would be worth infinitely more than pages of mere theoretic twaddle as to the effect of the acid with the long name. I doubt if any ill effects have ever been noted, by any competent observer, from the use of the tomato, other than may be accounted for by ordinary indigestion, fermentation, or personal idiosyncrasy. It is time for some one to call attention most vigorously to the point that we will make of medicine more nearly an exact science only by collecting facts and reasoning from them, or, in other words, by following the methods pointed out by Bacon, adherence to which methods has been the *sine qua non* of progress in all branches of scientific knowledge since his time.

If I speak warmly, it is only because I feel that the occasion calls for vigorous denunciation of such pseudo-science.

Yours very truly, J. N. HALL, M.D.

Multum in Parvo.—Dr. J. P. Crozer Griffith reports a case of varicella gangrenosa, diphtheria, rubeola and varicella existing at the same time in a child aged 22 months, admitted to the Children's hospital of Philadelphia.—*Med. and Surg. Reporter*, June 27, 1896.

PUBLIC HEALTH.

Health in Michigan.—Consumption was reported present in June at 208 places; measles at 78 places; scarlet fever at 49 places; typhoid fever at 43 places, and whooping-cough at 36 places.

Street Noises Injurious to Health.—It is stated on the authority of prominent physicians that nervous disorders in New York City are on the increase. Unnecessary street noises are believed to be responsible in a great measure for this condition.

Medical Examiners Appointed.—Gov. Lippitt of Rhode Island has appointed new medical examiners as follows: Dr. Jay Perkins for Providence, Dr. R. G. Reed at Woonsocket, Dr. Charles H. French at Pawtucket, Dr. Nelson Reed at Warren, Dr. John Winsor at Anthony.

Health of New York State.—The monthly bulletin of the State board of health shows the total number of deaths for the month was 9,541, which is an average of about 308 a day. The prevalence of diphtheria has slightly increased, but is confined to the maritime districts. But one death from smallpox was recorded and that was from New York city.

Wisconsin State Board of Health.—The semi-annual meeting of the State board of health was held June 24, at Milwaukee. Dr. Solon Marks is president, and U. O. B. Wingate, secretary. An analysis of the water at Ashland is being made every day by the health officers for the purpose of showing the efficiency of a new method of filtering and the results show a steady improvement.

Typhoid Fever in Plymouth, Pa.—The number of typhoid fever cases in Plymouth is growing alarmingly large, and fears of another epidemic, such as visited the town in 1885, are being entertained by a number of people. The memories of that time are still fresh in the people's mind, and it is no wonder that they dread another such visitation—a visitation that made a hospital of the school house and brought weeks of suffering and death to many homes. There are now in that town upward of twenty-five typhoid cases.

Smallpox and Yellow Fever in Cuba.—The report to the Surgeon-General of the Marine-Hospital service from the United States Sanitary Inspector at Santiago, Cuba, is that smallpox is raging epidemically, and the cases, which can be counted by the hundreds, are increasing daily. "Malarial affectionsof the most deadly character are very common, especially the remittent and pernicious form." From Sagua la Grande the report is that yellow fever is on the increase among the troops at that point. Cienfuegos reports forty deaths from smallpox and increasing yellow fever for the week.

Ireland's Unapproached Record for Legitimacy.—The *Scalpel* for May refers to the low birth rate of Ireland as being partly due to the large emigration of able-bodied adults. Of the children born in 1894, 53,922 were boys, and 51,433 were girls; the predominance of the male sex being thus equal to nearly $2\frac{1}{2}$ per cent. "The chief feather in Ireland's cap is the comparative infrequence of illegitimate births. So great, indeed, is this distinction that the Registrar-General draws special attention to the fact by remarking, somewhat inconsequentially, that 'it is unnecessary to say the proportion compares very favorably with the returns from most other countries.' The illegitimate birth rate for the entire country was 2.7 per cent. of the total, but it varied greatly in different provinces. In Ulster 39 children in each 1,000 were born out of wedlock; in Leinster, 27, in Munster 22; while in Connaught the number fell to one. We are certainly of opinion that, instead of *most*, the official dictum might well have been *all* other countries."

Hygiene Pays.—That public parks in cities are good investments from a sanitary standpoint goes without saying. That they are also profitable as a pecuniary investment is shown in a recent report by J. Clyde Power, landscape engineer, recommending extensions of the park system of Indianapolis. He cites New York as a notable instance of the great increase of value accruing to land in the vicinity of parks. In 1856 the assessed valuation of the three wards adjoining Central Park was $20,429,565; in 1873 it was $236,081,515, a gain in seventeen years of $215,651,950. The natural average increase of three other wards in the city, taken from all the wards, except the ones adjoining the park, showed only $53,000,000, making the earning capacity of the park $183,081,515. In Brooklyn, in 1864, Prospect Park, 515 acres, was acquired and the increase in valuation in three years was 38 per cent.

Annual Quarantine Orders.—In accordance with the quarantine laws authorizing the Surgeon-General to promulgate such additional regulations as may be necessary for the disinfection and detention of vessels from ports suspected but not positively known to be infected with yellow fever, the usual order has been issued. It provides that during the active quarantine season, continuing until November 1, all vessels from ports in the West Indies, on the east coast of Mexico, Central and South America, as far south and including ports in the Rio Platte; ports in Peru, Ecuador, Columbia and on the west coast of Central America and Mexico, arriving at the national quarantine stations, shall be detained and treated in accordance with the provisions of the quarantine regulations for domestic ports.

Dangers from Sewage Farms.—An outbreak of typhoid fever in the village of Wycombe Marsh, Eng., which seems directly traceable to the pollution of a river by the effluent from a sewage farm, leads *Hospital*, June 20, to conclude, first, that sewage farming demands a high degree of skill and care in order that non-poisonous effluents only may be turned into running streams; and, second, that village wells which are in any close contiguity to sewage farms should, if possible, be closed, and an adequate supply of water obtained elsewhere. Civilization must get rid of its sewage; and sewage farms, when scientifically and conscientiously managed, are excellent methods of sewage disposal. But it is probable that in no long time they will have to be submitted to competent periodical inspection by a sanitary authority in order that such calamities as that which has overtaken Wycombe Marsh may, as they ought to, become impossible.

A Scottish Sanitarian's View of the English Disregard for Jenner.—The *Glasgow Sanitary Journal*, for May, says editorially:

"It is a trite saying that the world knows little of its greatest men, and in a very considerable degree that the world has only a short memory for its chief benefactors. The reason is not far to seek. A century after a great danger to public health has been removed, it is difficult to realize the greatness of the danger when it did exist, and the very success of the preventive means is apt to cause forgetfulness of the value of the original benefaction. In Germany, in the present day, vaccination and revaccination are compulsory and smallpox is unknown. How can a German housewife be expected to feel acutely her indebtedness to Jenner when smallpox, to her, is merely a name, and the sore place on her baby's arm is for a day or two a troublesome reality? But in Germany there is a different legislative system from ours. There is an autocracy, not a democracy, and the result is that vaccination continues to be enforced independently of universal knowledge of its benefits. In this country we are under the democracy, and the democracy is apt to have a short memory. Thus it is that within recent years there has been a tendency to decry and neglect the protection against smallpox which was given to us by Jenner. But the very neglect is already resulting in a fresh acquaintance with smallpox, and a fresh appreciation of the value of cowpox. Nowhere in this country has the neglect been so great as in Gloucester, and nowhere in this country has there been recently such a return to the Jennerian practice as in that city, whose cathedral contains a statue of the Berkeley village doctor. He is fortunate in his wisdom who is wise through the experience of others, and in some defaulting districts the Gloucester experience is causing a return to vaccination. A year or two ago in Bristol there was an exhibition of

Jenner relics, and in some important centers of population in both the new world and the old the centenary day of Jenner's first vaccination has been suitably celebrated. It is a curious example of human folly that in the city of Gloucester the celebration should have to take the form of a smallpox epidemic."

Those of us who behold the "celebration" from a safe distance are moved to add: It is a form of poetic justice, the like of which we do not often see!

On the Management of the Tuberculous at Hotels.—The Pennsylvania Society for the Prevention of Tuberculosis, under the presidency of Dr. Lawrence F. Flick, has published some circulars of information for gratuitous distribution. The third tract of the series treats of the duties of hotel-keepers in relation to their infected and non-infected guests. Among the points brought out are the following: The linen, etc., of consumptives should be washed separately and should always be well boiled before being washed. The persons to whom such articles are given to wash should be properly instructed as to what to do in order that they too may be protected. As far as practicable, consumptives in the advanced stage of the disease should be assigned to separate tables, in order that their tableware and linen can be kept apart from those of the other tables and washed separately. All such tableware should be boiled before washing.

"All parts of a hotel or boarding house which are likely to be frequented by consumptive guests should be well supplied with cuspidors in which there should be at all times a germicidal fluid. This fluid should be changed once a day and the cuspidors should be thoroughly scalded with boiling water. In conspicuous places throughout the house and especially in the rooms assigned to consumptive guests there should be notices requesting guests never to eject sputa into any place other than the cuspidor, and suggesting that a handkerchief should never under any circumstances be used for the reception of such sputa where a spittoon is at hand. When out upon the lawn or in any place where a cuspidor is not of convenient access, the sputa should be ejected into paper handkerchiefs, these to be placed, upon returning to the room, in a receptacle furnished for that purpose; such handkerchiefs should not be thrown into the ash bin but burned by the chambermaid. After a room has been occupied by a consumptive, it should be carefully cleansed before another guest is assigned. Where the rules already laid down have been observed, wiping the walls, floor and furniture with a sponge dampened with a germicide solution, whisking the rugs with the same solution and sending the sheets, blankets and pillow cases and counterpanes to the laundry, will be all that is necessary. Where, however, no care has been observed and the consumptive has been careless about spitting on the floor or into linen, silk or muslin handkerchiefs, or where the bed clothing has been visibly soiled with broken down tubercular tissue, it will be necessary to carefully rub the walls with fresh bread and then wash them with a strong germicide solution, to wash the floors and furniture with the same strong solution, to have all the bed linen and blankets thoroughly boiled and to have the rugs and other articles which can neither be subjected to strong germicide solution nor boiled, sent to a renovating place and steamed."

Sensational Statements Regarding Consumption.—In a paper prepared for the recent meeting of the American Climatologic Association and published in the *Boston Medical and Surgical Journal* (June 25), Dr. V. Y. Bowdich earnestly protests against the sweeping statements made as to the contagiousness of consumption and the barbarism and brutality which the laity are thus led into showing in their treatment of the consumptive. He considers the physician who asserts that consumption is "as contagious as smallpox" and that "hospitals for consumptives are a source of danger to the whole surrounding community" is making perfectly unwarrantable statements which can not be borne out by facts; and cites observations made in the communities near two of the largest sanitaria for consumptives in the world, namely, Görbersdorf in Silesia and Falkenstein near Frankfort, to prove that consumption has lessened in amount in the entire population since the introduction of the sanitaria there, largely due to the strict hygienic rules which are used at the sanitaria for the disposition of sputa and which are taught to the inhabitants in the surrounding villages. He admits that it is, doubtless, perfectly true on the other hand, that in various "open resorts" for consumptives where strict methods for the disinfection of the hotels and boarding houses are not enforced the death rate among the inmates from consumption has increased greatly, the most striking cases being those of Mentone and Nice where according to statistics consumption has greatly increased since the places have become such a common resort for phthisical patients, many of whom through carelessness or ignorance become sources of contagion to others. Referring to the experiments of Delepin and Ransome (JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, Vol. XXIV, page 450. *British Medical Journal*, Feb. 16, 1895) with reference to the germicidal effects of various agents upon the bacilli of tuberculosis, exposure to the direct rays of the sun for a comparatively short time prove to be the the most effective. As a result of these experimente Dr. Bowdich thinks "it is certainly a legitimate doubt to come to our minds as to how far we need fear infection from sputa which are expectorated onto the open ground exposed to the full rays of the sunlight. Not that I would relax one iota in the restriction of the disgusting habit (to say the least) of spitting publicly anywhere; it is only a question as to its danger under the condition of exposure to the sun's rays. Thus we have scientific facts to help us in trying to show the laity that the consumptive need not be treated like a leper, or as one affected with the plague, but that moderate measures will prevent his being a source of danger to those about him."

The Bubonic Plague at Hong-Kong, in 1894.—Dr. J. G. Adami in the *Montreal Medical Journal* for June, gives an admirable digest of the five principal essays of Japanese, French and English writers that thus far have appeared on the above subject. The closing paragraphs of Dr. Adami's paper are the following: The Hong Kong epidemic of 1894 has gained for itself a place in medical history, from the fact that during its course the bacillus of the plague was discovered first by Kitasato, and independently, after a brief interval by Yersin, while Lowson and Aoyama have given us the fullest studies yet made of the clinical features and the pathologic anatomy of the disease. We have little or no accurate information concerning the plague in China in early times. It is true that medieval writers ascribed the origin of the terrible Black Death (hemorrhagic plague) to China, but apparently without full cause. It has, however, been known to be endemic in one of the southern provinces, Yunnan, for more than twenty years, as also at Pakhoi, on the southern coast. Early in 1894 it appeared at Canton, causing the death of more than 60,000 individuals in the course of a few weeks. Hong Kong, situated as it is at the mouth of the Canton river, and having a population, in the main Chinese (about 150,000 out of a total of 163,000) became infected, most probably from Canton, and, at the latest, early in May. In June the disease was at its height, and it continued through the next two months. After August, cases were few and far between. Altogether, according to Lowson's statistics, which confessedly do not include all the Chinese cases, more than 2,600 persons were admitted to the hospitals, of whom 2,485 died, an appalling mortality of more than 93 per cent. The Chinese were in the main affected. The mortality among the Japanese (10 cases) was 60 per cent. Among Europeans (11 cases) 18.2 per cent. How many Chinese died unrecorded in their quarter of the town will never be known. Aoyama himself suffered severely from the disease and Lowson gives a full report of his case:

"The disease possessed all the typical characters; numerous dead rats and mice encumbered the infected quarters. After an incubation period of three to nine days, the infected individual became the prey of a sudden intense fever, accompanied

often by delirium, but without noticeable rigor. From the first day of the fever a bubo was noticeable, at first in general solitary, later other glands, situated more centrally, became enlarged. In some of the severest cases death occurred before the bubo had time to develop; in such there were frequent subcutaneous and submucous hemorrhages, recalling the Black Death. In 75 per cent. of the cases (Yersin) the bubo was of the nature of an 'emerod in the secret parts' being situated in the inguinal region, more correctly in the femoral chain; the axillary glands were the next most frequent seat of primary enlargement. The swollen glands attained the size of a hen's egg. Aoyama points out that all the Japanese patients had axillary buboes, and from this fact, and from the centripetal extension of the glandular enlargement, he concludes that infection is most often through wounds of the extremities, the Chinese going barefoot, the Japanese being booted. Lowson, however, points out that all the men of the Shropshire regiment infected had femoral or inguinal buboes, and yet they were well booted—a fact which throws some doubt upon the theory of the Japanese professor. Everything, however, points to the disease being of the nature of a soil infection rather than that conveyed by water, and Aoyama's theory fits in best with the fact that in most cases the disease first manifests itself in a solitary peripheral gland. Inasmuch as necropsies in some cases demonstrated the primary affection of abdominal glands, the possibility of intestinal infection must also be acknowledged. Death occurred at the end of forty-eight hours, frequently sooner. If the disease continued for five or six days the prognosis was hopeful. In such cases the tense buboes became softened and suppurative and relief was obtained by operative discharge of the pus. At autopsies performed upon those dying from this disease, the swollen glands were found to swarm with minute bacilli. These bacilli resemble those found in the hemorrhagic septicemias of the lower animals, the bacilli of chicken cholera for example, staining more deeply at the poles, so that when not deeply stained they appear to be diplococci. They decolorize by Gram's method and grow easily in various media. In preparations made from the tissues they frequently appear as though surrounded by a capsule; grown in broth they often form short chains, and, indeed, the appearance of broth cultures resemble those of the streptococcus pyogenes. Mice, rabbits and guinea pigs inoculated either with material from the infected corpse or with pure cultures die in from one to four days. Pigeons are unaffected. The bacilli are to be found in the blood and spleen, though not in such numbers as in the buboes. Preserved in dried films at 28 to 30 degrees C. they die in four days or so. The action of direct sunlight killed them in a few hours. In mice and other small animals the main features discovered at the necropsy are the development of a reddened edema at the point of inoculation, swelling of the nearest lymph gland or glands with profusion of bacilli, congestion of the kidneys and supra-renals and great swelling of the spleen. In man, as shown by Lowson and Aoyama, the chief anatomic changes are very similar, namely, enlargement of one or more lymphatic glands, due to multiplication of lymphoid cells, surrounding reddened gelatinous edema, some enlargement with softening of the spleen, increase in the number of white corpuscles in the blood. The liver and kidneys are congested with parenchymatous degeneration. There can therefore be no doubt that the causative agent of the bubonic plague has been discovered. In general the descriptions given of the plague contain no reference to infection of cattle, but in Yunnan the destruction of these animals has been a distinctive feature, and Yersin determined the presence of the bacillus in cattle in a most virulent form. Lowson failed to obtain more than local results upon inoculating cattle and pigs, and suggests that the cattle suffer from a disease common in Yunnan and due to a similar microbe, namely, the Rinderpest."

Health Reports.—The following health reports have been received in the office of the Supervising Surgeon-General Marine-Hospital Service:

SMALLPOX—UNITED STATES.

Florida: Key West, July 1 to 5, 7 cases.
Louisiana: New Orleans, June 20 to 27, 5 cases, 4 deaths.

SMALLPOX—FOREIGN.

Athens, Greece, January 1 to May 31, 19 cases, 5 deaths.
Bombay, India, May 26 to June 2, 16 deaths.
Calcutta, India, May 16 to 23, 4 deaths.
Callao, Peru, May 31 to June 7, 7 deaths.
Genoa, Italy, June 13 to 20, 2 cases.
Guayaquil, Ecuador, June 5 to 12, 1 death.
Madrid, Spain, June 9 to 16, 10 deaths.
Montevidio, Uruguay, May 23 to 30, 2 cases.
Odessa, Russia, June 6 to 13, 5 cases, 1 death.
Osaka and Hiogo, Japan, May 23 to 30, 32 cases, 16 deaths.
Prague, Bohemia, June 6 to 13, 4 cases.
Rio de Janeiro, Brazil, May 30 to June 6, 9 cases, 4 deaths.
St. Petersburg, Russia, June 6 to 13, 18 cases, 6 deaths.

CHOLERA.

Osaka and Hiogo, Japan, May 23 to 30, 1 case.
Bombay, India, May 26 to June 2, 12 deaths.
Calcutta, India, May 16 to 23, 97 deaths.

YELLOW FEVER.

Cuba: Sagua la Grande, June 13 to 20, 60 cases, 4 deaths; Cardenas, June 13 to 20, 4 cases, 2 deaths.
Brazil: Rio de Janeiro, May 30 to June 6, 12 deaths.

BOOK NOTICES.

Transactions of the Southern Surgical and Gynecological Association, Volume VIII, Eighth Session, held at Washington, D. C., Nov. 12, 13 and 14, 1895. 8vo, pp. 303. Published by the Association. 1896.

Dr. John A. Wyeth, in his paper, "Dr. J. Marion Sims and his Work," says of that distinguished surgeon: "It is safe to say that Marion Sims attained the highest position ever achieved in the history of our profession. He stood alone in this; his reputation as a surgeon was so world-wide that in any capital, in any country within the domain of civilization, he could command at any time a lucrative practice. Assuredly there does not exist in the history of surgery another such distinction. In New York, London, Paris, Brussels, Berlin, Vienna, Rome, Madrid, Lisbon and St. Petersburg he found himself everywhere sought after, not only by the patients he could benefit, but by the leading members of his profession, who were anxious to pay tribute to his wonderful genius. Born amid the most humble conditions in a backwoods county of South Carolina, he died the foremost surgeon of his country and the world."

NECROLOGY.

THOMAS L. HOUGH, M.D., the senior member of the medical faculty of Elizabeth, N. J., died June 12, aged 68 years. He was graduated from Jefferson Medical College, class of 1856. He was one of the founders of the Union County Medical Society, and a member of a variety of charitable organizations, and has been in the forefront of most of the public-spirited movements of the enterprising city during the past forty years. His funeral was very largely attended by the prominent citizens and officials.

J. L. SELMAN, M.D. (University of Louisville Medical Department, Louisville, Ky., 1882), at Chattanooga, Tenn., June 23, aged 36 years. Dr. Selman was city physician of Chattanooga at the time of his death. The Chattanooga Medical Society held a meeting and passed appropriate resolutions.

JOSEPH T. SCOTT, M.D. (Missouri Medical College, St. Louis, Mo., 1856), at New Orleans, La., June 25, aged 63 years. During the civil war Dr. Scott served as surgeon of the First Missouri Infantry; surgeon in Guibard's Battery of St. Louis, and was chief surgeon on the staff of General Frost of St. Louis, also surgeon in Van Dorn's Cavalry regiment. At the time of surrender, in May, 1865, at Shreveport, he was surgeon in General Dick Taylor's Louisiana regiment. Dr. Scott was a member of the Howard Association, and rendered valuable help during the terrible epidemic of yellow fever in 1878. He was some years ago, a member of the board of directors of the Charity hospital.

GEORGE C. SHATTUCK CHOATE, M.D. (Harvard University Medical School, Boston, Mass., 1849), at Pleasantville, N. Y., June 26, aged 70 years. He was for ten years superintendent of the Massachusetts State asylum for the insane at Taunton, Mass. Thirty-six years ago he established his private asylum

near Pleasantville. It was in this sanitarium that Horace Greeley died.

Arthur G. Kenny, M.D. (Albany Medical College, Albany, N. Y., 1877), of Watervliet, N. Y., at the Troy Hospital, June 25.

T. B. Wiley, M.D. (Rush Medical College, Chicago, Ill., 1874), at Gibson City, Ill., June 30, aged 52 years.

ASSOCIATION NEWS.

Headquarters of the American Medical Association.—According to a resolution adopted at the Atlanta meeting of the American Medical Association, the members are to determine by vote where the permanent home of the Association shall be located. The ballots have now been distributed to the members, who have until July 31 to cast their votes. As soon as the count is completed the result will be announced in the Journal. Members may vote for any place they desire, but it is probable that the choice will be practically limited to either Washington or Chicago. Certainly the former would seem to be the appropriate home for a national organization. The other representative association of the practitioners of America, the Congress of American Physicians and Surgeons, has always held its triennial reunions in Washington, and this society would be wise to follow suit.—*Medical Record.*

SOCIETY NEWS.

The Fourth Annual Russian National Medical Congress was held this year at Kiew and was attended by over a thousand physicians, who discussed various hygienic and social questions as well as the more strictly scientific subjects. The city was *en fête* in honor of the convention, and the general enthusiasm speaks well for the prospects of the International Congress to be held at Moscow next year.

American Public Health Association.—The twenty-fourth annual meeting of this association will be held in Buffalo, N. Y., September 15 to 18. The following topics will be taken up for consideration: "Pollution of Water," "Disposal of Garbage and Refuse." "Animal Diseases and Animal Food," "Nomenclature of Diseases and Forms of Statistics," "Protective Inoculations in Infectious Diseases," "National Health Legislation," "Cause and Prevention of Diphtheria," "Causes and Prevention of Infant Mortality," "Car Sanitation," "Steamship and Steamboat Sanitation," "Transportation and Disposal of the Dead," "Use of Alcoholic Drinks from a Sanitary Standpoint," "Centennial of Vaccination," "Relation of Forestry to Public Health," "Transportation of Diseased Tissues by Mail," "River Conservancy Boards of Health," "Prevention of the Spread of Yellow Fever." The President of the association is Dr. Eduardo Liceaga, City of Mexico, Mexico; First Vice-President, Lieut.-Col. Alfred A. Woodhull of the Medical Department of the United States army, Denver, Colo.; Second Vice-President, Dr. Henry Sewall, Denver, Colo.; Secretary, Dr. Irving A Watson, Concord, N. H.; Treasurer, Dr. Henry D. Holton, Brattleboro, Vt.

Congress of Dermatology.—The third International Congress of Dermatology will meet in London, from August 4 to 8, of this year. The general program has been published in a recent number of the Journal. There will be a museum of drawings, casts, models, naked eye preparations, microscopic specimens, works and atlases pertaining to diseases of the skin. There will also be an exhibition of clinical cases and demonstrations of the same at 9 A. M. and 2 P. M. of August 5, 6 and 7, and at 9 A. M. of August 8. Anyone having anything to contribute to this department, will please address Dr. Jas. Galloway, 21 Queen Anne Street, Cavendish Square, W. There will be an exhibition of cultures and microscopic preparations of organisms connected with the skin and its diseases. Any communications in regard to this department should be addressed to H. G. Plimmer, Esq., Wunderbau, Sydenham, London. The social side of the Congress will be: 1. An informal reception at the International Hall, Piccadilly Circus, on August 3, from 9 to 12 P. M. 2. A reception by the Lord Mayor and Lady Mayoress at the Mansion House, on August 5, from 9 to 11 P. M. 3. A Dinner to the Foreign Members at the Hotel Cecil, on August 7. It is advised that foreigners should arrive in London not later than Sunday, August 2, as Monday the 3d inst. is a public holiday. Information in regard to hotels will be furnished on application to George Pernet, Esq., 77 Upper Gloucester Place, London, N. W.

George Thomas Jackson, M.D.,
Foreign Secretary for the U. S.

International Periodical Congress of Gynecology and Obstetrics.—The date of the opening of the Second International Congress of Gynecology and Obstetrics at Geneva, has been fixed for Aug. 31. The Congress will continue one week, closing Saturday, Sept. 5, 1896. The success of this scientific reunion seems assured. The eminence of the Honorary Presidents, the scientific prominence of the referees and the number of members who have joined, guarantees its success. The sessions of the Congress will take place in the Grand Aula of the University. The first general session, that of the morning of the first of September will be honored by the presence of the President of the Swiss Confederation, as well as the Chief of the Department of Public Instruction of the Canton of Geneva who will inaugurate the Congress by addresses. Morning sessions will continue from 9 A.M. until noon. Afternoon sessions from 3 to 6. The former will be devoted to the discussion of official questions, the latter to other communications. In order to make the first most interesting, the Committee of Organization will endeavor to publish and distribute among the members a synopsis or the "Conclusions" of the Referees. Manuscripts must be delivered to the Secretary at the end of the session at which they are read, and members taking part in the discussion must also present to the Secretary a synopsis of their remarks. An International Exposition of gynecologic and obstetric instruments will be opened during the Congress, and all objects entered for this Exposition should arrive in Geneva prior to August 10, addressed, University, Rue de Candolle, Geneva. Members are advised also that as the Congress coincides with the National Exposition of Switzerland, it will be prudent to engage rooms in advance. For that purpose you may address hereafter: "La Commission officielle des logements ayant son bureau a la gare de Cornavin." Members of the Congress arriving in Geneva without being inscribed can still obtain a membership card, Sunday morning, August 30, and thereafter in the Office of the Treasurer of the University. Ladies' cards will be issued admitting to the receptions and festivities.

PROGRAM.

Monday, 3 P.M.—Reunion of the Permanent Committee and of the founders of the International Congress. At 9 P.M.—Reception at the Palace Eynard.

Tuesday.—Opening of the Congress by President Reverdin. Address by President Lachenal. Addresses by Mons. Richard, Chief of the Department of Public Instruction and Official Delegates. 3 P.M.—Discussion of the First Official Question, viz: "Treatment of Pelvic Suppurations." Referees: Sanger, Kelly, Bouilly. Discussion by A. Martin, Richelot, Lawson Tait, Jacobs, Delettretz, Henrotin, Hartman, Rouffart, Tournay, Henrotay, Desguins, Guilloud, Caromilas.

Wednesday.—Discussion of the Second and Third Official Questions: "Surgical Treatment of the Retro-deviations." Referees: Kustner, Polk and Pozzi. Discussion by A. Martin, Bouilly, Lawson Tait, Jacobs, Edebohls, Gill Wylie, Henry Byford (Chicago), Delettretz, Stepfer, Paul Pettit. "Most

Successful Method of Closing the Abdomen." Referees: Granville Bantock, La Torre. Discussion by Messrs. Martin, Lawson Tait, Richelot, Jacobs, Edebohls, Gill Wylie, Byford, Delettretz. 3 P.M.—Miscellaneous papers.

Thursday.—This day will be entirely devoted to promenade on the Lake at Vevay and excursions to Montreux-Chillon. Special program will be distributed indicating the details of this excursion.

Friday.—Discussion of the Fourth Official Question: "Relative Frequency and Most Common Forms of Pelvic Contractions in Different Races, Groups of Countries and Continents." Referees; Fancourt Barnes, Dohrn, Fochier, Kufferath, Lusk, Rein, Pawlick, Pestalozza, Treub. Discussion to be opened by Berry Hart. 3 P.M.—Miscellaneous papers.

Saturday.—Discussion of the Fifth Official Question: "Treatment of Eclampsia." Referees: Charles, Charpentier, Halbertsma, Veit, Mangiagalli, Parvin, Byers. Leaders in discussion: Tarnier, More Madden, Lindfors, Godson. 3 P.M. —Miscellaneous Papers. 5 P.M.—Closing Business Session. 8 P.M.—Final Subscription Banquet.

Sunday.—Various Excursions, International Regattas, Fireworks, etc. President, Auguste Reverdin; Secretaries, Gynecology, Dr. C. Betrix; obstetrics, Dr. Cordes.

The General Secretaries are: Dr. Betrix, for Gynecology; Dr. Cordes, for obstetrics; Treasurer of the Committee, Dr. Bourcart. Secretary General for North America (through whom all correspondence and business will be directed): Dr. Fernand Henrotin, 353 LaSalle Avenue, Chicago, Ill.

The Cleveland Medical Society held its last meeting for the summer and adjourned until September 11. Dr. J. F. Hobson read a paper on "A Report of a Case of Pott's Disease of the Spine." Dr. W. E. Wirt read a Paper on "An Original Method of Using Dry Heat of High Temperature in the Treatment of Chronic Joint Affections."

MISCELLANY.

Appointment.—Mayor Swift has appointed Dr. John B. Hamilton a member of the Board of the Public Library of the city of Chicago.

Delegate.—Dr. George Ben. Johnston, of Richmond, Va., has been appointed one of the eight delegates on behalf of the government of the United States to attend the session of the International Periodical Congress of Gynecology and Obstetrics, to be held at Geneva, Switzerland, September, 1896.

Antiquity of the Truss.—Poncet has an interesting historic sketch of the evolution of hernial bandages in *Méd. Moderne*, No. 11, with a description of a recently discovered ancient Phenician statuette of a god, at least 3,000 years old, which represents "unmistakably" several ruptures on the abdomen, with a double hernial bandage resembling those now in use.—*Centralblatt f. Chirurgie*, April 11.

Cross of the Iron Crown.—A cablegram has just been received from Buda-Pest, Hungary, announcing that Mr. Andor Saxlehner, of the firm of Andreas Saxlehner, of that city, proprietor of the Hunyadi Janos natural aperient water, has been decorated by Francis Joseph I., Emperor of Austria and King of Hungary, with the Cross of the Iron Crown, Order III, on the occasion of the Hungarian Millenial Celebration now being held in Buda-Pest.

Medical College Appointments.—The following appointments in the faculty of the Albany (N. Y.) Medical College are noticed in the catalogue for 1896-97: Herman Bendell, clinical professor of otology; Andrew McFarlane, professor of physical diagnosis and microscopy; John B. Henessey, lecturer on materia medica; George Newman, lecturer on symptomatology; Clement Theisen, instructor in throat and nose; James M. Moore, instructor in physical diagnosis and clinical microscopy; James Thomas McKenny, of Troy, instructor in physiology; James M. Mosher, instructor in neurology. The Bender laboratory will be in charge of George Blunner, late assistant in pathology and bacteriology at the Johns Hopkins University.

Practicing without Diploma.—Suit for practicing medicine without a diploma and without registration was brought against Edmund Duff of Harrisburg, Pa., by Col. Oliver B. Simmons, Chairman of the Sanitary Committee, and the defendant waived a hearing for trial at court. The action was brought before Mayor Patterson, after Colonel Simmons and the Mayor had heard a report from Sanitary Officer Block, who had investigated the matter and found that Duff was practicing without compliance with the law. The failure to report a case of diphtheria, treatment of which caused the trouble, was also brought out, but Duff asserted that the disease had not been diagnosed until Friday, when the patient died, and the Mayor dropped the case, there not being enough evidence to hold the defendant. Duff made no defense to the charge of practicing without registration and was held under $300 bail.

A New Biologic Laboratory.—The corner stones of the new Hull biologic buildings of the University of Chicago were laid July 3. The laboratories will consist of four three-story structures, of Gothic design, and are the gift of Miss Helen Culver, in memory of her uncle, C. J. Hull. The gift amounted to $1,000,000, of which $300,000 was to be used for the buildings and the remainder to serve as an endowment fund. Since then Miss Culver has given $25,000 more for the buildings, which makes the cost of the structures $325,000. The address of the day was delivered by Prof. George Lincoln Goodale, LL.D., of Harvard. He spoke of the development of the bacteriologic laboratory, its aims and requirements. At the conclusion of the address President Harper spoke of the prospects of this department and said that the erection of these buildings marked the beginning of the long-looked for medical school. The assemblage then moved in procession to the site of the new buildings, where the corner stones were laid with appropriate addresses.

Higher Preliminary Education.—A congress of Missouri physicians met at St. Louis, June 27, and adopted resolutions looking to the higher preliminary education of medical students. The movement was started by the University Medical College of Kansas City, whose president, Dr. J. M. Allen, called a meeting of the fifteen medical schools of the State. Twelve of these schools were represented at the gathering. Dr. J. M. Allen, of Liberty, Mo., presided, and Dr. A. E. Mink, of St. Louis, was secretary. Among others present were: Dr. A. L. Burger, secretary, and Dr. J. P. Jackson, dean, of the University Medical College, Kansas City; Dr. Mark Edgerton, ex-dean of the Kansas City Homeopathic Medical College; Dr. Batey, of the University College of Kansas City; Dr. F. J. Lutz, Dr. L. C. McElwee, Dr. Bond, Dr. Steele, Dr. Loeb and Dr. Hypes.

Varices of the Leg.—Dr. Alexander Hugh Ferguson (*Chicago Medical Recorder*, June, 1896), describes his method of operation. He first ties the saphenous vein in two places near the femoral above the abnormal condition and a section of the vein is removed. Then a semilunar incision is made through healthy skin and extended as far down as is necessary to go until all the varices are partly surrounded, the incision is then deepened to the fascia lata. In the line of this incision all the venous supply is cut off. When the incision is completed down to the deep fascia the entire flap is raised and dissected up. The veins, normal and pathologic, are raised with the flap and the varices and branches dissected from its under surface. In raising the flap the venous communications with the deep veins are severed and ligated. This is a modification of Schedé's operation.

Hayseed Sprouted in the Ear.—Dr. Macnaughton Jones reports a case where the patient had been suffering from noises in the ear for some years, and had other evidences of middle ear deafness. He sought advice for the deafness, being quite unconscious of the presence of any foreign body. On examining the meatus, what appeared to be a pink sprouting mass of fungus was seen with the transmitted light. The appearance was most puzzling, and it was not until the sprouting hayseed was withdrawn that its nature was discovered. It was quite firmly attached to the wall of the meatus, being removed clean with the lever forceps. The patient then remembered having, over two years previously, at harvest time, suddenly felt as if something had entered his ear, and the tinnitus began.—*Jour. of Laryngology, Rhinology and Otology*, June, 1896.

Oxygenized Chloroform.—Dr. Charles S. Elder (*Col. Med. Jour.* June, 1896) says of the new anesthetic: Few patients are gotten completely under the anesthetic by this process. They seldom have perfect relaxation of muscles and loss of corneal reflex To this first is to be attributed the rapid recoveries unattended by nausea and vomiting. It is not true that patients keep rosy lips and cheeks during the anesthesia any more than they do with chloroform, nor do they recover any better or quicker, provided the narcoses be of equal depth and duration. Chloroform as ordinarily given is a more powerful anesthetic than when given by the new process, therefore the anesthetic is apt to be more profound unless it is administered with more care. But to argue that oxygenized chloroform is safer for this reason is to insist that it is better because it is less efficient.

The "Unsurgeonlike Horrors" of Hunter's Time.—The *Clinical Sketches*, in treating of the days before chloroform, reminds of the stern courage that then was demanded of surgeons. It remarks that in studying the histories of surgeons of a bygone age, we are frequently reminded of the horrors of their art before the days of chloroform. "It is not surprising to read that Abernethy 'had a most unsurgeonlike horror' of operations, and that both Cheselden and Hunter entertained similar feelings. Of Sir Astley Cooper's uncle William it is recorded that when about to amputate the leg of a man at the hospital, the patient, seeing the instruments being got ready, suddenly jumped off the table and hobbled away, whereat the surgeon expressed himself as greatly relieved: 'By Gad,' said he, 'I am glad he has gone!'"

Women in Medicine.—Jacobi, of New York, has a bright letter in the *Deutsche Med. Woch.* for June 18, replying to a request for his opinion in regard to women in the medical profession. He evidently thinks they have come to stay, a phase of the struggle for existence governed by economic laws, unaffected by individual or social preferences or prejudices. He expresses his regret that there are too many female medical colleges in this country, some of them which are not up to the standard of the rest, and approves of co-education as stimulating and elevating the male students. He states his impression that the incomes of female physicians average higher than those of the men, and speaks with the greatest respect of those he knows, ridiculing the idea that because a woman is not so large nor so strong as a man, she should therefore be debarred from the medical profession, any more than an undersized man, "as if any of us were Apollo, Hercules and Methusaleh combined."

Heroism of the Daughter of Dr. Herman Knapp.—Dr. Knapp, the well-known ophthalmologist of New York city, met with a narrow escape from death by drowning on June 20. He would, without doubt, have lost his life but for the presence of mind and heroic conduct of his daughter Ida, a young lady of 20, who was with him at his summer cottage at Monmouth Beach, New Jersey. As the day was unusually warm he decided to take his first ocean bath of the season, and his daughter watched him from the shore. Dr. Knapp is an expert swimmer, and went out some distance in the water, but as he was on his way back she noticed that he showed signs of distress. Immediately she secured a life preserver which was lying near by on the sand, and having tied a line to it, plunged with it, dressed as she was in house attire, into the sea. Wading in the water up to her neck she just managed to throw the life-preserver to a point where her father, who by this time had sunk twice, was able to grasp it. She then struggled bravely for the shore, carrying the line with her, and both she and her father were dragged to land in an extremely exhausted condition by some fishermen who had come to the rescue from a distance.

Not Liable for Removal of Injured Employe.—One of the grounds on which recovery of damages was sought to be had in the case of York v. Chicago, Milwaukee and St. Paul Railway Company, which was before the supreme court of Iowa May 25, 1896, was because the company's surgeon, who was employed and paid by it to treat its injured employes, as an act of charity or humanity, wrongfully and negligently moved an injured employe from another doctor's office to a hotel, which act, it was alleged, contributed to produce his death. It was not contended that this surgeon was not a skillful one, or that the company did not exercise due care in employing him. Under these circumstances, the supreme court of Iowa holds the company not liable. It says that it understands the rule to be well settled by a large number of cases that, under such circumstances, the defendant is not liable for acts of negligence of the physician who is employed to treat gratuitously its injured employes.

Cancer of the Pregnant Uterus.—Dr. George H. Noble gives details of 166 cases occurring since 1866, and concludes: "A summary shows that vaginal hysterectomy should be safe in the early months of pregnancy and the puerperal state, when there is a reasonable hope for the mother. The abdominal hysterectomy should be done under the above conditions when the uterus is too large to be rapidly and safely removed through the vagina. That at or near the end of pregnancy Cæsarean section (conservative) should be resorted to when the child's interest is to be considered. That Cæsarean section with Freund's operation is permissible when the disease is confined to the uterus and the child viable. That in doubtful cases cutting of the cervix and rapid delivery may be judicious when the incision can be made in unulcerated or non-infiltrated tissue. That as there are four chances to one against the life of the fetus, and as an equal or greater number of mothers may be ultimately cured in the early stages of the disease, the safety of the fetus should not be allowed to hazard the life of the mother. And that, upon the other hand, the futile efforts directed to the interest of the mother when her case is hopeless should not jeopardize the safety of the fetus in the latter months of pregnancy."—*Amer. Jour. of Obstetrics and Diseases of Women and Children*, June, 1896.

Study of the Thermodynamics of the Muscles.—Störring publishes in the *Arch. f. Phys.*, 1895, page 499, the results of his thermoelectric measurements of the generation of warmth in the muscles during isotonic and isometric contractions, with stimulus of varying strength and frequency, prefacing his report with a description of the Fick-Gad theory in regard to the muscles. He states that the so-called "negative variations in warmth" are only produced by defective manipulation of the instrument, thus agreeing with Heidenhain in opposition to Danilewsky. The results of his investigations are that the amount of warmth generated increases proportionately to the amount of tension during isometric contractions with increasing stimulus. During isotonic contractions it is more rapid at first, but with strong stimulus it is in proportion to the "height of lift." (Nawalichin and Danilewsky.) The muscles were also measured after having been slightly fatigued by

ten to fifteen contractions, this condition being the same as when the first increased height of lift had returned to its original condition. Heidenhain had stated that the amount of warmth generated diminished more rapidly than the height of lift in fatigued muscles, but these investigations resulted differently, increased warmth being generated in the fatigued condition. The article concludes with a discussion of the possibility of applying these results in confirmation of the Fick-Gad theory, as an explanation of the processes that occur during contraction.—*Centralb. f. Phys.*, May 2.

Therapeutic Value of Scopolamin.—It is the best of our mydriatics. It acts promptly and efficiently, dilating the pupil *ad maximum* within fifteen minutes and paralyzing the accommodation within one hour. In almost every case the patient regains the ability to read within seventy-two hours. In its effect upon the accommodation, scopolamin stands midway between homatropin and atropin. The cyclopegic effect of homatropin lasts about twenty-four hours; often it fails to paralyze the accommodation. Atropin will paralyze the accommodation with certainty, and the effect lasts ten days, often two weeks. Repeated instillations of homatropin or atropin are necessary. In the case of scopolamin one instillation of one drop of a one-fifth per cent. solution will do the work. Less conjunctival irritation follows scopolamin than the other drugs mentioned. As a mydriatic for refraction work it is *facile princeps*. It is even more useful in iritis; one drop twice a day will often dilate the pupil when repeated applications of atropin fail. Do not use this drug lavishly, for it will produce toxic symptoms if applied carelessly. In the strength of one-fifth of 1 per cent. use only one small drop. In children and in delicate adults a weaker solution, one-tenth of 1 per cent., will be sufficient.—Dr. James Moores Balls in the *Tri-State Monthly* for June, 1896.

Rupture of Quadriceps Extensor.—Dr. J B. Walker says: In comparing the averages of 255 cases of rupture of the quadriceps extensor muscle and its tendon above and below the patella, we find that under the mechanical mode 72.5 per cent. recovered completely, 12.5 per cent. in three months and 32 per cent. within six months. Whereas under the operative method 86 per cent. recovered completely; 50 per cent. within three months, and 100 per cent. within six months. In recent cases where there is not much effusion and the joint is apparently not opened, where the separated ends can be approximated and detained by suitably adjusted pads, the mechanical treatment may be carefully considered. In the hands of the intelligent general practitioner this method may be expected to bring about a complete recovery in the larger number of cases. From nine to twelve months will be required to reëstablish fully the normal functions. The skilled aseptic surgeon who primarily resorts to the operative method in suitable cases (but the age and vitality of each patient must be most carefully considered) may quite reasonably hope to obtain a better result in a larger number of cases and save his patient three to six months' time. Catgut, kangaroo tendon or silkworm gut should be used and when there is much effusion drainage should also be employed.—*Am. Jour. of Medical Sciences*, June, 1896.

Authority to Employ Physicians for Indians.—The provision in Section 5 of the Appropriation act of Congress approved March 3, 1875, to the effect that the number and kind of employes at each agency shall be prescribed by the Secretary of the Interior, the United State circuit court of appeals holds, in the case of United States v. Patrick, decided March 30, 1896, furnishes ample authority for the Secretary of the Interior to employ physicians to attend Indians. It also holds that by approving the vouchers and directing the payment of the bills for a term of years of a physician employed by an Indian agent from time to time during those years to treat the Indians in need of medical services, the Secretary of the Interior sufficiently prescribed that one of the employes at the agency in question should be a physician, to be called by the agent from time to time, to render such medical services as the Indians required. And the court further holds that the Secretary of the Interior having authority to employ physicians, for the United States, at an Indian agency, and his subordinate, the Indian agent at such agency, having employed them, and the Secretary having approved their bills, and directed the agent to pay them out of the public funds, the United States and the Secretary were bound by his acts, both because they thus ratified them and because, by their action, they induced him to expend money for this purpose which he would not otherwise have disbursed.

Superintendent's Power to Employ Physician and Nurse.—The physician called by a man injured while in the employ of an electric light and power company testified that he called on the superintendent or general manager of such company and told him that he would have to have a nurse, and that the official told him to employ one, and that they would see to the physician's bill and the nurse's bill. This conversation the official denied. The trial judge instructed the jury, when an action was brought by the nurse to recover from the company for his services, that so far as the question of authority was concerned, he could not say that there was no evidence from which they might infer that the superintendent or manager referred to was not authorized to make a contract, but thought that they might draw the inference that he was authorized to make such contract as the plaintiff contended was made. This the Supreme Court of Michigan decided, June 2, 1896, Hodges v. Detroit Electric Light and Power Company, was correct. The court now clearly favors the view that it is within the general scope of the employment of such an official to make such a contract as that for the employment of the nurse or physician, a proposition upon which, in a railroad case, it some years ago was equally divided. Nor does it think that the question of power is affected by the fact that the injured man was cared for at his own home. But it does not think that the physician should be allowed to testify that he charged, upon his own books of account, his services to the company, lest the jury regard that as evidence that the contract was made as contended.

Courts of Equity Refuse to Restrain Board of Health.—Upon the question of judicial interference by injunction to restrain the abatement of what the landowner or occupant denies to be a nuisance, the cases are comparatively few, and most of them deal with obstructions to streets, highways or waterways. A patient examination of the whole course of decisions on the general subject of the police power and the summary abatement of nuisances, Chancellor Nicholson, of the court of chancery of Delaware, says has left with him no doubt that a court of equity, upon an application for an injunction to restrain a board of health or other municipal body from the summary abatement of what it has adjudged to be a nuisance detrimental to the public health, will decline to restrain the proposed action of the local body unless it is made to appear clearly that it has acted wantonly and in bad faith, or has transcended its jurisdiction. He also says that the adjudication by the board of the fact of nuisance will not protect it as will the judgment of a court, and in all cases it acts at its peril. In this case, Liebig Manufacturing Co. v. Wales, decided March 14, 1896, the court of chancery refused to grant a preliminary injunction which would restrain the city board of health from abating the emanation of odors or gases from a manufacturing establishment which it had declared to be a nuisance, detrimental to the public health, especially in view of the fact that the almost unlimited range of human ingenuity, in the present age of scientific discovery, seems to be equal to rendering

almost any trade innocuous in almost any locality, and in view of the further fact, that of it not being shown that the odors or gases in question were not or could not be a nuisance, whereby the public health was or might be injured.

Skiagraphy.—Dr. W. W. Keen, referring to plate made by Dr. A. W. Goodspeed of the University of Pennsylvania, said: "One of the most important points to be observed about the skiagraph is that the upper opening of the pelvis is so clearly seen that a measurement could be made with absolute accuracy in order to determine whether a fetus could be delivered or not in the case of a deformed pelvis. If the dimensions of the skiagraph should not be absolutely the same as those of the original pelvis, a proportionate allowance could be readily made by measuring the distance between the crests of the ilia, which could be measured with accuracy on the body or taken as a standard. Any fracture or deformity of such a pelvis could be determined very readily. Osteo-sarcoma of the ilium, fracture, or any other disease or injury altering its outlines would be perfectly demonstrable. It is doubtful whether disease of the hip-joint itself could be made out from such a skiagraph; but fracture of the neck of the femur or of the greater tuberosity could be determined very readily."—*International Medical Magazine*, June, 1896.

Etiology and Pathology of Cancer.—Five chief theories have been advanced to explain the etiology of cancer. I. Conheim's theory of the origin of tumors in inclusions of embryonic tissue; 2, a specific bacterium; 3, protozoa; 4, yeasts; 5, a vegetative cell. The theory that has received the most attention for the past few years is that cancer is caused by protozoa. Ruffer has described the appearance of cancer bodies which he regards as sporozoa: spherical bodies with small nucleus and a distinct capsule. It is generally in the center of a parasite. Many of the appearances of certain kinds of cancer bodies may be explained by cell invagination. The history of the pathology of cancer differs from most other diseases in that we have had no analogy in other diseases to lead us. There are no bacteria which produce results similar to an epithelial tumor. One of the boldest conceptions of the nature of cancer is that of Adamkeivicz, who states that what we regard as epithelial cells are really parasites and that what has been regarded as round cell infiltration around the growth is the space of the parasite working its way into the tissues. The part that the glands take in the pathology is not determined. Some trace the source of cutaneous cancer to the sebaceous glands, some to the rete mucosum of the epidermis and some to the sweat glands. We find blood changes in carcinoma, but no observations have so far been made to determine whether these changes precede the development of the tumor or not. The cancerous cachexia is sometimes attributed to the presence in the blood of a toxin produced by the so-called sporozoa.—*Dr. Charles J. Foote in Yale Medicat Journal*, June, 1896.

A Study of the Blood in General Paralysis.—Dr. Joseph A. Capps summarizes his researches as follows: In general paralysis, I, the hemoglobin and red corpuscles are always diminished; 2, the specific gravity falls slightly below the normal; 3, most cases show a slight leucocytosis, amounting on an average to about 22 per cent. above the normal. Early cases may have no leucocytosis whatever. 4, in the differential count a decrease is found in the lymphocytes along with a marked increase in the large mononuclear cells. The eosinophiles in a few cases are very numerous. In convulsions and apoplectiform attacks, 1, the red corpuscles and hemoglobin are usually increased at the time of a convulsion. During an apoplectic attack of long duration they are both somewhat diminished. 2, the specific gravity is variable, sometimes increasing, sometimes diminishing at the time of an attack; 3, there is a leucocytosis after convulsions and apoplectic attacks, which is as sudden as it is usually pronounced. It certainly does not appear until within a very short time preceding the convulsion, probably not before it actually takes place; 4, the degree of leucocytosis and the period of its continuance, as a rule, vary directly with the length and severity of the attack; 5, in the production of the leucocytosis the large mononuclear cells are increased relatively more than any other variety; 6, the fact that after convulsions and apoplectic attacks in general paralysis there is not only an increase in the number of white cells but a change in their character, as shown by the differential count, and at times abnormal cells appear, is an argument against the theory that leucocytosis is merely a change in the distribution of the white corpuscles.—*The Am. Jour. of Medical Sciences*, June, 1896.

Another Death from Antitoxin.—Dr. W. J. Nolan of Chicago writes the following to the New York *Medical Journal:*

285 Loomis St., Chicago, June 24, 1896.

To the Editor of the New York Medical Journal:

Sir: In view of the discussion now going on in the *Journal*, of which I have been three years a reader and subscriber, I frankly indorse the views of Dr. Winters in regard to antitoxin in diphtheria. Of one case I must write in terms of strong condemnation. The facts are as follows: I was called to see a boy, 8 years old, pulse rapid, temperature 105 degrees, and the laryngeal appearance quasi-diphtheritic. I began the ordinary treatment, in which quinin, carbolic acid and iron formed chief parts. The result next morning was very satisfactory; all alarming symptoms were decidedly not much in evidence. Some time in the evening of this *better* day, our antitoxin friends raided the house and began their injections *à l'outrance*. They did not inform me, I need scarcely say; but like birds of evil omen, they swooped down on a defenseless widow and daughters, and injected mightily, nay, as the sequel proved, mortally. Need I express an opinion after this on the discovery, or at least its manipulators?

W. J. Nolan, M.D.

Mastoid and Intracranial Complications of Middle Ear Suppuration.—Otoscopy affords one of the most valuable means of diagnosis. If the deeper portion of the canal is narrowed by the sinking of the superior and posterior walls, mastoid inflammation almost certainly exists. Of almost equal value is the tenderness of the mastoid on deep pressure over the region of the antrum. In palpating the mastoid the pressure should be made so as to communicate no motion to the auricle. If the case is seen early an attempt may be made to abort the attack by means of cold applications, but they should not be continued longer than forty-eight hours. The gravity of the mastoid operation has been greatly overestimated. Under proper aseptic precautions it is absolutely free from danger, and in doubtful cases is justifiable as a means of diagnosis. All softened bone should be removed from the channel leading from the antrum to the tympanic vault in order to establish free drainage through the artificial opening. The signs of intracranial inflammation are obscure in the early stages. When the process is acute a purulent collection within the brain substance is characterized by considerable temperature elevation. Intracranial complications are almost invariably fatal unless relieved by surgical interference. Operations should be performed early.—Dr. E. B. Deuch in *Am. Jour. of Obstetrics and Diseases of Women and Children*, June, 1896.

Diluting the Blood in Infections.—Very large doses of artificial serum have been found to be extremely beneficial in serious conditions, retarding death and rendering most important services, while perfectly harmless. If the kidneys are still working well, an injection of several liters will attenuate the infection and perhaps extinguish it altogether. Intravenous injections produce the most rapid results; several may be needed, and to secure the most complete results it is well to supplement them with small subcutaneous injections every two hours. Lejars recently performed a laparotomy upon a young man for ruptured intestine in the midst of acute peritonitis, keeping the strength up and attenuating the infection

by injecting 26 liters of serum, resulting in complete recovery. He reports also a case of acute osteomyelitis of the femur, with continuous fever at 104 degrees and abscesses, which received 14 liters in five days; the fever declined, the infection diminished and the patient is now recovering. A man of 52, run over by a train and severely injured; fever, delirium, double amputation, etc. Fourteen and one-half liters were injected in five days and patient made a fine recovery. A young woman operated upon for an immense ovarian cyst, with every symptom of rapid, fatal termination, received an injection of 3 liters of serum at one time, and 2 more liters two hours later. Improvement followed at once and patient is now almost recovered. Charrin protests against the use of the word serum to express the simple aqueous solution used for this purpose, saying that the physiologic serum differs from it so completely that it is unscientific to designate them by the same term. He calls attention to the different results attained by administering the solution in varying quantities and ways. He has found that even a few c.c. will retard the death of animals infected by a microbe or intoxicated by the secretions of bacteria; large amounts possibly produce their effect by modifying the osmosis in some way.—*La Semaine Médicale*, May 13.

New Investigations of Cholera "Antitoxin."—Pfeiffer and his adherents believe that the toxins of the comma bacillus reside in the bodies of the bacteria, and do not pass unchanged into the culture fluids, while Behring's pupil, Ransom, asserts that the choleraic toxin is present in solution in the dead bouillon cultures. The results of recent experiments at the Paris "Institut Pasteur," based on the principles of Behring's antitoxin, confirm this latter view. Large animals, especially goats and horses, were immunized with cholera filtrates until in three to six months their serum became distinctly antitoxic. One c.cm. administered with a fourfold fatal dose of the toxins was sufficient to neutralize its fatal effects, although not to prevent the appearance of symptoms of intoxication. Experiments with young rabbits inoculated with 4 to 8 c.cm., and then fed with cholera vibrios a few days after, resulted in the survival of 56 per cent. and the disease noticeably attenuated in the rest. Sixteen per cent. of the rabbits not treated with serum succumbed at once to the infection. Some experiments with serum presented by Pfeiffer resulted in the survival of 45 per cent. when the serum was injected simultaneously with the toxin per os, and 24 per cent. of the control animals resisted the infection. But if injected twenty-four hours after inoculation, or with the appearance of the first symptoms of the disease, the animal could not be saved at all. The results of the series of experiments are so far from satisfactory that no attempt is made in the report to apply the conclusions to cholera in human beings.—*Deutsche Med. Woch.*, June 11.

Protracted Simple Continued Fevers.—Dr. J. M. DaCosta says that: "It is a mere matter of surmise what, in any of the varieties of the prolonged simple continued fever, causes the fever. That it is due to a disturbance of the heat-centers seems certain. But what gives rise to this disturbance? Is it one cause or are there several? Leaving out the hysterical cases and those of nervous origin, it appears to me likely that the fever originates from causes within the body; that either as the result of fatigue or overwork, or from impure water, or some preceding digestive disturbance, leucomaines form from vitiated secretions, of a character to disturb the heat-centers. Whether in the continued fever of the tropics heat acts also in this way, or more directly, or through blood-changes produced, is a matter on which we can, with our present knowledge, only speculate. Both here and in all these prolonged continued fevers there is a great field for chemical research, especially in the leucomaines of the uric-acid group. The treatment of the prolonged simple continued fevers is purely symptomatic. Quinin has no effect on them, nor have the ordinary antipyretics more than a temporary influence. Phenacetin and salol do most good, particularly in cases with headache. They are best given in small doses, a grain or two, frequently repeated, until their effect is manifest. Better still, where it can be efficiently carried out, is the cold-bath treatment, not only to lower temperature, but for its revulsive and alterative influence. Purgatives, unless contraindicated by weakness, always form part of judicious treatment."—*The American Journal of the Medical Sciences*, June, 1896.

Dentists can not Prescribe Whisky for "Toothache."—On a Sunday of last year a resident of Hendersonville, N. C., had an aching tooth, and went to a dental surgeon, licensed by the State Dental Association, and asked him for a prescription for whisky. The doctor examined the tooth, and told the man that he would give him a prescription for half a pint; but, on the man's insistence, he finally gave him a pint. The sequel of this was the indictment and conviction of the person who filled the prescription for selling liquor on Sunday illegally. Appeal was taken to the supreme court of North Carolina. April 21, 1896, it rendered its decision of "No error." All turned on whether a dentist is a physician, or not, within the meaning of a statute prohibiting the sale of liquor on Sunday, unless prescribed by a "physician." The court quotes the definition of Webster's Dictionary: "A physician is one authorized to prescribe remedies for and treat diseases; a doctor of medicine." A dentist or dental surgeon, it says, is one who performs manual or mechanical operations to preserve teeth, to cleanse, extract, insert, or repair them. The statutes of North Carolina recognize that dentists are not included in the term "physician," by providing separate enactments for each.

If dentists came within the term "physician," as used in the statute above mentioned, the court goes on to say that "toothache" would become more alarmingly prevalent than "snake bite;" and that it would with usage become more dangerous, it says, is evident from the fact that the very first dental surgeon's prescription for toothache, coming before the court, is for "one pint of whisky." The size of the tooth was not given, nor whether it was a molar, incisor, eye tooth, or wisdom tooth; and yet, the court takes judicial cognizance that there are thirty-two teeth in a full set, each of which might ache on Sunday. The duties of a dentist are limited, is the conclusion, to the "manual or mechanical operations" on the teeth. Whenever the use of liquor is necessary, it being a remedy to act on the body, and only indirectly in any case for the teeth, within the purview of the statute, it must be prescribed by a "physician," to authorize a sale on Sunday, under such a statute.

Hack's Truss Improved by Wolfermann.—The *Centralbl. f. Chirurgie*, for April 11, describes a truss for inguinal hernia which absolutely prevents the escape of the intestine in all positions, according to the inventor. The principle followed in its construction was to approximate as closely as possible the effect produced when the hernial sac is pushed into place and held with the fingers. The pad of porous rubber, extremely soft and elastic, is not fastened as usual, directly on the long spring that embraces the pelvis from the crest of the ilium to the trochanter. It has two plates at the back, exactly similar, one fastened to the pad as usual, while the other, on which the long spring is mounted, is only connected with it by a hinge at the outer end. A double coiled spring near the hinge tends to hold the two duplicate plates apart. Thus the only actual connection between the pad and the long spring is the hinge between the duplicate plates at the outer end. The spring between them therefore imparts an extra elasticity to the free pad, which enables it to adjust itself automatically to any position of the wearer, even the most unusual. The two plates are not exactly flat, but present a slightly convex surface

toward the abdomen. None of the trusses in use produce an even, gentle, incessant compression of the inguinal canal *its entire length*, such as is secured with this one which Wolfermann hopes will open a new scientific era in the treatment of hernia. He ridicules the old fogy way in which it is still treated, the only reason he says, why Hack's truss has not been universally adopted. He has secured many complete cures with this truss worn day and night, as it produces absolutely normal conditions for the intestine. It is only contraindicated in cases where there are adherences or inflammation, which require more radical treatment. In cases of congenital hernia, he applies this truss even to infants a month old, if the testes can be forced into the scrotum by pressure on the inguinal canal, but there is no use in applying a truss if the testes are still in the inguinal canal. In cases of old ventral hernia when the abdomen can not contain the viscera, he orders a suspensorium buttoned to a sling around the neck.

Sequel of the Langerhaas Case.—After a long delay the official report of the postmortem examination in the case of the child of Professor Langerhans, who died suddenly after an injection of diphtheria antitoxin, has been published in the *Berliner Klinische Wochenschrift*. The Berlin correspondent of the London *Lancet* (June 20) says the examination was performed by Professor Strassmann and Dr. Mittenzweig, medical officers to the Berlin law courts. The report states that previous to the fatal injection the child had taken his dinner, followed shortly afterward by some milk and cake. Death took place during a severe fit of coughing, and the necropsy showed that the trachea and bronchi were entirely filled with a gray substance, which was proved, by microscopic examination, to consist of particles of food, a good deal of the same being still present in the stomach. The uvula was swollen. The medical experts, therefore, declare that the child died from suffocation. They are of opinion that the boy vomited after the injection and that, being in a fainting state from the pain of the injection, he was not able to get rid of the vomited matter, but drew it into his larynx in the act of inspiration. They did not find any embolus of air in the pulmonary artery, as was suggested, nor was there any confirmation of the opinion that death had occurred from syncope. They therefore advised the court not to hold anyone responsible for the child's death. According to the statement of the Control Office the serum was of normal quality and the injection was, in the official opinion, justified by the present state of medical knowledge.

A Rare Form of Pseudo-Parasitic Infestation.—The Paris letter of the *London Lancet* for May 9, narrates a curious incident growing out of an unusual form of acarus infection. A young girl, native of Barfleur, came on a visit to her parents from Cherbourg, where she was in service. During her stay at home she consulted a medical man with a view of ridding herself of a parasite which she had brought from Cherbourg, and which, having multiplied with prodigious rapidity, had infested the house of the patient's parents and also that of a relative. Sulphur was burnt in the house, and the linen and flooring was washed with sublimate solution. The plague, continuing with undiminished intensity, the neighbors ceased visiting the infected houses and sent the denizens thereof "to Coventry." The authorities then took the matter in hand and delegated M. Edmond Perrier, member of the Institute and Professor at the Museum of Natural History of Paris, to investigate this mysterious malady. He soon discovered that the origo mali was the glyciphagus domesticus, an acarus closely allied to the acarus scabiei, but, unlike the latter, provoking scarcely any itching or cutaneous lesions in its hosts. This acarus is, it appears, very commonly present in houses, and it is frequently met with in the interstices of hair combs which are badly kept. It multiplies especially in houses in which organic debris accumulate. In groceries an acarus, the glyciphagus prunorum, which is perhaps identical with the glyciphagus domesticus, often flourishes on dried fruits, such as prunes and figs. Feeding exclusively on organic matter it is only a pseudo-parasite. Besides the glyciphagus domesticus there was discovered in these same contaminated houses at Barfleur a false scorpion, the othonius, which had invaded them in the train of the first named parasite. The othonius, otherwise called the *puce des bibliothèques*, is the declared enemy of the glyciphagus domesticus, upon which it feeds exclusively. Three millimeters long, and resembling a tailless scorpion, it is recognizable by its long fore-claws shaped like a lobster's. The patient had at Cherbourg been a servant in a pork-butcher's, and it was probably at the charcuterie that she became infected. Her scalp was so full of acari that when she shook her head a cloud of them fell on her shoulders. Her father, a respectable fisherman, had his eyebrows attacked, the only symptoms being a slight irritation. A garment left by the girl at an aunt's had sufficed to infect an exceptionally clean house. M. Perrier ordered the evacuation of the houses and sulphur to be burnt during six hours in the sealed-up rooms, with the result of killing every acarus, as also the othonius. An eau de cologne and sublimate lotion relieved the persons of the sufferers of the parasite, although the treatment had to be prolonged in the case of the girl. The case is interesting in that the acarus caught at a pork-butcher's, had lain dormant for some time on the hair-comb, and transferred thence to the scalp had thriven therein for a period of eighteen months and invaded consecutively the garments. From the garments the parasite had spread to two houses and their inhabitants, and the othonius had promptly followed in pursuit.

No Appeal from Commitment of Private Patient.—The supreme court of Michigan holds, in case of Sparrow v. Ingham Circuit Judge, decided May 12, 1896, that section 6,779 of Howell's Annotated Statutes of Michigan, which provides that "In all cases not otherwise provided for, any person aggrieved by any order, sentence, decree or denial of the judge of probate, may appeal therefrom to the circuit court for the same county," does not apply to an order declaring a person insane and committing such person to one of the State asylums as a private patient. The supreme court says, among other things, that he would be very obtuse who did not perceive that the chief object of the statute of 1895, under which the commitment is authorized, is to furnish in the early stages of the disease the best medical treatment available, in order to effect a cure and prevent, if possible, the terrible result of permanent insanity. If appeals are allowed in these cases, they may not reach a trial and determination in the circuit court for one or two years. A writ of error will then lie to the supreme court. If error is found, a new trial must be granted, and it may be years before a final determination can be reached. Meanwhile the sick person, unless dangerous to the lives and property of others, must remain without treatment, and permanent insanity may result, where prompt treatment by skilled physicians might cure the malady. It is not reasonable to suppose or infer that the legislature intended to provide for any such condition of affairs. The argument that, holding the inquest of the probate court final will result in confining sane persons to a living grave within the walls of an asylum, the supreme court declares has no merit, and the thing itself scarcely possible, under the humane provisions of the law of that State. Its theory is that neither the court nor the physicians have any object in adjudging a sane person insane, nor have the skilled and learned physicians in the asylums any object in keeping any sane person within their walls. Furthermore, the court calls attention to the fact that one of the humane provisions of the law under consideration is that it permits the person who has been adjudged insane to appeal to the probate court to determine whether he is healed, and that from that adjudication, if favorable, there is no appeal.

Dr. Jenner's Poesy.—A recently discovered file of Jenner's letters shows that that eminent man occasionally dipped into versification. One of these letters written *circa* 1789, to a lady to whom he had sent a couple of ducks, reads as follows:

"I've dispatched, my dear madam, this scrap of a letter
To say, as Miss Kent is so very much better,
A regular doctor no longer she lacks,
So I've sent to attend her a couple of quacks."

The lady replied:

"Yes, 'twas politic, truly, my good friend,
Thus, 'a couple of quacks' to your patient to send,
Since there's nothing so likely as 'quacks,' it is plain,
To make work for a regular doctor again."

Right of Experts to Extra Pay.—A decision of importance to all persons who are liable to be called upon to go on the witness stand as experts has been rendered by the supreme judicial court of Massachusetts in the case of Barrus v. Phaneuf, May 21, 1896. The principles which it discusses and lays down apply to medical experts, with full force, although this action was brought by a civil engineer. He had been engaged by the defendant to go into court at a future day and testify for him as an expert in regard to a matter which he had examined as such. This engagement was made about six weeks before the trial. He talked over the matter, and went into court and testified, and during the progress of the trial advised the defendant's attorney in regard to the questions to be asked of himself and of the other witnesses, though he was not asked any questions which called for his opinion as an expert. To further complicate matters, he was, at some time after the agreement was made, regularly summoned by the defendant as a witness, and was paid the statutory fees, and made no objection thereto, and made no claim for extra compensation. Was he entitled to recover any extra compensation as an expert? The defendant contended that he was not, and that if there was an express promise to pay him extra, it was without consideration, and that the witness did no more than he was legally required to do under his subpena. That a court would be without power to require the attendance of a professional or skilled witness, upon a summons duly served, and with payment of the statutory fees, although he was unacquainted with the facts, and could testify only to opinions, the court declares it would be slow to admit; but such power would hardly be exercised unless, in the opinion of the court, it was necessary for the purposes of justice; and the one summoned would perform all that the court could require of him if he should hold himself in readiness to be called upon to testify to such opinions as he might have when his turn should come. In this case, however, the court holds that the evidence showed a sufficient consideration to support a promise to pay a reasonable compensation, in addition to the statutory fees, and that the jury was warranted in finding a promise to that effect, or a mutual understanding that the expert was to be so paid. If such promise was made, or such understanding existed, it further holds that the expert's right to recover would not be taken away or lost by his omission to claim or demand extra compensation, or to notify the defendant that he should make such claim, or by his acceptance of the statutory fee without objection, or by the omission of the defendant at the trial to put any question to him as an expert witness, and the consequent omission on his part to testify as an expert. What would have been his right without such promise or understanding, the court studiously avoids stating except as above, though at the same time shows the trend of authorities would be against allowing any extra compensation.

Hospitals.

ERIE COUNTY HOSPITAL, BUFFALO, N. Y.—The following appointments have been made on the staff: Consulting genito-urinary surgeon, D. W. Harrington; attending physician, B. H. Daggett; consulting surgeons, M. Hartwig, H. C. Frost; consulting physician, A. T. Bull; attending obstetrician, L. J. Hanley; attending gynecologist, H. D. Ingraham; attending physicians, George W. Lewis, C. S. Jewett; eye and ear, Arthur S. Bennett; children's physicians, Maud J. Frye, John D. Flagg.

HOUSE OF MERCY HOSPITAL DEDICATED.—The formal dedication of the new House of Mercy Hospital at Springfield Mass., took place June 23, in the chapel.

THE PUBLIC SERVICES.

Army Changes. Official List of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from June 27 to July 3, 1896.

Col. Charles T. Alexander, Asst. Surgeon-General, is granted leave of absence for two months, to take effect on or about July 8, 1896, or as soon thereafter as practicable.

Capt. William B. Davis, Asst. Surgeon, will in addition to his present duties, take charge of the medical supply depot in New York city, during the absence on leave of Col. Charles T. Alexander, Asst. Surgeon-General.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending July 4, 1896.

Surgeon L. G. Heneberger, detached from the marine rendezvous, New York, and ordered to the hospital, Widow's Island.

P. A. Surgeon E. S. Bogert, ordered to the New York navy yard, July 2.

P. A. Surgeon T. C. Craig, detached from the New York navy yard, July 2, and ordered to the marine rendezvous, New York.

P. A. Surgeon W. F. Arnold, detached from special duty in China and Japan and ordered to return home.

Asst. Surgeon H. F. Parrish, ordered to the naval laboratory, New York City.

Change of Address.

Cummings, W. M., from Las Animas to Trinidad, Colo.
Davis, Jr., N. S., from 326 Superior St. to 291 Huron St., Chicago, Ill.
Getzlaff, B., from Wapakoneta, Ohio, to Attapulgus, Ga.
Houston, I. M., from 428 Ellis St. to 707 Sutler St., San Francisco, Cal.
Harris, John J., from 1505 Tower Grove Ave. to 5252 Shaw Ave., St. Louis, Mo.
Lewellyn, P. W., from Clarinda, Iowa, to Ragosa Springs, Colo.
Patch, Wm., from Cooksville, to Sibley, Ill.
Rees, H., from Chicago, Ill. to Scandinavia, Wis.
Southern California Practitioner, from 107 N. Spring St. to Suite 243-246 Bradbury B'ld'g, San Francisco, Cal.

LETTERS RECEIVED.

Atkinson, W. B., Philadelphia, Pa.; Allport, Frank, Minneapolis, Minn.; Ashby, T. A., Baltimore, Md.; Ashmead, A. S., (2) New York, N. Y.
Bartlett, J. C., Chicago, Ill.; Boehringer, C. F. & Soehne, New York, N. Y.; Baker, John C., Co., Philadelphia, Pa.; Batman, W. F., Lebanon, Ind.; Burr, C. B., Flint, Mich.; Bullington, T. A., Louisville, Ky.; Bluhm, Geo. I., Chicago, Ill.
Cullen, G. I., Cincinnati, Ohio; Christopher, H., St. Joseph, Mo.; Cleveland, E. F., Dundee, Ill.; Columbus Phaeton Co., Columbus, Ohio; Chesman, Nelson & Co., St. Louis, Mo.; Coffman, G. L., Thayer, Kan.; Coppedge, W. E., Oak Hill, Mo.; Cerna, David, Galveston, Texas.
Doliber-Goodale & Co., Boston, Mass.; Delavan, D. Bryson, New York, N. Y.; Dick, J. K., Chicago, Ill.
Eagleson, J. B., Seattle, Wash.; Elliott, A. R., New York, N. Y.
Fritzinger, R. J., Philadelphia, Pa.; Farbert, McCassy, Dayton, Ohio. Gates, Geo. W., St. Louis, Mo.; Gibson, Maris, Wilkesbarre, Pa.
Harrison, W. H., Harrisburg, Pa.; Horner, Frederick, Marshall, Va.; Hummel, A. L., Advertising Agency, (4) New York, N. Y.; Hardesty, T. O., Kampsville, Ill.; Hollister, J. H., Chicago, Ill.; Heath, F. C., Indianapolis, Ind.; Hummel, C. C., Mechanicsburg, Pa.; Hamblin, J. M. Westboro, Mo.; Högler, Elmer E., Springfield, Ill.; Harris, T. C., Raleigh, N. C.; Haldenstein, L., New York, N. Y.; Hogan, H. H., Reno, Nevada.
Ingals, E Fletcher, Chicago, Ill.
Jones, H. P., New Orleans, La.; Johnson, H. L. E., (2) Washington, D. C.
Kleinschmidt, C. H. A., Washington, D. C.; Kleene, F., Chicago, Ill.
Lnak, Z. J., Warsaw, N. Y.; Luce, C. R., Washington, D. C.; Leffingwell, Wm. E., (2) Watkins, N. Y.; Larew, John T., St. Louis, Mo.
Mumaw, H. A., Elkhart, Ind.; Malcolm, John W., Courtney, I. T.; Morgan, E. E., Fort Wayne, Ind.; Mulford, H. K., & Co., (2) Philadelphia, Pa.; Marks, A. A., New York, N. Y.; McKee, E. S., Cincinnati, Ohio; McMurtry, L. S., Louisville, Ky.
Nixon, J. W., Soldier, Kan.; Newton, Richard C., Montclair, N. J.
Ott, Isaac, Philadelphia, Pa.
Page, L. F., Indianapolis, Ind.; Pollette, E. E., Westerly, R. I.
Ryman, H. M., New York, N. Y.; Ross, A. A., Hochheim, Texas; Reed, R. Harvey, Columbus, Ohio.
Saudow, F. C., Lynchburg, Texas; Smart, Chas., U. S. A., (2) Washington, D. C.; Scott, W. A., Swanton, Ohio; Sargent, Andrew, Hopkinsville, Ky.; Smith, B. M., Davis, W. Va.; Sellors, W., Wausaukee, Wis.; Simms, S. W., Danville, Ill.; Smith, F. S., Nevada, Iowa; Smith, E. B., Detroit, Mich.; Scheiffelin & Co., New York, N. Y.; Sharp, W. H., Parkersburg, W. Va.; Schering & Glatz, New York, N.Y.
Uran, B. F., Kaukakee, Ill.
Wilkinson, A. D., Lincoln, Neb.; Wenzel, H. P., Milwaukee, Wis.; Wyckoff, R. M., Brooklyn, N. Y.; Weaver, H. S., Philadelphia, Pa.; Woods, T. J., Batesville, Ark.; Willard, Lee M., Merrill, Wis.

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ORIGINAL ARTICLES.

MALARIA.

BY ELLSWORTH D. WHITING, A.B.

(The L. P. C. Freer Prize Essay, Rush Medical College, 1896.)

AURORA, ILL.

Malaria, or paludism, is a non-contagious, infectious disease, characterized by typical paroxysms, the principal pathologic changes being in the blood, liver and spleen. Its etiologic factor is a specific protozoon, the plasmodium malariæ of Laveran, which can generally be demonstrated in the red blood corpuscle.

Malaria may be considered a primitive disease, that is, one found in newly settled countries. It attacks the settler when he turns the soil for the first time, when there is no drainage and when the shallow wells fill from the surface. As soon as the swamps are drained and the wells freed from surface water the "chills and fever" disappear.

As to the geographic distribution of malaria, it is quite extensive, being found in tropical, subtropical and temperate zones. In the northern part of Africa malaria is endemic. It was there that Laveran made his first discoveries. In Europe, southern Russia and Italy are the common seats of the disease though it is found to some extent in England, France and Germany. On our own continent malaria is endemic in the South, Mexico, Texas, Arkansas, Louisiana and Missouri, and more common in the North than was formerly supposed. In the West Indies it exists in its most malignant forms.

As to the manner in which the parasite affects entrance into the human body medical opinions differ. Until a few years ago there was a consension of opinion that malaria was an air-borne disease, the lungs being the only infection atrium. Those who upheld this theory based their opinions upon the fact that malaria was common among people living in low, marshy regions abounding in vegetable growth. These men claimed that the organism had its habitat in the soil, from whence, under favorable conditions, it was disseminated through the atmosphere and thus readily reached the air passages and circulation of the human organism. They claimed also that while moisture was not necessary to the development and spread of the disease it greatly aided it in its growth. They maintained for this reason that night air was much more heavily charged with malarial organisms than the air during the day.

Within the last few years other investigators have gone so far as to state that malaria is not an air-borne disease in any sense of the word. After extensive investigations these gentlemen have proven to their own satisfaction that this disease is purely of water-borne origin. To maintain their position they have brought to bear very strong evidence. They cite numerous instances where gangs of laborers working in the same malarial districts were dissimilarly affected, those drinking from the surface water suffering from the disease, while those drinking boiled water, or that obtained from deep wells, were unaffected. These men all breathed the same air both night and day. This is a strong argument in favor of the water-borne theory. It may be argued that the vitality of those drinking the pure water was sufficient to resist the action of the organism, even had it gained entrance into the body through the air passages, while the vitality of those drinking the surface water was naturally lower. This objection would h ld good were only one case cited, but it must necessarily fail when hundreds of similar cases are given. Another proof of the probability of the water-borne infection is demonstrated by the fact that here, in the midst of Chicago, in the heart of winter, when there is no building and excavating, malaria is present in almost every hospital in the city. The writer has demonstrated the presence of the organism in the blood of Cook County Hospital patients this winter who have not been away from the city in many years. The air-borne theory does not explain clearly these midwinter infections while the water-borne theory does. Many streams flow into Lake Michigan from the flats of Illinois and Indiana. These streams teem with malarial organisms. They empty their polluted waters into the lake and the currents flowing northward find their way into the cribs and thence to the dwellings of the citizens of Chicago. It is a noteworthy fact that not only is malaria found in the wards of Cook County Hospital but also among families living on the finest boulevards. Taking into consideration the array of testimony on either side, the writer is inclined to lean toward the water-borne theory, yet granting that in some cases infection by air seems highly probable.

Formerly many held that the organism gained entrance into the body through the stings of insects. This theory is upheld by but few to-day.

As a rule malaria is most prevalent in the spring and fall, yet the disease is present to some extent during all seasons of the year.

Under like conditions malaria is no respecter of persons as to sex. It is, however, more common among men than women, because of their manner of life, as they are more exposed to its etiologic factor. Children under one year of age rarely have the disease.

There can be but little doubt as regards the difference in degree of personal receptivity. All persons of lowered vitality are readily susceptible to the disease, nevertheless in men full of health there is great difference in the degree of immunity. This immunity may be natural or acquired. Persons going into a malaria district seem to acquire immunity after a lapse of years, while those born in the malarial atmosphere are often never affected by the disease.

The negro is much less affected than the white man, the ratio being as three is to one.

The history of the discovery of the plasmodium malariæ and the various theories set forth by the different observers as to its character furnish interesting matter for study and investigation.

At first thought it would seem as though a recapitulation of the theories and observations of students interested in the malarial organism would be superfluous, but to understand fully the following pages such a résumé will be of great advantage.

Perhaps the greatest honor is due Laveran, after whom the parasite is named; however, extensive investigations and discoveries have since been made by Golgi, Marchiafava, Celli and others.

Although Lewis, in 1879, discovered hematozoa in the blood of warm-blooded animals, Laveran, a French military surgeon, in 1880, was the first man to demonstrate living organisms in the blood of individuals suffering from malarial fevers. At this time Laveran was stationed in Algeria, where malarial fever was prevalent. This afforded him excellent opportunity for studying the disease and the parasite. Laveran made his first discovery in November of this year. While examining the blood of a malarial patient he observed, floating in the plasma among the corpuscles, motile pigmented bodies provided with actively moving filaments or flagella. The next month, in the examination of forty-four cases of supposed malaria, in twenty-six the parasite was demonstrable. As a result of his studies he describes the parasite under three forms.

1. Crescentic or ovoid forms 8 or 9 μ in length and 2 μ in diameter. These bodies are colorless and transparent except for small clumps of pigment in the center or at the ends of the organism. The pigment granules assume the form of wreaths. The bodies are practically non-motile and in some instances pale, protoplasmic filaments appear to connect the extremities. Laveran believed that the crescentic forms originated in the ovoid or spherical flaggellate forms, next to be described, and had the power of returning to the spherical shape.

2. Bodies which in repose are spherical and transparent, 5 to 7 μ in diameter and contain rings of rounded pigment granules of equal size. When these bodies are found in motion they are provided with from three to five long, thread-like processes which he calls "flagella." The organism appears to use these as a means of locomotion. In length they are two or three times that of the diameter of a red corpuscle, the ends of the filaments being enlarged. When the parasite is in motion the protoplasm seems to be greatly agitated, as is evidenced by the rapid rotating and dancing of the pigment granules within. He describes the flagella as being developed outside of the organism and detached when complete in their development. He observes particles of pigment to emanate from the organism through these flagella.

3. Laveran describes a third form which he supposes to be dead organisms (cadavers). These are of spherical form, from 8 to 10 μ in diameter, granular, non-motile, not provided with flagella and contain irregularly arranged pigment granules. At times he finds in these bodies granules which are fiery red or blue in color.

Later, in 1881, Laveran added a fourth form to his classification. He describes bodies transparent and spherical containing both motile and non-motile pigment granules. These bodies are as a rule small, varying in size from one-sixth to the full size of a red corpuscle. In the smallest there is but one granule of practically non-motile pigment. In the larger bodies from eight to ten motile pigment granules are present.

In summing up his discovery, Laveran says: "There exists in the blood of patients suffering from malaria parasitic elements which have hitherto been confounded with melaniferous leucocytes. The presence of these parasites in the blood is probably the cause of the manifestations of paludism."

As to the nature of the organism Laveran concludes that forms 1 and 2 consist of an accumulation of cysts, formed in the corpuscles by extra corpuscular organisms represented by the flagella. These, developing at the expense of the red corpuscles and acquiring motility, separate themselves from the products of their activity and live independent lives.

In 1882 the discoveries of Laveran were corroborated to a great extent by Richards, who also studied the parasite in Algeria. Richards describes the earlier stages more accurately than Laveran. He notes a form in which there is no pigment and advances the theory that this form precedes the stages in which little pigment is found. He discovers that as the organism increases in size and the pigment in quantity, that the corpuscle expands and loses its color and finally the cell wall breaks. He agrees with Laveran in that the organism in its perfected state consists of the flagellate form and finally concludes that the parasite is extra corpuscular although he was at first inclined to consider it as endoglobular. He advocates the theory that the number of organisms increase until the beginning of the paroxysm. He says "they produce the fever, the fever kills the parasite, and falls in its turn, the process of reproduction going on between paroxysms."

At this time in Italy investigations of a different nature were being carried on by such noted biologists as Klebs, Tomassi, Crudeli, Marchiafava, Gaule and Celli. These men, looking at the origin of malaria from the bacteriologic standpoint, were convinced that they had demonstrated a micrococcus which, when present in the human organism, produced symptoms of malaria. They found small round bodies in the blood of malarial patients which stained with methylene blue. They found also ring-shaped bodies. These they claim to be of bacterial origin. They distinguished also the pigmented bodies of Laveran and Richards, but consider these granules as degenerated debris caused by the action of the bacterial organisms upon the red corpuscles. They explain the existence of filaments described by Laveran and Richards as resulting from the temperature and show by actual experiment that normal red corpuscles heated from 40 to 48 degrees C. show these filaments. They account for the crescents by claiming that they are caused by the discoloration of a portion of the periphery of the red corpuscle, the rest retaining its color. In 1885 Marchiafava and Celli withdrew this theory of the bacterial origin and agreed with Laveran and his parasitic theory. They carefully studied all the organisms noted by Laveran and Richards, and furthermore describe organisms containing abundant pigment, within which they are able to detect a differentiation into smaller bodies. In some of these cases the pigment is collected in the center, and evidence of segmentation is present in the surrounding protoplasm,

while in others the pigment seems to be arranged in the center and segmentation complete. The fact that they observed small hyaline forms greatly influenced them in their change of position. These smaller hyaline forms they describe as consisting of two zones, an outer or thicker more refractive zone, and an inner more granular and less refracting one. These organisms they describe as ameboid and provided with filaments issuing from the outer zone. They disagree with Laveran in the position of the organism. They hold that the organism is endoglobular, while Laveran still held to the belief that they were attached to the external surface of the corpuscle. Therefore to Marchiafava and Celli must be given the great credit of being the first to demonstrate segmentation and to bring forth the theory of the endoglobular existence of the parasite. Although they are unable to prove their belief, they state as highly probable that the process of segmentation is one of reproduction. Laveran also believed that the small forms which he discovered were of embryonal nature. These men ridicule the cystic theory of Laveran and the existence of separate crescentic types.

Subsequent to the discoveries of Laveran, Richards, Marchiafava and Celli, many investigations were made, confirmatory to the observations of these men. In 1885 Councilman and Abbott made extensive research. They demonstrate the presence of the organism in the capillaries of the brain, liver and spleen in two cases of comatose, pernicious malaria. These organisms are both pigmented and non-pigmented, and within and outside the red corpusles.

Summarizing the investigations up to this date (1885) we must describe the malarial organism as consisting of a small, hyaline, ameboid, endoglobular parasite which on development shows fine, actively moving pigment granules. These bodies, eventually filling up the red corpuscle, decolorize, and finally destroy it. Having reached the adult stage the pigment becomes collected in the center of the organism while segmentation is observed in the surrounding protoplasm. The small hyaline bodies, according to Laveran, have the power of taking the form of crescents from which pigment and flagella develop. Laveran believes that the flagella are the organisms, that they are of extra corpuscular nature and the body containing the pigment the result of cystic degeneration. On the other hand Marchiafava and Celli hold that the pigmented body is the true organism, that it is endoglobular, and the flagella simply pseudopodia.

Up to this time there had been no disagreement as to the relation of the organisms to the clinical features. It was ceded by Laveran and his followers that the various forms observed were all of the same organism. Laveran says himself: "I do not believe that there exists a constant relation between the forms under which the hematozoa exist in the blood and the clinical manifestations of paludism. One can only say that certain forms of the parasite are more often seen in certain cases, the crescents, for example, in relapses and in malarial cachexia, as I have often demonstrated."

In 1885, when Golgi published an account of his discoveries, the theories which he set forth caused a division among students of malaria. Two factions sprang up. At the head of one was Laveran, while Golgi was the leader of the second. Laveran asserts, as has been said, that there exists no relation between the clinical manifestations of the various types of the fever and the several forms of the parasite. Golgi, however, holds that there are probably many distinct types of the parasite and that there is a distinct and readily recognizable relation between the form of parasite and clinical manifestations.

Golgi's theories are based upon the study of the parasite found in quartan ague. Although Marchiafava and Celli note in a few cases that segmentation was seen during the paroxysm, Golgi was the first to demonstrate the fact that segmentation of a group of organisms could always be seen during a malarial paroxysm. He also proves conclusively that the severity of the attack is in direct proportion to the number of segmenting organisms. In the study of the parasite of quartan ague during the first day after the paroxysm a small, hyaline, non-pigmented body in the red corpuscle is observed. This body is motile but sluggish in its movement. On the second day the body is increased slightly in size and a few granules of pigment are present in the center. The granules of pigment are large in size, of a brownish red color, and move about slowly in the organism. This organism gradually grows until six hours before the next paroxysm, when signs of segmentation become apparent. At this stage the organism has practically filled but has not distended the corpuscle. Pigment granules are still few in number and their movement sluggish. Before segmentation the pigment collects into the center; soon radiating lines divide the organism into from eight to ten segments, forming the so-called marguerite forms of Golgi. Soon the organism is seen to divide and the hyaline forms to pass out into the plasma. At the same time hyaline forms are seen to appear in the red corpuscle. Although Golgi did not see these hyaline forms enter the red corpuscles, he was firmly convinced that they were one and the same. In cases of quotidian paroxysms he demonstrates the presence of a triple infection, that is, the presence of three distinct groups of parasites segmenting on different days. Thus, one group segments every day, causing daily paroxysms. In like manner he proves the cause of the tertian paroxysm(?)

These observations have been in most instances proven by many careful and conscientious students.

Antolisei agrees with Golgi in the main, but insists that the paroxysm is caused by the segmentation and the rupturing of the red corpuscle and not by the entrance of the hyaline bodies into the corpuscles as is held by Golgi. He proves his point by showing that quinin, even when administered in full doses shortly before a paroxysm, will not stop the paroxysm or segmentation, but will prevent the hyaline bodies from entering the corpuscles.

Golgi, after having extensively studied the parasite of quartan ague, demonstrates also the presence of an entirely different type of organism as productive of the symptoms of tertian malaria. He studied this organism carefully for three years (1886 to 1889) and concludes from the result of his researches that the embryonal form of the tertian parasite is similar to that of the quartan. This form, he says, "consists of a small, round, non-pigmented, transparent, motile body in the red corpuscle, which reaches its adult stage in forty-eight hours. At the end of this time an abundance of pigment is present and segmentation with accompanping paroxysm takes place with the appearance of hyaline bodies in the red corpuscles." Golgi moreover notes other differences between the

tertian and quartan parasite which may be tabulated as follows:

Motion. The tertian organism in both its hyaline and adult forms is more active than the quartan.

Pigmentation. 1. The number of granules in the tertian type is greater than that in the quartan. 2. These granules are much smaller in the tertian. 3. Their movement is more pronounced; and 4. Their color is lighter in shade.

Size. As the tertian organism grows it distends the corpuscle, which loses its color, while in case of the quartan parasite the corpuscle does not swell and is but slightly decolorized. In fact, the corpuscle containing this organism seems to shrink. The adult tertian parasite is much larger than the quartan.

Segmentation. 1. During segmentation the tertian organism is seen to divide into from fifteen to twenty segments, while the quartan divides into from eight to twelve. 2. The segments of the tertian parasite are smaller than the quartan. 3. During the segmentation of the quartan parasite Golgi demonstrates the presence of a central refractive area, but is unable to find such an area in the tertian. This refractive area appears to have a definite wall of differentiated protoplasm and contains the pigment granules during segmentation. As regards the destiny of this latter area Golgi is uncertain. He presents two theories; one to the effect that the body remains active and enters the red corpuscle and reproduces its like, the other theory being that it is consumed by phagocytes.

Beside the methods of segmentation common to the tertian and quartan forms Golgi demonstrates another form. In this the pigment is seen to collect in the periphery of the organism, leaving a clear center in which one or two spherical, sporelike bodies appear.

In order to disprove this form of segmentation Antolisei spent much study and experimentation. He finally decided that the process was one of degeneration and that the spherules discerned by Golgi were vacuoles. When the organism had completely destroyed the corpuscle Antolisei observed a spherical area in the center of the organism near its periphery. "Soon," he states, "a transparent, distinctly outlined sphere appears in the area, and about this sphere vacuoles appear which constantly multiply in number and seem to decrease in size. Surrounding these vacuoles is motionless pigment, while the pigment removed from the central area seem to increase in motion. Sometimes the enclosing membrane bursts and a hernia of the contents of the organism results. In this cut-off or fragmented portion the same process of vacuolization continues. This process goes on until finally the organism is completely filled with minute spherules, separated by motionless pigment granules and enclosed within a membrane which is probably the cell wall. Finally this wall bursts and throws the contents of the parasite into the plasma." Antolisei concludes that vacuolation, fragmentation and flagellation are all forms of degeneration. He bases his theory upon the fact that he finds all these changes in organisms of the same size. He also claims that true segmentation rarely takes place in the circulating blood, but generally occurs in the internal organs. He bases this belief upon the fact that segmenting organisms found in the circulating blood are seldom larger than the red blood corpuscles, while the true segmenting forms found in the internal organs are much larger. He believes that the larger forms found in the circulating blood are dead organisms undergoing vacuolation or segmentation.

The comparative examination of blood taken from the spleen and peripheral circulation has been carried further by Bastianelli and Bignami. They determined that during apyrexia the number of organisms in the spleen and peripheral circulation was the same, but that during, and just before the paroxysm, many more organisms were found in the spleen than in the periphery. They explain this fact upon physiologic grounds, stating that when the corpuscles are intact there is naturally no tendency for them to collect in the spleen, but when they are the subject of pathologic change these disabled cells immediately seek the spleen for removal.

These men set forth the theory that in quartan ague the distribution of the organism is more uniform than in the tertian type. They explain this by stating that in this type there is less disturbance in the continuity of the corpuscle while it is being destroyed. They also discovered bodies provided with a small amount of pigment, surrounded by from five to ten round sporelike bodies. These they term organisms of a shorter cycle, since they found them in irregular and anticipating quotidian fevers. They agree with Antolisei as to the probable nature of vacuolization, flagellation and fragmentation, and furthermore suggest that the severity of the fever is in inverse ratio to the number of these organisms present.

Councilman, in 1887, first associated with irregular and continuous fevers another organism clearly distinct from the quartan and tertian types. He discovered a crescentic and elongated body which he found to be constant in remittent fevers. Thus he declared that he was always able to distinguish an intermittent and remittent type by the blood examination. In 1889 the discoveries of Councilman were corroborated by Marchiafava and Celli and Pietro Canalis.

The description of this type given by Canalis divides it into two classes: 1, the rapid cycle and 2, the slow or crescentic cycle. He terms this latter type the semi-lunar type.

Canalis determined that the first class generally matures in less than forty-eight hours, though he points out one case in which there is a complete cycle of only twenty-four hours. Two or three hours after the first attack Canalis notes small, spherical, ameboid organisms in the red corpuscles. About the periphery is a clear rim of ectoplasm surrounding a more shaded endoplasm which resembles a nu leus. This endoplasm at times is fragmented, resembling several nuclei. As the organism grows it becomes more active, when there appears in the periphery fine dark red or black pigment granules. As the organism reaches the adult stage the pigment gathers in the center in the form of a densely packed clump, and segmentation occurs as observed by Golgi in quartan ague. This form differs from the other forms in that it decolorizes the corpuscle even less than the quartan, contains rarely more than six granules of pigment and divides into only five or six segments.

The second or slow cycle of Canalis takes from three to five days to complete its development. It is rarely found in combination with the first, and when this does happen it is after the latter has been unsuccessfully treated. Canalis says that this form begins very much as does the first, but soon the organism assumes an elliptical form and pigment collects in the center. This gradually takes on a cresentic form, decolorizes the corpuscle and at times shows presence of double contour, thus giving evidence of a surrounding mem-

brane. These crescentic forms are seen to assume ovoid or crescentic forms, though the organism in some instances passes directly from the hyaline form into the adult spherical form without passing through the intermediate crescentic stage. Canalis states that he has noted the segmentation of crescents. In this he is upheld by Antolisei and Angelini. The pigment of these forms is non-motile, arranged concentrically in a closely packed clump, crown or wreath. He describes sporulation as taking place in the spherical stage. During sporulation the ectoplasm breaks up into from eight to ten spherules. These spherules are small and resemble the hyaline forms of the first cycle. On rupture of the organism its contents are thrown into the blood stream, the pigment granules being scattered through the plasma separately or in a clump surrounded by a membrane. Canalis notes that paroxysms occur during this process and accordingly calls it true sporulation.

Canalis differentiates between the process of sporulation and degeneration in the following points:

1. In the degenerating organism, there is no color, the ashy yellow tinge being replaced by a colorless highly refractive body.

2. The degenerate organism shows spherules, varying in size which may on close and continued observation be seen to coalesce. Thus all the spherules in an organism may unite into one. In sporulation the spores are equal in size.

3. The sporulating organism has a clearly defined double contour while the spherules of degeneration never do.

4. Degenerating forms are found in apyrexia and their appearance does not precede the presence of hyaline forms in the red corpuscles as in the case of sporulation.

Canalis demonstrates the presence of flagellate bodies in many cases of the second cycle. In every instance he finds them in the spherical, adult form of the parasite shortly before the paroxysm. From this fact he comes to the conclusion that flagellation is one of the last stages in the development of the organism.

Experiments of Marchiafava and Celli corroborate in a great measure those made by Canalis. They account for the prolonged and irregular paroxysms, not from the fact that there may be a large group of organisms which on segmenting cause this condition, but from the irregularity in the length of the cycles of different organisms. Thus, at certain times groups of organisms may segment one after the other. This, they contend, accounts for the continuous fever, the chill being covered up by the preceding pyretic stage. They conclude that the crescent is associated with pernicious forms. They cite grave cases where the crescents could not be demonstrated and also cases where this organism is present but no temperature exists. The latter phenomenon they do not attempt to explain.

These gentlemen, Marchiafava and Celli, describe the organism practically as does Canalis, noting the fact that pigment is small in quantity and appears very suddenly before the paroxysm. They state that in some instances they have seen organisms pursue the whole course of their existence without the development of any pigment. In this they are upheld by Antolisei and Angelini. They note also that the coloring matter of the corpuscle seems to collect about the periphery of the organism, being itself early decolorized at its own periphery. This coloring matter they describe as taking on a peculiar brassy hue. They claim to have found many instances where the corpuscle was greatly crenated even when the organism was still in its hyaline form. In a few cases they were able to demonstrate segmentation in the circulating blood, but always found it in the internal organs and in severe cases in the capillaries of the brain. These investigators recognize the crescents but are not able to corroborate the observations of others as to its segmentation. They believe that the degenerative changes are present.

As a result of these investigations Marchiafava and Celli in common with Canalis claim the existence of a new type of material organism, characterized by an irregular length of cycle, hyaline, crescentic and spherical stages associated with a continued pernicious and irregular course occurring chiefly in the summer and fall and unamenable to treatment. On account of the time of appearance of this type they have termed it the "estivo-autumnal type."

Marchiafava and Bignami later made interesting observations in regard to the estivo-autumnal type. They note as does Canalis two types of parasites which they term "quotidian" and "tertian or malignant." They describe the "quotidian" as consisting primarily of a small, ring-like hyaline body seen in the red corpuscle. The organism completing its cycle in twenty-four hours and undergoing segmentation with the development of little or no pigment, closely resembles the first cycle of Canalis.

The second form of Marchiafava and Bignami, in the commencement of its cycle, appears much the same as the quotidian but takes about forty-eight hours for development, always exhibiting pigment and at times associated with crescents.

In both types few organisms are found in the circulating blood but are abundant in the internal organs. Also in both types the corpuscle is shrunken and of a brassy hue and segmentation takes place while the corpuscle is yet intact. The tertian organism is much larger than the quotidian; segmentation is observed earlier and there is greater activity in the former than in the latter.

These forms differ from the ordinary spring quotidian and tertian forms, in that they are much smaller; present ring-shape hyaline forms; contain much less pigment which is practically inactive; divide into fewer segments; shrink instead of distend the corpuscle—which turns to a brassy hue; and show the presence of crescents, which are never seen in the ordinary tertain forms.

As to the peculiar paroxysms caused by these organisms the theories of Marchiafava and Bignami are, to say the least, unique. They account for those types of estivo-autumnal fever in which the paroxsyms are quotidian in character as caused by the first described organism. The fact of irregularity is explained by a tendency toward retardation and anticipation of the organism in segmenting. Thus they explain the almost continuous fever and the fever which borders upon the tertian form. In like manner they explain the irregularity of the tertian form associated with which are more severe constitutional symptoms and the presence of crescenst.

The observations of Golgi in Rome in regard to the æstivo-autumnal fevers go to disprove the observations of Marchiafava and Bignami. Golgi asserts that the pathologic process is not understood and that

the classification of Marchiafava and Bignami is entirely hypothetical. He finally concludes that the presence of the organism in the blood is more accidental than a direct cause of the disease. He states as highly probable that the observed organisms are the beginnings of cycles, the length of which is at present little understood. Golgi notes three stages of development: The first, an ameboid non-pigmented hyaline body seen in circulating blood. The second stage consists of small or large pigmented presegmenting bodies found in the internal organs. The third stage consists of segmenting bodies. He describes three forms of segmentation. The first is similar to that seen in quartan and the ordinary forms, differing in that there may be as many as fifty segments. In the second form the segments do not number more than eight or ten. In the third form the organism varies from one-third the size of a red corpuscle to even larger than the corpuscle. Segmentation in this latter instance takes place in the form of an irregular mulberry mass which surrounds the centrally located pigment. Golgi is of the opinion that these organisms are often found in phagocytes, in which they grow, segment and reproduce.

In summing up his observations regarding malarial fevers, Golgi gives to the world the following classification:

1. Fevers the cause of which lies in the existence in the blood of parasites whose habitat is principally in the circulating blood: *a*, the tertian parasite; *b*, the quartan parasite.

2. Fevers the cause of which lies in the existence in the blood of parasites whose habitat is principally in the bone-marrow and spleen. The parasite in this group he confesses his inability to classify completely and refers to the crescents as "forms the biology of which has not yet been well determined."

As a result of the investigations of other men we have many and various classifications of the organism. An ingenious classification is proposed by Grassi and Felletti, who give five separate types:

1. Hæmamœba præcox, a quotidian type with tendency toward anticipation.

2. Hæmamœba immacula, a similar organism, but more rapid and generally non-pigmented.

3. Hæmamœba vivax, the organism giving rise to tertian fever.

4. Hæmamœba, the organism of quartan fever.

5. Laverania malariæ, giving rise to irregular fevers.

These observers are confident that their classification is the same as the quotidian type of the æstivo-autumnal classification of Marchiafava, and agree with Canalis, Golgi, Antolisei and Angelini that segmentation may occur in the cresentic forms.

Sacharoff describes a parasite found in irregular forms which corresponds to the æstivo-autumnal parasite of Marchiafava, except that it is more frequently found in the circulating blood. He gives the following classification:

1. Hæmamœba præcox (Gra.).
2. Laverania (Gra.).
3. Hæmamœba febris tertianæ (Gol.).
4. Hæmamœba febris quartanæ (Gol.).

Later Mannaberg after extensive study of the parasite, gives the following classification which he claims to have vindicated.

1. Malarial parasites with sporulation without syzygia: *a*, quartan parasite; *b*, tertian parasite.

2. Malarial parasites with sporulation and syzygia: *a*, pigmented quotidian parasite; *b*, non-pigmented quotidian parasite; *c*, malignant tertian parasite.

The last and perhaps the most complete study of the organism of malaria has been made by men of our own country, Thayer and Hewetson of Johns Hopkins University, Baltimore. Their investigations divide the organism into three classes:

1. Tertian.
2. Quartan.
3. Estivo-autumnal.

With the exception of one investigator no one has been able as yet to cultivate the plasmodium malariæ upon medium used in the culture of bacteria. This one, Coronado, claims that he has cultivated the parasite in water taken from a source whence many persons had contracted the disease. He claims, moreover, to thus have traced the entire development of the organism. He claims also to have seen the development of the flagella from the pigmented forms which becoming free broke into from ten to fifteen parts, which began anew the cycle of the organism's existence. These experiments, however, we can not accept as facts, as many other competent and distinguished men have been unable to obtain like results.

Positive results, however, have been obtained in attempts to preserve the activity of the organism outside of the body. Sacharoff succeeded in preserving the estivo-autumnal organism for seven days by means of the use of ice. The parasite at this time retained its ameboid movements and staining qualities. In the case of the tertian parasite, at the end of forty-eight hours all the adult forms had disappeared, only the hyaline bodies remaining.

Inoculation experiments have been successfully made. Gerhardt was the first to show that malarial fever could be produced by inoculation. In two cases he produced quotidian paroxysms by infusing blood from a patient suffering from this form of the disease. The stages of incubation were respectively six and sixteen days. Later Marchiafava and Celli, and Manotti and Ciarrochi made successful inoculations. In each case they found in the blood of the inoculated persons the same form of the organism as was present in the blood of the patient from whom the inoculation organisms were taken. The time of incubation was from eight to fourteen days.

Gualdi and Antolisei made inoculations from the blood of patients suffering with quartan fever, and obtained the estivo-autumnal form. From this they claim to have proved their theory that different types of the organism are not associated with different clinical manifestations. However, it was later proven that the patient from whom the blood had been taken had but shortly before the inoculation suffered from estivo-autumnal fever. The existence of the estivo-autumnal type in the inoculated person is explained by the theory that the latest estivo-autumnal organisms reaching at this time their development, overpowered the quartan parasites.

This experiment leads to interesting observations made by Di Mattei, who injected the blood of a patient suffering with quartan fever into one suffering from estivo-autumnal fever. In sixteen days there was no evidence of the existence of the estivo-autumnal parasite, none but quartan being present. He also inoculated a patient suffering with quartan fever with the estivo-autumnal organism. In ten days the quartan had disappeared, being replaced by the organism of the estivo-autumnal type.

Calandruccio, who had never suffered from malaria, successfully inoculated himself with the tertian organism. In the case of other patients he obtained positive results from inoculations of estivo-autumnal organisms.

Bein in his experiments found that he often obtained by inoculation from a quartan fever one of the tertian type, and also from the tertian the quotidian type.

From the above experiments we may draw the following conclusions:

1. The plasmodium malariæ can be transmitted by inoculation.

2. The same type of organism is always obtained.

3. The average length of the period of incubation is from eleven to twelve days.

4. When more than one type of organism is present at the same time, the symptoms are produced by one variety alone, the growth of this type being associated with the disappearance of the other.

In the preceding digest of the works of the most prominent men engaged in the study of the parasite of malaria, the writer has endeavored to give some idea of the theories which have thus far been given to the scientific and medical world. At times these theories are in harmony, but perhaps oftener are opposed to one another.

It will be the object of the writer to separate from this chaos those theories which he has been able to establish through his own personal research. He will also aim, as far as possible, to set forth those theories which he has been unable to attempt to corroborate, but which have been accepted by the most competent investigators of to-day.

(To be continued.)

HOW MUCH PHARMACY SHOULD BE TAUGHT IN MEDICAL COLLEGES?

Read in the Section on Materia Medica, Pharmacy and Therapeutics, at the Forty-Seventh Annual Meeting of the American Medical Association at Atlanta, Georgia, May 5-8, 1896.

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QUINCY, ILL.

Notwithstanding modern tendencies, the main question is not how long the college course, but what and how well it is taught. The real value a student gets out of his college life depends upon the curriculum and the thoroughness with which things are learned, not upon how much of one thing he learns. The balancing of the curriculum is the most neglected as well as the most important consideration occupying the attention of faculties. Too often that professor who is most energetic in his college work has the most of the students' time, and the laziest professor is seen least at the college. Some colleges in America turn out pathologists, some surgeons, others chemists, and a few dermatologists, the graduates in each case being weak in other equally important departments of medical knowledge.

Again, each chair should lay out its work according to a definite plan in which each part receives exactly the proper emphasis, so as to teach the most valuable things pertaining to that department in the time allotted it; the surgeon should not teach the pathology of tumors completely and say little about fractures and dislocations; nor should the chair of materia medica teach botany to twice the extent of physiologic action. That these truisms, so axiomatic when formulated, really need to be called to the attention of many teachers is proven by the work actually being done in colleges which are rightly considered first class institutions of medical learning. While they deserve extended consideration, they are stated here simply to logically lead up to the question which touches the interests of every medical man and is the title of this paper.

Whether the course be two or twelve years long, the chair of materia medica and therapeutics can not cover the whole field of accepted knowledge in its department of science, because the bacteriologists, the dyeworks, the African savages and the psychologists are all combined to furnish grist for the mill far beyond its capacity to utilize. The teacher must first separate the wheat from the overwhelming mass of chaff, and then again choose those grains which will afford the most valuable pabulum to his students. The need of these students is something to enable them to practice medicine scientifically, safely and esthetically. Pharmacy is an ingredient of each and all of these requisites.

Scientific medicine requires training in and the practice of great accuracy. Pharmacy conduces to this by its very character. The number of prescriptions written so as to be chemically or pharmaceutically incompatible should be no greater than the number containing mistakes in therapy or indicating errors in diagnosis. It is just as discordant to the cultured ear to hear a reference to green iodid of mercury, to have the fluid extract and the extract of nux vomica spoken of as two entirely different drugs as regards their dynamism, or to be informed about the tincture of pilocarpin, as it is repugnant to the educated mind to read of Bright's disease, surgery without anesthetics, or the humor pathology of boils. In both cases it is not merely the nomenclature which excites our derision, but the lack of real knowledge back of the terms used, as evidenced by the language itself. The physician who makes a diagnosis of Bright's disease and bases his therapeutics thereon is not giving the patient the advantage of the common scientific knowledge of the day; and neither is the physician who prescribes fluid extract of pilocarpus when pilocarpin is needed. It is not true that all of the galenical preparations of a given drug always have the same dynamic action; to know when differences arise in the action of different official preparations requires a knowledge of pharmacy, and not to know is to be unscientific in one's therapeutics. A widely diffused knowledge of pharmacy within our profession would at once cause the death from financial starvation of most of the proprietary medicines which now have almost as large a sale to physicians as their predecessors in the patent medicine field had to the laity thirty years ago. That this is equivalent to an immense increase in scientific therapeutics goes without saying.

The element of safety in prescribing and dispensing touches pharmacy at several points. Incompatibility with dangerous results is perhaps the least important. The difference between the intentions of the physician and the actual administration of the medicine at once suggests itself. The basic function of the Pharmacopeia and the National Formulary is to attain uniformity of definition of drugs and their combinations, so that the patient shall receive from the pharmacist exactly what the physician had in mind when

the prescription was written. Very much of the dissatisfaction with the work of the pharmacist comes from the physician writing for one thing and the pharmacist putting up what the scientific world has agreed should be so denominated, while the physician had in mind quite another thing as the definition of the noun he used. In the cases—which the writer believes to be comparatively rare—where there is actual dishonesty upon the part of the pharmacist, a comparatively slight knowledge of pharmacy would detect the fraud and conduce to the safety of the patient.

The question of esthetics in the administration of medicines has practically been decided by compulsion from the patients. We were forced to meet the homeopaths on their own ground some time ago in this respect. But there is a higher motive in palatable prescribing than to please the patient. Palatable prescriptions are taken more regularly, the exact dosage is maintained better, and the psychic effect is not to be ignored. None of these advantages can be attained without a knowledge of pharmacy unless we fly into the arms of the patent medicine purveyors to the profession.

What has been said about prescribers applies with even greater force to those physicians who dispense their own prescriptions. The pharmacist notes the error in the written prescription and telephones the doctor, who insists that there is no error and orders the prescription changed. The dispensing physician has not the advantage of this proofreader. The physician who writes prescriptions ignorantly receives the punishment himself in the contempt of the pharmacist who fills them; the dispenser, ignorant of the pharmacal art he is practicing, causes the innocent patient to suffer the effect of his pharmaceutical mistakes.

Admitting the value of pharmacal knowledge to the practicing physician, the question of how much he is to be taught must have due regard to the time that can be allotted to the subject in the college which teaches him. The teaching of pharmacology should come at the beginning of the course in materia medica. The experience of the writer, harmonized with his opinions above set forth, is that the subject should be given a full year. This means that the freshman year should be devoted in this department to pharmacology; the time may be shortened enough to admit teaching the methods and times of administering medicines in the same year. The second and third years may be then devoted to dynamic action and therapeutics; three years of a four-year course is all that the chair should be allotted in the curriculum.

Not much pharmacy, comparatively speaking, can be taught in the hours allotted to one chair for one year; but it is approximately enough for the physician; it should be apparent that the latter does not need so much as the professional pharmacist. The next consideration is, what part of pharmaceutic knowledge is most important to the physician and should be taught him. The opinion of the writer is expressed in the following syllabus:

Definition of various general terms; definition and description (with history) of the United States Pharmacopeia and National Formulary; valuable unofficial drugs, and why not admitted; the relation of proprietary preparations to scientific medicine; when they may be rationally used; nomenclature; the classification of the pharmacopeia, including definition, modes of preparation, and peculiarities of each class of preparations, beginning with crude drugs, every detail being actually performed by the student in the laboratory assumed to be attached to the chair under a competent demonstrator; posology; prescriptions, the construction of; chemic and pharmaceutic incompatibility; esthetic prescribing (all illustrated by the student's own work in the laboratory).

This schedule does not trespass upon the domain of the chair of chemistry, and in actual application has given excellent results. Students who return as experienced practitioners express a high opinion of its value to the physician, and not one complains that the time could have been devoted better to other things. The one drawback to it has been the absence of adequate textbooks, the latter being either too elementary or else too complete in their pharmacology. It is a disadvantage to render necessary even one more textbook for the modern student. The works on materia medica and therapeutics, except Potter's textbook, slight the subject under consideration as a rule. There has lately been issued a textbook upon pharmacy which is really more than its title implies.[1] It is really such a comprehensive treatise upon medical chemistry, that many professors of chemistry will be very willing to adopt it as a text for that department, while it leaves little to be desired as a textbook correlative to the work under the chair of materia medica outlined above; its double use in this way will obviate the most serious defect in the writer's plan with which he has had to contend.

The response to the expected inquiry as to why this paper was not presented to the American Medical College Association instead of to this section may as well be made in advance. It might as well be admitted that the curricula of colleges is largely dependent upon what the general profession demands. Hygiene and sanitation will not be given much attention in colleges, in spite of State boards and legislation, until the profession is more generally awakened to the importance of this subject; bacteriology is as a rule sufficiently taught because the profession realizes its importance in the modern practice of medicine; whatever the profession thinks is the proper amount of pharmacology needed by the practitioner, that much will be taught in the generality of colleges. The question, which is the title of this paper, is therefore brought directly to the power which will make the final decision in the matter.

THE TEACHING OF MATERIA MEDICA AND THERAPEUTICS IN RUSH MEDICAL COLLEGE.

Read in the Section on Materia Medica, Pharmacy and Therapeutics, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5–8, 1896.

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The teaching of materia medica and therapeutics in Rush Medical College is done in a lecture room, recitation rooms and the laboratory of materia medica. I have associated with me in the work eight assistants; one is the director of the laboratory, one gives the didactic lectures in materia medica and the others, as instructors, hear the recitations and assist in the laboratory work.

[1] A Treatise on Pharmacy by Charles Caspari, Jr., Ph.G., Philadelphia, 1895.

The materia medica is taught in the second year of the college course (a four years' course), because it is necessary, in my judgment, that the student should have a freshman's knowledge of chemistry and physiology to enable him to do good work in this branch. As an introduction to the course one hour a week in the last half of the freshman year is devoted to a lecture on medical pharmacy, by I. A. Patton, M.D., the director of the laboratory.

The subject of materia medica is divided into twenty-eight topics, and one week given to each. The subject is introduced by two didactic lectures, one hour each, given by S. L. Weber, M.D. This is followed by two hours of laboratory work and this by one hour of recitation. Five hours a week are therefore given to each topic. The whole class attends the lectures in one of the lecture rooms.

The class is divided into sections of from forty to fifty students for the laboratory and recitation work. The instructor who conducts the recitation of the section, is the assistant to the demonstrator for that section in the laboratory work.

In the laboratory work each student is furnished with a manifold copy of his day's work. He has already had two hours of didactic teaching on the subject matter. He now examines the physical properties of the drugs, makes such tests as are desirable to determine purity and show incompatibilities; either makes a pharmaceutic preparation or compounds a prescription, and at each exercise either writes a prescription in both English and metric systems or criticises a prescription written by the demonstrator.

There are three examinations in course during the term on the didactic, recitation and laboratory work, and one week is given to each. The student's final average is made up from his general recitation and laboratory work, and these three examinations. The course in materia medica, therefore, consists of 140 hours' work in the college.

Materia Medica Laboratory.—During the course each student has examined over three hundred crude and finished drugs regarding their physical, chemic, pharmaceutic and medicinal properties. Twelve pharmaceutic preparations have been made during the course illustrating liquors, tinctures, wines, syrups, compound syrups, infusions, liniments, pills, ointments, etc. Thirty compound prescriptions have been written, corrected and returned. Twenty prescriptions have been compounded, illustrating most all kinds of prescription work. Three hundred or more tests of incompatibility have been made; calculation of dosage for prescriptions, of percentage solutions by weight and volume; comparison of apothecary and metric systems, etc. Desk room for sixty students to work at one-time and cabinet space for 120 complete sets of apparatus is provided in the laboratory.

Therapeutics is taught by didactic lectures and laboratory work. The didactic course consists of sixty hours of work. The materia medica, as far as practicable, is grouped around the great functions of the body and their diseases. The course begins with those substances acting on the digestion, nutrition (tissue waste and repair), calorification; then are considered those acting on the nervous system, organs of circulation, sexual organs, alimentary canal, those acting on the various secretions. The therapeutics of the principal disease of each of the organs and functions is made the central feature of each lecture.

The laboratory course consists of twenty-two hours instruction, the first half of which is devoted to electro-therapeutic appliances, as follows: General physics of electricity and theories of battery construction; electrolysis, cataphoresis; physiologic action in general; catalysis, electro-diagnosis, cautery, electric light, faradic batteries and currents, static and alternating machines. These exercises are illustrated by the use of batteries, electric machines, etc. The students construct the batteries, if possible. The remainder of the course is given to massage, lavage, enemata, colonic flushing, preparing articles of diet for the sick, to pneumotherapy, blistering, cupping, leeching, wet packing and hypodermic medication. Throughout the course use is made of dispensary and hospital patients for the purpose of illustrating all possible points.

The class is divided into sections of twenty; to each is assigned an instructor and the demonstrator directs the whole. A special instructor, Miss Mabel Hayes, who is the teacher of cooking in the Illinois Training School for Nurses, gives the lessons in preparations of foods for the sick.

I am very sure that since the introduction of these two laboratory courses, our students go out better prepared in materia medica and more familiar with therapeutics than ever before. These laboratory courses are still in a developmental state, and I presume each year will witness a lengthening of the time given to this work, and a possible lessening of the time given to didactic teaching.

TUBERCLE ANTITOXIN OR ANTI-TUBERCULIN.

Read in the Section on Materia Medica, Pharmacy and Therapeutics at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5–8, 1896.

BY PAUL PAQUIN, M.D.

ST. LOUIS, MO.

It is probably to Richet and Hericourt[1] that the principle of sero-therapy is due, because they were first in formulating it fairly in their researches on the micrococcus pyosepticus. All other investigations, due chiefly to the initiative of Behring, have confirmed the almost prophetic possibilities of the claims of these two investigators, particularly on the general activity of serum as a living microbicide power.

But it is not on its general antiseptic property that the therapeutic value of serum rests, for it is inconstant. It rests on a physiologic problem, long combated, viz.: phagocytosis, so clearly elucidated by Metchnikoff. The microbicide power of serum is unquestionable. It opposes the development of certain microörganisms, but it does not exercise the prepondérant influence of serum in its specific application in disease. The prevention or cure of a microbic disease rests on acquired immunity, and, immunity even natural, is not conferred by the germicide property of the blood. As evidence of this fact, we have the dog, whose blood serum is not bactericide in presence of the bacillus of anthrax, and yet this animal is comparatively immune to this affection. On the other hand, the serum of the rabbit is bactericide in presence of this germ, and yet this animal is exceedingly susceptible to anthrax. A seemingly conclusive argument that the bactericide virtue of serum is not the basis of immunity, or of the special therapeutic properties it

[1] I acknowledge many thoughts to D'Achalme, Hericourt and others in preparing this article.

may possess, is the evidence that heat at 55 to 60 degrees C. destroys this power, without modifying the physical, chemic or therapeutic constitution of serum.

The efforts of Hankin, Büchner, Ogata, Josuhara to isolate the bactericide substance, or substances, from serum were negative, and to-day there are thinkers who associate it with the globulicide property, which is probably an inconstant but a more or less potent factor when it does exist.

The therapeutic property of serum has been designated by the name, antitoxic, which is, in my mind, an unfortunate selection, because it implies, or at least suggests to the mind of the practitioner, that serotherapy depends on the chemic neutralization or destruction of the microbic toxins. The general practitioner is usually a busy man and has but little time and few opportunities to investigate, minutely, the intricate understructure upon which organic therapy is being raised. He almost necessarily arrives at conclusions on the significance of the words and language of the reports of scientists and bases his application of the remedies thereon. As a consequence, numerous practitioners think that the antitoxin of diphtheria kills the germs in the body very much as bichlorid of mercury would kill them in a beef broth culture, and destroys their toxins by some direct chemic action.

No one yet knows the nature of the actual element underlying the antitoxic power. Notwithstanding their splendid work, neither Tizzoni, Aronson, nor Hammersten have demonstrated that they have obtained it in purity. But very practical deductions have resulted from the remarkable achievements of Kitasato in sero-therapy of tetanus; of Behring and and Roux in diphtheria, and it seems that we can not disassociate the antitoxic power, so-called, of therapeutic serum from what is termed its immunizing property.

Metchnikoff has made very convincing researches on the fundamental questions involved in the problem of immunity. Among other things he has demonstrated that rabbits, vaccinated against hog cholera, produce a serum which is both preventive and curative in new subjects. And yet this same serum was found to possess neither a bactericide nor an antitoxic property of the nature that is said to exist in diphtheria antitoxin. The influence of *this* therapeutic serum at least was not directly on the germs or their products. And even diphtheria antitoxin, which was supposed to act directly on the toxins and their creators, because of the apparent loss of vitality of the latter when mixed with the former before their injection into the system of experiment animals acts indirectly after the treatment. It certainly does not destroy the germs for they are often found in their virulence in the mouth of recovered cases, weeks after the last injection of antitoxin.

It is then to nature herself that we must look for the explanation of the questions involved in the action of serum in therapeutics. A necessary factor is the natural forces of the organism experimented with or treated against a microbic disease. Men or beasts sometimes recover from a usually fatal germ disease, such as diphtheria, smallpox, tuberculosis even. What produces the cure? Nature's elements to arrest the development of the germ and antagonize the effects of their poisons. What are the forces producing these elements? The phagocytes. They are the chief defenders of the body, both in a physical sense and a restricted chemic manner, for the germs are antagonized in their development by the phagocytes, and their toxins are antagonized in their nocive power, probably by a cellular diastase.

Anti-tubercle serum is, like any other antitoxin, the product of nature to antagonize the encroachments of germ life in the system. It is produced by the organism subjected to a continuous, progressive system of saturation of the economy with the toxins of the bacilli of Koch, especially to antagonize the parasitic life of this germ. It is the defensive power which fights its advancement, step by step. Occasionally, a case of tuberculosis recovers without medical assistance. This is due to natural properties within the economy, the defensive and defense-producing forces, assisted or not by the action of outside influences, such as climate, nourishment, etc. The production of tuberculous antitoxin is due to the action of tuberculin, the germ poison in the body. Tuberculin irritates the cells; the cells retaliate by augmenting the power of the phagocytes. In other words, the action of tuberculin in a susceptible organism, consists of a reaction, more or less severe, if administered in more or less heavy doses. During this reaction, nature produces the antitoxin in the blood. Then this antitoxin or the anti-tubercle serum, or anti-tuberclin, is filtered out and used in man by hypodermic injections, thus infusing into his blood the very antagonist which nature creates or exalts in power to arrest tuberculosis.

The theory is beautiful; the facts are demonstrated.

Bertin, Picq, Maragliano, Behring, Foa, have all experimented with naturally or artificially immune serum in the treatment of tuberculosis and the last three scientists have obtained favorable results in man and beast. It was in our country, however, that the horse was first immunized against tuberculosis and his serum used successfully on a large scale against all forms of tuberculosis. The serum produced in my laboratories is the result of several years of investigation of tuberculosis in man and beast, at the State University of Missouri, and subsequently, in private and in the special institution under my control. It consists of clear amber serum of horses having undergone the process of immunization from three to six months, the usual time to reach a non-reactionary point, by daily injections of tubercle toxins, from liquid beef cultures, at the progressive dose of 2 c.c. to 20 c.c. daily. The toxins of the germ cells, themselves, dessicated, may be used also to increase the intensity of the immunity, when the toxins cease to react before three months of injections.

The horses are always kept under observation several weeks and then examined, and tested for glanders before subjecting them to the injections of toxin for immunization. Consequently, no danger exists of transmitting animal diseases, or disease toxins of the horse to man. Furthermore, our system of filtration precludes the possibility of any germ remaining in the serum if any should be present when the blood is withdrawn from the animal.

The physiologic effects of serum, some of which are undesirable, are well known. Any serum, immunized or not, may produce erythema, urticaria, articular pains and swellings, oligocythemia, oligochromemia, local cellulitis, swelling, etc., without being in the least impure from a bacterial standpoint.

Certain elements in the sernm, none of which have yet been isolated, are more or less poisonous and pro-

duce various kinds of intoxication, with varying symptoms and pathologic phenomena. Some exhibit symptoms of nervous disturbance; others of interference, more or less pronounced, of the circulatory system. Again, there sometimes occurs in protracted treatment a curious. sudden flushing of the face, apparently due to a disturbance of the vasomotor system. All of these untoward effects are usually mild and ephemeral and none of them militate against the use of serum, although sometimes, in refractory cases, one must use it very cautiously, in very small doses at first, and even substitute rectal injections for hypodermic medications.

All the efforts made so far, abroad and in our laboratory, to establish a precise and constant mode of measurement of the antitoxic or therapeutic neutralizing power of anti-tubercle serum, have failed to produce results reliable enough to constitute a sound basis of estimation. The Behring law can not as yet be applied with assurance. The effects of anti-tubercle serum in man or beast vary according to the stage and nature of the affection, the amount of special or general tuberculous intoxication, the microbic mixtures in the diseased organs, and the nature and progress of the lesions. So far, the estimation of the tubercle antitoxin is based chiefly on the neutralizing influence of a given quantity of it mixed with a given quantity of tubercle of a given strength, the mixture being afterward injected in small animals and results noted. But the fact that these small animals have different powers of resistance to tuberculin vitiates the system. So far, the best gauge we have to determine the value of anti-tubercle serum is our experience with the results obtained with a certain class of horses, immunized three to six months, with a progressively declining reaction until it is *nil*, and our results in our clinics in tuberculous patients and in our laboratory in experiment animals.

Paquin's anti-tubercle serum is absolutely free from microbes. It is put up in small vials of one-half ounce, labeled with date of production and test. Dose, 10 to 60 drops, hypodermically, every day or alternate days. As much as 120 to 240 drops have been administered, repeatedly, in successive days in special cases, with good results. Per rectum, 30 to 240 drops daily, may be safely given. The results by this method are not yet sustained by many reports, but there seems to be no doubt that rectal injections of antitoxin result in perfect absorption. Dr. Chantemesse of the Pasteur Institute, Paris states that diphtheria is as readily controlled by rectal injections of antitoxin or by hypodermic exhibitions and some other antitoxins make similar reports.

DISCUSSION.

PROF. EDWIN KLEBS—There is quite a new and astonishing development of interest in internal pathology in consequence of the now generally adopted theory of the bacterial nature of all infectious diseases; the idea to search for bacterial remedies has originated and fixed itself in the minds of physicians and also become popular with the laity. We will find in no other way a sure weapon against these destructive inhabitants if a certain pathological process is nothing more than a combat between the human organism and certain microbes vegetating in the body. The surgeon has profited more by these researches than the physician by the possibility of asepsis or preventing the introduction of the germs in the operations on the body. We, the physicians, find the microbes established in the body, often for a very long time. In chronic diseases such as tuberculosis there exists moreover a sort of symbiosis between the two organisms, in which the forces of the germs and of the human body are more or less counterbalanced. An old phthisical patient may live long, seeing his wives and all his offspring die before he pays his duty to nature. That is no mere latent disease, but an actual affection, poisonous to others, but not poisonous for its own body. We say in such cases that the human organism is immunized against the germs that have taken possession of it. I remember some of our best writers, as Schiller and Stevenson, living and working wonderfully under such conditions. Women have gained under the influence of the more or less latent disease oftentimes, an unsurpassed lovliness, often celebrated by poets and highly esteemed by high minded men.

We observe many peculiar features of the disease, and standing for long years, not at all offensive. I have seen lately the case of a celebrated botanist, the disease latent for fifty years, whose long career has been an uninterrupted chain of good deeds.

All these remarks are pointing somewhat to the not yet written psychology of tuberculosis, one of the most interesting chapters of human biology. They will show that my long contested thesis of self-immunization in this disease is proved by daily observation as well as by animal experiments.

This fact opens a broad field for possibilities of healing, but also renders the task of the physician difficult, as such persons do not always realize their abnormal condition or are not willing to acknowledge it. Such patients fill all health resorts, and not always living as they should when there.

If we ask the conscientious physician what are the effects of climatic or general treatment, he will concede probably that they have more of a retarding than a healing influence.

The question will arise: Can we do more for these patients? I am quite sure that the bacterio-therapy of tuberculosis will afford us better methods.

The first principle of this therapeusis must be contained in the demonstrated possibility of killing the germs in the body; the second in the not quite solved question of immunizing the organism and of antagonizing the toxic effects of the germs. The one problem does not exclude the other, but in chronic diseases the first principle is of far greater importance than the second.

Dr. Paquin, searching to solve the second problem, as Viquerat before him, has given us some good results of the serum treatment, which I do not think are at all doubtful; but to establish the fact in a scientific manner, clinical cases alone are not sufficient. Every new treatment shows quite a number of healed or improved cases. In man it is not possible to find enough comparable cases, and the final effect can not be ascertained in an unquestionable manner. Such thesis must be proved by animal experiments, in which we can use absolutely normal animals for infection and treatment; whether we have attained our object or not the postmortem will show. I have endeavored to fulfill this task in a great number of experiments with tubercle serum, taking daily temperatures and weights through many months, but I could not effect the cure of one animal, although the infection was slight and the doses of tubercle serum large. Nevertheless, I do not say that there will be no antitoxic effect from this treatment; but unfortunately this point is not sufficiently cleared up.

On the contrary, with germ-killing substances, prepared from the tubercle-cultures I had far better healing results in animal tuberculosis. I may say that they have given me the only perceptible results.

In the guinea pig, the animal most susceptible to tuberculous infection, the greatest deposits are found in the liver and spleen. The two organs are swollen enormously and filled with yellow tuberculous matter. Even such large deposits can be healed by bacterial products. The liver shows deep fibrous scars without any tuberculous deposit, otherwise quite normal except a

little hypertrophic tissue. The spleen can be reduced to nearly normal size except always a little hypertrophy in consequence of the cirrhosis of liver, but it is quite free from tuberculous tissue and tuberculous bacilli, as also are the other organs. Such results can be obtained in three or four months treatment, whereas the control-animal, infected with the same quantity of tuberculous bacilli, without treatment died in two or three weeks.

These results are now confirmed by a long and careful clinic observation I had in Europe. In 72 cases 70 (93 per cent.) healed or were very much improved; Dr. von Ruck reports in 182 cases treated in the Winyah Sanitarium 59 (32.4 per cent.) apparently recovered cases, 56 (30.8 per cent.) greatly improved, 29 (16 per cent.) improved. *Therap. Gazette*, 1896, No. 5. That other physicians had similar results, is stated in many published observations, also indicated by the extensive use of antiphthisin in the last year, amounting to more than 50 liters of 1 per cent. organic matter.

I have devoted myself in the last year especially to a renewed study of the healing and immunizing properties of the different compounds of the tubercle cultures. I found that my first preparation, tuberculocidin (The causal treatment of tuberculosis, 1894) has an immunizing power, in a higher degree than antiphthisin,[2] the same as with tuberculin.

The immunizing power is conveyed to this preparation by certain substances contained in the bacilli, whereas antiphthisin is only prepared from the culture fluid. As the latter is the mildest form of tubercle-killing substance from tubercle culture, I think it best to commence the treatment with antiphthisin and later, if there is no fever, use the tuberculocidin. As the latter is more liable to produce fever than is the former, it must be given in smaller doses, from 0.1 to 1.0 c.c., and also more cautiously. The most successful cases that I have seen, were treated in this mixed manner. (I regret that Dr. von Ruck in his publication does not give separately the cases treated with antiphthisin alone, and antiphthisin and tuberculin, but I hope he will later report these cases separately and in a more detailed manner.)

ATTENTION, AN ADJUVANT IN THERAPEUSIS.

Read in the Section on Materia Medica, Pharmacy and Therapeutics, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5–8, 1896.

BY GEO. V. I. BROWN, D.D.S., M.D., C.M.
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A careful scrutiny of the pathway along which has traveled to us, almost from the beginning of history, the knowledge of that state known variously as hypnotism, mesmerism, bradism, animal magnetism, electro-biology, etc., on through an almost interminable list of isms, ics and ologies, brought forward from time to time by its many champions, now bright with the brilliance of popular excitement and approval, again darkened with the severity of general condemnation, hailed as a universal deliverance from all the ills of mankind's heirdom, or crushed under the ban of responsibility for crime or direful mental injury, must, I think, convince most students that the answer of the scientific bodies of to-day can be but slightly different from that given by the Roi Medical Society and the French Academy of Sciences, at Paris in 1778, which, as everyone knows, was a refusal to accept the so-called truths en masse. Yet there is something about this subject that will not down, and even though the whole may be full of fallacies and fraught with danger, still there are facts concerning certain mental influences from which the therapeutist has no escape. They must and do influence his every effort, and the question at issue is simply: Shall he try to ignore them and trust to a haphazard effect, or will he guide and encourage this mental and nervous action, for the furtherance of that which his medical knowledge dictates to be beneficial?

After many years of study and experiment, I find my objection to the general use of hypnotism in no wise diminished. Out of the mouths and through the pens of its warmest supporters have come to me a confirmation of my feelings of distrust, and for some time past my efforts have been directed toward the accomplishment of possible usefulness in mental treatment, without the necessity of inducing the hypnotic state; hence this article, "Attention, an adjuvant in Therapeusis." Attention because it brings us nearer to the essential principle involved.

The one thing upon which all writers agree, irrespective of their other views, is, that without the attention of the subject hypnosis would be impossible, and it matters but little whether the attention be engaged with a flash of light, the sound of a gong, fixation of gaze, or words of command, by musical sounds, animal magnetism or any other manner, so long as the flight of thought be arrested and concentrated upon the desired object.

Suggestion would be useless without the attention of the subject, although suggestion is the most useful means of producing mental impressions. Adjuvant, because as a helper in coöperation with other well-established remedies, psycho-physics can be safe and useful, as it could not be in the light of a cure. The simple facts to which I desire to direct your attention are:

1. By a proper concentration, and the guidance of the subject's attention nearly everything beneficial can be accomplished that might be possible in the hypnotic state without hypnosis, and therefore without its dangers.

2. The loss of conciousness is not always necessary for anesthesia, or action upon any particular nerve centers, and the parts under their control.

3. Much valuable assistance can be given to other therapeutic measures in a great variety of ways, not alone by stimulating the beneficial effect, but also in the arrest and avoidance of antagonistic mental influence which so often aborts the intended value of other treatment.

A brief study of certain mental and physical phenomena will bear out as at least reasonable the proposition stated, and practical evidence brought forward in the cases cited will commend themselves to your consideration in support of the deductions advanced. We know that under quite natural conditions one can become so absorbed in a good book or in a certain line of thought that familiar sounds, ordinarily distinctly audible, will pass unheard. Yet there is no reason to suppose the auditory apparatus does not carry the vibrations to the brain in the usual manner, but no consciousness of the fact exists, because one portion of the brain is inactive while the other parts have perhaps unusual activity. This we recognize as a sub-conscious state.

Wm. Romaine Newbold suggests the term, dis-ordination, as the opposite of coördination, and says the fact that a mental state can exist dissociated from the others, and without a personal consciousness, leaves no room to doubt that many may be simultaneously

[2] Dr. von Ruck says in regard to this point, l.c.: The two preparations are practically identical and, so far as I have been able to observe, the therapeutic effects are the same.

dissociated, or even the entire mental system dissolved into a chaotic mass. That under these conditions there would be no memory, because memory is dependant upon association of ideas.

He describes hypnotism as a state of disordination produced by the subject being put to sleep with the sound of the operator's voice constantly in his ears, his being made aware of his presence by the sense of touch, or in some other manner, until all the elements of normal consciousness are disordinated and more or less extinguished, save the one group governed by the consciousness of the hypnotizer. That portion has had no opportunity to sleep, and naturally susceptibility to all other stimuli being lost, this one group acts with an accuracy impossible in the waking state. Epilepsy, shock, hysteria and trance state are all forms of disordination.

Disordination from shock has been remarkably illustrated in my own practice recently. A young lumberman, of good habits, was kicked in the face by a horse, his upper lip cut in the median line and the upper jaw fractured on both sides, including also the roof of the mouth. This occurred on Monday at about 7:30 P.M., and he has no recollection of anything that happened until the following Wednesday evening, when his lip was sutured without pain, though no anesthetic of any sort was used, and his first faint glimmer of a returning memory was a hazy recollection of the pins being stuck through his lip; but the remarkable part is that in this interval he had traveled fourteen miles in a sleigh and about one hundred miles (from Ely to Duluth) by rail, was able to walk about and attend to all his wants, and according to his friends' testimony, was quite rational, told about his case and answered all the questions correctly. No pain was felt until Thursday, when he became fully cognizant of all things about him; then his suffering was of course quite severe.

It is a matter of frequent notice that after unusual excitement of any nerve centers, as by study prolonged sufficiently to cause fatigue, the brain will continue to go over and over the particular line of thought, even though all the other portions of the brain are at rest, or a particular strain of music may reverberate in the same manner, in short, any impression that may have reached the brain may be repeated, perhaps in dreams, possibly in moments of sub-consciousness, but without any voluntary effort to start its cerebral elements. This condition, known as automatism, is noticeable in a variety of ways and certainly gives justification to the idea that the repetition of words intended to act upon certain centers to produce some particular effect must excite vibrations that will act automatically, and in time produce the desired effect. This, as I will endeavor to show, is precisely what does occur.

Professor Ladd of Yale University says of the mechanical theory of nerve conduction, that messages are transmitted by a series of wave motions, just as light, heat, electricity and sound, which may be accelerated or retarded by outward influences.

In certain moments of high nervous tension pain is intense, thoughts are transmitted quickly, all sensations are acute, in other words, the vibrations are more rapid, the pitch is higher, just as the tone of a tightened violin string. On the other hand, with nervous tension relaxed, all transmissions are less rapid, the human violin string is loosened. Upon these and kindred pecularities of brain and nervous action depend all methods of physical treatment of disease, and all of them are dependant upon attention in some form or other for existence.

John Hunter, in 1838, said: "I am confident I can fix my attention upon a part until I have a sensation in that part," and told how he prevented a magnetizer from affecting him by fixing his attention upon his big toe, moving it about constantly.

Of the influence of expectant attention, Carpenter says: "The contrast between the volitional and automatic states of attention is particularly well shown in the effects of painful impressions upon the nervous system. It is well known that such impressions as would ordinarily produce severe pain, may for a time be completely unfelt, through the exclusive direction of the attention elsewhere." Continuing, he says: "Now just as the organic impressions, which make themselves felt in pain when the sensorium is receptive of them, may exist without consciousness if the sensorium be otherwise engaged, so it may be affirmed, and on precisely the same evidence, that the organic changes which are concerned in the automatic production of thought, and of which we become conscious as ideas when the sensorium takes cognizance of them, may go on without consciousness if the sensorium be otherwise engaged."

Tuke says: "Attention may be definitely directed to the parts affected accompanied by the expectation of a certain result without the administration of drugs," and cites a large number of cures thus effected.

In further support of this theoretic superstructure, the authorities that one might cite are almost limitless. Ladd, Sully, Luys, Newbold and other investigators in mental physiology and psychology speak of these various attributes of the action of the brain and nervous system, and recite many peculiarities that have been strikingly brought to light, particularly as to cures effected by expectant attention and the imagination. As for records of hypnotism, the various faith and other cures, their funds of examples are inexhaustible, a fair proportion of which are unquestionably authentic, but for practical purposes, I shall confine my illustrations to just the things that have been accomplished within my own experience, and only such of these as will tend to show the subject in its various aspects of usefulness.

In a former paper, published in the *Chicago Dental Review*, I described some cases in which without other assistance I had reduced the temperature of patients suffering from febrile disorders, inducing restful slumber by stroking the head and extremities, as in gentle massage. One of these, a typhoid patient, whose life was dispaired of by the physician in charge, with the temperature taken just before and twenty minutes after treatment had been begun, showed a decline of three degrees, the restless tossing about had ceased and sleep came to her relief, which whenever she awoke was induced again, and so continued until morning. Nature, thus assisted, soon brought about entire recovery. A case of hysteria and another of dysmenorrhea, in which the symptoms were particularly distressing, were reported as having been successfully relieved in the same manner, and the painless performance of many minor operations in analgesia, produced by suggestion, were also referred to at the time, but I particularly called attention to the fact that under certain states of hypnotic influence, while operations can undoubtedly be painlessly performed, the danger of shock is much

greater, and more to be dreaded than under natural conditions, even though the suffering might be intense.

I am more than ever convinced of this fact and find myself less willing to try to put a patient into a condition where helpless to resist; there may yet be a susceptibility to shock, extremely aggravated by the disordered mental condition.

James R. Cook, M.D., thus describes his own sensations upon being hypnotised for the first time: When told by the operator: "You can not open your eyes," says, "I was conscious that while one part of my mind wanted to open my eyes another part did not want to, so I was in a paradoxical state." In my opinion patients are frequently in a paradoxical sate.

I was called by the present Secretary of this Section, Dr. W. B. Hill of Milwaukee, to take charge of one of his patients, a man of about 45 years, and at my request, Dr. Hill has written a description of the case, which is as follows:

"Mr. G., a stationary engineer, came to me during the fall of 1894, suffering from insomnia, anemia and general neurasthenia. Circulation was very poor, cold extremities, rapid and feeble heart, muscular twitchings and pricking sensations all over the body.

"Tonics and nerve sedatives were ordered, but patient could not bear any medication. Dr. G. V. I. Brown was called in the case with me and recommended massage, a suggestion which was carried out by him with marked benefit to the patient.

"An examination of the rectum revealed a large internal hemorrhoidal tumor about one and a half inches from the sphincter ani. I decided to operate by ligation and use cocain as a anesthetic. After all precautions were made, inadvertently, the cocain solution was spilled and I asked Dr. Brown to go to the patient's head. The operation was performed under hypnotic anesthesia produced by Dr. Brown, the patient experiencing absolutely no pain or discomfort either during the operation or the time the wound was sloughing off and granulating, but was given suggestions daily for several days thereafter. All symptoms of his former trouble disappeared, the patient feeling better and more vigorous than for some years.

"About two weeks (nine months later) there was a recurrence of the trouble to a slight degree; an examination showed another small tumor in the same region. I again operated, under the influence of cocain (Dr. Brown not being present), the operation was not without pain this time, although I had the same happy result as far as neurasthenia was concerned."

In addition to what Dr. Hill had kindly stated, I wish to give the following facts: The treatment given was general massage for fifteen minutes every evening at bed time, attention directed to the parts in which the circulatory process was most inefficient, with the purpose of augmenting and continuing for a longer time the effect of the increased blood supply, due to the rubbing. In the abdominal region he was massaged to cause peristaltic action and his attention directed to the part with instructions to have a passage one-half hour after breakfast. The massage concluded, he was made comfortable for the night, and a gentle stroking about the occiput and frontal region soon caused drowsiness. Over and over again were repeated, in a monotonous yet impressive manner, the words, "Sleep, sleep well, all night long. If you awaken, go right to sleep again; have a passage from your bowels half an hour after breakfast." Upon several occasions when he was particularly restless his gaze, with eyes upturned, was fixed upon my finger for three or four minutes to assist concentration of his thoughts, and twenty deep, full breaths were taken, but at no time was the process carried so far as to produce hypnosis; the sleep, when he fell asleep, was apparently a natural one. As strength returned active movements were prescribed, and the idea of self-help inculcated to arouse his will. In exactly seven days from the first treatment the patient returned to his work, having been unable to do so for some three months. His rest was regular, digestion improved, and every morning at the appointed hour he had an evacuation from his bowels, which was remarkable in view of the fact that for many months it had been his custom to give himself an enema for this purpose and all natural effort seemed to have ceased. Anesthesia was produced during the operation upon the rectum by having the patient hold my hands, instructions having been given to keep a strong pressure as possible in order to keep his thoughts fixed upon the effort, which we were successful in doing. Not only was he conscious all the time, but in no respect did he show himself to be influenced except in the desired absence of painful sensation.

Relief was given another patient who was suffering from intestinal catarrh and had severe pain at certain hours in the day. She was instructed to lie down at about the hour the pain was expected, close her eyes and take twenty long breaths, filling the lungs quite full and exhaling slowly. The centering of the mind upon the breathing after a little training put her to sleep so readily that she was seldom able to reach the twentieth breath. The nap gave rest and quiet to her nerves, beside tiding over the painful period. Mrs. A., about 28 years old, with a history of supra-orbital pain of an intense paroxysmal character, lasting for a few moments at a time and varying from ten minutes to four hours apart, ever since she was 8 years old, night and day. Four hours was the longest period of freedom of pain remembered, except upon two occasions; once, after an overdose of some drug, five hours' rest; and after a thirty-mile sleigh ride she slept five hours. Opiates had been taken constantly, sometimes in very large doses. All varieties of treatment had been tried, both in this country and in Germany. Resection of the supra-orbital branch of the trigeminus had given no relief, pain returning the moment the effect of the anesthetic had passed. The day I was called she had fallen upon the floor in a stupor from exhaustion. As a preliminary step, all drugs of whatever nature were prohibited, and after about two or three weeks daily treatment, intervals of five, six, seven, eight, nine, ten, and even fourteen hours without pain were not infrequent. General health and spirits were, of course, improved, and fairly undisturbed rest at night was the rule. Had not treatment been unavoidably interrupted there seems every reason to have expected much greater improvement; certainly any change for the better was the most severe test. The attention was guided, but not to a hypnotic state.

As to the exact manner of practical application but little can be said. save in a general way.

In my own experience, the individual peculiarities encountered require a great diversity of methods; particularly among the hysterical is there a latent perversity which sets itself against one's prime object, and

so it frequently happens that I use the word, sleep, quite sure that such a patient will not sleep, yet, with the mind centered upon not going to sleep, other suggestions incidentally brought forward are usually quite readily effective.

Concentration of gaze five minutes, followed by twenty full, rapid inhalations and exhalations are usually sufficient for operations that can be quickly performed, such as an opening of an abscess or extracting a tooth, but the breathing must be continued without stopping until the operation is finished.

For patients suffering from digestive disturbances, insomnia, tinnitus aurium (when aggravated by nervousness) or any affection for which it may be desirable to prescribe home treatment, the method of lying with the eyes closed and breathing as before described is by all means the best. Respiratory effort is of itself a beneficial exercise, easily understood and readily adopted by reason of its simplicity.

I have treated hypnotism as a disordinated state quite different from natural sleep, in which the subject is not open to suggestion and would awaken if suggestion were attempted, for, though denied by some, this distinction is well supported by eminent authorities, and accords fully with my own observations.

The objectionable features to hypnotism, Christian science and many methods of psycho-physics are:

To say nothing of the dangers of hypnotism as regards crime and physical injury, which, notwithstanding its repeated denial by ardent advocates, is still supported by a great amount of evidence. There is beyond question the fact that repeated hypnotization causes a dangerous susceptibility. Bernheim, Binet and Feret, Luys, Faveau, DuConormeilles, Hart, Cocke and many others all admit this fact, though some claim the danger can be avoided by suggestion; nevertheless, Hart took several of Luys' patients that had been given the usual suggestion not to let others hypnotize them, and in the presence of several reliable witnesses, induced the hypnotic state without difficulty; but assuming for the nonce, every physician to be equal to the harmless management of these difficulties from the point of view of the therapeutist, the essential and vital difference between the treatment here recommended and the hypnotic suggestion is, the one tends to build up, foster and encourage the will force and judgment of the patient, teaches self-reliance, and increases mental power. Whereas, the other weakens and destroys, in a measure at least, the inherent will power, takes away self-reliance and the valuable notion of personality. What physician, with the patient reduced to a mere automaton, subject to every word, every gesture, every look of the hypnotizer, can tell the exact physical state; when the patient, told that he is better, repeats; "Yes, I am better to-day," or marks any improvement that may be suggested to him, notwithstanding the fact that the disease may at the very moment be on the increase, with all the symptoms masked by his mental state.

Who is prepared to become "his brother's keeper," to say, "my mind is all right; I see and know all things clearly; I will be responsible for other minds and my own also?" Surely no one who has studied deeply into psycho-logical mysteries.

The so-called healers of Christian science, while they have done wonders in developing the field of mental treatment, deal in just this manner. Perhaps I speak a little bitterly, but I have in mind a friend of mine, who was buoyed up with the false hope and fancied improvement suggested by those charlatans, until a cancer had stolen its way so deeply into his vitals that at least a number of years of his life, that otherwise might have been spared him by correct early diagnosis and the knife, had been lost.

The one thing that retards progress is a tendency to deception, particularly in this connection. Records of psycho-physics abound with lists of cases in which the patients have been deceived in this or that manner, given bread pills and water instead of the expected remedies, etc., throughout the familiar tricks. Now, while this may be very interesting in the light of experiments, lying and deception make, to say the least, a very unstable foundation upon which to build a therapeutic structure.

I have tried to strip this subject so far as possible of odious associates, believing that if accepted at all by the medical profession and accorded the place I feel it ought to have among legitimate therapeutic measures, its advance must be in a strictly conservative manner, without mysticism, and viewed only in the light of natural mental science.

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THE PRACTICAL USES OF SUGGESTIVE THERAPEUTICS.

Read in the Section on Materia Medica, Pharmacy and Therapeutics, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

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I conceive it to be your desire to have a plain statement of the uses and limitations of suggestion, and I shall confine myself to this conception. To those of you who desire a more comprehensive statement of the psychologic side of the subject I refer to my paper read last year before the Neurologic Section of this ASSOCIATION.[1] In this paper I shall avoid as much as possible the misnomer hypnotism, as we shall see later on that often curative effects of suggestion are produced without inducing hypnosis. To anyone familiar with modern pathology the limitations of the therapeutic uses of suggestion will be readily understood. To those familiar with the trend of modern psychology its application for harmful effects will be fully appreciated. In treating patients by suggestion it is necessary to remember one fundamental factor, *i.e.*, the subjective state of the patients. Without this latter condition you will seldom succeed in effecting your object. Without doubt the reputation and success of most physicians is due to suggestion, often unconsciously made. The great factor in the large number of cases reported by Bernheim is

[1] Hypnotism, its Uses, Abuses and Medico-legal Relations. Jour. Am. Med. Asso., Nov. 30, 1895.

due to the explicit confidence in him by his patients. We all know what a difference it makes in our successful treatment of patients when they have unbounded confidence in us; how soon they will respond to our suggestion; where, with a stranger, or one in whom they have little faith, treatment has apparently but slight effect. The same medicine given the patients by the physician with whom they are *en rapport* will have a far greater effect than if given by a stranger, provided that the former makes some simple but forcible suggestions regarding the effect of such medicine. When we start at the fundamental facts of suggestion it all appears very simple. To illustrate the force of suggestion I will give you a simple example. Let A., B. and C. agree to meet D. at different times and places during the day. Let them be men in whom he has confidence. On his way down to his office D. meets A.; A. exclaims: "Look here, D., what's the matter with you? You look very ill." etc. This suggestion acts with sufficient force to cause D. to drop in to a public place and consult a mirror. He soon sees that his face is pale and begins to feel weak. He throws off the idea for a while, but it will return to him at intervals. He then meets B. whose suggestions are more forcibly made; and afterward the third party. By this time, D. is in reality psychically ill, goes to his home and sends for his physician, who will find a rapid pulse and a generally disturbed condition. This is a fact that I have often demonstrated. Now, suggestion can act reversely. Hypnotism in all its stages is now an undisputed fact. Suggestion is a justifiable method in certain cases. In those obstinate and disagreeable cases of hysteria in all its forms; in insomnia, drug habit, and immoral practices which so often disrupt once happy homes, we here have a therapeutic remedy; and any physician, who, after he has made a correct diagnosis and failed to cure after using all his other resources, refuses to use suggestion either with, or without the aid of hypnosis, is not giving his patient that care and attention that he has a right to expect.

Unfortunately, through the daily press the subject has been placed in such a light as to have caused its beneficial factors to have been forgotten, and the older practitioner, with little or no knowledge of modern physiologic psychology, has looked askance at the subject. About this branch of medicine there has been too much haste, inaccuracy, fallacious reasoning, confused or contradictory ideas by a large number of our profession. I will now give you the practical side of the subject, leaving speculation and theory strictly alone. If I appear dogmatic it is only because I quote the reports of the most eminent and reputable men of science; and have not gone beyond the deductions derived from experience. I shall give you only the digest of the subject as reported the last twelve months.

The practical uses of suggestion are numerous. In certain forms of functional disturbances cures can be effected. The pains that often accompany organic diseases can be abolished. While suggestion will have no effect on organic disturbances *per se*, the relief of the accompanying pain is of vast importance, as it gives comfort and rest to the patient. The sensation of pain takes place in the cerebral cortex; it is a mental condition, it implies consciousness and hence, by an alteration in our state of consciousness as is induced by suggestion, pain can be abolished. Several cases have been reported of the cure of organic diseases of the cord. It is only necessary to say that either the observers were mistaken in the diagnosis, or allowed their enthusiasm to warp their judgment. The internal capsule, the thalamus, the motor convolutions, the sensory tracts in the cord once destroyed are not to be restored by any form of interference. It would appear at first thought that any such self-evident fact mentioned here was superfluous; but from the large number of letters I receive from the profession I judge that this matter is not always understood.

I find, however, that I can greatly relieve a patient suffering from organic disease. The removal of anxiety, the implantation of new ideas, the removal of the habit of introspection, are oftentimes the means of breaking those vicious circles so common in the pathologic states, and removing the unpleasant psychic accompaniments. In my experience, insomnia offers the practitioner his best field for the treatment by suggestion. We can here see how it acts as a curative agent in so many functional disturbances. I generally see the patient at my office several times before attempting to produce hypnosis. After I have gained the confidence of the patient, and am satisfied as to the functional cause of the insomnia, I begin to suggest sleep. The symptoms of sleep are readily called up, they are familiar and natural, and therefore, a patient without possessing very great confidence in the operator can, without much difficulty, be made to believe that sleep has come upon him. This much gained, the patient's confidence in your powers are secured, and the field is ready for you to plant such suggestions as the conditions call for.[2]

Having your patient go to bed at the usual hour, you continually but forcibly suggest sleep. If you have succeeded in your tentative efforts you will be surprised to see how readily the patient will respond to your suggestions. Then I suggest how long she shall sleep, and that she will awaken refreshed and hungry. Be sure you tell her to sleep until a certain hour, for a subject under your perfect control will not always awaken unless the operator tells her to do so. One of my earlier experiences will illustrate. I was called to treat Mrs. M. who had been suffering from insomnia for several months. She responded to suggestions readily, and soon was in a state of hypnosis. About 9 o'clock the next morning there was a furious ringing of my door bell, an excited woman rushed in and said I had killed Mrs. M. Her family and friends had been trying for two hours to arouse her. Going immediately to the house I found family, physician and neighbors with their suggestions all there. Every method known to layman and doctor had been tried, but it was impossible to arouse Mrs. M. Going up to her I said firmly: "You must wake up now, Mrs. M.; wake up, wake up!" She opened her eyes and soon arose. It was her first good sleep for eight months, and the last time I ever forgot to suggest the duration of sleep to a patient.

The suggestive sleep by the Nancy method is harmless, and as far as my experience goes is a normal sleep produced by suggestion. The harm that comes from such a condition is due entirely to the purport of the suggestion made while in this receptive condition; evil suggestion can be given and will, to a certain extent, be accepted, as well as good.[3] [4] Hence, we can see the importance of regulating the practice so that it can only be used by reputable and skillful men. Next to insomnia suggestion is most useful in

[2] See Dr. Schofield's Lectures, Victoria Institute, London, 1896, "Relation of Mind and Body, or the Powers of Unconscious Mind."

hysteric seizures. In those troublesome hysteric contractures of the extremities, suggestion during hypnosis seldom fails to give relief. Care must be taken, however, not to attempt to correct contractures of long standing, for as Charcot has said, when contracture has long existed, it becomes incurable. Hysteric amaurosis is readily relieved by suggestion during hypnosis. This is readily understood when we realize that hysteric amaurosis is not a systematic paralysis but a purely psychic amaurosis; a neutralization of the object perceived by the imagination. Dr. Hugh Patrick reported to this ASSOCIATION at its last meeting at Baltimore a case of hysteric blindness and pseudo-meningitis cured by suggestion.[6] The long and tedious list of the different phases, types and isomorphic forms of hysteria are all more or less amenable to treatment by suggestion. Cephalalgia, intellectual obnubliation, pseudo-hemi- and paraplegias are conditions that are benefited by suggestion.

It is not always that the hysteria itself can be cured, but the symptoms can be removed.[6,7] The treatment of dipsomania by suggestion is now being quite extensively used. At the present time we are not in the position to make any dogmatic statement regarding its certainty as a remedial agent. I have had excellent results with cases that have tried about every other known treatment. The fact that you can abolish the nervous insomnia, eliminate the anorexia, and stop the tremors and other concomitants following an alcoholic debauch, is sufficient evidence to cause one to treat these cases by suggestion. With these functional disturbances controlled I use continued suggestion regarding the use of alcohol while the patient is in a state of hypnosis. The result has been very gratifying. Bushnell, Surg. U. S. A., says: "I have never failed to hypnotize a patient who sought treatment for alcoholism."[8]

Dr. Am. De Jong reports very good results by this method of treatment during the last two years.[9] Crothers[10] advises its employment whenever possible, and says: "Clinical experience furnishes many facts which seem to prove that in certain cases its value is very marked, also promising from more exact studies greater results." Dill[11] gives a list of eight cases of dipsomnia treated successfully by suggestion. Green[12] gives a case of a man addicted to the abuse of alcohol, bromids and chloral cured by four hypnotizations. What I have said concerning the alcohol habit refers also to the drug habits.

Sexual perversion as a disease has been but little studied in this country; but experience has proven to me that it is quite prevalent here. Suggestion is the only method of treatment so far known that has any effect on these cases. I refer to the acquired condition, not the congenital; the latter in my hands has never been benefited. Masturbation in both sexes is generally well controlled by suggestion. It would be a work of surplusage to enter into details upon this subject when we have such classic works as those of Kraft-Ebing, Schrenck-Notzing, Moll, Ellis and many others.[14] Hypnotism will never supplant, in its present status, the existing anesthetics. Local and complete anesthesia can be produced by suggestion, but it is not available in an emergency case, unless the patient happens to be one in whom we have at prior times produced complete anesthesia by this method. In minor operations when the time for operation can be extended for a few days we can attempt to get our patient into that state of receptivity that will allow of producing a suggestive anesthesia. This can be seldom accomplished at the first attempt. When this anesthesia can be produced it is far superior to our present anesthetics; being devoid of any danger. Up to the present time we have had but one reported authentic case of death from suggestion, and that death was due to the purport of the suggestion, so forcibly made as to bring about the very result that was suggested, *i.e.*, death.[15] A case was reported last year from Paris as a death due to hypnotism. Prof. Bernheim gives the following explanation. "A man aged 37 years whom he had hypnotized to relieve the pain due to phlebitis of the leg, and whose death followed two hours afterward, was only an unfortunate coincident; as the postmortem showed death to be due to embolism of the pulmonary artery."[16] I have often operated in minor cases after putting the patient in a state of suggestive anesthesia. A large number of authentic cases have been reported. Wagner[17] gives twenty-one cases of minor surgical operations done under suggestive anesthesia, and three obstetric cases. Major operations have also been done under the same conditions. It is very useful in obstetric cases. Here to be of any value you must have frequently hypnotized your patient, and have become certain that she will respond to your suggestions at any time. The advantages of suggestion in parturition are the removal of consciousness of pain, regulation of position of limbs, body and attitude, and increase of uterine contraction of voluntary muscles. In dentistry, for the extraction of teeth, it is a most satisfactory method of painlessly operating.

What percentage of persons can be controlled by suggestion? Authorities differ. The result will depend upon the individual operator, as in any other branch of medicine and surgery. A conservative estimate would be about 25 per cent. I succeed in about 30 per cent. What class of patients is most susceptible to suggestion? Phthisical patients; children between the ages of 5 and 15 years of age; those of a neurotic temperament; last and most difficult is the hypochondriac and the melancholic. The insane, imbecile and idiots seldom, if ever, respond to suggestion in any form. A certain class of normal intellect can not be controlled by suggestion. To use a hibernianism, they will insist on keeping awake to see how you will put them to sleep. What are the requirements to be successful in using suggestion? The tact, judgment, diagnostic ability and confidence in one's self and all that makes the successful physician. Suggestive therapeutics is no "royal road" to success. It involves the same application, severe attention and experience that is necessary in all branches of medicine and surgery. Until you have had some experience you will not have

3, 4 See Tukey, Brit. Med. Jour. 1890, Vol. 12, 442-444. William Lee Howard, N. Y., Med. Jour., March 9, 1895, 298-300.

5 Jour. Am. Med. Asso., Feb. 8, 1896.

6 Claus. A. et F. Jacobs. Un cas d'hystérie chez une filiette de huit ans; guérison par suggestion. Anu. Soc. de Méd. d' Anvers. 1896.

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14 Psychopathia Sexualis von Kraft-Ebing; Suggestive Therapeutics in Psychopathia Sexualis, von Schrenck-Notzing. Sexual Perversion, Albert Moll; Sexual Perversion, William Lee Howard, Alienist and Neurologist, January, 1896.

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15 See Author's paper in Jour. Am. Med. Asso., Nov. 30, 1895.

16 Revue Médicale de l'Est., Feb. 1, 1895.

17 N. Y. Med. Jour., xlix.

that full confidence that is necessary to impress your patient. There is no such thing as "will power," "animal magnetism," or any other so-called occult force employed. Get your patient in a state of mental receptivity by having him look at some small bright object distant about six inches from the pupils and a little above them. When the eyelids begin to close, or a fibrillary motion commences, close them gently, and in a low but emphatic tone of voice suggest sleep. Once in this state the therapeutic suggestion should be made. In a large number of cases it is not necessary to produce complete hypnosis to get satisfactory therapeutic results. If the patient is only in a state of lucid lethargy he will often accept a suggestion with good results. A new idea of the explanation of the phenomena of hypnotism has just appeared.[18] This is no place for psychologic discussion or polemics, but as this idea has only been put before the profession the last few days I will call your attention to it. Dr. Henry Stark of Boston says: "Hypnotism is a pathologic process depending for its origin on contagium, probably specific in character, although unrecognizable by any of the five senses."

Suggestion as a therapeutic method of treatment is only an adjuvant, often a powerful one, to go hand in hand with other rational means of hygienic and medicinal treatment, and is not to be understood as by any means being a certain cure for all ills and complaints that man is heir to. It is not a catholicon, a philosopher's stone, as many enthusiasts would have us believe.

Psycho-physiology[19] has placed suggestion on a sound scientific basis, and those who step from this basis and make claims that have no psychologic foundation, are those seized with the vertigo of the supernatural and condescend to serve as vouchers for the most absurd aberrations.

THE ANTITOXIN OF TETANUS.

Read in the Section on Materia Medica, Pharmacy and Therapeutics at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

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Among the many principles on which are based our modern theories of the etiology and therapeutics of disease is that of the vaccinating or immunizing power of attenuated cultures of specific microörganisms. Although this principle is forecast by Jenner's discovery of the vaccine against variola, it is to the great Frenchman, Pasteur, that should be ascribed its first scientific development.

In 1880 this investigator showed that an attenuated culture of the microbe of chicken cholera, injected into animals, would produce a mild attack of the septicemia, and would leave them immune against a second attack. This was the first experimental fact to which numerous laboratory workers have been adding during the last fifteen years. Disease after disease has been added to the list, anthrax, hog cholera, malignant edema, hydrophobia, diphtheria, the infections due to the staphylococcus, the streptococcus and the pneumococcus, typhoid fever and tetanus.

It is not the purpose of this account to go into the history of the subject or the various theories of immunity except so far as they bear on the subject in hand, the antitoxin of tetanus and its use in the treatment of tetanus in the human being.

The bacillus of tetanus, first discovered by Nicolaier in 1884 in tetanic animals, and afterward by Rosenbach in 1885, in the local lesion in man, was finally isolated and studied by the Japanese, Kitasato. Since then, these results have been approved by so many investigators, that we say definitely that it is proved that Nicolaier's bacillus is the specific cause of tetanus in all its clinical forms, traumatic, idiopathic, rheumatic, puerperal and of the new-born. It is the type of the specific intoxication. The bacillus growing only at the initial lesion there elaborates its toxin. An important point to remember is the extreme toxicity of the products of secretion of this bacillus. A 1–1,000 c.c. is sufficient, when injected subcutaneously, to kill an adult guinea pig. Evaporated to dryness this is represented by 0.000,025 (25–1,000,000) gm. A mouse succumbs to a dose of one-hundredth this quantity, 25–100,000,000 gm.

Brieger had found and isolated a ptomaine from tissues of a fatal case of tetanus, which he named tetanin. This was obtained also from cultures of the bacillus by Kitasato and Weyl. This substance kills animals with the characteristic symptoms of tetanus. But this is not the substance to which is due the intense intoxication of tetanus, and Brieger himself obtained a toxalbumin of much greater toxicity. This toxalbumin, the chemic relations of which we do not know, is probably only an impure form of the specific toxin; a mixture of the precipitated albumins and the toxin.

Brieger and Cohn (1893) were able to make a step in advance in the separation of a purer toxin. They used an intensely virulent veal-bouillon culture of tetanus bacillus. This they supersaturated with ammonium sulphate, and removing the supernatant precipitate, dried it on porcelain in a vacuum. Of this, 1 gm. was obtained for 1,000 c.c. of bouillon; and 1–10,000,000 gm. was sufficient to kill a 15 gm. mouse. But it was still impure. It was dissolved in water and was treated with a small amount of ammonia and basic acetate of lead to precipitate the albumins; dialyzed from twelve to forty-eight hours in running water to get rid of the peptones, salts, etc., and evaporated in vacuo at a temperature of 20 to 22 degrees C. This gave slightly yellow, transparent scales, odorless, with aromatic taste and soluble in water. It gave no reaction to Millon's fluid, nor responded to the xanthoproteic or biuret test. A slight violet color resulted with cupric sulphate and sodium hydrate; and no precipitation with the albumin precipitants, except ammonium sulphate. There was no phosphorus, and but a trace of sulphur. It is not, therefore, to be classed among the albumins. Of this substance but 1–20,000,000 gm. is sufficient to kill a mouse; or, assuming the action of the toxin to be similar in degree upon the human being, but about ¼ mg. would be fatal to a man weighing 70 kg.

Brieger and Boer have lately been able, by another method to procure a purer and more concentrated form of toxin, and also of antitoxin. Instead of alcohol or sulphate of ammonium they used salts of zinc, the sulphate or preferrably the chlorid. The filtered tetanus bouillon or the serum was diluted with five volumes of water and to this was added two volumes of a 1 per cent. solution of the salt. After

[18] Psychic Infection; Remarks upon the Probability of a Mental Contagium, N. Y. Med. Record, April 18, 1896.

[19] Crocq fils: L'hypnotisme Scientifique. Rapport à M. le ministre de l'Interieur, a de l'Instruction Publique. Introduction de M. le Prof. Pitres, 1896.

standing a short time a precipitate formed. The antitoxin precipitate is dissolved in slightly alkalin water, a stream of carbonic acid passed through it. With the sulphate, the antitoxin is again precipitated; with the chlorid, it remains in the filtrate, free from the zinc salt. Any traces of the metal are further washed out by treatment with ammonium sulphid. They obtained from 10 c.c. of serum about 0.1 gm. of an antitoxic powder easily soluble in water. The toxin could not be freed from the metal. One liter of bouillon gave 3 gm. of the zinc combination, which contained about 0.3 gm. of organic matter and represented the full strength of the original filtered culture.

Wolinsky made his cultures in a non-albuminous medium composed of water, glycerin, sodium chlorid, magnesium sulphate, potassium phosphate, ammonium lactate and sodium asparaginate. The filtered culture in this medium gives a faint Millon's and xanthoproteic reaction, a slight cloudiness with phosphor wolframic acid, and no immediate precipitate with acetic acid and potassium ferrocyanid; only after six to seven minutes is there a greenish cloudiness formed. He recognized that he had but a very impure principle, but claims that it "appears to belong to the proteid bodies and that it has great similarity to the ferments."

This fact that the toxin is essentially a diastase or zymose was already put forward by Tizzoni and Catanni, a view afterward adopted by Vaillard and Vincent, E. Roux, Faber and others finally demonstrated by Courmont and Doyon. These authors called attention to the important fact that after the injection of the tetanus toxin, there is always a certain period of delay in the development of symptoms—a distinct period of incubation. They show that this is uninfluenced by and bears no relation to the amount of toxin injected. Two hundred c.c. were injected into a dog without the immediate appearance of tetanus, which only developed on the third day. An injection of 4 c.c. gave the same period of incubation. The blood and tissue juice of this dog, however, produced in an injected animal an almost immediate tetanic intoxication.

In an extensive comparison of the chemic and other relations of the several known ferments and toxins, Fermi and Celli combat this idea and try to show that the toxin of tetanus is not to be ranked among the ferments. In reading their work, however, one is not sufficiently convinced of the error, considering the similarity of many of the chemic reactions, which even they show; considering the fact that the toxin in its purity is as yet not isolated, but may still be intimately mixed with some albuminoid body, and considering the clinical facts put forward by Courmont and Doyon, one may, I think, adopt the view that the toxin of tetanus is, at least, akin to the ferments (the zymoses) and that it is by its action on the blood and tissue juices of the organism that the true active intoxicant is produced. At any rate it is justified as a working hypothesis.

Behring and Kitasato in 1890 first report the cure of tetanus and resulting immunity of animals treated with the serum artificially immunized animals. Rabbits rendered immune by their method, bore without fatal result the injection of a virulent culture of the tetanus bacillus (10 c.c.), the minimal fatal dose of which for a non-treated animal was 0.5 c.c. They showed that there was in the blood serum of artificially immune animals a substance that in some way antagonized the action of the bacillus or its toxin, an antitoxin. To quote: "A mouse has been rendered tetanic, it has contracture of its extremities, and seems about to die; it is sufficient to make this injection for a cure to follow so surely and rapidly that a few days after the animal is perfectly well." Their conclusions, however, as to the therapeutic effects were not realized.

Later Behring published his method. At first, following the inoculation, injections of the trichlorid of iodin were made. But it was better to previously add this attenuating substance directly to the culture before injecting.

Five cubic centimeters of a virulent culture containing 0.25 per cent. of the trichlorid were injected into a rabbit. After a lapse of three or four days, another injection of 5 c.c. containing 0.2 per cent. of the iodin. Another pause and another injection containing less iodin, and so on for some six weeks, at the end of which time a degree of immunity was reached equal to 1 in 400 or, according to Ehrlich, to 10 immunity units. That is, of the serum injected into a 20 gm. mouse 0.05 c.c. or 1-400 of the body weight would protect it against the minimal fatal dose of the toxin. Horses were immunized in the same way by using a beginning dose of 10 c.c. of carbolized cultures with 0.25 per cent. of iodin trichlorid added and very gradually increasing the amount of toxin and decreasing the amount of the iodin salt. The degree of immunity reached was 1 to 5,000.

This, however, is only when the injection of the serum is made shortly after that of the toxin. If it is done before, the proportion is larger; instead of 1 to 5,000, it would be 1 to 25,000. Again, it refers to the minimal fatal dose. If stronger doses of the toxin are given, say one hundred times the minimum, the serum must be used in larger amounts, one thousand times as much as before or 1-1,000 of the body weight. This is of interest in the treatment of human tetanus, in which the amount of toxin elaborated, possibly often far exceeds the smallest fatal dose.

Tizzoni and Catanni, soon after the first work of Behring and Kitasato, were able to immunize a dog, a comparatively resistant animal, by injections of small amounts of tetanus toxin and slowly increasing the dose. Unfortunately they were unable to agree with Behring and Kitasato as to the therapeutic success of the antitoxic blood serum. "The development," they say, "of the tetanic symptoms is in no wise hindered when the serum is not injected before their appearance." This result, obtained upon experiment animals, is one that they would do well to apply in the cases of tetanus, in man, which were treated with their antitoxin. Kitasato himself later agreed that the greatest efficacy was observed when the injections of antitoxic serum were made before or immediately after that of the toxin.

Brieger, Kitasato and Wasserman made use of a a bouillon made of thymus gland in which to produce an attenuation of the virulence. Successful in preventing tetanus in only 40 per cent. of the animals experimented on, they show that this thymus extract has a distinct toxin-destroying action.

Another method of the attenuation is by means of heat. Vaillard uses filtered cultures that have been heated to 60, 55 degrees C. and so on, gradually dimin-

ishing the temperature and increasing the amounts. Finally Vaillard and Roux make use of a solution of metallic iodin, Gram's solution, commencing with doses in the proportion of one of the iodin to three of the filtered culture and by gradually increasing the ratio were able to completely immunize rabbits. A detailed account of their method is as follows: For about seven weeks a mixture of equal parts of toxin and Gram's solution was injected into a horse in doses increasing from 0.5 c.c. to 10 c.c. Then for a while 4 c.c. increasing to 10 c.c. of toxin and Gram's solution in the proportion of 2 to 1. An injection of 1 c.c. of pure toxin was now given and repeated in increasing amounts until at the end of three weeks the animal could stand 22 c.c. After a rest of a few days 4 c.c. of toxin was given directly by the jugular vein. Five weeks after 70 c.c. could be injected intravenously without ill effects. At the end of a month's interval the serum had an antitoxic power of 1 to 50,000. Treatment was resumed and pushed until 90 c.c. of pure toxin was being injected into the jugular vein. After a pause in the treatment for two weeks, or about seven months from the beginning, the serum was shown to be protective to the extent of 1 to 1,000,000.

How does this toxin act? Many experimental facts have been brought forward to elucidate this point. Roux, and also Buchner, show that a mixture of the toxin and antitoxin retains the properties of the two ingredients; that a mixture neutral and without effect upon a mouse is still toxic for the more sensitive guinea pig. Animals treated with certain microbes, such as prodigiosus, cholera, streptococcus, etc., lose some of their resisting power and become more sensitive to a mixture, which in their normal state would have no effect. This serum then, according to them, is not, strictly speaking, an antitoxin. It does not directly or in vitro destroy the toxin. But it exercises, as Roux puts it, a stimulative action upon the cells of the organism, which augments their energy and they become able to resist the poison.

Behring has shown that an animal may become "over-sensitive," a condition occurring in the process of immunization in which the animals seeming at first immune, succumb to the tetanus toxin, although the blood serum is in a high degree antitoxic. The blood of such an "over-sensitive" horse may, in doses of 4 c.c., immunize another animal.

On the other hand, in a highly immunized sheep the antitoxin may after a time disappear from the blood, without any diminution of the immunity. It is probable that tissue immunity and the formation of antitoxin are not directly related.

On the other side, Fodoroff found that with large doses of the toxin, as sixty times the minimal fatal dose, a certain proportion of the serum necessary to prevent the development of tetanus (3 to 1 in the case of white mice), when previously mixed, had no effect when injected at different points, even when done simultaneously. Animals were injected with antitoxic serum, a dose of 0.02 mg. of which was sufficient to immunize against the minimal fatal dose of toxin in amounts varying from 50 to 200 mg., given in three to five injections. These were found to be resistant to doses of 3, 6 and even 8 mg. of toxin, the minimal lethal dose of which was 0.001 mg., but invariably succumbed to injections of 12 mg., even when given immediately after the immunizing serum. White mice which had received three daily injections of 50 mg. of dried serum, were given, some a mixture of 50 mg. of serum and 12 mg. of dried filtered tetanus toxin, and others the same amounts of the same substance, but injected at different points. The former animals were unaffected, the latter all succumbed to tetanus. From these experiments Fodoroff assumes that the antitoxin has a toxin-destroying action.

The hypothesis upheld by Conrmont and Doyon seems to lend itself more than others to the explanation of these often contradictory facts. The symptoms are produced not directly by bacterial secretion, but by a substance which is the result of the action of a bacterial enzyme. Once this true toxin is formed in the organism, it is doubtful how much it can be affected by the antitoxin, at least directly. It is upon the ferment itself, however, that the antitoxin acts, inhibiting or modifying its action, either directly or by stimulating a cellular resistance.

But these experiments have all been made with the so-called toxin of tetanus. It is the study of the effect of the serum upon animals inoculated with the bacilli themselves, that cause us further to limit its action. The work of Beck is here of interest. He used instead of filtered cultures, small splinters of wood inoculated with tetanus bacilli. A splinter 0.5 cm. long and 2 mm. thick killed a guinea pig of 400 gm. in three to four days. In a series of some twenty-six guinea pigs so inoculated, twelve recovered from more or less severe tetanic symptoms, six died from pneumonia, after an improvement of the tetanus. A series of five pigs which twenty-four hours before the splinter inoculation, were injected with 5 c.c. of a serum of an immunizing power of 1 to 4,000,000, all recovered from mild attacks. Reinoculated some three weeks after, they all died in about four days, showing that the immunity thus produced is of short duration.

Of thirty-eight pigs injected with 5 c.c. of serum at periods varying from one hour before the inoculation to twenty hours after, fourteen died of tetanus; all but one that were injected sixteen hours and over after the inoculation succumbed. The deductions we may draw from his work are that after a given period after the tetanus toxin has once developed in the organism the serum, in animals at least, is powerless.

And now the subject of human tetanus. Approaching it from the laboratory one can not but feel somewhat skeptical in regard to what is claimed for the serum by its most ardent adherents. The difference, however, of the pathologic reactions of the human and other animal organisms show us that we must look at this side of the matter from the clinic standpoint only. In general, do statistics show any reduction in the mortality in tetanus treated with antitoxin, or does such treatment seem to have any effect upon the symptoms in individual cases?

The mortality from tetanus is difficult to determine. Poucet reports 713 cases with a mortality of 90.6 per cent.; in the Civil War it was 89.3 per cent.; Richter gives 88 per cent.; Somain, 56 per cent.; Roux and Vaillard 50 per cent.; Knecht 45 per cent.; Albertoni 24 per cent.; Behring 20 per cent.; Verneuil claims 50 per cent. recoveries with large doses of chloral. In some thirty-five cases that I have collected from the current literature, the mortality is about 40 per cent. The higher percentages have been taken generally from war records, and are therefore too high; and, on the other hand, Albertoni's statistics seem too

low. It is probable the figures adopted by Roux and Vaillard are nearly correct, say from 45 to 50 per cent.; 47 per cent. is the average of the various percentages given. I have collected from the recent literature sixty-eight cases that were treated with the various antitoxins. Among these there have been thirty deaths, giving a mortality of nearly 47 per cent. But we can judge better if we examine more in detail.

Richter and Rose give the mortality in tetanus, in which the symptoms have appeared within five days after the inoculation, as 96 per cent.; the Surgical History of the War says that 85 per cent. died in the first week; of twenty cases with a mortality of 45 per cent., the death rate of those in which the period of incubation was from one to five days was 100 per cent.; from six to eight days 80 per cent.; from nine days or more 0 per cent.

We may safely say that cases developing during the first week rarely, if ever, recover, and cases, the incubation of which is over two weeks, rarely die. Of the sixty-eight cases here collected, which were treated with the antitoxic serum, but sixty-one have been recorded with sufficient detail from which to draw any conclusions. The mortality of the whole number is 41 per cent. Of the sixty-one cases thirty-six recovered, giving also a mortality of 41 per cent. A comparison of this with the probable percentage of deaths in cases treated by other means, 50 to 45 per cent., leads us to no verdict but that of not proven.

The following condensed table shows mortality of cases arranged according to the period of incubation:

Period of Incubation.	Deaths.	Recoveries.	Percentage of Mortality.
1 to 5 days	7	1 (?)	87.5 (?)
6 to 14 days	16	25	38
15 days and over	2 (?)	10	16.66 (?)

The cases classed according to their incubation periods show a like similarity. Of eight in which this was from one to five days, only one recovered, and this (32) was regarded by the physician as of somewhat doubtful character. When the disease developed in from six to fourteen days after the infection there is a much lower death rate. Of forty-one cases, twenty-five recovered and sixteen died. And with an incubation period of fifteen days, two of twelve cases succumbed. These two were cases in which the period of incubation is extremely doubtful. In one the first appearance of symptoms took place fifteen days after the extraction of a number of teeth. In the other the patient, who was a stableman, had gone on attending to his duties in the stable for three weeks after his injury. In all probability the inoculation in these cases took place at a much shorter time from the development of the tetanus. If this is so, the mortality of this period would be nil.

The only conclusion it seems to me is that those cases in which the symptoms appear before the sixth day die, in spite of any antitoxic treatment, and that those in which the development of the disease is delayed beyond the second week would recover without any such treatment. Possibly the number of cases as yet reported is too small to warrant this general statement, but the results are not encouraging.

There seems to be no relation in the severity of the symptoms to the prognosis. The temperature which is generally normal or subnormal, rises more often in the fatal cases (nineteen times in twenty-seven) but this is no criterion. The shortness of the incubation period and the rapidity of the onset are two important

TABLE SHOWING THE DAYS AFTER THE APPEARANCE OF SYMPTOMS ON WHICH THE INJECTIONS OF SERUM WAS BEGUN.

Date of Disease when Injections began.	Period of Incubation.					
	1 to 5		5 to 14		15 and over	
	Died.	Rec.	Died.	Rec.	Died.	Rec.
0	1		2			
1			4	3		
2	1		5	2	1	1
3			1	2	1	3
4	2		2	4		
5		1		2		3
6			1	3		
7			1	2		
8	3					
9				1		
10				1		2
11				1		
12				1		
13						1
14				2		
15 and over				1		
Total	7	1	16	25	2	10

factors. When we remember the experimental proof that the sooner after inoculation the antitoxic serum is injected, the more likelihood there is of some beneficial result, we should expect, if there be any such effect, to find it among those cases in which the treatment was earliest begun. A glance at the table will show that this is not the case. Of the sixteen fatal cases, whose period of incubation ranged from six to fourteen days, fourteen had the treatment begun during the first four days, and of the twenty-five in which the serum was injected before the fifth day, fourteen were fatal. Among the sixty-eight cases but twenty-two are reported as causing an immediate improvement in the character of the symptoms, and in many of these the injections were begun so late in the course of the disease that one hesitates to ascribe this improvement to anything but a coincidence. This agrees with many of the authorities. Berger says that "without rejecting the injections of antitoxic serum in the treatment of tetanus, we can have but the most limited confidence in its curative efficacy." Roux has said that he has never seen the serum have the least effect upon the course of the disease.

Then the early treatment after the appearance of symptoms has no appreciable effect. The symptoms are caused by the action of tetanus toxin already elaborated and producing its intoxicant effect upon the cells of the organisms. It is then too late to hope for either any antitoxic or any immunizing action. Could we but make the injection soon after the time of inoculation we might expect some result, but unfortunately this is impossible.

Another thing we notice in examining the several cases, and that is the small amounts given. Beck shows that with the Behring's serum of 1-4,000,000 immunizing power which he used in his experiment, 1-100 of the body weight must be injected. This for a man of 60 kg. would be at least 600 c.c. of serum. Much of the serum used in human tetanus is much less powerful than this.

Tizzoni and Cattani claim an immunizing power of 1 to 100,000,000 for theirs. However, Hübener has shown it to be much less, at least as furnished by Merck, and Behring and others say it is completely worthless. Roux has recently prepared a serum with an immunizing power of 1 to 1,000,000,000.

There is one department in which the serum has been of value, and that is in veterinary medicine. Dr. Nocard of Altorf gives some very favorable

reports. These come from veterinarians and others throughout France, who have used the serum immediately after operations on animals. Among 375 animals (327 horses, 47 lambs and 1 ox) the injections were successful and not a case of tetanus occurred. During the same time fifty-five cases of tetanus were observed among non-inoculated animals. Two injections of the serum are given, of 20 c.c. and 10 c.c. with a fifteen days interval between.

Picard records that, during 1891-94, fifteen horses succumbed; during 1895, in which year he used the antitoxic serum, none. Coret lost, previous to 1895, from thirty to forty horses yearly by tetanus; in 1895 none succumbed. Before the use of antitoxin he lost an average of fifteen horses each semester; in 1895, fifty-four suffered from wounds both accidental and operatory, and none died. During the same semester, among non-treated animals seven died from tetanus. Therefore eight horses were saved by the use of the antitoxic serum.

Following traumatic lesions in animals, tetanus is not such an uncommon accident as it is in man, and we may expect, as seen by the above, some definite results in its use in such cases, the more especially as it is given as soon as possible after the injury.

But in the human race we can not say that it has had that success which we first hoped for it. We should not yet condemn it, but await the results of larger doses and more powerful serum.

ON THE TOXIC ACTION OF DISSOLVED SALTS AND THEIR ELECTROLYTIC DISSOCIATION.

Read in the Section on Materia Medica, Pharmacy and Therapeutics at the Forty-seventh Annual Meeting of the American Medical Association at Atlanta, Georgia, May 5-8, 1896.

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During the last decade, work in physics and chemistry, especially in physical chemistry, has been characterized by a thorough and systematic study of solutions from both the theoretic and the experimental point of view. As a result of the activity along this line, our knowledge of the conditions of dissolved substances contained in solution has been greatly extended. Thus Van't Hoff of Amsterdam, basing his argument upon the osmotic experiments of Pfeffer of Leipzig, extended the principle of Avogadro to dilute solutions showing that equal volumes of dilute solutions having the same osmotic pressure and the same temperature contain an equal number of molecules. When Avogadro put forth his hypothesis that equal volumes of all gases under the same conditions of temperature and pressure contain an equal number of molecules, facts were found that apparently were strongly adverse to this view. Thus, when the vapor density of the chlorid of ammonium was determined, it was found to be only a little more than half as great as was required by the principle of Avogadro. This fact caused at first much opposition to Avogadro's views, but this opposition was finally cleared away when it was shown that, in the vapor of chlorid of ammonium, we have not simply the molecules of that salt, but also hydrochloric acid and ammonia molecules, the products into which the chlorid of ammonium in the vapor form is to a large degree broken up or dissociated.

The theory of Van't Hoff has had a similar difficulty to contend with. As he himself showed, his theory did not represent the facts when working with aqueous solutions of salts, acids and bases, in short, with solutions that are conductors of electricity. In his mathematical formulæ, Van't Hoff introduced a factor to overcome the departure from his theory presented by such solutions. Soon, however, Arrhenius from the interrelation between the lowering of the freezing point of the solutions and their electrical conductivity, came to the conclusion that in aqueous solutions, salts, acids and bases are to a greater or less extent broken up or dissociated into part-molecules or ions (a term originated by Faraday). These ions are charged with electricity each gram-equivalent bearing 96,540 coulombs. This latter figure is derived from experiments on electrolysis. It has well been termed the constant of Faraday's law.

Arrhenius published his theory of electrolytic dissociation in 1887 and all investigations made on salt solutions, including those of acids and bases, have confirmed this theory. In addition to the lowering of the freezing point and the electric conductivity, the elevation of the boiling point, the specific volume, as well as the optical and thermal properties, all strongly support the views of Arrhenius. This theory has given a clear insight into the processes going on in voltaic combinations and makes it possible to calculate with accuracy in advance what will be the electromotive force of a voltaic combination. In the hands of Ostwald, it has placed analytic chemistry on a firm scientific basis. In short, all the physical and chemical properties of aqueous solutions of electrolytes are well explained by the assumption that in these solutions, the dissolved substances are split up into part-molecules or ions, and that the various properties of the solutions are due to the properties of the ions. The more dilute the solution, the more is the dissolved substance dissociated and at infinite dilution, this dissociation is complete. In the case of many salts, however, namely those of the stronger bases, the dissociation goes on very rapidly with the increasing dilution so that in case an equivalent in grams is dissolved in about 1,000 liters of water the dissociation is practically complete.

Viewing these things in the light of the theory of Arrhenius we have, for example, in a solution of sodium chlorid, sodium ions and chlorin ions beside a certain amount of dissociated sodium chlorid molecules. Experiments on the electrical conductivity show that in this case, dissociation is practically complete when one gram-molecule (*i. e.*, 23+35.5=58.5 grams) of the the salt is dissolved in 1,000 liters of water. We have at this dilution not NaCl molecules in solution but Na ions and Cl ions; we denominate them in the usual way, +Na and −Cl.

The question has often been raised: In what way do Na and Cl in the ionized state differ from ordinary sodium in the metallic state and ordinary chlorin, respectively? The difference lies in the energy possessed. Ten grams of sodium ions, for instance, contain less energy than do ten grams of metallic sodium. Supply the energy to the ions as in the case of electrolytes and we convert the ions to the metallic sodium. Sodium ions and metallic sodium are, therefore, not the same. The lack of understanding on this point caused a tardy acceptance of the dissociation theory at first, notably on the part of English chemists.

Hydrochloric acid dissociates into +H ions and —Cl ions; the H ions bearing the positive charge and the Cl ions bearing the negative charge. There exists in the solution necessarily as many positive ions as negative ions in order that electric neutrality may be preserved. A dilute solution of sodium chlorid and one of hydrochloric acid have in common Cl ions, their difference is due to the fact that the positive ion of the former is Na, and of the latter, H. To this difference is to be ascribed all the differences seen in the properties of the two substances. In general, solutions of all acids contain hydrogen ions, solutions of all chlorids contain chlorin ions, those of the sulphates contain SO_4 ions, those of the nitrates contain NO_3 ions. Salts of copper contain copper ions, salts of lead contain lead ions. In general, if we let BA represent the formula of a salt, B representing the basic radical and A the acid radical, then in dilute aqueous solutions, this compound is to a greater or less extent dissociated into the ions B and A and all the physical and chemic properties that such a solution possesses are due to the properties of the ions in the solution. If it is true that all the physical and chemic properties of aqueous solutions of salts, acids and bases are due to the properties of the ions, plus those of the undissociated substances they contain, does it not seem probable that the physiologic properties of such solutions are also due to these? This thought, simple as it is, has to our knowledge never before been expressed.

Many investigations have been made on the physiologic action of aqueous solutions of salts on bacteria and higher forms of plant life as well as on animals. The strength of the solutions with which these experiments were made has always been expressed in per cent. and it is probably for this reason that general considerations have entirely escaped observation. If a very dilute solution of sodium chlorid differs from a dilute solution of hydrochloric acid only in the fact that the former contains sodium ions and the latter hydrogen ions, then the poisonous action of the latter is plainly due to the hydrogen ions present. In like manner comparing a very dilute solution of sodium nitrate with a similar solution of nitric acid, the poisonous nature of the latter would be due to the hydrogen ions present. In general, if the solution is sufficiently dilute so that the acid dissolved is practically completely dissociated and the acid radical is of such a nature that in this concentration its ions have practically no poisonous action, the toxic value of the acid solution is due to the hydrogen ions present.

Now strong acids are highly dissociated in watery solutions, thus rendering them relatively rich in hydrogen ions. Weaker acids are less dissociated since their solutions contain less hydrogen ions. It must always be borne in mind that the salt remaining undissociated is present in the solution as well as the ions. That these undissociated remainders and the ions of the acid radical also exert an effect, is not to be denied but in many cases, such as that of the Cl ions in hydrochloric acid, the action is practically nil at the strength at which hydrochloric acid is effective, since a solution of common salt containing as many Cl ions as the HCl solution in question, is ineffective. The same reasoning may be applied to nitrate of sodium and nitric acid; also to sodium hydroxid and common salt. In the latter case, the solutions differ from each other in that the former contains OH ions, whereas the latter contains Cl ions. All solutions of the bases (lyes) contain OH ions and their toxic action is due to their OH ions alone provided the metal or corresponding radical, the cathion, is itself harmless at the particular concentration used. We see then that H ions and OH ions have toxic properties. That it is the ionized condition that brings this about, is shown by the fact that in the case of water where we have these constituents in practically an undissociated state there is no toxic action.

The poisonous property of a very dilute solution is, then due to the ions it contains, and if at the particular dilution in hand only one physiologically active ion is present, the effectiveness of the solution is to be attributed to that one ion. Solutions of hydrochloric, nitric and sulphuric acids are nearly completely dissociated when an equivalent in grams is dissolved in 1,000 liters of water. Hence such, or more dilute, solutions of these acids, when chemically equivalent quantities are dissolved, ought to have the same toxic effects, the Cl, NO_3 and SO_4 ions in such dilution being harmless. That these radicals are harmless is shown by the effect that like concentrations of the sodium salts of these acids are harmless.

We have tested this point experimentally for the higher plants by ascertaining the strength of solution in which the roots of the ordinary field lupine (Lupinus albus) will just live. We have found that the limit of these acids is reached in a solution containing one equivalent in grams in 6,400 liters of water. We may say, then, that one gram of hydrogen ions distributed through 6,400 liters of water will give a solution in which roots of the lupine will just grow. It is entirely immaterial at this dilution whether we take hydrochloric, nitric or sulphuric acids, the toxic action of the solutions is the same provided the solutions contain the same amount of hydrogen ions. The molecular weight in grams, or simply gram-molecule, of acid sulphate of potassium in 6,400 liters would contain as much ionized hydrogen as a gram molecule of hydrochloric acid and should therefore have the same effect toxically. This was confirmed by experiment.

The action of about forty acids was investigated and the results point to the fact that in many of them the poisonous effect is due in great part to the hydrogen present as ions. In some of these acids, dissociation is not complete at the concentration-limit found; in other cases, the harmful influence of the anion can not be neglected.

The following table shows in the first column the names of acids investigated; in the second column is the concentration just allowing growth, expressed in fractions of a gram-equivalent of the acid per liter of water.

TABLE I.

Acids.	Concentration-limit. Equivalent.	Acids.	Concentration-limit. Equivalent.
Hydrochloric,	1-6400	Malonic,	1-3200
Nitric,	1-6400	Potas. acid oxalate,	1-3200
Hydrobromic,	1-6400	Ortho-nitro-benzoic,	1-6400
Acid potas. sulphate,	1-6400	Meta-nitro-benzoic,	1-12800
Sulphuric,	1-6400	Para-nitro-benzoic,	1-12800
Phosphoric,	1-6400	Mono-chlor-acetic,	1-6400
Chromic,	1-12800	Di-chlor-acetic,	1-6400
Hydrocyanic,	1-12800	Tri-chlor-acetic,	1-12800
Formic,	1-6400	Mono-brom-acetic,	1-12800
Acetic,	1-1600	Cinnamic,	1-12800
Propionic,	1-3200	Meta-oxy-benzoic,	1-3200
Butyric,	1-3200	Para-oxy-benzoic,	1-1600
Valeric,	1-3200	Hippuric,	1-6400
Benzoic,	1-6400	Gallic,	1-6400

Salicylic,	1-6400	Protocatechuic,	1-3200
Oxalic,	1-3200	Citric,	1-3200
Succinic,	1-1600	Aspartic,	1-6400
Tartaric,	1-6400	Glycolic,	1-6400
Fumaric,	1-6400	Malic,	1-3200
Maleic,	1-3200	Lactic.	1-3200

A glance at the results shows that the concentrations at which the plants survive vary from 1–1600 gram-equivalent to 1–12800 gram-equivalent.

For mineral acids and other strong acids in which at the dilution under consideration the anion exerts practically no influence, the concentration at which the lupines survive is determined solely by the hydrogen ions present. The concentration found is 1–6400 gram-equivalent per liter. When the lupines live in a greater concentration than this, dissociation, even in the great dilution used, is not complete. In the cases where the limit lies at 1–12800 gram-equivalents per liter, the influence of anion and in some cases, HCn, for example, the dissociated remainder of the acid, has to be taken into account.

Since this is to be regarded as a preliminary report, a discussion of the action of the individual acids is not given. This may be sought in the complete report which is to appear later.

Of especial interest is the conduct of boric acid. This is a very weak acid and is but slightly dissociated even in dilute solutions and lupine roots survive in a concentration of 1–25 gram-equivalent per liter. When mannite, which in itself is not harmful to the plant, is added to the boric acid, boro-mannitic acid is formed which is stronger than the original acid. Its solutions contain more hydrogen ions and hence should be more deadly to the plant. Experiment corroborates this since the limit-concentration of the boro-mannitic acid was 1–100 gram equivalent of the boric acid to the liter.

The following table shows a list of the salt solutions investigated. The first column enumerates the salts, the second column is the concentration expressed in gram-equivalents per liter at which the plants just survived. In the case of $FeCl_3$, the concentration is otherwise indicated.

TABLE II.

Salt.	Concentration-limit.
$AgNO_3$	1–204600 equivalent.
Ag_2SO_4	1–204600 "
$HgCl_2$	1–12800 "
$HgCn_2$	1–51200 "
KCn	1–6400 "
$CuCl_2$	1–25600 "
$CuSo_4$	1–25600 "
$Cu(C_2H_3O_2)$	1–25600 "
$NiSO_4$	1–25600 "
$FeSO_4$	1–12800 "
$FeCl_3$	Fe. 0.0025 gram per 1. Cl. 0.0047 " "
$CoSO_4$	1–12800 "
$Co(NO_3)_2$	1–12800 "
$Cd(NO_3)_2$	1–102400 "

From the above we see that the lupines just survive in a solution of silver sulphate containing 1–204600 gram-equivalent per liter. Since the same is true of silver nitrate, it follows that the silver in these solutions is the active constituent. Moreover, it is silver in the ionized state. To show this, silver nitrate was treated with potassium cyanid in slight excess so as to just dissolve the precipitate. It is well known that such a solution contains the ions + K and — AgCn; that is to say, there are almost no silver ions present in such a solution, the silver being combined with the Cn radical to form the complex ion AgCn. It was found that such a solution containing as much as 1–12800 gram-equivalent of silver per liter still allowed the plants to grow. The copper salts, the sulphate, chlorid and acetate, all gave the same concentration limit, viz., 1–25600 gram-equivalent per liter. There can be no doubt that here the copper present does the work. A Fehling's solution contains copper but, as has been recently shown, is poor in copper ions. We found that a Fehling's solution containing 1–200 gram-equivalent of copper per liter still allowed growth. This Fehling's solution was not made in the usual way, but, to avoid the presence of salts in overabundance, cane sugar, copper sulphate and just enough caustic potash to dissolve the precipitate were mixed.

The limit for cobaltic nitrate and cobaltic sulphate was found to be again at agreement at 1–12800 gram-equivalent per liter. This is a measure of the poisonous effects of cobalt ions. The corresponding limit for nickel ions is 1–25600 gram-equivalent per liter.

From Table II, the corresponding figures for Fe ions is 1–12800 gram-equivalent per liter; for cadmium, 1–102400, for mercury, 1–12800; HgCn is toxically more active because the Cn ions in themselves are poisonous as is also the undissociated $HgCn_2$.

In the case of silver and copper, it has already been shown that when these metals are present in the solutions in compound ions the toxic action is much diminished. When to mercuric chlorid, dextrin in excess is added and then enough caustic potash to precipitate the mercury present under ordinary conditions, no precipitate forms. We have here, as it were, a Fehling's solution containing mercury instead of copper. The mercury is not present in the solution as ion but is bound to the dextrin with which it forms a complex ion which is of much less poisonous action than the mercury ion. Indeed, such a solution as that just described may contain 1–3200 gram-equivalent of mercuric chlorid and still permit growth. The corresponding limit for mercuric chlorid alone is 1–12800 gram-equivalent per liter, or one-fourth as strong.

The results obtained with iron salts are of interest. Dialyzed iron chlorid containing 0.0477 grams of Fe and 0.0047 grams of chlorin per liter, just allowed plant growth. A solution of ferric chlorid first allowed growth at a much greater dilution. The limit-concentration contained 0.0025 grams iron and 0.0047 grams chlorin per liter. The dialyzed iron contains hardly any ferric ions as is shown by the fact that potassium ferrocyanid produces no precipitate in such a solution.

Again, solutions of potassium ferrocyanid contain K ions and $FeCn_6$ ions; potassium ferricyanid solutions contain K ions and $FeCn_6$ ions. Here we get the effect not of the Fe ions, nor of Cn ions but of the complex ions mentioned. These are weak toxically as shown by the fact that in potassium ferrocyanid solutions lupines live in a concentration of 1–200 gram-molecule per liter.

These results are collected in Table III.

TABLE III.
METALS IN COMPLEX IONS.

Substance.	Limit.
$AgNO_3$	1–12800 grm. equivalent per 1.
$HgCl_2$	1–3200 " " "
$CuSO_4$	1–200 " " "
K_3FeCn_6	1–200 " " "
K_4FeCn_6	1–200 " " "
$FeCl_3$	
Fe.	0.0477 " " "
Cl.	0.0047 " " "

METALS IN SIMPLE IONS.

Substance.	Limit.
$AgNO_3$	1-204600 grm. equivalent per 1.
$HgCl_2$	1-12800 " " "
$CuSO_4$	1-25600 " " "
KCn	1-6400 " " "
$FeCl_3$	
Fe	0.0025 " " "
Cl	0.0047 " " "

Here the decided contrast, at times very striking, speaks for itself.

These results have in a large measure been confirmed by Mr. F. D. Heald, Fellow in Botany at the University of Wisconsin, who investigated the action of like substances on various other plants.

That the modern theory of solutions would throw light on the physiologic action of solutions was to be expected. We have shown that, in the case of plants, solutions of the electrolytes derive their toxic action from the ions into which they split up in great dilutions, the undissociated parts coming into account only when dissociation is not practically complete. We have here a recognition of the theory of electrolytic dissociation by the organic world. Any one inspecting Miquel's table of the efficiency of antiseptics in Sternberg's "Manual of Bacteriology" at the same time bearing in mind the theory of Arrhenius will, although concentrations are given by per cent. instead of chemic equivlents, be able to see the corroboration of this view.

In seeking to apply this modern theory of solutions to the physiologic action of the same, we have dealt only with the higher plants thus far. Investigations along this line in bacteriology are now in progress at the University of Wisconsin, and their extension to animals is contemplated.

By working along this line, it is hoped to place the knowledge of the physiologic action of solutions of electrolytes on a better basis than the empirical one on which it has thus far rested. It seems not too much to expect that the effects of such study will be felt in agriculture, whereas its application to bacteriologic study will be highly important to our knowledge of antiseptics. The systematic study of the effects of solutions on animals from the standpoint of the new theories bids fair to yield results for the therapeutist. For example, if, as we have found, silver ions are very harmful to plants, then we can readily see why silver foil placed upon a wound should act as an antiseptic. The small amount of silver ions that are formed, suffice in cases to prevent putrefaction.

It is clear that the mere presence of a metal in a solution does not warrant us in drawing conclusions concerning its physiologic strength; we must also know whether the metal exists in the solution as simple ions or combined with other radicles to form a complex ion. If the addition of certain substances to a solution containing a physiologically active ion forms a complex ion of much less powerful action, it follows that these additional ingredients give us a means of reducing, so to speak, the physiologic action of the simple ion.

This paper is intended simply as a preliminary report on the work already done. The results are soon to be published in full together with the details concerning the methods employed. We shall also take this opportunity to call attention to the further applications of this view of solutions to physiologic problems.

JOINT PHARMACOLOGIC INVESTIGATIONS BY THE AMERICAN MEDICAL ASSOCIATION AND THE AMERICAN PHARMACEUTICAL ASSOCIATION.

Read in the Section on Materia Medica, Pharmacy and Therapeutic at the Forty-seventh Annual Meeting of the American Medical Association held at Atlanta, Ga., May 5-8, 1896.

BY H. H. RUSBY, M.D.
NEW YORK.

When one examines the pharmacologic portions of the many ponderous volumes composing the index to the Surgeon-General's library, and those of the Index Medicus, by which the former has been succeeded, remembering that a very large part of pharmaceutic literature is not here represented, the conviction is forced upon him that our knowledge of the practical utility of medicinal plants is small beyond all reasonable comparison with the amount of time that has been bestowed upon their study. This fact is not difficult to explain, at least in part. It is largely due to the method, or rather want of method which has prevailed, by which partial investigations have been made by individuals without regard to their relation to the complementary parts, these being left undone, the part performed remaining unutilized and becoming finally buried and forgotten. This neglect has been made farther operative by the habit of investigators of failing to search the work of previous investigators in the same lines before performing their own portion, so that the same work has been duplicated over and over again, and in such a way as not only to fail of confirming, refuting, or of supplementing conclusions already reached, but in very many instances of unnecessarily and mischievously coming into conflict with them. This charge against investigators is fully and eloquently sustained by the small subscription list of the Index Medicus for many years past, throughout its entire history in fact. No class is more culpable for this neglect than medical editors, whose duty of criticising and weeding out contributions on these lines has been almost utterly neglected. This again is in a large degree due to the great number of medical journals, run almost confessedly for the most part as advertising sheets, and recognizing quantity with little regard to quality in the contributed matter.

An almost equally responsible factor is the narrow view which physicians, and especially medical teachers, have been taking of their responsibilities in the department of pharmacology. In leaving to the pharmacist the practical details connected with botany and pharmaceutic chemistry, they have gone to the extreme of ignoring these subjects almost altogether in principle as well as in fact, and have as an inevitable consequence become incapable of utilizing the rich materials which have been placed within their reach by pharmaceutic investigators. In the investigation of pharmacology pharmacy has, during the last decade, very far outstripped medicine. "Why does not the medical profession catch up," would have been a very pertinent, even if not wholly respectful title for this communication.

The joint section of materia medica and therapeutics of these two associations, which section should change its name to "The Joint Section of Pharmacology," is altogether the most competent and appropriate agency for correcting the defects to which ref-

erence has been made, and it is this which constituted the chief hope in its establishment by its leading promoters. To the great majority of observers in both professions it has never appealed from this standpoint. They appear to have seen in it merely an influence for the promotion of cordiality between physicians and pharmacists, either from sentimental considerations merely, or to accomplish the negative result of checking the friction which was apparent in certain quarters.

In this direction it has justified our expectations and we are satisfied that it has proven a success. But it must begin to do something more positive if it would not soon begin to act as a dead weight. This is to promote a new method of undertaking and carrying out pharmacologic investigations.

When the writer expected to act as chairman of the delegation from the American Pharmaceutical Association to this meeting, he planned to propose certain changes, having this object in view, in the manner of carrying on our joint work. Although absence prevents his official action in this direction, it appears desirable that his ideas should be informally presented.

The chairman of this Section and that of the delegation have followed the ordinary custom in such bodies, of contenting themselves with attending to the routine business of their offices and issuing general invitations to the members to present contributions. As a result the proceedings have been somewhat heterogeneous in character. While it is desirable that members should be left free to select any subjects they prefer, and while nothing could or should be done by a chairman to deter any one from so contributing, yet it would seem very desirable that at a meeting so peculiarly adapted as this is to the performance of joint work, some such work should be specially arranged for in advance by concerted action by the two chairmen. The chairman of the Section is elected at the preceding meeting, but the chairman of the delegation is appointed by the president of the American Pharmaceutical Association, and it has not been customary for this appointment to be made until quite late in the year. Selection of the delegates has thus to be made by correspondence, extending often over a long period, and when arrangements are perfected there is no time left for special investigation work to be done by the members of the delegation, of such a character that it would fit with related work done by the members of the Section.

The writer would therefore suggest that the president-elect of the American Pharmaceutical Association should appoint the chairman of the delegation during the session of the American Pharmaceutical Association at which he is elected, and that chairman should proceed immediately to act with the president in making up a list of delegates. The chairman should then at once confer with the chairman of this Section in regard to undertaking one or more definite pharmacologic investigations, to occupy one or more members of each of the contributing bodies. The members to do the work should be selected and after acceptance should place themselves in correspondence with one another for carrying out the work in a manner calculated to reach some definite and completed result.

An instance of failure in such an attempt in the case of the present meeting will illustrate the principle involved. It was the desire of the writer to have the subject of the viburnum barks investigated. A thorough chemical study of V. prunifolium was first to be made and the constituents isolated in sufficient quantity to admit of physiologic experiment by some member of this Section. The active constituent or constituents being thus determined, the related species were to be examined with reference to the possession of such constituents, as well as of others, so that a just conclusion could be reached as to their claims for recognition by the Pharmacopeia and, if recognized, then as to their recognition separately or under one definition. When the attempt was made to put this plan into execution, it was found impossible to complete the work in time for the meeting, though this would have been possible had it been started at the beginning of the preceding year. There is no reason why such a plan of work by the proposed method should not run through two or more years, if its completion in one year were found impracticable. The writer believes that important practical results would follow the adoption of this plan, or some modification thereof.

PRESCRIPTION WRITING AND PHARMACY AS PRACTICED IN OUR LARGE HOSPITALS AND DISPENSARIES.

Read in the Section on Materia Medica, Pharmacy and Therapeutics, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5–8, 1896.

BY HENRY R. SLACK, PH.M., M.D.

SECRETARY GEORGIA BOARD OF PHARMACY.
LA ORANGE, GA.

My attention was first directed to this subject by an editorial in the *American Medico-Surgical Bulletin* from the able pen of Dr. Wm. Hy. Porter, in which he very forcibly portrayed the evil of stock prescriptions in the hospitals. At first I rather thought, that like most reformers, he had represented the practice and the evils thereof in somewhat extravagant terms, but closer personal observation has convinced me of the correctness of his views.

Vibration is nature's law; everywhere do we notice action and reaction, condensation and rarefaction, crest and trough. Even the forces that apparently move in straight lines, when more closely studied, are found to be an aggregation of an infinite number of minute vibrations too small for the unaided eye to measure.

The noble art and science of medicine is no exception to nature's law of vibratory motion; indeed, notwithstanding her boasted conservatism she is largely the creature of fashion. Fortunately for suffering humanity, her styles do not change quite as often as the seasons, and when they do, there are usually a few facts, some reasons and more theories to explain the revolution than are produced in defense of the cut of a coat; but the reaction comes just the same.

At present we are in the midst of a season of expectancy, as a natural reaction from the polypharmacy hypertherapy of the past. Serotherapy and animal extracts seem to be the coming fad, though the quackish methods adopted by some of its promoters and manufacturers have somewhat chilled the ardor of the regular profession. It matters little whether we float on the crest of expectancy or struggle in the trough of empiricism, we find good company in both situations. Hippocrates and Celsus, Trousseau and Sydenham, Chapman and Todd, Osler and Wood represent different ideas in medicine, but are names we all honor. Wherever we are, let us "act well our

part, for there all the honor lies." Whether clinicians or therapists, when medicines are used the prescriptions should be properly written and accurately filled.

Four months spent as a student and visitor in the largest and best equipped medical colleges and hospitals in New York, Philadelphia and Baltimore, has convinced me that there is more room for improvement in prescription writing and pharmacy than in any other art there practiced.

Being interested in this department, I visited the pharmacies of these colleges and was surprised at the careless, almost slovenly, manner in which the prescriptions were written, and as might be expected, the filling was no improvement on the writing.

Analysis of 100 prescriptions found on the files of each of the five leading colleges in the East and three in the West may be of interest.

	Metric system used.	Correctly written.	Incorrectly written.	Symbols.	Stock R.
A.	0	52	48	45	45 Pa.
B.	6	64	36	36	36 J. H.
B. Dis.	4	33	67	65	65 J. H. D.
C.	0	90	10	3	13 Jef.
D.	5	96	4	2	6 P. G.
E.	1	98	2	0	2 P. C.
		Western Colleges.			
F.	40	65	35		90 N. W.
G.	8	33	67		3 P. G.
R.	0		All symbols.		100 R.

The analysis of the prescriptions from the western colleges were made by my friend and pupil, Mr. W. S. Davis, now a student in Chicago.

From a consideration of these figures it will be seen that the art of prescription writing is rather below par, even in our oldest and youngest and strongest medical colleges.

Although the physicians are presumed to be familiar with the metric system, it is used in less than 3 per cent. of the prescriptions filled in the eastern hospitals. In this respect the West shows her progressive spirit, for there we find the metric system used in 24 per cent. of the prescriptions. The conservatism and training of the East shows in the correctness of the prescriptions as written, for here we have 72 per cent. correct while in the West only 49 per cent are placed in that column. How far short are our colleges and hospitals in both sections in this important particular appears when we consider that nearly one-third of all the prescriptions are incorrectly written.

The chief error lies in the careless use of symbols, not chemic, but abbreviations understood only by the pharmacist, standing for some stock prescription, such as:

℞ H. S. ʒi

for

℞ Hydrargyri bichloridi 0.065
Potassii iodidi. 30
Aquæ puræ, q. s. . . . . 30 c.c.
Mix. Sig.

or

℞ M. G. A.

for one of Dr. Pepper's favorite prescriptions:

℞ Tr. nucis vomicæ . . . . . 4 c.c.
Tr. gentianæ co. . . . . 45 c.c.
Sodii bicarbonatis. 8
Aquæ menthæ pip., q. s. . . . . 180 c.c.
Mix. Sig.

Using signs and stock remedies gets the prescriber into the very careless and harmful habit of fitting his symptoms to his remedy, instead of the treatment to the disease. This is one cause of the rapid growth of that most injurious form of all nostrums, so-called physician's formulæ, the ingredients of which are not known either to the physician or the pharmacist, and are used to the detriment of the former's brains and self-respect, and the latter's skill and profit.

This careless prescription writing is an injustice to the students, especially the post-graduates, many of whom graduated five or ten years ago, when only two courses were required. These men, feeling the deficiency in their early training, or wishing to brush up in some particular branch, go to the large schools and hospitals for thorough training and instruction. Imagine their surprise when after a half hour's thorough examination of blood, heart, lungs, liver, stomach and kidneys, a prescription is hastily scribbled off thus:

℞ M. G. A. . . . . ʒiv
Sig., ʒii t. i. d.

S. M.D.

Inquiring as to what these cabalistic letters represented, they receive the following reply: "Oh, that is a splendid thing for stomach troubles, and Dr. M. has made quite a reputation by its use. It contains some tr. nux vomica, gentian, soda, etc., but I have forgotten the proportions. You can find out from the pharmacist." "Doctor, wouldn't a little sanguinaria be beneficial in his case?" suggests one of the post-graduates. "Yes, I think it would, but we haven't time to write individual prescriptions for each case"

Thanking the interne or instructor for his kindness, they go to the pharmacy. This seems to be against the rules, but one of their number is an alumnus of the same college of pharmacy as the pharmacist, so they gain admittance. There they find a very intelligent Ph.G. busily engaged in mixing medicines by the gallon, and from these large bottles bearing the cabalistic signs he fills a dozen or more one, two or four ounce vials, which he corks and puts in rows ready for the labels. When asked for the U. S. Pharmacopeia he did not have one, but gave us instead a sixteenth edition of the U. S. D., a book nearly ten years behind the times. No metric weights were visible and only two metric graduates. When asked about this deficiency, he said: "Only one man in this hospital, Dr. T., uses the metric system in his prescriptions, and for these I can use fifteen grains for the gram." One of the company expressed disappointment at the neglect of the metric system by a school where so many of its teachers were graduates of European universities, and one whose name stood for progress in every department of university education; and they went to the pharmacy of the hospital proper. Here they found a younger man in charge, also metric weights (though very little used), a U. S. Pharmacopeia and some other standard works on pharmacy.

The other pharmacies visited revealed nearly the same condition of affairs, though three were not so bad for stock prescriptions, and one presided over by a doctor of pharmacy was well arranged and properly equipped.

In three out of five were found the U. S. P. and the U. S. D., and in two the Nat. Dispensatory. In all but one there was great room for improvement It is to be hoped that our colleges now requiring four years instruction will teach their graduates to write their prescriptions correctly and the use of the metric system. At present, prescription writing and phar-

macy, as practiced in our large college hospitals and dispensaries, leave much to be desired by way of improvement.

STANDARDIZED DRUGS.

Read in the Section on Materia Medica, Pharmacy and Therapeutics at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5–8, 1896.

BY HENRY B. GILPIN, PH. G.

BALTIMORE, MD.

It is interesting to study, in the evolution of the methods of drug administration, the various forms that have obtained. Beginning with the crude drug, the first step apparently was the recognition of the fact that, as a rule, the soluble principles of a drug of vegetable origin, were its therapeutically active ones. Hence it was but natural that solutions—made with hot or cold water—in the form of infusions, decoctions, etc., should have resulted. It was found, however, that the proneness of these to decomposition, and the relatively large doses necessary to secure therapeutic effects, made them objectionable. The next step was the making of tinctures, fluid extracts and similar products. The final advance has been the assaying or standardizing of the more prominent drugs and galenical preparations, such as those of cinchona, opium and nux vomica, as directed by our Pharmacopeia, and a score and more of other alkaloid-containing drugs that manufacturers themselves have adjusted to certain standards.

In these days of scientific accuracy, it would seem hardly necessary to put forth any plea in favor of standardized drugs, and yet the variability in active constituents of what are commercially regarded as good-quality drugs, makes it essential that the agitation in favor of higher standards be continued. It may be of interest to state that in over 500 assays made of six prominent drugs—which, by the way, were of the *best* commercial quality—the following percentages of alkaloids were obtained:

Aconite root 0.21 to 0.80 per cent., belladonna leaves 0.23 to 0.50 per cent., conium fruit 0.10 to 0.53 per cent., hyoscyamus leaves 0.11 to 0.20 per cent., nux vomica 1.6 to 3 per cent., gelsemium root 0.3 to 0.4 per cent. What is true of variations in strength of these drugs is equally true of many others. From the above it will be seen that the varying alkaloidal strength between extreme limits in the above mentioned drugs, is sometimes several hundred per cent; notably is this the case with aconite root. For example, to illustrate the possibilities of this variation: *two* minims of an unassayed tincture of aconite, in one case, may have the same amount of alkaloids as *eight* minims of a tincture made from another crude root. Five minims of a tincture of belladonna made from an unassayed drug may have only *one-half* the alkaloids contained in the same amount of a tincture made from another sample, or, if it be required to give *ten* minims of tincture of nux vomica, the unassayed product may contain only *one-half* the alkaloids it contains at another time. In other words, there is no safety for the physician in unassayed drugs; he must have the most uniform and reliable tools with which to work, or he will measurably fail. This is true for a number of reasons, the main one of which is, that practical medicine is not an exact science. The medical man has to deal with conditions that are far from being exact. "The human body is a wonderfully intricate piece of mechanism with such various and varying factors to govern its cellular activities that rational medical practice can only develop most slowly." Now, if with the factor of a varying human economy the physician has to deal with varying drugs and preparations of drugs, he is doubly handicapped in his work. If on the other hand, he can be assured that the means he wishes to employ to combat disease are always definite and sure, he can ignore the factor of a possible variation in the strength of the drug as an explanation of its want of action, and assume that the use of the drug itself was not indicated, because its use failed to give certain results. But when he uses a drug of unknown strength, and fails to produce certain results he may be in doubt as to whether it was the fault of the drug, whether it was not pushed to the full limit of tolerance, or whether its application was not indicated.

So, from every point of view, the physician should be interested in obtaining the best and most uniform drugs, if he wishes to obtain, as far as possible, the best and most uniform results in medical treatment, and in this connection let me say, that the educated pharmacist is just as anxious as the physician to have products that shall be reliable and uniform.

What is true with regard to the value of accurately assayed drugs, is also true with regard to the value of accurately assayed preparations of drugs. Whether it is better for the pharmacist to buy assayed drugs, and make his own tinctures, fluid extracts and the like, or to buy the assayed preparations of a manufacturer, is a question to which we think, there can only be one right answer. It is better for the pharmacist to buy assayed drugs, and make his own preparations, for the reason that it encourages the development of legitimate pharmacy—gives the pharmacist a deeper knowledge of the drugs he is handling—and he can personally guarantee the quality of his products. He can not personally vouch for the quality of another's preparations. It may be retorted that the pharmacist can not vouch for the strength of commercially assayed drugs, but he has this advantage: he can readily verify the claims made, and make a physical inspection of the products before converting them into preparations. When he buys a fluid extract, he buys a finished product, and knows nothing of the physical condition of the drug from which it may have been made.

But whatever difference of opinion may obtain concerning this point, there can be little question as to the reprehensibility of the practice sometimes followed by pharmacists of making tinctures by simply diluting fluid extracts. Fluid extracts, assayed or unassayed, differ from tinctures in the relative amount and kind of their proximate principles, and while it may be possible to so adjust the alkaloidal strength of a diluted fluid extract to make it correspond to the proper alkaloidal strength of a tincture, it is not possible to so adjust the *other* proximate principles, because in the vast majority of cases, there exists no known methods of assay for them. Further, that tinctures contain relatively a *larger* amount of proximate principles than do fluid extracts, is shown by the fact, known to every physician, that the *dose* of a drug in the form of a tincture is *less* relatively than is the *dose* of a fluid extract, and exhibits the physiologic effects of the drug in a correspondingly less dose.

The increased use of synthetic chemicals and the

decreased use of tinctures of vegetable drugs, by the physicians of to-day, may be due, in part, to the fact that some pharmacists buy commercial fluid extracts and make tinctures from them by simple dilution with varying quantities of alcohol and water, instead of using, as the Pharmacopeia directs, drugs with which to make them; and physicians have failed to achieve the results recorded by their forefathers. Modern physicians have thrown aside the old and tried, to welcome the new synthetic compounds; but in so doing, is it not possible that the old may possess merits that make them equally as worthy as the new, if not more so?

THE McINTYRE ELEPHANTIASIS CASE.

BY G. LAIDLAW, M.D.
CHICAGO.

In this world of phenomena it is not strange that a physician and surgeon, practicing his profession for a number of years, should occasionally meet with pathologic conditions more or less rare, but it is strange that some should meet the most remarkable cases at every turn, so to speak. In this connection I am sure that it is the privilege of very few professional men, outside of very large hospitals, to deal with more extraordinary cases than have come to the notice and care of my much respected friend and colleague, C. J. McIntyre, C.M., M.D. As a partial proof of the foregoing assertions, I take great pleasure in presenting to the reader four different views of a patient whom the doctor has had for several years, together with a few brief remarks upon the history of this particular case and the disease with which the lady is afflicted.

The good-natured, intelligent and respectable woman, who so kindly allowed us to divest her of all metallic substance and garments and pose before the searching eye of the camera obscura, that by so doing we might obtain further light in medicine and be able to present to your view these pictures from life, is a native of America, and was born in Wisconsin. She is now 45 years of age and the mother of ten children, to five of whom she has given birth since the disease from which she now suffers began.

Eighteen years ago, while engaged in a laborious task, she sustained an injury of the abdomen, near the umbilicus, which was followed shortly after by chills and vomiting. The cutaneous and subcutaneous tissues of the affected part presented redness, tumefaction and infiltration. In a short time the acute symptoms disappeared, leaving a well-marked hypertrophy, which gradually increased until two years later, when the left leg began to be covered with scales and to enlarge somewhat. She was at this time in the fourth month of gestation with her sixth child. The abdominal trouble grew gradually worse, but the leg remained in about the same condition until seven years later, when she fell from a step-ladder and sustained a wound from a rusty nail on the right leg, just above the ankle, where, by reference to Figures 1 and 2, the mark of its point of entrance may still be seen. This accident occurred on July 5, and on August 15 she was attacked with chills and vomiting. The seat of the wound burned and throbbed and her suffering was great. The symptoms, as she described them, appear to have been those of tubular lymphangitis. At the end of two months from the date of the accident she had recovered from the lymphangitis and, as she remarked to us when relating the history as above, "was ready for more trouble." She did not have long to wait, for in November of the same year she again fell, this time into a register hole, and wounded her left leg, which, as we have stated, was the one on which the scales appeared two years after the abdominal injury. For a third time she was attacked with chills and vomiting, on the second day after the fall. Her physician pronounced the case, when he saw it, one of erysipelas. The entire limb from toe to knee was involved, and she was very ill for four months. The tissues never returned to their normal proportions, not even to the size which they were when the accident occurred, but, on the contrary, continued to increase in size, the trouble extending all the while further and further up the limb.

Some time after this, but just how long the patient does not remember, the right leg, which had been injured by the nail, began to enlarge.

We have now passed roughly over the first ten years of the history of this case, giving the story substantially as the patient related it from memory.

Dr. McIntyre began to see the case about this time and has now been the patient's physician for about eight years, during which time he has had to deal with indolent, unhealthy and ever-increasing ulcers, the secretions from which have been composed of serum and pus, and very disagreeable to the sense of smell. The epidermis has at times become fissured and cracked; papillomatous excrescences of no mean size, made up of conglomerations of many smaller ones, have appeared, while the lymphatics have exuded lymph in large quantities. When the fissures and ulcers have reached deep-seated nerves Dr. McIntyre has had to assuage the great pain which the patient would experience; and there have appeared at many places, but particularly on the inner aspect of the left leg (seen in Fig. 2), quite large and deep-seated abscesses, calling for evacuation and the institution of proper treatment to prevent septic absorption. Meeting all indications as they have arisen from time to time, and supporting the patient in a proper manner amid conditions which at times have seemed hopeless, Dr. McIntyre has cared for the patient until now, when the case has assumed an insidious and chronic form. Large areas of vessels have become affected, and such wide-spread obliteration of them has resulted as to block up permanently their flow of lymph, thereby producing an everlasting lymphedema of the affected parts. From the history of the case it would appear that there resulted from the abdominal injury many years ago an ordinary erysipelas or reticular lymphangitis, and that from the invasion of the lymphatic channels at this time the disease dates. Later on we find one leg affected with eczema, the other with a septic wound, and finally, the eczematous one, after an injury, becomes the seat of a traumatic erysipelas. At these three seats of original attack there have occurred successive attacks of diffuse lymphangitis, each recurrence causing an aggravation of the already bad condition. Thickening and induration of the skin and connective tissue have taken place, the dilatation and multiplication of the blood vessels keeping pace with the general connective tissue hypertrophy, until we have now a case of elephantiasis Arabum which, in some respects at least, is the most wonderful on record. In support of this last remark I wish to state that it has been made after a careful examination of a great many works

on the subject under discussion, among which may be mentioned those of Hebra, Neumann, Kaposi, Ziemssen's Encyclopedia (the volume on Skin Diseases), Crocker, the London *Lancet* since 1878, A. H. Buck's Refer. Hand-book Medical Science, Keen and White's American Text-book of Surgery, Hooper's Dictionary, published in New York in 1847 by Harper & Bros., Stephen Smith's Surgery, Dr. Titley in the *Lancet*, Vol. xx; M. Clot-Bey, A. J. Howe, etc. Felkin's case in the *Edinburgh Medical Journal*, 1889, page 779, is the only case I have found which very closely resembles the McIntyre one. In this instance the patient was an Eurasian woman.

In a general way I may close my remarks regarding this case by saying that the patient is a most hopeful, good-natured and happy woman, who, if it were not for



FIGURE 1.

the asthma, with which she has suffered much at times for the last six years, would not complain at all, notwithstanding the fact, that in addition to her terrible state, she has no husband to care for her and is in the most destitute circumstances, with several children still requiring the care that none but a mother can bestow.

By reference to Figs. 2 and 3 a very interesting demonstration of a commencing lymphangiectasis may be seen on the lower part of the abdomen near the line of the groin. This condition is to the lymphatic vessels what dilatations and varicosities are to their congeners, the veins, and should the condition here seen, by confluence and aggregation, form distinct tumors, we will have what is called lymphangioma.

Extending downward from the umbilicus, corresponding to the linea alba, there is at present a fissure about four inches in length, and two and one-half inches in depth (best seen in Fig. 3), the sides of which are in a state of ulceration and discharge a disagreeable-smelling mixture of serum, pus and lymph. During the past year the labia majora and minora and clitoris have become involved, but are not as yet enlarged to any great extent, in fact, there is no chance for any considerable enlargement, for the abdomen as it hangs, or rather protrudes, downward is as stiff and unwieldy as any elephant's belly on earth. To the sense of touch, moreover, there is nothing that I know of which feels more like the hide of an elephant than this does. There is very little



FIGURE 2.

feeling in this thick, rough, wrinkly, unctuous and void-of-hair skin. In the edema produced by other diseases and other causes there is pitting on pressure, but no part of this growth pits, even when great pressure is applied. The blood recedes to quite an extent from the point of pressure to return very slowly, indeed, but that is all.

While elephantiasis Arabum, the synonyms of which are pachydermia, Dal fil, Barbadoes leg, Elephantenfuss, mal de Cayenne, etc., may be considered a pandemic disease, we must consider it when appearing in this climate and from the causes which appear to have been responsible for it in this case, a very sporadic malady. Authors of the present day speak of elephantiasis Græcorum as lepra, and elephantiasis

Arabum as simply elephantiasis or pachydermia, it being now certain that the two are distinct. I think that when we have a case like the one under discussion and springing up in this part of the world from causes similar to those which appear to have been at the bottom of this case, the simple term lymphedema would be the best to employ, reserving the terms elephantiasis Græcorum for the lepra type, and elephantiasis Arabum for those cases found in hot climates near the tropics, particularly in Egypt, on the coast of the Mediterranean, the west coast of Africa, the Antilles (Barbadoes), Brazil, Malabar and parts of India, in all of which sections of the world it is most often met with and where, almost always, the cause of it is the entrance into the blood and lymphatics



FIGURE 3.

of the embryo of a nematode worm, the name of which is filaria sanguinis hominis, from its discovery in the human blood. For much of our knowledge in regard to this we are indebted to Wucherer, Salisbury, Lewis, Bancroft, Manson, *et al.*

With us in this country the disease probably always appears after chronic or frequently repeated acute inflammations of the blood and lymph vessels or anything which hinders the flow and favors the escape of the lymph in the lymphatics; and whether it be produced by an inflammation of the blood vessels or of the lymphatics themselves, or from external pressure, it matters not, we will have lymphedema, and following it there will be cell-proliferation and consequent increase in the surrounding tissues.

In tropical countries, but particularly on the Guinea Coast of Africa, the home of the filaria sanguinis hominis, every native into whose lymphatics the filaria gains entrance is not affected with elephantiasis. In some it produces chyluria, and in some it does not appear to affect the health at all. This fact, therefore, goes to prove that there is not in this parasitic worm, *per se*, any special poison the presence of which is necessary in order that either chyluria or elephantiasis may exist. For, unless the parasites block, by their presence, the lymph channels, there will not be chyluria; and unless they develop in sufficient numbers to produce stagnation in the lymph vessels, there will not be, from them at least, an elephantiasis. It



FIGURE 4.

is, therefore, apparent that it is not necessary that we should have in this country, in order to produce genuine cases of chyluria or elephantiasis, the worm which Manson has so well studied for us, and we do not believe that the filaria sanguinis hominis had any part in the cause of the McIntyre case which we have just reported.

Manson says that this parasite resembles a delicate thread of catgut, animated and wriggling; and W. Essex Wynter tells us that the female has a diameter of about 1–100 of an inch and a length of 3 to 3½ inches. As yet no perfect specimen of the male has been found. The mouth is circular, without papillæ; there is a narrowing at the neck, and the tail is bluntly pointed. The parent worm is necessarily only found during operations involving the affected tissues, or in

autopsies. On the other hand, the embryos occur in immense numbers and are readily found in blood obtained by pricking the skin. They appear as active organisms, each being contained within a delicate sheath which projects slightly at one or the other end of the worm. Its length is about 1–90 of an inch and its diameter 1–3200.

Dr. Manson obtained ova consisting of oval bodies 1–500 by 1–750 of an inch. These are too wide to traverse the channels of the lymphatics and consequently become impacted and thus give rise to the conditions of elephantiasis and chyluria.

The mosquito plays a part in the spread of this disease in hot climates. Dr. Stephen Mackenzie's experiments showed that the embryos only occur in the cutaneous vessels while the patient is asleep, whether by night or day. As to what becomes of them during the period of activity of the patient nothing certain is known. During sleep, however, while the filaria embryos circulate in the blood of the sleeper the mosquito fills himself with the infected fluid and flies to some stagnant pool of water, his natural haunt, upon the surface of which he drops to die. The embryos of the filaria contained within the blood are thus set free and become ready to enter the circulation of the next thirsty mortal who drinks the water.

THE METHODIC DESCRIPTION OF A SURGICAL DISEASE.

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(*Concluded from page 83.*)

FORMS, VARIETIES, COMPLICATIONS AND RECURRENCES.

The description of the forms, varieties and complications of the disease comprises that of all the points and features which are not commonly met with and the description of which would embarrass or obscure the description of the most common or frequent appearance of the disease.

Those forms, varieties and complications must be stated as due to peculiar causes; to pathologic peculiarities, to peculiar symptoms, course, termination, duration, diagnosis, prognosis, complications, relapses, sequelæ or consequences. Complications may be local or regional or general. The local and regional complications may be due to malformation, to softening, induration, neurosis, injury, congestion, inflammation, gangrene, ulcer, fistula, tumor; they may affect the skin, connective tissue, adipose tissue, tendons, muscles, fascia, periosteum, bones, medulla, arteries, veins, capillaries, lymphatic vessels, lymphatic glands, nerves, an organ special to the region. The general complications may affect the organs of circulation, respiration, etc. For each form, variety or complication state the frequency and importance.

METHODIC DESCRIPTION OF THE LOCAL SYMPTOMS FURNISHED BY THE SIGHT, TOUCH, HEARING.

The methodic description of the local symptoms furnished by the sight, touch and hearing are much facilitated by arranging them methodically according to each disease or group of diseases. Hence the following separate methodic descriptions:

The classification here adopted and advocated is based on the clinical manifestation which is visible and at once recognizable by the student, and which leads to the pathologic and etiologic characters which themselves lead to the diagnosis, prognosis and treatment.

These diseases are: Malformations, injuries, neuroses, softenings, indurations, congestions, inflammations, gangrenes, ulcers, fistulæ, tumors.

They may affect the skin, connective tissue, adipose tissue, tendons, muscles, fasciæ, periosteum, bones, medulla, joints, arteries, veins, capillaries, lymphatic vessels, lymphatic glands, nerves, an organ special to the region, in all or only one of its component parts.

This plan corresponds to descriptive anatomy, a fair knowledge of which is previously necessary to study profitably general anatomy, which studies the tissues and organs of the same nature regardless of their situation and relative position. The same, in the study of surgical diseases, a descriptive and clinical knowledge is necessary before undertaking the study of the diseases from the point of view of causes or nature, irrespective of the clinical forms they may assume and the location they may affect, such as diatheses, gout, struma, tubercles, syphilis, etc. It would seem that the study of the general diseases should precede the study of their local manifestations, but experience teaches that that study is much more profitable after some clinical knowledge has been acquired.

We must here beg for indulging in repetitions which can not very well be avoided in a new subject where clearness and precision must have precedence over style and grace.

METHODIC DESCRIPTION OF FUNCTIONAL SYMPTOMS.

The methodic description of functional symptoms comprises the following features:

1. The alterations in the physical, *i. e.*, mechanical phenomena of the functions; they usually consist in alterations of movements, *i. e.*, contractions of the muscular fibers of the part or of the organ. We must state the alterations in the capacity or extent of the movements (including reflex, if any), in their duration, in their rhythm or order of succession, in their frequency or rapidity, in their intensity; the alterations in the sounds presented by auscultation, if any, stating the cause, intensity, rhythm.

2. The alterations of the chemical and vital phenomena, comprising the description of the alterations taking place in the contents of the organs; alterations of character, of losses, by gains; the alterations in the presence or action of the peculiar agent which is usually present in the organ (such as pepsin).

3. The alterations of the secretions of the organ, which should be described after a separate guide explained below.

4. The alterations in the composition of the blood in the afferent vessels; also of the efferent vessels; these must be described after a separate method, as explained below.

5. Alterations of the nerve actions and of the nerve centers which preside over the functions.

METHODIC DESCRIPTION OF THE PATHOLOGIC ALTERATIONS OF A NORMAL FLUID.

These present to state: 1. The alterations of the physical characters, *i.e.*, quantity, color, smell, taste, consistency and specific gravity. For each state frequency and importance. 2. The alterations of the chemical characters and of the composition, *i.e.*, of the reaction, of the qualitative analysis, of the inorganics (water, gas, salts), of the organics (albuminoids, carbonaceous, of the characteristic or peculiar substances usually present in the secretion,

such as ptyalin, pepsin), of the quatitative analysis of each component part. 3. The alterations of the anatomic elements or solid components, *i.e.*, shown by the microscope, such as salivary corpuscles, blood corpuscles, etc. We must state the quantity or number, dimensions, color, shape, structure, chemical composition (histo-chemistry), their development and organic changes. 4. The alterations in the physiologic functions of those fluids or secretions. 5. The alterations in the origin or development of the secretions. 6. The alterations of the nerve action or nerve centers.

METHODIC DESCRIPTION OF A NEW OR PATHOLOGIC FLUID.

This includes the following: 1. The physical characters; quantity, color, smell, taste, consistency or specific gravity, temperature. 2. The chemical characters or composition, including the reaction, the qualitative analysis, inorganics (water, gas, salts); organics (albuminoids, carbonaceous, characteristic organic substance, if any); quantitative analysis. 3. The anatomic or microscopic analysis or characteristics of the solid elements; quantity or number, dimensions, color, shape, structure, chemical composition, physiologic functions, development or origin of the solid elements. 4. The pathologic functions or uses of the pathologic fluid. 5. The development, origin, changes, etc., of that fluid. 6. Action of the nerves and nerve centers on the secretion of the fluid.

METHODIC DESCRIPTION OF A CONGENITAL MALFORMATION OR DEFORMITY.

This must state if it consists in the absence of the organ, partial or total, or if the organ is double; if it is an arrest of development, such as fissures, fistulæ; if it is atrophy or hypertrophy, and state if it is general or bilateral; if it involves the whole region or organ or if it is partial, *i.e.*, involving a part only, or one side, unilateral; if it is homogeneous or heterogeneous, *i.e.*, of the same nature or character or not, all over; if its anatomic site is in the skin (pigment, hair, cuticle, cutis, sebaceous glands, sweat glands, vessels, nerves), or in the connective tissue, adipose tissue, tendons, muscles, fascia, periosteum, bones, medulla, arteries, veins, capillaries, lymphatic vessels, lymphatic glands, nerves, or an organ special to the region.

If the malformation is a deviation or asymmetry, we must state if it is directed upward, downward, laterally, backward or in an intermediate direction:

METHODIC DESCRIPTION OF AN ACQUIRED OR POST-NATAL MALFORMATION.

The same course must be followed as for a congenital malformation. We must further state if it is characterized by the destruction of the organ, partial and total, also the cause in each; softening, induration, neurosis, injury, inflammation, gangrene, ulcer, fistula, tumor, operation, cicatrix; and whether they affect the skin, connective tissue, etc.

METHODIC DESCRIPTION OF THE LOCAL SYMPTOMS OF A SURGICAL NEUROSIS.

(Sensory neuroses; pain, neuralgia; motor neuroses, paralysis, spasms or convulsions, contractions, retractions, contractures.)

Here the subjective symptoms often occupy a considerable place.

The subjective symptoms present to state the following: 1. The frequency of the attack, daily, weekly. 2 Whether the neurosis is spontaneous, or provoked or increased by the function of the part. 3. The seat or tract of the neurosis, *i.e.*, the spot where it begins, the line or tract which it follows as traced by the patient; the spot where it ends; state if there are spontaneous painful spots or a spot or place where the symptom is greater; also the breadth or width of the tract or course of the neurosis. 4. The intensity, degree or force; slight, moderate, great, very great. 5. The character of the pain, if any; lancinating, boring, acute, dull, sharp, burning, etc.; note the comparisons made by the patient. 6. The course or rhythm of the neurosis, *i.e.*, if the intensity is always the same; if not, describe how it is, then state the time of onset, of maximum, of decrease and of cessation; the influence of morning, noon, evening, night, midnight, dawn; state if there are remissions or intermissions during the attack, or if the neurosis is continuous until the attack is over; state the duration of the remissions or of the intermission; state if attacks are periodic. 7. State the effects of pressure by the tip of the finger or a broad surface; of light pressure or of great pressure; of short or of continued pressure. 8. State the effects of hot or cold applications; of cold weather with or without dampness; the effects of barometric changes. 9. State the mode of termination of the attack; abruptly, rapidly, gradually; if there are any critical symptoms. 10. State the duration of an attack; hours, days, etc.

The physical symptoms are the following: Eruptions or not along the course of the affected nerve or parts. Pressure on peculiar spots, at points of emergence of nerves through fascia and bones. Effects of pricking with a pin, of hot and cold applications, of electricity, with the patient's eyes closed; effects of threats to use painful methods of treatment (blisters, hot iron, etc.). Effects of fictitious medication; bread pills, hypodermics of water, of air.

The functional symptoms present to describe the alterations of the normal phenomena, of the functions of the part (as above), and the alterations by new phenomena; new position of the part, of the patient.

The regional symptoms comprise specially the irradiation of the manifestations; the sensations of heat and cold, of heaviness, of prickings of the region, of spasmodic clonic contractions, of tonic contractions or contractures.

Describe the condition of the patient immediately after an attack, the local and the general symptoms.

Describe also the condition of the patient during the intervals of an attack, the local and the general symptoms.

METHODIC DESCRIPTION OF THE LOCAL SYMPTOMS OF AN INDURATION, A SWELLING, A TUMOR.

The following methodic description is applicable alike to an induration, a swelling, a tumor. It comprises the description of the subjective, the physical and the regional symptoms.

1. The description of the subjective symptoms, *i.e.*, symptoms felt by the patient only, must be made according to the general description; they usually consist of pain, of peculiar sensations, of heat, of cold, heaviness, prickings, etc.

2. The physical symptoms, comprising the number of the lesions, situation (region, superficial, deep), dimensions (relative, absolute), direction, shape. The description of the superficial surface includes the extent or dimensions, shape or form (plane, convex, concave, in a vertical or transverse direction); color

(red, blue, etc.); projections (vesicles, lobules, lobes); depressions (grooves, sulci, ulcers, fistulæ); relations with the skin (loose or adherent); consistency (fluctuant, hard, soft, pulsatile without expansion, pulsatile with expansion); effects of pressure on tumor, artery and vein above and below, edema or pitting; effects of percussion. The description of the borders includes the extent or limits (circumscribed, diffused); shape or form (plane, convex, concave, regular, irregular, etc.); color, projections, depressions, relations with skin, consistency, etc. (like for the superficial surfaces). The description of the deep surface includes the mobility on the deep soft parts, also on the bones; the extent of the mobility; sessile or pediculated. The auscultation of the part should be described as above. The secretions, if any, from the ulcerations, also as above.

The functional symptoms must be described also as above explained.

The regional symptoms or symptoms presented by the neighboring organs must be described as explained above also.

METHODIC DESCRIPTION OF THE LOCAL SYMPTOMS OF A SOFTENING, A BURN, A FROST-BITE, A CONTUSION, A SPRAIN, A CONGESTION, AN INFLAMMATION, A GANGRENE.

The subjective symptoms must be described as explained in the general guide.

The physical symptoms comprise the description of the following points: The number of lesions, the situation, the dimensions or extent, the direction, the shape. The surface presents to study the color, projections, depressions; the relations with the skin (loose or adherent); the consistency, hard, fluctuant, soft, pitting under pressure of the finger, crepitant, pulsatile without expansion, pulsatile with expansion, effects of pressure on the parts, of pressure above, below and around on the skin, connective tissue, adipose tissue, tendons, muscles, fascia, arteries, veins, capillaries, lymphatic vessels, lymphatic glands, nerves, an organ special to the region; effects of percussion. The borders present for study the dimensions or extent, direction (straight or sinuous), shape (circumscribed or diffused), color, projections, depressions, relations with the skin (loose or adherent), consistency, fluctuant, soft, pitting under fingers, hard, crepitant, pulsation without expansion, pulsation with expansion, effects of pressure above, below, all around, on skin, connective tissue, adipose tissue, tendons, muscles, fasciæ, arteries, veins, capillaries, lymphatic vessels, lymphatic glands, nerves, an organ special to the region; effects of percussion. The deep surface of the affected parts presents to study their mobility on the deep soft parts and on the bones; the extent of the mobility. Auscultation presents to study the points explained above. The secretions of the affected parts must be studied as described above also.

The functional spmptoms should be described according to the guide above explained.

The regional symptoms also.

METHODIC DESCRIPTION OF THE LOCAL SYMPTOMS OF A PUNCTURED WOUND, A STING, A FISTULA.

The subjective symptoms call for no special guide here.

The physical symptoms present for study the following points: The number of lesions; each should be described separately. The external or superficial orifice presents for mention its situation, size, shape, direction, color, invertion or evertion, its smooth or ragged appearance; its projecting, depressed or sunken contour, if it is hidden or not by a fold; its consistency (hard or soft); if it is circumscribed or diffused; its mobility (loss of parallelism); if it is clogged or free, and dry or oozing (blood, serum, pus, special substances). The tract or course of the wound or fistula presents for consideration its direction toward the deep parts, upward, downward, backward or in an intermediate direction; the anatomic point toward which it seems directed; if it is straight, curved or tortuous; the cord-like sensation of the tract. The internal orifice or bottom of the wound presents for study its situation, depth or point of exit; if this orifice is visible or can be felt it should be described as the external orifice; state if it has or not penetrated, *i.e.*, injured any important structure, tendons, muscles, fasciæ, arteries, veins, large lymphatic vessels, lymphatic glands, nerves, an organ special to the region; state the symptoms by which each lesion is recognized. State the presence or absence of any foreign body, part of instrument, bone, etc.

Describe the secretions of the wound, if any, according to the guide as above explained.

The functional symptoms should be described according to the general guide above.

The regional symptoms also.

METHODIC DESCRIPTION OF THE LOCAL SYMPTOMS, IF AN INCISED, A LACERATED, A GUNSHOT, A BITE WOUND.

The subjective symptoms should be described as in the general guide.

The physical symptoms present for description the following points: The number of the lesions. The external solution or orifice presents for statement its situation, size, shape, direction, color; its inversion or eversion; its smooth or ragged appearance; its projecting, depressed or sunken contour; its consistency (hard or soft); if it is bruised or not; its mobility (loss of parallelism); if it is closed by a clot or oozing (blood, serum, pus, special substances). The depth or course toward the deep parts, upward, downward, forward, backward, intermediate direction; state toward what anatomic point it seems directed. The internal orifice or bottom presents to study its situation and depth; state if it has or not penetrated beyond the fascia of the region and has or not injured the important structures, tendons, muscles, fasciæ, arteries, veins, capillaries, lymphatic vessels, lymphatic glands, nerves, organ special to the region, and state the signs by which each lesion is recognized, also its extent; state if there is or not any foreign body (piece of the instrument, clothing, etc.) in the wound. Describe the secretions of the wound, if any, according to the guide above. When there is hemorrhage describe it according to the guide for a normal fluid.

The functional symptoms should be described according to the general plan.

The regional symptoms also.

METHODIC DESCRIPTION OF FOREIGN BODIES IN WOUNDS. ENUMERATION.

They may be broken points, broken blades, bullets, wadding, clothing, dirt, pieces of wood, etc. State the number, size, depth, duration of stay in the wound, changes or alterations they have undergone therein.

METHODIC DESCRIPTION OF THE LOCAL SYMPTOMS OF A DISLOCATION AND OF A FRACTURE.

The subjective symptoms require here no special guide.

The physical symptoms present to study the following points: The number of the lesions, situation, dimensions (extent or swelling), duration. The shape: sometimes there exists a characteristic deformity, or the parts have a peculiar position and shape, or there is a shortening of the limb or part. The surface presents for statement the color; the projections or depressions, which sometimes exist on both sides of the parts, in which case they alternate; the relation with the skin (loose, stretched, tense, adherent); the consistency of the parts (hard masses, movable upon each other or immovable, edema or pitting, fluctuation). The borders or edges of the fracture are circumscribed or diffused. The deep surface presents to state the mobility of the bones at points where they should be continuous, the extent of the mobility and the crepitation, if any, fine, coarse, easily produced or not.

The functional symptoms call here for no special description.

The regional symptoms call for the description of the shortening of the limb or part, the peculiar position of the limb or part, or of the patient himself in relation to the part; also the symptoms presented by the skin, connective and adipose tissues, tendons, muscles, fasciæ, arteries, veins, capillaries, lymphatic vessels, lymphatic glands, nerves, organ special to the region, etc.

METHODIC DESCRIPTION OF THE LOCAL SYMPTOMS OF AN ULCER.

The subjective symptoms call for the mention of the presence or absence of pain (indolent ulcers).

The physical symptoms present the following points to be described: The number of ulcers, situation, dimensions or extent (length, breadth, depth), direction, shape. The surface presents for description the color, the projections, depressions, consistency. The borders call for mention of the color, thickness, direction (perpendicular, slanting), regular, sinuous, dissection of the skin (undermined). The secretions, blood, serosity, pus, ichor, should be described as a fluid, as indicated above.

The functional symptoms should be described as indicated in the general guide. The regional symptoms also.

The tabulation of those methodic descriptions will greatly assist in understanding them thoroughly and remembering them more easily.

METHODIC DESCRIPTION OF THE SURGICAL DISEASES AND INJURIES OF A REGION.

When the region of the body, such as the neck, for instance, presents several smaller regions, we must first describe the diseases of that region as a whole and then the diseases of each smaller region.

It must be assumed that the student of regional surgery is conversant with the general surgical diseases, and to avoid useless and often confusing repetitions we must, in regional surgery, confine the descriptions to the following points:

1. Describe the peculiarities only presented by the diseases which may affect any region of the body when they affect that region, in whole or in part. By peculiarity is meant a feature or a point not common to all the regions of the body or of all the regions of that part. All the points or features common to all regions properly belong to the description of the disease in general, and should be carefully omitted under penalty of useless repetition. The peculiarities of the diseases of a region are due to, or depend upon, frequency, causes, pathologic anatomy or physiology, symptoms, course, duration, termination, diagnosis, prognosis, treatment, relapses, sequelæ, forms or varieties and complications; it may be complicated by other diseases, or it may be complicating other less grave diseases. The peculiarities must be carefully described in that order, so that upon reading of the peculiarities due to the symptoms, for instance, the student may rest assured that there are no peculiarities relating to frequency, causes, etc.

2. Describe the diseases special to the region, if any, *i.e.*, not met with anywhere else or rarely so, or enumerate the diseases which are most frequent in the region, or which begin by the region to spread from there over the other regions.

3. Describe the surgical operations of the regions. If these are the same as met with in other locations, the peculiarities or modifications alone which the region calls for must be mentioned. If the operation is one special to the region it must be described with particular care and thoroughness.

4. Each region presents to study the same diseases as described above, *i.e.*, malformations, neuroses, softenings, indurations, etc. Those diseases affect the skin, connective tissue, adipose tissue, tendons, muscles, periosteum, fasciæ, bones, arteries, veins, capillaries, lymphatic vessels, lymphatic glands, nerves, organ special to the region. The diseases of a region must be described after the methods or guides elaborated above.

THE METHODIC REPORT OF A SURGICAL CASE.

The methodic report of a surgical case comprises the description of the history of the patient, of the present state, of the diagnosis, of the course and treatment, of the termination and sequelæ, and lastly, in case of death, of the postmortem examination.

HISTORY OF THE PATIENT.

1. Note the sex and the age of the patient.
2. Note the race, the nationality.
3. Note the family history, *i.e.*, the age and the condition of health of the parents, if living; when any parent is in bad health, ascertain the name and nature of the disease and its course and duration, if possible; if dead, the age at which death occurred and the cause of death. This applies to the ancestors (father, mother, grandfather, grandmother, both on the paternal and the maternal side), to the collaterals (uncles, aunts, cousins), to the descendants (children, grandchildren); note the parent the patient resembles the most or takes after physically.
4. Note the place of birth, also the various places where the patient has lived; the duration of his stay in each place.
5. Note the effects, if any, of the various causes described above in the methodic description of a surgical disease, *i.e.*, of the geographic, telluric, zymotic, physical, chemical, hygienic, therapeutic, anatomic, physiologic, pathologic (including the disease through which the patient has gone); note the cause to which the patient attributes his disease.
6. Note the condition of health previous to the attack, also the date and mode of debut, the premonitory and prodromic symptoms (subjective, physical, functional, regional and general); note the order of succession of the symptoms, the duration of this period, the treatment undergone and the effect, the course of the disease up to the present record.

PRESENT STATE.

The description of the present state includes actually the mention of all the symptoms presented by the patient, the subjective, physical, functional, regional, general; the guides detailed in the methodic description of a surgical disease should be here followed closely. Note the intensity of each symptom.

DIAGNOSIS.

The diagnosis is now made in the following manner:

1. Make a résumé of the salient points or signs of the case derived from all sources, sex, age, race, nationality, place of birth, places where he has lived, effects of the various possible causes of the disease, course, actual symptoms and duration of the disease.

2. Note the diseases resembling the case.

3. Differentiate them as explained in the methodic description of a surgical disease and also further.

4. Diagnose the stage, the tendency to termination.

5. Diagnose the forms or varieties, the complications.

COURSE AND TREATMENT.

The course and treatment call for the recording of the date, day, hour when any changes of any consequence take place in the symptoms (subjective, physical, functional, regional, general), or in the treatment (hygienic, medical, surgical, etc.), as set forth in the methodic description of a surgical disease. Note relapses (date, causes, symptoms, etc.); also recurrences.

TERMINATION OF THE DISEASE.

The termination of the disease should be well noted; the sequelæ or consequences, if any, should be carefully mentioned.

POSTMORTEM EXAMINATION.

The postmortem examination should be conducted after the rules laid down in the methodic description of a surgical disease; that is, the lesions of the main organ should be described first, then those of the region, then those of the distant or general organs; the macroscopic and microscopic lesions should be noted, etc.

FINAL RECORD.

The final record must be complete; it must include all the above, also the various charts (temperature, pulse, respiration, stethoscopic, plessimetric, sphygmographic); microscopic slides, if any, should accompany the record; the pathologic specimens should be deposited in a museum with a distinct number for reference; the label should explain the main features of the case; photographs also.

RULES TO BE OBSERVED BY THE RECORDING SURGEON.

1. Put the questions with politeness and solicitude; kindness and gentleness will accomplish more than any other policy. 2. The phenomena should guide toward the solution sought; do not shape the phenomena toward a desired solution; be led by the answers, do not lead them. 3. The number of questions must not be too numerous nor too few. 4. Use plain, simple words and expressions which the patient will understand. 5. Do not propound complex questions which bear on several points at the same time. 6. Put the questions in such a manner that the answers should be simply yes or no. 7. Do not allow the patient to indulge in too minute details which usually end in useless prattle; however, patients must be allowed a free statement; when they digress too much from the main point, bring them back to it, but gently and with care, otherwise they may become scared or nervous or sullen: some resent it by willfully giving false answers. 8. When the surgeon doubts the veracity of the patient or when the answers lead to an extraordinary fact, the surgeon should change the terms and forms of the questions; he should cross-examine; he should return to this same point later again in the examination; sometimes it is better to return to it the next day or some other day; should the patient then give different answers on the same point, he should be reminded gently of his former answers; the version he finally adopts is usually the true one, or the fraud, if any, is more easily detected. 9. Put as few questions as possible in cases where quiet and silence is necessary, great pain, shock, etc. 10. Proceed with gentleness in the physical examination, especially of the organs of generation and of the anus, particularly in the female. 11. Do not expose the patient any more than absolutely necessary. on account of modesty and also because exposure may cause cold. 12. Questions relative to syphilis must be put with care; never in the presence of the wife or conversely, or of other parties objectionable to the patient. Avoid questions, words, movements or facial expressions which might convey an unfavorable impression to the patient. Take in consideration the social position and the character of the patients in examining them, as some are more nervous and sensitive than others.

METHODS OF INTERROGATION.

There are two methods for interrogating a patient.

The first method consists in beginning to review all the possible features of the case, following closely the order above described. This procedure is long and tedious, because the local trouble is only discovered when the turn of the organ comes in the examination, but in obscure cases it is the safest and most preferable.

The second method consists in well determining the debut and let the patient narrate what he feels and knows, so that he will himself guide the surgeon to the affected organ, which will then be thoroughly examined, and afterward the organs at large.

METHODS OF DIAGNOSIS.

The method by hypothesis consists in taking up at once the first disease which the symptoms suggest to the mind and to see if all the important signs fit it or not; if they do not correspond, then the next disease which suggests itself is considered, and so on until a disease is found that corresponds to all or most all the important signs.

The method by exclusion consists in precising the salient signs of the history; in noting the diseases to which those signs may belong, thus eliminating at once all diseases where those signs are not usually observed; in determining the diseases to which the signs do not correspond thoroughly and eliminating them one after the other according as the signs correspond less and less, so that in the end the only disease retained is the one to which the signs correspond best.

Remarks: 1. In cases where the data are insufficient, all the regions and organs of the body must be examined one after the other before the diagnosis can be reached, as in cases of general injury with no special localization, or where the patient is incapable of precising in any way or gives contradicting or vague, worthless answers, with a view either to deceive the surgeon, or because of a lack of intelligence, or

because of the absence of any predominating sensations, or when there is unconsciousness, delirium, intoxication, coma. The diagnosis is reached only by the general result of such signs as have been gathered in this way. 2. The diagnosis of a disease may be difficult or impossible at the outset or during all its course down to the termination, favorable or unfavorable, or when the surgeon is called at the time of impending death, or when the patient simulates a disease or dissimulates the disease with which he is affected. 3. In cases of disease presenting attacks or exacerbations, it is important to see the patient at the time of the paroxysm.

A SUGGESTION AS TO TREATMENT OF GUNSHOT WOUNDS OF THE LUNGS.

BY G. H. STOVER, M.D.
EATON, COLO.

When a case of gunshot wound of the lung is received into a hospital, the surgical treatment of the wounds of entrance and exit is now-a-days most careful. The wounds are asepticized, a sterile gauze or an air-tight dressing is applied, and as a rule they heal nicely if the patient survives the shock and hemorrhage of the injury.

The point to be made in this communication is that a case of gunshot or other penetrating wound of the lung should never be placed in a general surgical ward, even should the general condition be excellent and the patient not need a special nurse.

Numerous investigations of the bacteriology of the air in surgical wards have uniformly and conclusively shown that the air is strongly contaminated by bacteria; these investigations are so well known and their results so generally accepted that it is unnecessary to refer to the literature.

Now, in a penetrating wound of the chest involving the lung, we have our one or more external wounds which we can protect, by dressings, from contamination. But there are also the wounded air vesicles and bronchi; respiration is continually bringing the bacteria-laden air of the ward into contact with this wounded and only partially protected lung tissue; infection is pretty liable to take place; its development may be slow, it may not produce noticeable symptoms for a long time, the patient may recover from the immediate effects of the injury and leave the hospital apparently in health, only to succumb, after weeks or months, to pulmonary inflammation.

These patients should be placed in separate rooms, with as little atmospheric connection with other wards as it is possible to obtain, and careful measures taken to keep the air of the room clean. If such isolation, etc., be impossible, a respirator, which may be a very simple one, should be constantly worn. In either case the nose, mouth and pharynx should be frequently cleansed with antiseptic sprays or washes.

I do not know if many hospitals place this class of cases in general wards, but I have known it to be done, and in one case that I now recall the patient, previously a robust healthy man, died some months after leaving the hospital, of pulmonary suppuration, and I often thought this might have been avoided had he been isolated and treated as above.

Let us have a Department of Public Health!

SELECTIONS.

Rush Medical College—Annual Dinner.—Remarks of Prof. John B. Hamilton:

Mr. President, Fellow Alumni, and invited Guests:—We celebrate to-night the Fifty-second Annual Commencement of Rush Medical College. We see around us many of our classmates of twenty-seven years ago, many fratres of earlier or later classes. Men are with us as our guests, distinguished above their fellows in education, in oratory and in affairs. They are here to testify their sympathy with Rush Medical College in its aims toward higher medical education, and to rejoice with us in the steps already taken.

I am not commissioned by the Faculty to make any authoritative statements, nor have I had time to examine the college records, so that any remarks I may make to-night are to be regarded entirely as an individual expression. I speak to-night as an alumnus, not as a member of the Faculty.

The history of the progress of Rush Medical College, from its foundation in 1836 to the present time, is full of interest and suggestion, and when we consider that the ultimate test of education is its value to mankind, it must be admitted that Rush Medical College stands that crucial test well. There is, and has been from time to time, a criticism of our own and other schools, as to the insufficiency of the medical teaching. These critics rarely stop to think that the character of the education of the Rush student has heretofore been based scarcely less on his environment than upon his own necessities. When a statue is made, the niche which it is to fill, frequently governs its size, and when the young graduate had to settle among tillers of the soil and villagers without special education, what need was there for a high preliminary entrance test, that would require him to *waste* years in the acquirement of a knowledge of the superstitions of the ancient Greeks? When there was little education of the people generally, why should the doctor so far outstrip them?

When Daniel Brainard and James Blaney taught surgery and chemistry in the old Dearborn Street school, they were furnishing the essentials, but year by year the terms have lengthened; the amount of instruction given, has increased. With the increase of days and hours of instruction in the Medical College, the necessity for higher preliminary education has become apparent. The development of some of the specialties, such as chemistry, physiology and ophthalmology, require for their proper understanding, a fair knowledge of physics and mathematics. To properly understand anatomy and embryology as now taught, some preliminary knowledge of the Greek and Latin tongue is absolutely necessary, because scientists throughout the world have to a limited extent agreed to a common nomenclature.

These new requirements, these changes, have come with equal pace with the developments of the high school, the academy, the college and the university. The young doctor when he leaves the medical school was and is still equal to his best neighbors in general education, plus a medical education. When he goes too far into medical realms he lives in another world, quite too remote to keep in touch with his neighbors. This is the key with which to explain the failure of the young professional man, who deeply desirous of more knowledge, and more culture, goes abroad, remains a few years, returns, lives in a different mental atmosphere from his neighbors, is misunderstood, unappreciated, naturally becomes misanthropic and fails.

Although it is evident that those responsible for the curriculum of Rush Medical College have kept steadily to the line of utility in medical teaching, and borne in mind the nature of the environment of the graduates from year to year, yet for the last few years it has become apparent that some of the

teachers at least have not agreed that everything should be sacrificed to mere utility, and, as is well known, the emotional side of the man should be developed. We have seen the donning of the cap and gown, the establishment of athletic games, the organization of college secret societies (the Nu Sigma Nu and the Phi Sigma Rho) and the affiliation with the Young Men's Christian Association. But there is a danger line in these extraneous educational aids, beyond which the student becomes a general rather than a special student. Music, painting, sculpture and poetry appeal to and develop the emotional side of man, but as Herbert Spencer said "these efflorescences of civilization, should be wholly subordinate to that knowledge and discipline in which civilization rests, and as they occupy the leisure part of life, so should they occupy the leisure part of education."

It was my good fortune, Mr. President, to be present at the opening of that noble building completed by the Faculty of this college on the corner of Dearborn and Indiana streets in 1867. At that time there was no medical college building equal to it, and the old building which it adjoined was remodled and given up to anatomic and chemic instruction. The mayor of the city, the Hon. J. B. Rice, made a speech at the opening, in which he said on behalf of the trustees and the Faculty: "We erect here a grander temple than was of old erected to Æsculapius or Hygeia, for it shall be devoted and dedicated to the sacred cause of humanity." How well this college has fulfilled its trust! The purposes of that dedication I verily believe, have been kept steadily in sight from that day to this.

The storms and financial difficulties through which this college has successfully passed, give eloquent tribute to the courage and faithfulness of the faculty and trustees. The new building of 1867 was destroyed by the great fire of 1871, in the opening week of the college term. The professors of that day, undismayed by the great calamity, bravely took upon themselves the erection of a temporary building on Eighteenth street, in the grounds of the County Hospital, and there—"under the sidewalk"—they taught without interruption, and during that time planned a new building, the present one, corner of Congress and Wood streets. When this building was finished again the professors became personally liable for the funds necessary to construct it and without a murmur they met the obligations as they fell due. A short time elapsed when it was observed that the school could not control the clinical teaching in the County Hospital, and the arrangements were not in accordance with their views; whereupon they gave away the unused portion of their grounds, without regard to future needs, mortgaged the college building for $45,000 hospital bonds, and the magnificent Presbyterian Hospital is the result of that beginning. In the year 1891, when nearly every Eastern medical college had been aided by the hand of private philanthropy, to erect a laboratory for the study of the new field of bacteriology, no aid was visible here, but the Faculty once more devoted the entire earnings of the school for a period of three years toward the erection of the present beautiful structure on Harrison street, and taught without fee or salary.

When it is remembered that no member of the Faculty has any right to the college property, and also that the sole title to Rush Medical College and its equipment is held in trust by the trustees and their successors in office forever, the benevolent character of these repeated personal sacrifices by the members of the Faculty is apparent.

Here is an institution that without endowment, gift, or outside encouragement beyond the confidence of the people, and the love and respect of its alumni, has advanced step by step, in the face of uncommon difficulties, to a position equal to any American institution of its class, and in some respects equal to any elsewhere.

What nobler tribute can be paid to Brainard, the founder, his coadjutors and their lineal successors, than the history and record of Rush Medical College? I stand here not to eulogize this noble institution, but simply to place on record these facts.

Many of the Eastern medical colleges have had buildings given them, and chairs endowed. Philanthropists and moneyed men have vied with each other in wise liberality toward their medical colleges, but here the hand of Sir and Lady Bountiful has never been opened in the direction of its oldest medical college. The college has flourished, but at the expense of the life labor of its teaching faculty.

But we came here, Mr. President, not to eulogize or condemn, but to sing gently the praises of our Alma Mater, to have our annual reunion, to fraternize and to enjoy this hour, which, unfortunately, only comes once a year; so now with music, song and the eloquent speeches which are to follow, let us be happy. If our local philanthropist, like some of the blooded kine amid pastoral scenes, shall fail to yield milk even to the hand of the experienced milker, let us forget our wants and leave the matter to Posterity—Posterity, the sweet child! We well know who its father is and our faith in its stock leads us to believe that its burdens will be well borne. Let us tonight indulge in pleasant reminiscences and recall that Brainard in his day received the prize at the Paris Academy, that DeLaskie Miller was president of the Section of obstetrics at the International Medical Congress at Washington, that Senn's Latin thesis obtained *Magna Cum Laude* at Munich, and that Lyman, Hyde, Senn and Ingals have written books which are as lamps to the wayfarer. Last but not least, the announcement has just been made that the Rush diploma has had its just recognition at the hands of the Board of Examiners of the Royal Colleges of Physicians and Surgeons of England.

Finally, as we have so much to be thankful for, let us conclude in the language of the Bohemian Club of San Francisco, "May the Lord love us, and not call us too soon."—*Corpuscle*, July.

The Procedure of "Blood-Washing" in Infectious Diseases.—According to the *Medical Press and Circular*, June 10, Dr. Henri Barré has recently made an important communication to the Paris Obstetrical Society on this subject. The process, to which Dr. Barré has given the name of "disintoxication of the blood," is derived from *simultaneous* employment of two therapeutic means already made use of in medicine; the one very ancient, bleeding; the other very modern, the intravenous injection of artificial serum. The aim of this treatment is to combat the phenomena of general intoxication which manifest themselves in the course of or toward the end of many diseases, and which in themselves put in peril the life of the patient. Before this treatment is begun there ought to be brought to bear the ordinary methods at the disposition of the physician: purgatives, diuretics, stimulants, sedatives, etc., and it is not until the insufficiency of these is evident that as a last resort resource is to be had to "disintoxication of the blood." This is most often indicated in the following maladies: Uremia, eclampsia, diphtheria—when antitoxic serum does not suffice—infectious pneumonia, capillary bronchitis, malignant icterus, general acute peritonitis, cerebro-spinal meningitis, typhoid fever, measles, smallpox, scarlet fever, puerperal fever, cerebral complications of rheumatism and gout, poisoning by alkaloids, extensive burns of the skin, etc.; in short, in all cases in which there may be expected danger as much or more from general intoxication as from actual lesions of the organs themselves. In all these diseases there is to be noted a considerable diminution, if not a complete cessation, of the urinary function, and the disintoxiation of the blood has for its immediate purpose: 1, to eliminate artificially a certain quantity of toxins; 2, to help to achieve complete elimination by reëstablishing the secretion of urine. The instruments

necessary consist essentially of two india rubber tubes, terminating at their extremities by a needle of a diameter a little greater than that of a Pravaz syringe. The longer of these tubes (about one and one-half inches) conducts into the veins of the arm the artificial serum from a graduated vessel placed at a position more or less elevated in accordance with the degree of force with which the flow of liquid into the venous system is required. The second tube (1 meter), of which the needle is inserted in a vein of the other arm, has its free end in a graduated vessel, and thus serves to extract blood. The flow of the two liquids by this arrangement can be so regulated that no more serum enters than blood flows out and thus the circulatory system, being always equally full, arterial tension need not be diminished, as it is a consequence of ordinary bleeding. "The quantity of serum introduced and the quantity of diluted blood withdrawn may vary between 500 grams and one liter for an adult in accordance with the degree of intoxication. As will be seen, this method of disintoxication of the blood differs materially from another method which has been styled 'washing the blood,' and which has been for some time applied by preference in cases of surgical infection. The difference consists mainly in the contemporaneity of the injection and bleeding. This prevents any severe interference with the circulatory system, and allows, if death from intoxication seems imminent, the withdrawal of the greatest quantity of blood, consequently disintoxication with the least danger to the patient. The exchange of liquids is made very quickly (in thirty to fifty minutes), so that no sharp reaction ensues; grave symptoms insensibly diminish, gradually disappear and are soon followed by refreshing sleep. On waking, the patient desires to pass water. Sometimes sweating accompanies the reëstablishment of urination as in natural crises. In the three cases (two of uremia, one of infectious pneumonia) in which Dr. Barré has applied his method, cases in which everything had proved useless and in which death appeared imminent, he obtained improvement as rapid as that just described. Not only did the most serious symptoms cease, but at the end of the urinary crisis they did not reappear and the patient progressed steadily toward cure. Dr. Barré expounds the following theory to explain the phenomena of the cure: 1. There is elimination of the excess of toxins, which constitute the immediate danger; 2, the good effects continue because the bulk of blood is not diminished in volume in the system and does not need reforming at the expense of the fluids of the economy, and the arterial pressure not being diminished no obstacle to diuresis is created; 3, not only are toxins eliminated which appear to have an inhibitory action on the urinary action, but the toxins which remain become diluted and less powerful for evil; 4, as recent researches have proved, the alkalin salts have a favorable action on the bactericide power of the blood, and the method thus provides the economy with a new means of fighting successfully against the microbes. Dr. Barré believes the method will be found of enormous advantage in veterinary as well as human pathology."

Phagocytosis in Malaria.—According to the *Bulletin* of the Johns Hopkins Hospital, April, the above subject has been under discussion before the medical society of the hospital. This discussion was participated in by Drs. Barker, Sydney Thayer and Osler. The first named speaker took for his text the microscopic observations that were had of his fatal cases. Certain of the leucocytes are the main phagocytes, then the endothelial cells of the blood vessels, the cells of Kupffer in the liver, then the splenic cells of the pulp-cords. Their contents vary; there may be red corpuscles, sound or injured, infected or fragmented; also pigments of the blood and of the parasites; also other phagocytes.

There is manifestly a division of labor among the phagocytes, since certain of them tend to take up one set of the above named ingesta, while others contain another sort. In one of his cases, that which is ordinarily regarded as a rare occurrence, there was a marked tendency on the part of mononuclear leucocytes to take on phagocytosis; in all the tissues parasites were found inside the large mononuclear leucocytes. It is just possible that they have taken up these parasites postmortem. Dock and others having pointed out that the malarial parasites cease their development soon after the death of the host. No blood examination was made during life. If this phagocytosis on the part of the mononuclear elements occurred during life they could not have failed being detected in the fresh blood. He also referred briefly to the physiologic question of the relation of phagocytosis in malaria to bile production is of much interest. The phagocytes can be seen passing from the spleen, which seems to be the main cemetery of red blood corpuscles, laden with broken-up capsules and with pigment; then the blood pigment is seen in the endothelial cells of the liver, next in the Kupffer cells, and finally in the liver cells themselves, as though this were a method of transportation of raw material from the spleen to the liver for purposes of bile manufacture.

With reference to the relation of phagocytosis to natural resistance and to spontaneous cure nothing can be decided. The strife is still going on between those who favor the doctrine of the phagocytosis and those who see in the blood serum the main protecting mechanism.

"As regards the form the parasites assume inside the phagocyte, it is easy to make out that a great many of the parasites rupture after inclusion, and one can see the lines of pigment running from the parasite out into the protoplasm of the phagocyte. Golgi thought that the parasites could multiply within the phagocytes, and Bignami still believes that latent infection is to be explained in many cases by the long continued life of the parasite within the phagocyte. Certainly forms of bacterial infection are described which have analogies with this view. Then, finally, as to the inclusion of some phagocytes by other phagocytes. It makes a very interesting picture to see a huge phagocyte containing within it one, two or several of the cells of the body. Sometimes phagocytes are included along with non-phagocytic cells, and sometimes a phagocyte is seen inside of a phagocyte, which in turn is within a third larger phagocyte. Sometimes the huge phagocytes look degenerated; in such a case we can conceive of a young phagocyte going into the large phagocyte after its contents or even to eat up the dying protoplasm. On the other hand, sometimes the included phagocyte looks degenerated, in which case we can think of the large, active phagocyte taking up the small one into its substance—eating up its neighbor. These curious phenomena, which I have perhaps too fancifully spoken of as the cannibalistic and thieving tendencies of phagocytes, are among the many attractive problems connected with the sociology of cells which the future has to solve."

Dr. Osler's remarks touched upon the subject of the rarity of cirrhosis of malarial origin. He said that so far as he could glean, that affection is remarkably rare in this country. "No well-marked instance of it has ever fallen under my observation. I have frequently looked for it at the Philadelphia Hospital, where we had a very large malarial material, and I think, with the exception of the one case mentioned by Dr. Welch, I do not know of any instance in the North in which the condition has been found. We have had only one case here in which clinically we suspected that the cirrhosis might be malarial.

"With reference to the irritation of the malarial pigment as a cause of fibrosis, it is interesting to call to mind the observation which Dr. Welch brought before us here a few years ago, namely, a form of anthracotic cirrhosis in which the fibrosis in the liver seemed to be due to the amount of pulmonary carbon which had reached the liver in roundabout ways."

A foot-note further refers to the contention of clinicians as

to this alleged malarial sequela, and says that the dispute has been of the warmest. Dr. Osler in his writings has insisted upon "the necessity of considering other etiologic factors, *e.g.*, alcohol, syphilis, tuberculosis, even when malaria appears to stand in a direct relation to the disease. Of the many persons who have had malaria, very few of them have developed cirrhosis of the liver afterward. Dr. Welch states that in his autopsies in New York he met with only one case of cirrhosis of the liver that could be said to be due to malaria; that occurred in an Algerian. Bignami, the most important writer on the changes in the tissues in malaria, thinks that malaria may undoubtedly lead to subsequent cirrhotic processes, and he traces with great acumen the changes that gradually occur as a result of repeated attacks of malaria."

Dr. Thayer asserted that there is as yet no absolute proof that the "malarial parasite produces a toxin, and yet there are observations which are rather suggestive, particularly those by Brousse and by Roque and Lemoine, who have shown an increased toxicity of the urine just following the attack; and by Queirolo, who has shown that the sweat during the sweating stage is much more toxic than that obtained under other circumstances. It must be said, however, that Botazzi and Pensuti have shown that much, if not all of this increased urinary toxicity may be accounted for by the increased excretion of certain potassium salts and urobilin, as well as by the presence of peptone. Taking into consideration, however, the various symptoms of malarial fever, there is, by analogy to the other similar conditions, every reason to believe in the existence of some soluble toxic substance. The fact that in certain severe cases they were present in such small numbers in the peripheral circulation led Baccelli to think that in some instances a small number of parasites might produce the gravest symptoms owing to their excessive virulence. In their recent admirable article Bastianelli and Bignami rather dispute this and say that in no case of pernicious fever in which they have studied the tissues postmortem have they failed to find a total very large number of parasites; very few perhaps in the peripheral circulation, but numerous in the spleen, brain, liver, or gastro-intestinal tract."

PRACTICAL NOTES.

Non-excretion of Pathogenic Microbes with the Perspiration.—Krikliwy describes in *Wratsch*, Nos. 8 to 10, his experience with cats inoculated with anthrax bacilli and then injected with pilocarpin. Microscopic examination of the profuse sweat induced was entirely negative in any discovery of the bacilli, although they were found in the blood and tissues.

Cocain Intoxication.—Several cases of poisoning from cocain are collected in the *Therap. Woch.* of June 21, most of them produced by injections in the urinary organs. In one case a syringe of 20 per cent. solution was injected into the bladder, followed by immediate death. The dose in the other less serious cases was 2 grams cocain to 30 grams water. In another case 0.5 grams injected in two doses was followed by transient edema of the eyelids.

Boards of Health and Cemeteries.—A law was passed in New Jersey, which was approved March 5, 1896, that provides that no new cemetery shall hereafter be established, nor shall any cemetery now existing be enlarged or any lands not now used for cemetery purposes be used for such purposes in cities of the first class, in that State, without the consent of the common council and board of health of such city, to be expressed by resolution and the approval thereof by the mayor of such city.

Effect of Local Warmth on the Secretions of the Stomach.—Some experiments by Prof. Tschudnowsky on normal persons with hot compresses or a Japanese heater, applied to the region of the stomach from three-quarters to three hours, showed that the general secretions and activity of the stomach were increased, with more free hydrochloric acid, and an increased power of assimilation and motor activity of the organ. These effects persisted from several hours to several days.—*Medicina*, Nos. 3 and 4.

Cresochin.—Under this name a non-alkalin cresol disinfectant is prepared which is stated to be a neutral combination of tricresyl sulphonate and quinolin with tricresol. It contains 33 per cent. of quinolin and 17 per cent. of tricresyl. It is not caustic and is soluble to the extent of 1 to 25 in water. It is specially indicated as a disinfectant, since, being free from alkali, it does not set free ammonia from nitrogenous organic matter. *Druggists' Circ. and Chem. Gazette*, July, 1896.

A New Appliance in Intestinal Surgery.—Dr. M. L. Jamison, in the *Medical Sentinel*, June, 1896, calls the attention of his Pacific coast brethren to the fact that they can secure apposition of the divided intestine just as successfully by using a roll of half-cooked biscuit or bread dough. This can be rendered aseptic, and after using the Lembert suture, can be slipped either down the intestine or left in situ. There is not the slightest occasion for any expensive "buttons" of any kind. What is the matter with a bread stick?

Hot Compress for Ulcers.—*Nouveaux Remèdes* for June 24, quotes a Russian periodical in which Yakovlef announces his successful treatment of atonic ulcers with moist hot compresses, during the last three years. They will, according to Yakovlef, cure where all other kinds of treatment have been ineffectual. He ascribes their success to their favoring local hyperemia, thus improving nutrition, while being moist they do not adhere or irritate.

Surgical Instruments and Appliances Out of Place.—The following cases of foreign bodies left in the abdomen after laparotomy are cited in the last number of our Spanish contemporary, *El Siglio Medico:* "Sir Spencer Wells twice forgot forceps in the abdomen; Pilatte, a compress; Terrillon, a forceps; Quenu, a compress; Michaut, a roll of iodoform gauze; Severnao, two binders of 1.30 meters long. The utmost care of instruments should be taken during a laparotomy, for, as Pozzi says, a pair of forceps may slip into a basin or be carried off attached to the tumor or to a sponge without being perceived and lead to the opposite error. H. C. Coe, on two occasions, reopened the belly to search for a sponge that had fallen into a pail."

New Hydrostatic Exploration of the Body.—At the meeting of the Académie de Médecine, June 16, Marc Sée announced a new and effective method of abdominal palpation. When a person reclines in a bath, the front abdominal wall is lifted by the water until it can almost be said to float, while the muscles are so relaxed that the whole abdomen becomes flaccid, rendering palpation an easy matter. Sée states that he has been able to palpate in this way in the water the entire abdominal cavity, even to the spine and the sacro-vertebral angle, through the viscera.—*Bulletin*, June 16.

Pericardotomy.—The superiority of pericardotomy to puncture in the treatment of pericarditis with effusion is confirmed again by its success in a case recorded in the *Arch. de Méd. et de Ph. Milit.*, Nos. 1 and 2. Four punctures into the serous effusion were ineffectual, but complete recovery followed pericardotomy with local cocainization, in the fourth left intercostal space, although broncho-pneumonia of the left side intervened.—*Centralbl. f. Chirurgie*, June 13.

Tolerance of the Pregnant Uterus.—Ozenne has a study of the effects of traumatism on the pregnant uterus in the *Bulletin Médicale* for June 21, which confirms its surprising tolerance to injuries. Accidental or surgical traumatism in the neighborhood of the uterus often has no influence on the evolution of the pregnancy. It is more liable to affect it if in the genital zone, but in all cases it is by no means unusual to have the pregnancy continue to a natural close, and the surgeon is justified in any operation on or near the pregnant uterus, not only when it is urgent, but also when it is for the purpose of

removing any cause liable in the future to interfere with the normal evolution of the pregnancy. In two cases in which he had removed a large polypus from the neck of the uterus, the pregnancy continued uninterrupted.

Treatment of Diabetes Mellitus with Rectal injections of Pancreatic Glands.—Lissère has treated two cases of diabetes mellitus with fresh pancreatic glands chopped fine and left twenty-four hours in a saline solution. As the stomach refused to tolerate this, he administered it in rectal injections once or twice a day. The results were that the polyuria was very much diminished, as also the amount of sugar in the urine. Both the sugar and the diuresis returned to their original conditions whenever the injections were suspended. They also exerted a favorable effect upon the general health; the patients gained in weight and lost their excessive thirst.—*Nouveaux Remèdes*, June 24, from *Med. Obozr.*, No. 4.

Neuritis from Compression of the Ulnar Nerve by the Bicycle.—*La Province Méd.* of June 20 describes the experience of Dr. Destot after a long ride on the bicycle when he was obliged to grasp the handle with especial firmness for some reason. It produced pronounced neuritis of the ulnar nerve with paresis. It adds that it is very important to have the handle of the bicycle constructed on physiologic principles. The body is supported and balanced by the inner edge of the hand, and if the part of the handle grasped is perpendicular to the axis of the hand, the contracted flexor muscles of the fingers form a series of elastic cords which act like a cushion to prevent injury to the nerves from compression and the incessant jar of the machine. But if the handle is oblique to the axis of the hand the lower end presses against the root of the thumb and also compresses the pisiform, the flexor muscles no longer act in the same way and serious injury to the ulnar nerve may result.

Helferich on the Indications for an Operation in Appendicitis.—It is universally conceded now that the only treatment of a well-developed perityphlitic abscess is the prompt use of the knife. It is indicated by swelling in the iliac fossa, and diminished percussion, except when there is a layer of intestine above or gas in the abscess. Cutaneous inflammation is rare, while edema of the cellular tissue during the inflammation is frequent. McBurney's sign is of more importance in diagnosing chronic appendicitis than in an abscess. Roux considered a certain infiltration of the cecum as important. Lennander has not always observed Madelung's sign of the difference between the rectal and axillary temperature. Helferich advises scrupulous care in exploring, not to split the wall of the abscess. He recommends exploratory puncture only when the operation can follow immediately. It is important to examine also the rectum and vagina, as the abscess may present itself in the small pelvis and even in parts still more remote. It may even penetrate into the pleura, or any of the hollow organs of the body, when it is usually fatal. He advises prompt operation in recurring appendicitis, as it may turn into perforating peritonitis at any moment.—*Centralb. f. Chirurgie*, June 20.

Surgical Treatment of Acute Diffuse Peritonitis.—John Y. Brown says that prominent among the factors leading up to success in the management of intra-abdominal inflammation has been the acceptance of the doctrine that peritonitis, whether local or general, is from its inception a condition demanding the care of the surgeon. He draws the following conclusions: 1. That septic peritonitis is a surgical condition, and should at the earliest possible moment be put under surgical supervision. 2. That all cases of acute diffuse peritonitis are not necessarily fatal, and while the mortality following operation must be great, many of these cases can be cured by prompt resort to the knife. 3. That success in these cases will depend on (*a*) early operation, (*b*) careful cleansing of the abdominal cavity by sponging and irrigation, (*c*) by drainage by means of glass drain, supplemented if necessary by gauze. 4. That all such cases should be operated on. No surgeon should fail to give his patient the benefit of the chance afforded by operation, no matter how desperate the condition may be; they all die without operation, and many desperate cases are cured by prompt surgical interference.—*Medical Mirror*, May, 1896.

Formalin in Ophthalmic Practice.—Dr. Swan M. Burnett mentions the property formalin has of diffusing itself through living as well as dead tissues, a property not possessed in the same degree by any other drug. Sublimate coagulates albumin and limits its own field of action. Formalin should be more useful than other germicides for the class of infections in which the microbes penetrate the substance of the tissues. Excellent results have been obtained from its use in infecting ulcers of the cornea and purulent conjunctivitis. The corneal ulcer can be touched with a solution of 1 to 200 or 1 to 500, once every day, and for general use as an antiseptic a collyrium of 1 to 1,000 or 1 to 2,000. Satisfactory results have been obtained with it in muco-purulent and purulent conjunctivitis. In the more severe forms silver nitrate is used in addition. In acute catarrh of the conjunctiva (pink eye) it has acted most promptly when used as a collyrium of the strength of 1 to 1,000 or 1 to 2,000 applied every four hours.—*Nat. Med. Review*, July, 1896.

Treatment of Gastric Crises in Tabes with Cerium Oxalicum.—The serious vomiting periodical in tabes is sometimes relieved by morphin, but its continuous use in chronic cases is not advisable, and some, like Hoffmann, have not been successful with it. Professor Bechterew, of St. Petersburg, has been using cerium oxalate for this purpose, and reports marked success with it. The vomiting seizures during the day were reduced from 200 to six in two days. The act of vomiting was rendered much easier, while the pain, thirst and nausea vanished to a great extent. The psychic conditions were also much improved, restlessness subsided and sleep returned. Urinating became slightly more difficult, but not enough to require a catheter. The most important improvement, however, was that the food could be retained, the vomiting after eating having been so much reduced. The *Therapeut. Wochensch.* of June 21 describes a couple of severe typical cases relieved by this treatment. The dose was the same as in hyperemesis gravidarum, from 0.5 to 0.10 or even 0.15 three to four times a day.

Chaput on the Treatment of Cancers of the Rectum.—In ten resections of the rectum for cancer, Chaput has had eight recoveries and two deaths (one due to broncho-pneumonia from ether, and the other to laceration of the ureter in an almost inoperable case). Two cases were followed by a speedy relapse, but three others have shown no signs of a relapse in the two to five years since. Another has had a relapse, but it has had no effect on the general health. In two cases there was no prolapsus; in one of them he had made a circular suture, in the other he had twisted the upper end according to Gersuny. In two cases in which he had not taken these precautions, there was prolapsus. He considers cancer of the rectum as one of the least liable to a relapse. Technique: He advises a preliminary anus made in the transverse colon a couple of days beforehand. Y-incision; resect the coccyx and respect the sacrum; make as nearly a circular suture of the two ends as possible; if impossible, twist the upper end à la Gersuny; ligatures are unnecessary; the skin is not to be sutured. Pack the wound with aseptic gauze, impregnated with a weak phenic solution. Hochenegg's method (invagination of the upper into the lower end) should be absolutely rejected. Indications: Cancers of the recto-vaginal septum, remove with a perineal incision; close the upper end of the rectum in a cul-de-sac; ensure evacuation of matters with a definite iliac or transverse

anus. Cancers of the lower part; circumscribed; circular incision with Denonvilliers incision and resection of the coccyx (Verneuil, Terrier), suture to the skin of the upper end twisted a là Gersuny. Hartmann's method (ablation by the natural route) is highly to be recommended. Diffuse; combine the perineal and the sacral incisions. Cancers of the middle region; the sacral route is preferable to the vaginal. High cancers must be attacked through the abdomen, while recto-colic cancers are best removed by the abdomino-sacral route. —*Bulletin Médical*, June 21.

The Micrococcus of Articular Rheumatism.—The *Gaz. degli Ospedale e delle Clin.* for June 20 contains a description of the micrococcus discovered by Maragliano and his assistants in the blood of typical cases of acute articular rheumatism. He found two microörganisms, but one, resembling a bacillus, is not pathogenic. The other produced in rabbits the symptoms of the acute form of the disease, polyarthritis, pericarditis, pleurisy with effusion, endocarditis, etc. An injection of ½ to 1 c.c. of bouillon culture resulted in death after sixteen days. Some healthy rabbits placed in the cages formerly occupied by the inoculated rabbits succumbed to an epidemic of arthropathy with exudation. This new micrococcus resembles the staphylococcus, but it is only half the diameter (0.5 μ) of the aureus. It is massed in groups of six to ten, except in bouillon cultures, when it occurs in short chains or united by twos. It stains readily by the Gram method and with all the usual anilin stains. It forms an oval culture on a gelatin plate, finely granulated, with even edges, pale yellowish at the surface and growing more yellowish as it descends. In the gelatin tube culture a thin layer forms on top while the extension below rather dries up the gelatin than liquefies it. The growth is more scanty as it works downward. In old cultures it resembles a flower with notched petals, the stem spreading out above into an enlargement resembling an ovary. In agar and serum it is whitish, and the edges are even, as is also the case on potato. Cloudiness is noticeable in bouillon after the second day, which indicates that it is motile. It does not coagulate milk; it develops at the usual temperatures, but especially at 98 degrees.

The Causes of Retroversion and Retroflexion of the Uterus.—Dr. Hunter Rabb says that (*Cleveland Med. Gazette*, July) in the causation of backward displacements of the uterus the following factors may be concerned:

1. Congenital defects. A short vagina necessitates a forward position of the cervix; this tends to bring the fundus and anterior surface of the uterus under the direct line of abdominal pressure. The ordinary distension of the bladder now throws it backward, thus causing a displacement. A congenitally long cervix can not rest with its long axis crossing that of the vagina, but must accommodate itself to this axis; this also tends to throw the fundus backward. Where the cervix is long the body of the uterus is apt to be small and short. In such case the normal position of the uterus is in retroversion.

2. Extreme distension of the bladder throws the fundus far back in the pelvis behind the median line. When this happens often the malposition is liable to continue.

3. Impacted feces in the rectum extending up above the ampulla push the cervix down in the vagina, and thus change an anteversion into a retroversion.

4. A sudden severe strain put upon the abdominal muscles, especially when the bladder is full, brings about a retroflexion by forcing the uterus down when the pelvic floor yields.

5. Of all causes of retropositions the most frequent is a relaxation of the vaginal outlet; the relaxed outlet must be regarded as a deficiency in the pelvic floor, which leaves a smaller or larger surface over which no counter-resistance to the intra-abdominal pressure remains. Every act accompanied by intra-abdominal pressure tends to thrust out the adjacent vaginal walls; when these have once entered the orifice they continue to be forced down, wedging the posterior wall further away from the symphysis. While the parts below give way the uterus is forced toward the outlet. The fundus rotates so far back that the pressure is finally spent on the anterior surface of the uterus and complete retroversion or retroflexion is established.

6. Finally retroversion and retroflexion may be caused by inflammatory changes in the uterine support, or by dragging of adhesions resulting from pelvic peritonitis.

The Decadence of the Gargle.—An editorial in the *American Therapist*, for June, discusses the question of the future of the gargle, based upon the views recently expressed by Mr. Lennox Browne, at a meeting of the British Laryngological Society. That gentleman, who is the senior surgeon of the London Throat Hospital, stated that his experience pointed distinctly to a conclusion that the time had now fully come when the gargle should be abolished in the treatment of diseases of the throat. He aimed to show that fluids were not brought into effective contact with the posterior surface of the pharynx, if used as gargles in the ordinary way. The editor of the *Medical Press and Circular* is inclined to support this view, with the following argument: He says, "It is to be feared that the time-honored gargle has outlived its usefulness, and that even its antiquity, coeval though it be with the poultice and the leech, can not blind us to the fact that it necessarily falls short of the mark when the diseased tissues are on a plane behind the posterior pillars of the fauces. Even a casual study of the conditions which obtain in the act of gargling as usually understood, will show that the fluid is kept in front of the lowered soft palate, so that it is impossible for any effects to be exercised on tissues posterior to that structure. A gargle, as ordinarily employed, is, therefore, only a mouth wash. Under these circumstances, it is really surprising that it should have been reserved for Mr. Lennox Browne to enter a protest against the continuance of a practice which is not only useless but, in presence of actual inflammation, is exceedingly painful and may be injurious.

"Mr. Browne describes, however, another method of gargling, using the term gargling in the sense of trickling a fluid through the mouth into the pharynx which is free from one, at any rate, of the objections already alluded to, viz., the method of Von Troeletch, for which the directions are as follows: 'Take a tablespoonful of the gargle in the mouth, hold it in the back of the throat with the head thrown back, then, closing the nose with the finger and thumb to prevent entrance of air, open the mouth and make the movements of swallowing without letting the liquid go down the throat.' By this means the medicated fluid can, it is true, be brought into contact with the pharyngeal tissues, but the process is by no means easy to carry out in an effectual manner, and in the majority of instances it is quite out of the question. Gargles, again, are quite inadmissable in cases entailing the dorsal decubitus, such as diphtheria, in which cardiac failure has to be sedulously guarded against. Another obvious objection to gargles is, that they must perforce comprise only the most harmless ingredients, if we are to avoid subjecting the patient to the danger of poisoning in the not improbable event of any portion of the fluid escaping control and finding its way down the esophagus. Moreover, solutions thus employed must not contain any considerable quantity of an active ingredient, because they will come in contact with vastly more healthy than diseased tissue. The moral is, that gargles should give place to more scientific and precise methods of applying topical agents to diseased surfaces, especially in children, to whom gargling of any sort is virtually an impossibility. The future, therefore, is toward irrigations, sprays, lozenges, and, in the case of children, to medicated confections."

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SATURDAY, JULY 18, 1896.

THE EATING OF ICES.

There has been some outcry lately against the eating of ices. Hands have been thrown up in astonishment because certain ice cream has been found to contain certain adulterations, and not infrequently the deadly ptomaine. There is no question that many food products are adulterated, but that ice cream is more frequently adulterated than other articles of diet, we disbelieve. A sneer has become habitual with many when speaking of the Americans; and the American fondness for ice water and iced confections has passed into a proverb.

The truth is, however, that the Americans are simply following classic models. When our European confrères smile at our imbibition of chilled fluids, we can remind them that the old Greeks and Romans were even more addicted to the use of ice water than any of the moderns, if we may judge from the pains taken to preserve the ice. ATHENÆUS, quoting CHARES, declares that when ALEXANDER the Great besieged Petra, a city of India, he filled thirty trenches with ice, which being covered with oak boughs, preserved it a long time. The establishment of large ice houses in Rome is usually accredited to the EMPEROR NERO, although the custom of preserving ice was common among the Romans. SENECA, in writing of this, exclaims, "The Lacedæmonians banished the ointment sellers and commanded them to be gone with the utmost speed out of the country; what would have been done had they seen shops to reposit and preserve ice"? PLUTARCH relates that ice was usually preserved by being wrapped in cloths and straw. The luxurious NERO introduced the use of snow, and wine was cooled by pouring it through a strainer[1] filled with snow (*colum nivarium*). Occasionally the wine was diluted by pouring snow-water into it,[2] but there must have been some unpleasantness attending the use of snow water, for PLINY[3] states that "It was the EMPEROR NERO'S invention to boil water, and then inclose it in glass vessels and cool it in snow, a method which insures all the enjoyment of a cold beverage, without any of the inconveniences resulting from the use of snow. Indeed it is generally admitted that all water is more wholesome when it has been boiled; as also water when it has once been heated will become more intensely cold than before—a most ingenious discovery. The best corrective of unwholesome water is to boil it down to one-half. Cold water, taken internally, arrests hemorrhage. By keeping cold water in his mouth, a person may render himself proof against the intense heat of the bath" (*Bostock's Translation*).

But there has always been a prejudice against the use of cold liquids and cold confections. This prejudice must have been the exclusive property of the minority, for the custom has survived and we go on drinking our ice water and eating our frozen *friandes* as NERO did more than eighteen hundred years ago.

The intermediate attempts to write down the custom having failed, it must be clear that something more than a mere desire for luxurious living has continued its use. The Code of Health of Salernum said nothing against it; on the contrary, as a means of reducing cerebral hyperemia from inebriety, the advice is given:

> "To drink cold water let him not refrain,
> Because it hinders all that hurts the brain."
> —Holland's Translation *Flos Medicinæ*.

BRUEYRINUS insists that GONZAGES, Duke of Mantua, was killed by drinking ice water, and VALANGIN mentions the case of a nobleman, whom he describes as being in every respect a manly character. He was a great advocate for the cold bath, and in general for everything that could harden the body, and imagined that cold "*applied internally* must be as salutary as when applied externally. He often drank his liquors out of ice and ate plentifully of ice creams of various kinds. After having one day taken a greater quantity of these than usual, a fatal inflammation, which at once affected the stomach, the intestines and the kidneys, notwithstanding the assistance of three of the most eminent physicians, who did not leave him an instant, made him fall a victim to his favorite opinion."[4]

Most of the alleged fatalities following the ingestion

[1] Potter, Grecian Antiquities, Vol. 2, p. 258.
[2] Adams' Roman Antiquities, p. 421.
[3] National History, Book 31, C. 24.
[4] Sinclair, Code of Health, Vol. 1, p. 365.

of ice cold drinks except in large quantity rest on no better foundation than the cause in the case cited by VALANGIN, which, viewed in the light of modern pathology is simply absurd.

The profession need not ignore the object lesson that appears under their very eyes every day, namely, that unadulterated ices taken in moderation are beneficial and healthful.

We trust that one of our esteemed contemporaries which recently published a diatribe against the use of adulterated and fictitious ice cream, will not assert that this JOURNAL favors the impure product. Let us throw every safeguard against the sale of impure food and drink of every sort, and then when the sun is hot and cooling shades invite, let us eat our ices and drink our lemonades unmixed by fears of lingering poison in form of microbe or ptomaine.

PHYSICAL TRAINING IN THE ARMY.

It is only of late years that the value of physical training has been recognized in the Army of the United States, although the country as a whole for the past fifty years has participated more or less in the modern revival of physical culture. Some of our schools adopted the German system of gymnastics, others the French system of calisthenics and others again the athletic sports of the English. The first gives muscular development, the second grace and suppleness, the third grit, energy and determination to win. All are needful to the proper development of the soldier. At most of our military posts foot-ball and base-ball are played when the weather is favorable, but such sports do good to but few besides the players, and at many posts where the winters are long it has been reported that the only exercise of the men has been shoveling snow and distributing fuel. What is required at every post is a gymnasium with appliances and graded exercises. At West Point, as at most of our colleges, attention has been given to this subject for a number of years and four years ago a handsome gymnasium was completed and fitted up with every desirable appliance. The fourth class cadets receive instruction three times a week from October to June, each lesson forty minutes. The training is based on the German system with such additions from other systems as seem advisable to develop activity and grace as well as power. Gymnasiums have been extemporized at several of the posts by fitting up an unused barrack-room or hall with the needful appliances. and in some instances when the post provided no facilities company commanders have introduced systematic training into their barracks.

This movement has of late received a hearty impulse by the energy of Major General MILES, commanding the Army. Last year while in command of the Department of the East he issued several circulars calling attention to measures intended to promote the physical development of the soldiers in his department. One gave instructions in methods to be adopted at posts where there were few facilities, submitting a series of exercises for the use of instructors. Another outlined a system for perfecting the training where every facility was at hand, giving due weight to the necessity for medical supervision, not only to prevent overstress but to determine the general line of exercise in particular cases where the development of the individual was unequal. A third gave instructions for training in swimming, in rescuing those in danger of drowning and in restoring those apparently dead, SYLVESTER'S method being that recommended. Since assuming command of the Army the efforts of General MILES have been devoted to extending this work to all the Military Departments. Hence for instance, on June 26 last there were issued from Headquarters, Department of Dakota, General Orders enjoining that all possible facilities and encouragement be extended to officers and enlisted men for indulgence in gymnastic and athletic exercises and all manly pastimes and field sports that tend to develop bodily activity, foster a spirit of emulation and give added interest and attractiveness to the soldier's life. These orders require that a gymnasium be established at each post and an officer designated to superintend the systematic practice of the troops in gymnastic exercises for thirty minutes a day three times a week for nine months of the year (General MILES calls for half an hour every day for nine months) and to initiate and manage all games and contests. Among indoor exercises for inclement weather are mentioned: boxing, fencing, vaulting, swinging clubs punching the bag, jumping either for distance or height with or without pole or spring board, and the use of dumb-bells, parallel and horizontal bars, swinging rings, the trapeze, the ladder, etc. For out-door practice there will be in addition to the above, the passage of ditches, fences, walls, houses and other obstacles; running, wrestling, bicycle riding, throwing the hammer, putting the shot, rowing, swimming, skating, snowshoeing and the like, according to season and facilities. General participation in such games as foot- and base-ball, quoits, tennis, golf, polo, etc., is also to be heartily encouraged.

This interest in physical training in the Army will result in many advantages. It will make life more interesting to the men now in the ranks and will tend to bring into the service a better class of young men than heretofore. It is the present advantage also of keeping the men at home in barracks and away from evil resorts. It is to be expected that the percentage of injuries will be increased but this will certainly be more than offset by a lessening of the number disabled as the result of dissipation. The special objective is however the improved condition of the

troops. These systematic exercises will make our soldiers able to answer the call to special duty at any moment by keeping them always in training; and they will no doubt give an impetus to the physical improvement of many individuals in civil life by attracting attention to the methods adopted by the military authorities, by increasing the care given to this subject at the many universities and colleges having military instructors detailed from the Army, and by stimulating the interest which the members of the National Guard have hitherto shown in their military and athletic training.

THE NEURON.

Those of the JOURNAL readers—and we are glad to state they are steadily increasing in number—who studied anatomy and histology some lustrums ago, and supposed that these branches of medical science were at a standstill, are occasionally nettled to find nowadays that in some departments, especially neurology, rapid and even phenomenal advances are being made. In the place of our old acquaintances, the nerve fibers and nerve cells, we are confronted with neurons, axons, dendrites and other unfamiliar appellations. We learn that instead of the nervous system being composed of two kinds of tissues, the vesicular or gray and the fibrous or white, it is made up of a series of independent morphologic and physiologic units which have been named neurons by WALDEYER.

Each neuron is composed of: 1, a nerve cell; 2, protoplasmic processes or dendrites; 3, its axon or axis cylinder passing into the nerve fiber; and 4, its ending in a branched tuft. In the neurons of the anterior roots of the spinal nerves the protoplasmic processes are short and the axis cylinders long; in the posterior roots these conditions are reversed, the axis cylinders are short, the protoplasmic processes, on the contrary, are long, reaching to the periphery from which impulses are collected. These conditions are explained by LENHOSSÉK's discovery in the earth worm. In this animal there are no nervous organs like the spinal ganglia, but sensory cells or gangioblasts are dispersed through the integument with long processes reaching internally to the central nervous system and short filaments reaching externally. It would seem as if during the evolution of the higher forms, the gangioblasts have been withdrawn from the exterior and thus pulled their collecting filaments into the long process.

We learn also that the transmission of nervous impulses does not require a continuous physical structure without breaks. "Substantial continuity does not exist," says RAMON Y CAJAL,[1] "the currents are transmitted from one cell to another by contiguity or contact, as in the joining of two telegraph wires. This contact takes place between the terminal branches or collaterals of the axis cylinders of one side, the cellular bodies and the protoplasmic branches of the other." Instead of afferent and efferent, or centripetal and centrifugal, to denote the direction of the nervous currents, CAJAL has introduced the terms cellulipetal and cellulifugal. For example, the end tufts of the neuron are stimulated by impressions from the exterior; this impulse is transmitted to the nucleus of the nerve cell (cellulipetal); from there it is conveyed to other terminal tufts, say in muscle fibers (cellulifugal).

According to CAJAL,[2] "the probable direction of the nervous movement is cellulipetal in the protoplasmic prolongations and cellulifugal in the axis cylinders." GOLGI, the distinguished Italian histologist, believed that the Deitersian or protoplasmic processes preside over the nutrition of the nerve cells, collecting nutriment for them. GERLUCH was of the opinion that the terminals were collected into a fine network, interlacing with each other and forming a support for the gray matter. It is now thought beyond question that the protoplasmic processes are for the transmission of nerve impulses and nothing else.

The simpler reflex acts can be produced by impulses from without, being transmitted along a neuron to others in the spinal cord and immediately back to a muscle fiber. It is not likely this ever actually occurs, but that the reflex acts are of a more complex character requiring the interposition of secondary neurons. The practical application of this neuron theory lies in the fact that nerve fibers are now to be looked upon as processes of the nerve cells themselves. We can therefore understand the influence of diseased conditions of the fibers on the nerve cells better than in 1857, or when WALLER announced his law: "Degeneration occurs along the whole extent of any nerve fiber which is cut off from the cell which governs its nutrition." This cell, HIS has shown us, from his embryologic researches, is in every case the cell from which the fiber originally grew, a conclusion we can, from our present knowledge of the neuron, readily understand. It was formerly supposed that the proximal part of a severed nerve, with its cell body, did not undergo degeneration but remained normal. From time to time, in patients who had suffered amputations, examination showed that these cells instead of remaining normal had undergone more or less degeneration. These clinical observations have been supplemented by experiments. NISSL, for instance, has severed the facial nerve in rabbits and found definite alterations in its nucleus in twenty-four hours, consisting of a fine granular degeneration and rarefaction of its ganglion cells. FLATAU has confirmed these experiments by some others on the motor oculi of cats.

We can understand if the nervous system is made

[1] Les Nouv. Idées sur la Struct. du Syst. Nerveux.

[2] Loc. Cit.

up of cellular units, like the liver, kidney, etc.,. it must be subject to like cellular changes. Future researches will entirely recast the pathology of the nervous system and place it on a firmer basis. This will no doubt require much time and labor, but the field will abundantly repay the workers in it.

PARESIS AND PSEUDO-PARESIS.

Within a few years the literature of paresis or general paralysis of the insane has been enriched by numerous papers, and some different conceptions of the disorder than those that have hitherto prevailed, have been suggested. Not only its pathology and etiology, but also its symptomatology have been questioned, and the consequent confusion has induced at least one author to say that "as it at present stands, general paralysis would appear to be best defined as a progressive disease which begins anyhow but ends somehow." Whether this pessimistic conclusion is justified may be a question, but the fact illustrates the confusion that these later aspects of the question have created.

For a long time it has been the practice to recognize paresis as a marked entity, varying somewhat in its symptoms and rather uncertain in its intimate pathology, but always or generally readily recognizable. With this, however, it has been claimed exist other conditions closely resembling it but nevertheless entirely different, but with almost identical symptomatology that embarrasses the diagnosis and tends to make confusion in certain special cases. Such are the pseudo-pareses due to alcohol and lead and some conditions following fevers, malarial or otherwise, insolations and especially syphilis. This latter has been the cause of pseudo-paresis *par excellence* in the classification of certain authorities, following FOURNIER, the author of the term "syphilitic pseudo-general paralysis," who, however, has himself apparently since abandoned the idea of its being a distinct entity apart from the genuine disease. Still another form, mimicking paresis in some of its earlier phases, at least, is occasionally met with in neurasthenia, and this seems to have been generally overlooked by those who have written on the subject, notably so by DR. HYSLOP, the author already quoted, who has recently discussed these causes of confusion and who rather caustically criticises the common indefiniteness of medical notions in regard to paresis.

There is no question but that there is quite a wide range of variation in the symptoms of this disorder, and that it is impossible to make any absolutely typical syndrome to which all cases must conform. This fact has, however, long been recognized, and some have maintained that we have in this so-called disease several distinct disorders. It is also true that there are several conditions that more or less resemble it but differ in their prognosis, such as the temporary pseudo-paresis of alcoholism, saturnism, malaria and neurasthenia. These can not indicate a permanent or serious lesion of the brain, but there is no doubt that their occurrence means a functional involvement of the same cortical regions as are implicated in true paresis. The one is due to a temporary intoxication, the other to destructive and irreparable lesion, but there is no reason why the toxic agents that usually cause only transient disorder can not, under certain conditions, induce the permanent and progressive lesions of the true disease. In this way we may perhaps account for an occasional case of paresis with no other known causal factor than alcoholic excess, over-worry or work or lead poisoning. There would be no good reason for calling such an actual progressive case pseudo-paresis, even if it were positively known that it had no other origin than one of those above enumerated. The designation should be dependent on the actual condition, not on its cause, but there is no propriety in including transitory functional disorders in a disease which is essentially and typically progressive. We can properly speak, therefore, of an alcoholic, neurasthenic or saturnine pseudo-paresis, and possibly also of a syphilitic pseudo-paresis, limiting the term in this case to a purely transient disturbance of the cortical functioning without any serious or irreparable lesion. Whether such cases often occur is exceedingly doubtful, but the exceptional instances are probably accountable for the rare cases of cures reported of progressive paresis.

Although, as already stated, FOURNIER seems to have abandoned the idea of a syphilitic pseudo-paresis, this is still maintained by many, and the more strenuously that the conviction has been growing of late years among alienists that nearly all, if not all cases of paresis are of syphilitic origin, or at least have had syphilitic antecedents. This, which is in its way, if true, a very decided advance in the pathology, meets with strong objections from some quarters. Syphilis being considered a disreputable disease, is not, to many, a very acceptable origin for a disorder that is becoming increasingly frequent in civilized society. Some of the efforts to discredit it as a cause have been so much overdone as to call out the sarcasm from FOURNIER that, according to their statistics, a man should acquire syphilis in his youth to insure against paresis in middle age. An English exchange attributes the confusion as to what is paresis or general paralysis to the growing belief in its specific origin, and speaks virtuously against the disposition to accept assumptions for facts and *post hoc ergo propter hoc* arguments in medicine. The fact in itself, however, that this theory of the causation of the disease has steadily grown in favor in spite of sentimental objections, is a strong argument for its validity, and at present it is beginning to claim both numbers and the weight of scientific authority on

its side, though it can not yet be accepted as an absolutely proven or universal truth. The cases that are not syphilitic are coming to be admitted as probably the rare exceptions; and the term "syphilitic pseudoparesis" will probably soon be limited to those forms occurring after recent syphilis and amenable to specific medication. Even these cases can not be always definitely delimited, and the elements of time and continued observation should always be taken into consideration in the diagnosis.

A possible cause of confusion is the occurrence of senile changes in the brain. Undoubtedly there have been too many cases of paresis diagnosed in men over 50 or 60 years of age, and some cautious alienists have declined to recognize it as occurring after the latter limit. It is very possible, with an atheromatous condition of the vessels, for cortical degenerations to occur that may produce symptoms very closely resembling those of genuine paresis, and this should therefore always be reckoned with in making the diagnosis at any age.

While the occasional difficulties of diagnosis of paresis may be admitted and the possible occurrence of pseudo forms acknowledged as actual or probable, it would be no advance to question or give up its reality as a separate and well-marked disease. It may be often simulated, its characteristic of incurability may even be now and then discredited by some well observed case, it may have long and puzzling remissions, its pathology may be in doubt in some important regards, but as a cortical disease characterized by a general, steadily progressive mental and physical deterioration, it exists as indisputably as any other affection with which mankind is cursed.

"THE GREAT UNREADY" VACCINATION COMMISSION.

The editor of the *Practitioner*, in his masterly Jenner number for May, recalls the fact that his great nation has been waiting seven years for the Royal Commission to speak. The courts are in a measure "tied up," waiting for a decision; while the medical profession is almost dreading a decision. The editor is moved to compare the situation with that of which HORACE wrote when he told about the peasant who took his seat on the bank of a river to wait and see the stream flow past. Or, as another writer has shaped it, "The report will not appear until just after the Greek Kalends."

One good point is made in the article to which we refer, and one that should never be lost sight of, namely: It is always the poor, the ignorant and the helpless who suffer from the fads of faddists; we and ours are relatively free from danger.

Through epidemics and rumors of epidemics the Royal Commission on Vaccination still sits in sphinx-like silence. Smallpox may come and smallpox may go, but it goes on forever. In appointing the Commission, on May 29, 1889, the Sovereign gave its members the following injunction: "And our further Will and Pleasure is that you do, *with as little delay as possible*, report to Us under your hands and seals or under the hands and seals of any five or more of you, your opinion upon the several matters herein submitted for your consideration." The manner in which these "right, trusty and right well-be-loved" gentlemen have carried out this injunction entitles them to the gratitude to at least one section of the community, to-wit, the antivaccinists. Owing to the delay in issuing the report, vaccination has almost died out in many parts of the country. Nearly a hundred Boards of Guardians have decided not to prosecute for refusal to obey the law, and in other cases where the Guardians do their duty in the matter magistrates hesitate to punish until the Commission has issued its pronouncement. A magistrate waiting for this event seems to be like the countryman in HORACE, waiting for the river to flow past. Meanwhile the public mind is necessarily in a state of suspense from which it is from time to time roused by such incidents as the present outbreak at Gloucester. In whatever sense the Commission reports, it will now, I take it, be impossible to enforce compulsory vaccination—at any rate, until a series of epidemics once more teaches people the value of the protection they now make light of. "He jests at scars and never felt a wound." Well, we who know how to safeguard ourselves and those under our charge can look forward to the wrath to come without fear; but it is sad to think of the helpless children of deluded, ignorant, or careless parents.

In this connection, the *Medical Press and Circular* calls attention to the fact that vaccination has its friends in the House of Commons: "Despite the delay, and the supposed opinions expressed, in the forthcoming report of the Royal Commission on Vaccination, it is evident that the House of Commons is a strong center favorable to vaccination. In reply to a question last week in the House as to the recalcitrant action of a particular Board of Guardians, which had rejected a solution to enforce the Vaccination Act, the President of the Local Government Board stated that he had addressed a communication to the Board in question pointing out to them that by failing to enforce the provisions of the Act they were incurring a very grave responsibility. This announcement, it is especially worthy of note, was received with cheers, thus showing, unmistakably, that the results of the Gloucester epidemic have not been lost upon the Members of the House of Commons. The *Gloucestershire Chronicle* recently published some interesting statistics respecting the visitation of smallpox to the town to which some reference may be made, and here it may be said that the inhabitants of Gloucester owe a large measure of

gratitude to the editor of our contemporary for the unvarying, convincing and disinterested manner in which he has pointed out to his fellow townsmen the right course to take in regard to vaccination. In temperate language he has consistently advocated vaccination, simply because he has honestly satisfied himself that there was no other alternative to adopt in the presence of the terrible epidemic which was raging in the town. The statistics, moreover, which appeared in a recent number of our contemporary, regarding the epidemics, form a strong argument showing the utility of vaccination. The mortality among the total number of cases attacked was 21.7 per cent.; of the unvaccinated cases, 41.4 per cent.; of the vaccinated only in infancy, 8.5 per cent.; and of the uncertain cases, 32.2 per cent.

CORRESPONDENCE.

Testimonial to Dr. Davis.

PHILADELPHIA, PA., July 6, 1896.

To the Editor:—The note of Dr. Overlock in the number for July 4, relative to a medal demands some information. The medal to which he alludes is that ordered by the ASSOCIATION in 1875; see Vol. xxvi, page 35. In accordance with the instructions then given, I had a number of the medals struck off and sent to those who forwarded the money. The date on the medal does not mean that when it was issued, but the date of the origin of the ASSOCIATION. Although Dr. Davis was quite prominent in the work of organizing the ASSOCIATION, yet at that time no thought existed of having a medal issued with his likeness on it. The meeting of the profession to organize a national society was held in New York, as stated in the note in the JOURNAL, but Dr. Lewis Williams was not present. I make this mention with no captious spirit but to keep history straight. Yours very truly,

WM. B. ATKINSON M.D.

Another Explanation.

MONTGOMERY, ALA., JULY 6, 1896.

To the Editor:—I am sorry to have to trouble you with another explanation. But please allow me to say that I did not advocate before the Conference of State Boards of Health any such scheme of organization as that which you ascribe to me, nor anything in any way resembling it.[1] You are certainly writing under the influence of information that is entirely incorrect. This will be plain when the official Report of the Proceedings of the Conference of State Boards are published. The proposed bill has not taken definite shape. Only its larger provisions have been decided upon. It is some little time yet before Congress meets; and ever since the session of the ASSOCIATION in Atlanta I have been in a most miserable condition of health; during the last two weeks I have been in bed. Under these circumstances I have not been able to push this work as I otherwise would have done. I have been in correspondence with leading physicians in several states and have made some progress toward the proposed enlargement of the Committee.

In the meantime I take this opportunity to say through the JOURNAL OF THE ASSOCIATION that my Committee and myself will be greatly obliged for any suggestions looking to the completion of a wise and judicious bill; and this invitation is especially extended to the Editor of the JOURNAL.

Yours truly, JEROME COCHRAN, M.D.
Chairman of Committee.

[1] Our information was in writing, and from a member of the Conference.—ED.

If She Had Only Been Batteyized.

SAN DIEGO, CAL., July 9, 1896.

To the Editor:—Apropos of recent contributions to the JOURNAL by Drs. Boal and Daniel suggesting castration as a punishment for certain derelicts (degenerates?) I enclose an excerpt from a reliable source:

"Prof. Pellmann of Bonn University, who makes a special study of heredity, has been tracing the career of the descendants of Frau Ada Jurke, a notorious drunkard, who was born in 1740 and died in 1800. Her descendants have numbered 834, of whom 709 have been traced from youth by Prof. Pellmann. Of these, 7 were convicted of murder; 76 of other crimes; 142 were professional beggars; 64 lived on charity, and 181 women of the family led disreputable lives. The family has cost the German Government for maintenance and cost in the courts, almshouses and prisons, $1,250,000."

The details are quite as startling as those connected with the history of a colored female crook, which were published in Massachusetts some years ago. Herein is food for reflection.

Yours truly, C. M. FENN, M.D.

Not Antitoxin.

CHICAGO, July 13, 1896.

To the Editor:—In the JOURNAL of 11th inst. p. 113, appears the following:

"Another Death from Antitoxin.—Dr. W. J. Nolan of Chicago, writes the following to the New York *Medical Journal:*

"285 Loomis St., Chicago, June 24, 1896.

"To the Editor of the New York *Medical Journal: Sir:*—In view of the discussion now going on in the *Journal*, of which I have been three years a reader and subscriber, I frankly indorse the views of Dr. Winters in regard to antitoxin in diphtheria. Of one case I must write in terms of strong condemnation. The facts are as follows: I was called to see a boy, 8 years old, pulse rapid, temperature 105 degrees, and the laryngeal appearance quasi-diphtheritic. I began the ordinary treatment, in which quinin, carbolic acid and iron formed chief parts. The result next morning was very satisfactory; all alarming symptoms were decidedly not much in evidence. Some time in the evening of this better day, our antitoxin friends raided the house and began their injections à l'outrance. They did not inform me, I need scarcely say; but like birds of evil omen, they swooped down on a defenseless widow and daughters, and injected mightily, nay, as the sequel proved, mortally. Need I express an opinion after this on the discovery, or at least its manipulators? W. J. Nolan, M.D."

On reading the foregoing in the New York publication of the 4th inst., inquiry was at once made as the facts, with results which led to the following correspondence:

"Chicago, July 6, 1896.

"To the Editor of the New York *Medical Journal: Sir:*—Not so much in defense of antitoxin—which hardly needs any—as in common justice to its 'manipulators' in this city, as a correspondent, Dr. Nolan, styles them in his letter published in last week's *Journal*, I ask your publication of the enclosed statement of the facts in the case he therein refers to.

Faithfully yours, F. W. Reilly, M.D."

"Chicago, July 6, 1896.

"F. W. Reilly, M.D., Assistant Commissioner of Health.

Dear Doctor:—Referring to the letter in the New York *Medical Journal* of July 4, by Dr. W. J. Nolan of 285 Loomis St., I find by the notes in my visiting list I was called May 27 to that case by Dr. Bergeron who had been called and finding it was a severe case of diphtheria, referred the people to me saying he would prefer not to treat diphtheria. On my arrival I found the case extremely severe, advanced beyond the fourth day, Klebs-Löffler bacilli and also strepto- and staphylo-cocci in abundance, and every evidence of septicemia. I gave an unfavorable prognosis but injected antitoxin with a forlorn hope; and also immunized all the other five children in the family. Then I was informed by the mother that Dr. Nolan had been called on Sunday, May 23, made his second visit on Monday, and then abandoned the case. Thereupon they sent for Dr. Bergeron and by him the case was referred to me. The case was strictly a charity one and so known to be by Dr. Bergeron, and I was compelled to furnish medicine at my own expense. The child died as I predicted on my first visit. None

of the children immunized contracted the disease. The mother, who was not immunized, contracted diphtheria, was treated with antitoxin and promptly recovered.

"I did not see the case nor was antitoxin administered until July 27, the second day after Dr. Nolan had abandoned it. The mother—'the defenseless widow'—had given him the last dollar she had in the house. She is eminently satisfied with what I did for her child, as are all of the family, and unstinted in her condemnation of Dr. Nolan for his 'heartless neglect,' as she terms it. Respectfully submitted,

E. P. Murdock, M.D., Medical Inspector."

I am this morning in receipt of the New York *Medical Journal* of the 11th inst., but fail to find therein any mention of Dr. Murdock's statement of facts and am, therefore, compelled to appeal to your sense of editorial justice to say whether the caption "Another Death from Antitoxin" now seems to you to be warranted. F. W. Reilly, M.D.

Our Journal.

Tecumseh, Mich., July, 4, 1896.

To the Editor:—The Journal of the American Medical Association was born and passed through its early infantile life in Chicago, arrived at robust manhood in that city, and in Chicago I vote for The Journal to remain, where it will be in touch with cosmopolitan schools and hospitals.

Respectfully, J. F. Jenkins, M.D.

NECROLOGY.

Charles Styer, M.D., a graduate of the University of Pennsylvania, Medical Department, of 1862, died at his home



CHARLES STYER, M.D..

in Philadelphia, July 6, aged 46 years. He was surgeon to the 99th Regiment, P. V., and in June, 1867 he entered the regular army as assistant surgeon, served on the frontier in the southwest mainly, until he resigned June, 1878, to engage in private practice. In 1885, he was appointed Acting Assistant Surgeon in the United States Marine-Hospital service at Philadelphia. For several years he was also one of the Medical Staff of the German Hospital of Philadelphia. He was a prominent member and medical examiner of several social and beneficial orders, being Surgeon-in-Chief of the Royal Arcanum. He was also a member of the Grand Army of the Republic and has been Post Surgeon, Post Commander, Medical Director of the Department of Pennsylvania and Surgeon-General of the National Encampment. Dr. Styer leaves a widow and two sons. His death was found to have been caused by an aneurysm.

Sir George Johnson, M.D., whose death has recently been announced, was a man of mark in his day and generation, in the great metropolis where his life-work was done. Sir George was born in November, 1818, at Goudhurst, in Kent, and was educated at the Grammer School there. At 19 he was apprenticed to a relative, a general practitioner, residing in Cranbrook, Kent, and two years later, in October, 1839, he entered the Medical School at King's College, London, where he greatly distinguished himself as a student, gaining many prizes. In the wards he was a clinical clerk under Dr. Todd, and a dresser to Sir William Ferguson, and after qualifying, he filled the post of house physician and house surgeon. In 1844 he received his degree of M.D. from the University of London, after having passed through a creditable university career. The position to which he had attained as a prominent alumnus of his medical school at once marked him out as a likely candidate for an appointment on the staff of his hospital, and in 1857 he was elected one of the assistant physicians, succeeding Royle as Professor of Materia Medica and Therapeutics. In this appointment he continued until 1863, when he became Professsor of the Principles and Practice of Medicine, which appointment he resigned in 1876 when he became professor of clinical medicine. His connection with the Royal College of Physicians began when he became a member of that body in 1846. Four years later, an unprecedently short period, he was elected a Fellow of the College, and subsequently he held the offices of Examiner in Medicine, Junior Censor, Senior Censor, and Vice-President. The blue ribbon of science was conferred upon him in 1872, when he was elected a Fellow of the Royal Society. The following are further honors of which he was the recipient: In 1884, the Presidency of the Royal Medical and Chirurgical Society; in 1889, physician extraordinary to the Queen; in 1892, knighthood.

Dr. George W. Ryan died at the Betts Street Hospital, Cincinnati, July 11, of cirrhosis of the liver after a lingering illness. Dr. Ryan was born in Louisville, Ky., thirty-six years ago and graduated with honors from the university of that city. For a number of years he was connected with the Hospital of the Ruptured and Crippled of New York, where he achieved a national reputation for his surgical work. He came to Cincinnati about twelve years ago and at once commanded a large and lucrative practice. At the time of his death he was a member of the surgical staff of the St. Mary's and Presbyterian hospitals, also a professor in the Ohio Medical college. Dr. Ryan was a whole-souled fellow well met and a gentleman who counted his friends by the hundreds. He was a single man and one of the most popular members of the University club. The remains were shipped to Louisville Saturday, where interment took place.

James S. Hope, Passed Assistant Surgeon United States Navy, who had been on duty at the Pensacola Navy Yard for two years past, died July 1, in Roosevelt Hospital, New York, after a surgical operation had been performed upon him for a tumor. The remains were carried to Surgeon Hope's old home, Norfolk, Va., for interment. He graduated from the University of Virginia, medical department, Charlottesville, Va., in 1887.

SOCIETY NEWS.

New York State Medical Association—Second District Branch.—The twelfth annual meeting convened at Albany, June 26. Ten counties were represented.

The Tri-county Medical Society of Ford, Iroquois and Vermilion, Ill., met at Paxton, Ill., July 7.

State Board of Medical Examiners of New Jersey.—The annual meeting of this Board was held at Asbury Park, N. J., July 6. Dr. William Perry Watson of Jersey City was elected president, Dr. E. L. B. Godfrey of Camden secretary, and Dr. A. Uebelacker of Morristown treasurer. The next examinations of this Board will be held at Trenton, September 15 and 16.

West Virginia State Medical Society.—The officers elected at the annual election of this Society were published on page 53 of the current volume, but by some inadvertence the item incorrectly made reference to the "Maryland State Medical Society."

Scott County (Iowa) Medical Society.—The regular quarterly meeting and annual election of officers was held at Davenport, Iowa, July 2. Officers elected for the ensuing year: President, Dr. J. H. Kulp; vice-president, Dr. E. Strohbehn; secretary, Dr. Adella R. Nichol; treasurer, Dr. Jennie McKown.

American Dermatological Society.—The next meeting will be held at Hot Springs, Va., September 5 to 10. Everything will be done to make the meeting a success and several papers on interesting subjects have been already promised. Dr. White will open a general discussion on the subject: "What Effect do Diet and Alcohol Have upon the Causation and Course of the Eczematous Affections and Psoriasis." Charles W. Allen, M.D., Secretary, 126 E. 16th Street, New York.

Eastern Iowa District Medical Association.—The twenty-fifth annual meeting was held in Fairfield, Iowa, July 25. Papers were read by Drs. J. H. Etheridge, of Chicago; W. B. La Force, of Ottumwa; R. M. Lapsley, of Keokuk; D. W. Overholt, of Columbus Junction, and T. J. Maxwell, of Keokuk. The following are the officers elected for the ensuing year: President, Dr. W. H. Holliday, of Burlington; vice-president, Dr. Snook, of Fairfield; secretary and treasurer, Dr. M. C. Carpenter, Fairfield. The Association will meet next at Columbus Junction in November.

BOOK NOTICES.

The Student's Medical Dictionary, including all words and phrases generally used in medicine, with their proper pronunciation and definitions based on recent medical literature. By GEORGE M. GOULD, A.M., M.D., with elaborate tables of the bacilli, micrococci, leucomaines, ptomaines, etc.; of the arteries, ganglia, muscles, and nerves; of weights and measures; analyses of the waters of the mineral springs of the United States, etc. Tenth Edition, rewritten and enlarged. Philadelphia. P. Blakiston, Son & Co. 1896. 8vo, cl. Pp. 701. Price $3.25.

"The present volume," says the author in his preface, "is an entirely new one and is designed to take the place of the 'New Medical Dictionary' and the 'Student's Medical Dictionary,' the plates of which have been destroyed." This work is intended for students, and as an introduction to the larger and more expensive "Illustrated Medical Dictionary."

Few works have attained popularity more speedily than the dictionaries of Dr. Gould, and deservedly so. The early acceptance of the orthography advocated by the American Association for the Advancement of Science, and the undeviating way in which it has been carried out, have doubtless had much to do with their extensive sale. The only feature that is open to criticism, for the JOURNAL four years ago adopted the spelling advocated by Dr. Gould, is that of pronunciation. Anyone who may listen to any half dozen readers in our medical societies will likely hear the common medical terms differently pronounced by each. Surely the time has come when medical men may, as Dr. Foster has shown, adopt that pronunciation, which will enable them, without regard to nationality to give a common pronunciation to all words in common use by the profession. We commend this work as we had the pleasure of commending its predecessors by the same author.

Quain's Elements of Anatomy. Edited by EDWARD ALBERT SCHAEFER, F.R.S., and GEORGE DANCER THANE. In 3 Volumes. Appendix, Superficial and Surgical Anatomy, by PROF. G. D. THANE and PROF. R. J. GODLEE, M.S. Illustrated by 29 engravings. 8vo, pp. 76. Tenth edition. Longmans, Green & Co. London, New York and Bombay. 1896. While anatomy should not be studied "superficially," yet superficial or topographic anatomy can not be too deeply graven into the brain of the student and practitioner; indeed, the more attention paid to superficial anatomy, the "landmarks," as Holden termed them, become more clearly visible, the diagnosis is more easily made, and error is farther removed.

The student, and as well the surgeon, will find his knowledge increased and his hand steadied by the careful perusal of this appendix to Quain's well-known elements of anatomy, prior to making a new dissection or undertaking a new operation.

(1) Whittaker's Anatomic Model. (2) The Anatomy of the Human Head and Neck. A Pictorial Representation of the Human Frame and its Organs. Graphically illustrated by means of superimposed plates, with descriptive text by DR. SCHMIDT. English translation by WILLIAM S. FURNEAUX. New York: Thomas Whittaker (1, 3 and 5 Bible House) Publisher.

These books are pictorial representations showing the anatomic relations of the parts. The plates are superimposed very ingeniously, and are intended for students in general, whether in medical classes or engaged in the study of anatomy as collateral to other studies. The coloring, while not altogether natural, is not so far off as to be violent, and the relations of the parts are as accurately shown as may be on a plane surface. We commend the works for the purposes for which they are intended, and as an aid to the teaching of anatomy in the public schools their value can scarcely be overestimated.

Keil's Medical, Pharmaceutical and Dental Register-Directory, with special medical, pharmaceutic and dental departments containing detailed information of colleges, hospitals, asylums, societies, with street lists, etc., for Pennsylvania, New York, New Jersey, Maryland, Delaware and District of Columbia. Fourth edition. GEORGE KEIL, Editor. Philadelphia: Burk & McFetridge Co., Publishers, 308 Chestnut Street. 1896.

This directory has the merit of being up to date and is one of the most complete of its kind. Its rather lengthy title fully explains its scope. Every editor, teacher and writer, and as well the general practitioner finds such compilations extremely useful.

PUBLIC HEALTH.

Chicago Health Report for June shows total number of deaths in the month as 1,895. The annual death rate on the basis of the school board's census for the year ending June 30 was 14.83 per 1,000 of population. Last month's rate was 1.17.

Utah State Board of Medical Examiners.—This board, which has been but temporarily organized since its appointment by Governor Wells, met June 29 and effected permanent organization. Dr. Bascom was elected president, Dr. John T. White secretary, and Dr. Dart treasurer.

Baltimore (Md.) Health Statistics for June.—Health Commissioner McShane's summary for June shows that during that month 647 deaths occurred in Baltimore, a decrease of 136 as compared with June, 1895. Of these 467 were whites and 180 colored. Forty-two died of infectious diseases and 76 of consumption.

Will the Consultant get His Fee? Probably Not.—A curious episode has arisen from a difference of diagnosis between two practitioners in a burgh in the west of Scotland. Dr. A. certified a case of enteric fever and sent the patient to a burgh hospital. Admittance, however, was refused, as Dr. B. who had charge of the hospital, diagnosed the case as one of meningitis. Dr. A., in no wise convinced of this view, sent for Dr. C., a consulting physician from Glasgow, who had no doubt the case was really one of enteric fever. Now Dr. A. maintains that Dr. C.'s fee of ten guineas is an expense to which he had been put by the burgh medical officer, and accordingly he claims that the town council ought to refund him this sum.

The Chinese Women and Their Feet.—The cruel and ungainly practice of compressing human feet in China has called forth some official medical remarks on the subject to the Chinese Maritime Customs. When questioned closely, not one woman in a hundred will deny that she is a constant sufferer owing to the tight bandages. Many foreigners in China imagine that after a woman reaches maturity she is free from pain, but it is contended that this is not the case. Dr. Macartney, the writer of the report, never found an elderly woman who did not complain of pain. Women with compressed feet can not stand for any length of time without great suffering; in addition to the agony endured in the early period of binding, paralysis of the legs frequently ensues on the practice, and in every case treated by him the patient recovered rapidly when the feet were unbound and left free.

An Echo from Russia; "Let us have a Department of Public Health."—The Russians have taken up the cry, and are urging the creation of a minister and department for this purpose, which is said to be more needed in Russia than in any other country for many reasons. The present arrangements for epidemics, etc., are utterly inadequate. Levitsky states that the total medical supplies received at one large station in the Ural, where an epidemic of cholera and typhus was raging recently, amounted in all to one ounce of sublimate, one kilogram of impure phenic acid, 20 grams of tincture of valerian and 20 grams of "Inosemzev' Drops." The present annual appropriation for hospitals in the provinces is the same for each ($400–$500) irrespective of the size, so that one with 595 beds receives no more than one with 45.—*Bulletin Médicale*, June 21.

Duluth (Minn.) Water Supply.—The epidemic of typhoid fever that carried off many of the citizens of Duluth a year ago is brought to mind by a hearing which is called for Monday before Attorney General Childs. Ellsworth Benham, corporation counsel for Duluth, will appear before the attorney general and make an application for a writ of quo warranto to compel the Duluth Gas and Water company to appear in the supreme court and show cause why its charter should not be declared forfeited to the city. The ground on which the application is made is that the company failed to comply with the requirements of its charter, in that it did not supply good and wholesome water to the city. The application charges the company with wilfully placing its intake pipe close to the sewage discharge from the city of Duluth, so that it received the sewage and surface waters of Lake Superior, and that as a result of the use of the water by the residents of Duluth several epidemics of typhoid fever raged in the city and hundreds of people died.

Food Laws in Pennsylvania.—The Pennsylvania State Department of Agriculture has just issued formal decisions regarding the provisions of the food laws. Truth and precision in the labeling of foods are insisted upon, and adulteration is distinctly defined. Goods sold as "pure" must be pure, if mixtures they must be marked "compound" in a conspicuous place on the label. A very wise provision is that in any "mixture" or "compound" there must be no fraudulent or worthless article, only such as are designated "ordinary articles or ingredient of articles of food." "Salicylic acid is prohibited as a preservative." This acid has been largely used as a preservative for catsups, mince-meats, etc. Coloring is allowed in food products (except milk, which must contain no coloring matter or preservative) provided the material used is not injurious, but when used in canned vegetables the package must be distinctly and plainly marked "artificially colored." Spices do not admit of any foreign matter and therefore can not be sold as "compounds," or placed upon the market in an adulterated condition. The Pennsylvania market for ground cocoanut shells, corn meal and other standard adulterants will fall off under this construction of the law. Definite limits are prescribed for vinegar, pickles, lard, preserves, jellies, etc. All the fifteen formal decisions are plain, honest and just. They permit harmless admixtures when definitely stated, but prohibit fraud, misrepresentation and employment of any materials whatsoever which are a menace to health.—*Pharmaceutical Era*, June 25, 1896.

Illinois State Board of Health.—The regular quarterly meeting of this Board was held in Chicago, July 7. Dr. F. W. Reilly of the Chicago Health Department presented rules regulating the practice of midwives and proposing to grant greater authority to municipalities in this matter, which were favorably received by the Board. A committee was appointed to draft resolutions on the death of Dr. O. O. Baines. A request was made that the diplomas of the Harvey Medical College of Chicago, be not recognized as it is alleged that this college does not fulfill the requirements of the Board. The matter was referred to the committee on the administration of the Medical Practice act. The Secretary made statement concerning the "Illinois Health University" of Chicago, to the effect that an opinion had been asked of Attorney General Moloney as to the possibility of prosecuting this fraudulent institution under the statute. This concern being chartered may under the law issue medical diplomas, but they are not recognized by any State Board of Health and a number of persons have been victimized. In case this can not be done it is hoped that the legislature will see fit to enact a law which will apply to cases of this kind.

Do Flies Spread Tuberculosis?—Dr. W. R. Aylett, (*Virginia Med. Semi-monthly*, June 26, 1896) gives details of investigation: "I smeared a cover-glass with sputum from a well-advanced case of tuberculosis and placed it upon a clean sheet of paper, placing around it seven or eight clean covers. The paper and covers were then placed where flies could have ready access and soon quite a number were feeding on the sputum. An inverted tumbler was lowered over them, making them prisoners without their knowledge. One of the prisoners soon deposited a 'speck' on one of the clean covers. To prevent this becoming contaminated by their feet, I removed it at once. Within an hour or two all of my covers were specked. The covers were then put through the regular cover-slip preparation, carbo-fuchsin being used for the bacilli with methylene blue as a contrast stain. On microscopic examination, the specks were found to contain from one to three thousand bacilli tuberculosis each. I have not yet tested the virulence of bacilli so obtained, but they show no signs of disintegration, seem as perfect and stain as readily as those from pure cultures."

Death from Eating Ice.—In the annals of the Health Office and Registry of Deaths, of Philadelphia, a half century ago or more, occurs several times, the diagnosis of "Death from drinking too much ice water." In these days of free refrigerated drinking fountains and universal use of ice in the household, there may occur, each year, a number of such cases; but they are recorded now under a pathologic and not under an etiologic heading. Last week, however, the coroner, who had investigated the death of two children in one family, gave a certificate of death from dysentery occasioned by the excessive use of ice. As they had indulged freely in so called "snow-balls," made with shaved ice flavored with fruit syrup, it was suggested that the fruit syrup might have contained some poisonous ingredient or adulterant, but the coroner's jury basing their opinion on the results of Prof. Leffman's analysis of flavoring syrups last year, which showed them to be harmless, came to the conclusion that the eating of so much shaved ice was the real cause of the fatal illness. In view of the fact that children are constantly buying and eating these balls of shaved ice, during the hot weather in our large cities, it is pertinent to inquire as to the purity of the ice, since Prudden and others have shown that polluted water is not made pure by freezing and that vari-

ous pathogenic germs are contained in ice coming from a contaminated source. Infected ice is capable of communicating infection and causing local epidemics of disease. Typhoid bacilli survived freezing in the epidemic at Plymouth, Pa., some years ago. Pus organisms and the streptococci of erysipelas are commonly found in ice coming from a source contaminated by drainage, as well as many bacilli allied to the comma bacillus or spirillum of cholera. With these observations in mind, it would be well for the guardians of the public health to take into consideration the ice supply of large cities, as well as that of milk, and especially to prohibit the sale of ice to be eaten by young children, unless it is of good quality. There are as good reasons for having sterilized ice as exist for the use of sterilized water or milk; for children's use these should be of the best quality and above suspicion.

Washington State Medical Examining Board.—The regular semi-annual meeting of the Washington State Medical Examining Board was held at Spokane, Wash., July 7 and 8. But six applicants for license to practice within the State appeared before the Board, one of whom failed to pass.

Washington State Board of Health Favors a Department of Health.—At the last regular meeting of the Washington State Board of Health the following resolution in favor of a national department of health was unanimously adopted, viz.:

Resolved, That this Board is in favor of the establishment of a national department of health upon the broadest and most comprehensible grounds possible. That we do not endorse the action of the National Conference of the States Boards of Health held in Chicago in June last. Believing that this does not represent the views of the majority of the boards of health of the various States, the secretary is hereby instructed to correspond with the boards of other States and also with other boards of health, with the view of ascertaining the opinions of the various boards upon the advisability of the establishment of such department by the national government.

MISCELLANY.

Serum Treatment for Sheep Rot.—A member of the Pasteur Institute of Algiers has discovered a serum that will prevent "sheep-rot." All animals "vaccinated" either escape or have a mild form of the disease, from which they invariably recover.

University of Vermont.—The 43d annual commencement exercises of the medical department of the University of Vermont were held at Burlington, Vt., July 6. The graduating class numbered fifty-two. The valedictory was delivered by Dr. J. L. Marshall. The address of Rev. P. M. Snyder was on the Relation of the Physician to the Preacher.

The Roentgen Rays in the Witness-Box.—We note that the trial of an action for damages at Nancy, in France, the surgeon who had charge of the injured plaintiff was accused of having caused the damage by mistaking a dislocation for a fracture. The accusation was sustained by producing in court a Roentgen photograph, which showed clearly the bones in the dislocated position without any fracture.

New Apparatus for Anthropometric Measurements of Criminals.—An anthropometer and craniograph invented by a lawyer, Anfosso of Fossano in Italy, are commended by Lombroso for their extreme simplicity compared to Bertillon's complicated apparatus, besides their other advantages. The *Gaz. degli Ospedale e delle Clin.* of June 20, adds that every police station should be supplied with them.

Roentgen Ray Visible to Insects.—The *Centralbl. f. Physiologie* of June 13, describes some experiments with insects placed in a box, one side of which was of wood and the other of lead, and exposed to the direct Roentgen ray. The insects all assembled on the side of the box permeable to the ray, except those that had been blinded. The assumption is that it was visible to them and attracted them.

Missouri Rule as to Burden of Proof of Insanity.—The supreme court of Missouri holds, in the case of State v. Wright, decided June 2, 1896, that the burden is on a defendant who interposes a plea of insanity to sustain that defense to the reasonable satisfaction of the jury. It says that it is in the nature of a plea of confession and avoidance. It confesses the homicide, but denies the crime of it. The court also holds that a medical expert was very properly permitted to give his opinion respecting the sanity or insanity of the defendant, having for a basis the hypothetical case, together with what he had learned from an examination of the defendant.

Treatment of Acute Pneumonia with Injections of Artificial Serum.—Bassi of Lucca has found intravenous injections of artificial serum of benefit in acute pneumonia, when a fatal termination is imminent. He describes several cases in the *Gaz. degli Ospedale e delle Clin.* of June 6, and dwells upon the importance of gaining time with them until the crisis is past. The amount injected was from 120 to 250 grams; the instrument used was a Pravaz syringe connected with a reservoir, and the injections were made in the median basilic vein of the left arm, the day before the crisis was anticipated when possible.

Filters for Army Use.—Coccone has a study of the best portable filter for use in the army in the *Giornale Medico der R. Esercito* for April, and recommends the Berkefeld-Nordtmeyer as the most practicable for the purpose, using two alternately, a day each, and boiling the one not in use in a camp kettle for an hour. He suggests a few slight modifications to add to its solidity and capacity.—*Gaz. d. Osp. e d. Clin.*, June 11.

The Whale Cure for Rheumatism.—It is reported that at the town of Eden, a place in Australia, which stands on the shores of Twofold Bay, there is a hotel where rheumatic patients congregate. Whenever a whale has been taken the patients are rowed over to the works in which the animal is cut up, the whalers dig a narrow grave in the body, and in this the patient lies for two hours as in a Turkish bath, the decomposing blubber of the whale closing around his body and acting as a huge poultice. This is known as the "whale cure for rheumatism."—*Annals of Hygiene*, July, 1896.

Anomalous Case of Cinchonidia Poisoning.—Dr. William Pepper relates the case of a patient suffering from paroxysmal tachycardia, in whom a pill of digitalis and cinchonidia sulphate—one grain of the latter—produced, within three hours, severe abdominal pains, nausea, extreme weakness and areas of angio-neurotic edema. The hands and feet especially were much swollen, the color varied from moderate congestion to extreme pallor; there was intense itching, the pulse was hard during the period of intoxication, in marked contrast to the soft pulse previously noted. The conditions continued about twenty-four hours.—*University Med. Mag.*, July, 1896.

Li's Bullet Located by the Roentgen Rays.—While in Germany recently, the Chinese statesman, Li Hung Chang, took advantage of an opportunity to have the bullet which he carries in his cheek located by the Roentgen Rays. It will be remembered that when in Japan, arranging the treaty of peace between that nation and his own, he was assaulted by a would-be assassin, who, it was feared at that time, had been only too successful in taking the life of this truly great man. The picture secured shows the tract of the wound through the tissues of the cheek and the encysted missile slightly below the point of entrance.

A Million Dollar Prize.—The following curious notice has recently appeared in the New York City newspapers: "One Million Dollars Reward.—To Physicians, Surgeons, Scientists, Wise Men, and all others whom it may concern: Be it known that I, Charles Broadway Rouse, who possess considerable wealth, hereby agree to pay the sum of $1,000,000 to any human being who restores to me my sight." The advertiser is

an eccentric Virginian who has done business in New York since the late war, and who is suffering from atropy of the optic nerve. Some time ago he discovered that one of his former employes, a man by the name of Martin, was affected in the same way as himself. He took a great interest in his case and was very kind in securing the best medical treatment for him and otherwise providing for his welfare and comfort. Out of gratitude for this kindness he has offered to subject himself to any kind of treatment that is thought worthy of trial, and any one who believes that he has a chance of winning the million dollar reward must first test the efficacy of his treatment on Martin.

Gunshot Wound of the Stomach.—Dr. L. A. Woodson (*Nashville Jour. of Med. and Surg.*, June, 1896) reports a case, male, 25, operated on sixteen hours after wound was received. The patient was weak from loss of blood and abdomen distended from internal hemorrhage. The ball, 38-caliber, entered the stomach at the cardiac end and had severed the gastro-epiploica sinistra artery, which was still bleeding. The ball emerged to the right of the œsophageal opening, then made another perforating wound, an inch long, in the pyloric end of the stomach. The ball was not located but the direction of its course indicated lodgement in the liver. Temperature the day after operation, 98.5 degrees. He was discharged cured on the twenty-first day. The points of interest in this case were the rapidity of healing and completeness of cure, the absolute absence of fever after the operation was performed, notwithstanding its gravity and extent, and finally that an artery the size of the one severed should have remained unsecured for sixteen hours and not have resulted in death from hemorrhage.

The Therapeutics of Exercises.—Dr. Randolph Faries says: Many physicians prescribe exercise, never dreaming that they are already adding coals to the fire of the disease. For example, one physician will tell a patient who is suffering from brain overwork to take riding lessons, forgetting that mental operations are required to learn to sit properly and guide the animal at first; another will advise bicycle-riding which also requires mental effort. Prescribe an involuntary exercise and the blood will be drawn from the brain to the part employed because wherever there is movement there we shall find the blood flowing in greater quantities; and in this way we deplete the overcharged blood vessels in the cerebral mass.—*Annals of Hygiene*, July.

No Duty to Provide Specialist.—Jones v. Vroom, decided by the court of appeals of Colorado, May 11, 1896, was brought against a firm of physicians to recover damages for the loss of an eye, alleged to have been caused by the negligent and unskillful treatment of the defendants. They had been employed to treat the plaintiff for typhoid fever. There was no evidence, and in fact no complaint, that they did not bestow upon her all the attention and skill which the nature of the disease and her condition required. Indeed, she stated herself that she was cured of the fever as a result of their treatment. The only charge in the complaint which was proven was that one of the defendants failed to send her an occulist after he had promised to do so. The court holds that, under the circumstances, a nonsuit was properly granted. It says that the defendants were employed to treat the plaintiff for fever, and their employment imposed no duty upon them to provide her with a specialist for her eye. The court took into account, furthermore, that she seemed to have had no difficulty in procuring one when she set about it, and says that presumably he could have been gotten just as readily at first.

A Consulting Surgeoncy Declined.—Dr. Thomas H. Manley has lately declined the appointment tendered him in behalf of the University Medical College of New York, by the Commissioners of Public Charities. Dr. Manley was among the twenty-eight members of hospital staffs, summarily removed a year ago, by the reform government. It has since transpired, that the move was not in any sense political, but was the outcome of a medical college combination to secure all the clinical material. Hence, at the last meeting of the County Medical Association of New York charges of violation of the code of ethics of the AMERICAN MEDICAL ASSOCIATION were made against the faculties of the three regular medical colleges. It seems as that only one medical college of New York has remained loyal to the National organization—Bellevue—that must stand the brunt of attack in this investigation, as the College of Physicians and Surgeons and the University Medical College, it is said, recognize no code. The outcome of this investigation will be watched with interest, for since the beginning of the medical upheaval of last year in the New York Hospitals the JOURNAL has maintained that wrong and injustice was committed.

Study of Hematocatharsis.—The *Gazette Médicale de Paris*, June 20, reports some recent experiments by Delbet on the effects of diluting the blood with saline solution. He found that intoxication was prevented by it in only one case out of eight. This was a dog to whom three grams of sulphate of strychnin in a thousand solution had been injected. Immediately afterward 910 grams of saline solution were injected, and the animal was not poisoned by the strychnin, but recovered. He passed 530 grams of urine. The same dose administered later to the same dog without the saline injections, resulted in death twenty minutes later. Delbet found that where there were four millions of red corpuscles before the saline injections there were only three million afterward, but they were larger. No difference was observed in the white corpuscles. He finds that it is impossible to increase the pressure when it is normal or above, concluding from this that dilution is authorized even in cases of elevated pressure, as in eclampsia. On the other hand, a diminished pressure is brought up to normal by intravenous injections of saline solution, and it is not even necessary to inject an amount equal to what has been lost, as vigorous animals can lose a certain amount of blood without diminishing the arterial pressure, showing that they have a reserve of blood. Further experiments with dogs poisoned with atropin, and the pneumogastric consequently paralyzed, showed that the pressure of the blood could be diminished by hemorrhage and afterward increased by saline solutions, which proved that these phenomena were not dependent upon the pneumogastric.

Latent and Disguised Tuberculosis.—Maragliano's address with this title, delivered at the recent congress at San Remo, is published in *Gaz. degli Ospedale e delle Clin.* No. 47. It repeats the statement that traces of tuberculosis are found in one-third to one-fourth of all the necropsies. They may never have developed beyond the first original tubercle, as the organism may have proved strong enough to keep them in subjection by secreting the necessary antitoxins, and they may remain latent all through life. But debility from any cause, pregnancy, traumatism, may diminish the power of the organism to combat them, and they at once assert themselves, when an established case of tuberculosis is the result. To another category belong the cases of unsuspected tuberculosis infection of the blood which does not reveal itself in any of the usual ways, but only produces progressive anemia, emaciation, loss of appetite, suspension of the menses and other symptoms of what he calls dystrophic disguised tuberculosis. He distinguishes also another form, the trophic, with fever, intermittent or remittent, resembling typhus sometimes, with disturbances in the innervation, and even tumor of the spleen or exanthema. To this cause may be due the so-called "growing fever" of older children. It is very difficult to distinguish these forms of tuberculosis as the ordinary physical and bacteriologic tests fail. Maragliano has only attained certainty

by inoculating rabbits with the serum of suspected cases, or by inoculating the patient with tuberculin, as in testing animals.

Antivivisection.—Resolutions adopted at the Keystone Veterinary Medical Association, Philadelphia, June 9, 1896:

WHEREAS, Believing that the best interests of humanity are served by the judicious permission of experimental research on the lower animals, whereby the value of certain methods of surgical interference can only be determined, and the worth of certain lines of remedies, which at this particular time in the history of medical progress, seem to be based on more exact deductions than ever before, and the wisdom of fully testing these remedies on the lower animals demands no comment from any intelligent, thoughtful person;

Resolved, That we therefore believe that Senate Bill No. 1,552 is calculated to throw around these investigations unnecessary and unjust restrictions, and for these reasons merit our disapproval and we call upon our Representatives from this section to manifest our condemnation of this measure by their voting against the same. JOHN R. HART, President.

W. L. RHODES, Secretary.

Are the Bones Shaped by the Pressure of the Muscles?—Hirsch asserts that the internal and external structure of the bones as well as their shape, is determined by their functions, and that the pressure of the muscles and tendons is not responsible for the hollows or shape. The groove at the rear of the lower extremity of the tibia is an example of an apparent rut worn by friction, but in reality it is exactly the opposite, as the groove does not extend into the inner spongy part, and is not really a depression, but is produced by a couple of ridges thrown up to protect the bone. This same process occurs wherever there is friction, which explains the formation of the sesamoid bones, etc. To confirm his statement that these grooves were not the direct result of friction even in the course of generations, Hirsch examined the oldest neolithic skeletons in the museums, finding the two ridges even more pronounced on them than is the case at present. Another argument is that it is a mistake to suppose that all the muscles fit close to the bones, the biceps for instance; and it is drawn still further away when contracted. Hirsch asserts also that the bones are not injured by severe pressure as much as by gentle continuous pressure, such as the growth of a tumor, compressing and closing the circulation in the periosteum, while they are constructed to resist the strong pressure of walking, lifting, etc.—*Centralb. f. Chirurgie*, June 20.

"Physicians" Who Can Not Recover for Services.—The object of the Nebraska statute providing for a State Board of Health to regulate the practice of medicine, etc., the supreme court of that State says is the protection of the sick and afflicted against the knavery of quacks. For this reason the court holds, in the case of Maxwell v. Swigart, decided June 3, 1896, that the provision that "no person shall recover in any court in this State any sum of money whatever for any medical, surgical or obstetrical services, unless he shall have complied with the provisions of this act," etc., (Comp. St. 1893, Ch. 55, Art. 1, Sec. 15), negatives the right of recovery for such services where there has been a failure to file the certificate of the State Board of Health with the county clerk of the proper county, as required by the statute. To illustrate: The plaintiff in this case alleged that on or about Sept. 4, 1891, he had made necessary proofs upon which a certificate had been issued to him by the Nebraska State Board of Health, and that when his services were performed for the defendant between Oct. 15 and Nov. 29, 1892, he was one of the persons authorized by law to be registered. On April 20, 1893, the certificate of the State Board of Health referred to was filed in the office of the county clerk. After this the plaintiff brought this action to recover for those 1892 services, and recovered judgment in the district court for $275, the latter holding that the registration before suit brought, though after the services were rendered, was a sufficient compliance with the statute to entitle the holder of the certificate to recover the value of his services. But the supreme court holds otherwise and reverses that judgment, on the ground that the construction the district court put upon the statute was so foreign to the general scope of the entire act that it could not be tolerated.

A Case of "Death from Chloroform," Improperly so Called.—Dr. Wilkinson, of Birkenhead, England, reports in London *Lancet*, June 6, a case that very well illustrates a form of the reckless allegations which get into the public press concerning the use of anesthetics. To report this death as one of "death under chloroform" was entirely unjustifiable. The true cause of death, as shown by the clinical history and by necropsy, was that of rupture of the uterus consequent upon placenta previa. The case, as abbreviated from the report in the *Lancet*, was as follows: "When called to the case I found that there had been some severe hemorrhage. Under anesthetics version was performed. The hemorrhage then ceased, and as I felt the placenta loose in the vagina I removed it with my fingers. Chloroform was given only at intervals and was ceased before the delivery of the head. Six drams were given. The patient rallied, took some ergot and assisted us with the placing of the binder, and asked if all was over. She then became restless, and after about twenty minutes we saw that death was threatening and informed the friends. The restlessness had brought on fresh hemorrhage. More ergot was given and ice was placed in the vagina, and the uterus felt for from the outside. Owing to the abdominal fat, however, it could not be felt. The pulse was 96 and hardly to be perceived, partly on account of the superimposed fat. The patient died two minutes after we had informed her friends. No transfusion apparatus was at hand. The friends, supposing that she had died under chloroform, charged us with her death and, becoming maniacal, assaulted us. They seized the ornaments and attempted to strike us. The midwife (who sent for help immediately on seeing the case) was seized and would have been hurt but for our interference. At last we were obliged to send for the police to assist us to recover our belongings and extricate the midwife from the corner of the room where she was penned up. It was reported to the police and to the whole neighborhood that we had murdered the woman with chloroform. On this account I thought it best that an inquest should be held; otherwise I should have given a certificate. At the necropsy a rupture of the cervical and uterine tissues was found four inches in length and opening into the right broad ligament. The extravasated blood separated the layers of this, and I believe that during the subsequent restlessness the peritoneal covering burst, as was found. The immediate cause of death was hemorrhage. The delivery took me about an hour and a half to accomplish, during which time bleeding continued at intervals. After the arms were brought down I felt the os and it was then intact. The rupture, which I did not suspect, must have been caused by the passage of the large head, probably by the face (which was born first) passing over that site. The papers had the case reported as 'death under chloroform,' but the resumed inquest entirely relieved me from this charge, though the report has certainly done me harm."

The Murder of an English Physician in North Africa.—The *London Graphic* has the following account of the apparently causeless massacre of a physician and his family in Tunisia. Dr. Leach was for a time a resident of New York city, about ten years ago:

"Dr. and Mrs. Leach, who, with their little son, were murdered at Sfax, in Tunisia, last week, were for about five years missionaries of the North Africa Mission. After residing for a few months in Algiers they removed to Tunis in the summer of 1891, and with the help of other missionaries, carried on an important medical mission among the Mohammedans and Jews of that city. A few months ago Dr. Leach requested the council of the mission to permit him to open a new station at Sfax, one of the most important cities of Tunisia, about two

hundred miles south of his former sphere. At the present time it has a population of about forty thousand Mohammedans, a few thousand Maltese, Italians and Greeks. Dr. Leach removed from Tunis about the middle of March this year, and had since been occupied in getting his house and mission premises ready for work. He wrote on April 27 to the effect that the people were beginning to inquire when he would be ready to see patients, and he hoped to begin very shortly. It is difficult to understand the motive of the murder. Dr. Leach was a quiet and somewhat reserved man, very patient and kind in his dealings with the people. Both he and his wife spoke French, and he had a fair command of Arabic. So far as is yet known, it is thought that the crime was committed by Europeans with a view to robbery; but it seems impossible to be quite sure who the murderers were. The boy was about 5 years of age. The little girl, 18 months old, is the only member of the family who has been spared. Dr. Leach was born in 1860, at Rangoon, and was the second surviving son of Mr. William Leach, of the Medical Department of Her Majesty's Indian Army. He was educated in the military school at Fort St. George, and at Bishop Corrie's Grammar School, Madras, and studied Medicine at Edinburgh, where he qualified. He held the post of resident surgeon to the Children's Hospital, Birmingham, and afterward took one or two voyages as surgeon on the boats of the Clan Line. Then for two years he practiced at Forest Gate, East London. Subsequently he went to America to gain experience in medical mission work, under Dr. Dowkontt, of the International Medical Mission Society, to whom he was strongly recommended by the late Pastor C. H. Spurgeon. In 1889 he proceeded to Algiers with two American friends, and in 1891 joined the North Africa Mission."

The English Language.

We'll begin with a box, and the plural is boxes,
But the plural of ox should be oxen, not oxes.
Then one fowl is a goose, but two are called geese,
Yet the plural of mouse should never be meese;
You may find a lone mouse or a whole nest of mice,
But the plural of house is houses, not hice.
If the plural of man is always called men,
Why shouldn't the plural of pan be called pen?
The cows in the plural may be cows or kine,
But a bow if repeated is never called bine,
And the plural of vow is vows, never vine.

If I speak of a foot and you show me your feet,
And I give you a boot would a pair be called beet?
If one is a tooth and a whole set are teeth,
Why should't the plural of booth be called beeth?
If the singular's this and the plural is these,
Should the plural of kiss ever be nicknamed keese?
Then one would be that and three would be those,
Yet hat in the plural would never be hose,
And the plural of cat is cats, not eose.

We speak of a brother and also of brethren
But though we say mother we never say methren,
Then the masculine pronouns are he, his and him,
But imagine the feminine she, shis and shim.
So the English, I think, you all will agree,
Is the queerest language you ever did see.

—*The Commonwealth.*

The Economic Season.—Benham: "I wish you would ask Mr. and Mrs. Jones around to dinner to-morrow." Mrs. Benham: "What is your hurry about it, all of a sudden?" Benham: "I heard Jones' doctor telling him to-day that he mustn't eat any solid food for a week."—*Texas Siftings.*

Cincinnati.

The mortality report for the week ended Friday, June 10, 1896, shows: Deaths from all causes 112, annual rate per 1,000 16.64, deaths during the preceding week 116, deaths during corresponding week 1895 118.

Hydrophobia.—A case of hydrophobia was discovered in the city last week and the patient died in horrible agony.

The following have been added to the staff of the Betts Street Hospital: Drs. R. C. Heflebower, oculist; H. D. Hinckley, surgeon, and W. E. Kiely, general medicine.

At the last meeting of the staff of the Cincinnati Hospital the following were elected: Chief of staff, N. P. Dandridge; secretary, John Oliver; librarian, P. S. Conner; custodian of records, P. A. Marchand.

Dr. F. W. Hendley has been presented with an office desk, chair and set of instruments by the staff and employes of the Cincinnati Hospital.

The Obstetrical Society has adjourned until September. At the last meeting the papers read were: "Inflammation of the Endometrium," by E. W. Mitchell; "Pelvic Inflammation," by Charles Bonifield; "Technique of Curettage," by George E. Jones; "Pudendal Hematocele," by M. A. Tate.

Dr. William Pepper, President of the International Executive Committee, will spend the summer at a Spanish hacienda in California.

It is understood that arrangements are practically completed for two special trains of cars to be specially constructed for the Mexican trade. A dining-car will be provided for every three coaches. A lady's maid will be provided for each coach. Those desiring accommodations on these trains should address Dr. C. A. L. Reed of this city.

Meals for Hospitals.—The several thousand patients in the various State Insane Asylums and the Epileptic Asylum will eat a uniform breakfast, dinner and supper hereafter. At a meeting of the superintendents of the various State institutions at Columbus it was decided that the six months' bill of fare will be the same for all the institutions except that the epileptics for hygienic reasons are not allowed the full quantity of meat. A sample day's bill of fare is: At breakfast, beef stew, with three to five ounces of meat to each person, three ounces of potatoes, fruit *ad libitum*, bread with one-half ounce of butter, one-half ounce of coffee, and all the milk needed; dinner, chicken potpie, six ounces of the fowl to each patient, mashed potatoes, five ounces each, stewed tomatoes, pie or pudding, bread and butter, coffee and milk; supper, sweet cake, fruit, oatmeal, bread and butter, tea and milk.

Dr. Joseph F. Chau of Cleveland, has applied to the State Board of Examiners for registration. He is said to be a graduate of the Hong Wo College, of O'Moon, China.

The State Board has adopted the report of the investigating committee recommending the non-recognition of the Hygeia Medical, The American Eclectic, and the Campbell Vitapathic College.

Philadelphia.

Dr. John H. Packard having resigned from the surgical staff of the Pennsylvania Hospital, the board of managers elected William Barton Hopkins as his successor. Dr. Hopkins is a graduate of the University of Pennsylvania, and has served as resident physician and surgeon to the out-patient department of the Pennsylvania Hospital for a number of years. He will enter upon his new position August 1, when he will take charge of the wards for the fall term. Dr. Hopkins is a nephew of Dr. John Rhea Barton, and possesses much of the mechanical genius of his distinguished relative, who formerly occupied a prominent position in the surgical staff of the same institution.

Louisville.

House of Reform.—At a meeting of the trustees of the House of Reform appointed by the Governor, held recently, the following officers were elected: Mrs. Nellie G. Cheatham, wife of Dr. Wm. Cheatham, of this city, president; W. P. Walton, Stanford, secretary; D. H. Howard, Lexington, treasurer. The other members of the board are the following: Mrs. Lunsford Yandell, widow of the late Dr. Lunsford P. Yandell, of this city, Mrs. M. Charles and B. T. Conway, of Lexington. Propositions for buildings and sites for the location of the houses are being received by the board and no decision has as yet been reached.

Medical Laws.—The county attorney of Christian County has caused the arrest of over 100 physicians of that county charged with the violating of one of the laws which requires each physician to file a report with the county clerk before January 10 of each year containing a record of the births and deaths which have occurred in his practice for the year previous. Only one physician complied with the law, and the others claim that they were in ignorance of there being such a law on the statute books, though it has been in existence for twenty years. One doctor was fined $20 and costs, as an agreed case, and it will be carried to the court of appeals.

CITY HOSPITAL.—Superintendent Barbour states that at present there are 150 inmates to the hospital, an excess of fifty over the number usually there this time of the year. The increase has been caused by the unusual prevalence of dysentery and allied troubles among the poor at this season.

ST. MARY AND ELIZABETH HOSPITAL.—This hospital is located very near a switch of the Louisville Southern Railroad and the inmates have been very much annoyed of late by the unnecessary whistling of the locomotives. It was made the subject of a complaint by the officials, and as there is a law against the whistling of a locomotive within one-half mile of any hospital, it will be stopped without its being necessary to carry it to court.

Washington.

WEEKLY REPORT OF THE HEALTH DEPARTMENT.—The report of the Health Officer for the week ended July 4 is as follows: Number of deaths (stillbirths not included), 153; death rate per 1,000 per annum, 28.3; death rate per 1,000 per annum for the corresponding week last year, 23.97. There was a further increase in the number of deaths in the city during the past week. As shown by the reports to the health department the mortality reached 153 as compared with 146 in the week previous, and the death rate rose accordingly from 27.04 to 28.33. The principal causes were diarrheal diseases from which 47 deaths occurred, and consumption, of which 17 persons died. Of the mortality 91 were of children under 5 years old. While there was a slight increase in the number of fatal cases of brain and heart disorders, there was an entire absence of those of the lungs in an acute form. With the exception of diphtheria, the contagious maladies remained in abeyance. Of diphtheria 3 deaths occurred, 6 new cases were reported, 8 houses were relieved of quarantine, and 11 remained placarded. Of scarlet fever no death occurred, but 1 new case was reported, quarantine was raised from 3 houses, leaving 3 still in isolation.

THE DEFICIENCY APPROPRIATION BILL.—The Deficiency Appropriation bill contains the following item: Pan-American Medical Congress: To meet the expense of distribution of printed report of the transactions of the first Pan-American Medical Congress, at Washington, 1893, to be appropriated out of the unexpended balance of the appropriation for the entertainment of the delegates provided by the Sundry Civil Act, March 3, 1893, $900. All of the copies for foreign distribution have been mailed, the net cost of which amounted to $400.

PAN-AMERICAN MEDICAL CONGRESS.—The Auxiliary Committee of the Second Pan-American Medical Congress to represent the District of Columbia at Mexico is composed of the following-named physicians: Drs. H. L. E. Johnson, Chairman; John R. Wellington, Secretary; S. C. Busey, G. C. Ober, G. M. Kober, S. S. Adams, C. H. A. Kleinschmidt, W. S. Bowen, J. D. Morgan, L. Eliot, C. N. Richardson, G. L. Magruder, G. W. Cook, H. H. Barker, Walter A. Mills, Surgeon Generals Sternberg and Tryon.

APPOINTMENTS BY THE INTERNATIONAL EXECUTIVE COMMITTEE.—Among the recommendations of the first Pan-American Medical Congress was the appointment of an International Committee on Quarantine and one on Public Health. The executive committee have appointed the Surgeon General M.-H. S., chairman of the International Committee on Quarantine and Dr. H. L. E. Johnson, chairman International Committee on Public Health, with Drs. William Pepper and C. A. L. Reed as coadjutors. Dr. H. L. E. Johnson has been given charge as chairman of the Committee on Transportation.

DR. L. ELIOT has notified the committee that he will attend the Congress and read a paper on the treatment of hemorrhage by acetate of lead.

HOME FOR INCURABLES.—Plans are now under way for the construction of a new wing to the Home for Incurables. The new wing will be three stories in height, the same as the present building, and will be located near the northwest corner of the present structure. The plans have already been drawn up by Architect Walker and have been submitted for approval. The new wing will be erected out of a legacy left the institution by Mrs. Walcott, and will be devoted entirely to the accommodation of children afflicted with spinal trouble.

HOSPITAL FOR FOUNDLINGS.—A novel complaint has been filed at the District building against the Washington Hospital for Foundlings, at No. 1715 15th Street, N.W., to the effect that the crying of the babies is a nuisance to the neighborhood.

BOARD OF MEDICAL SUPERVISORS FOR THE DISTRICT.—The board of medical supervisors for the District of Columbia has been chosen and consists of Drs. C. H. A. Kleinschmidt, president of the board of regular practitioners; J. B. G. Custis, president board of homeopathic physicians; Thomas Robinson, president board eclectic physicians, with Messrs. J. J. Darlington and John Redout.

NEW OLEOMARGARIN LAW.—The new law governing the sale of oleomargarin is being rigidly enforced, and three prominent dealers were, upon conviction, sentenced to imprisonment and heavy fines for recent violations.

A NEW DENTAL SOCIETY.—The alumni of the National University Dental School have recently formed a new dental society. A large membership is expected.

THE PUBLIC SERVICES.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending July 11, 1896.

Medical Inspector J. C. Wise, detached from the Washington navy yard, and ordered as a member of the board of inspection and survey, July 15.

Medical inspector R. A. Marmion, detached from the board of inspection and survey July 15, and ordered to the Washington navy yard.

P. A. Surgeon S. S. White, detached from the naval academy and ordered to the "Thetis."

P. A. Surgeon G. A. Lung, detached from the "Thetis," ordered home and granted two months' leave.

Surgeon P. A. Lovering, detached from the New York naval hospital and ordered to the "Oregon."

P. A. Surgeon C. H. T. Lowndes, detached from the Washington navy yard and ordered to the naval hospital at Philadelphia.

Surgeon C. U. Gravatt, to Norfolk with draft of men and then home and three months' leave.

Asst. Surgeon R. G. Brodrick, to the "Franklin."

Change of Address.

Adams, S. S., from Washington, D. C., to Mountain Lake Park, Md.
Carpenter, Julia W., from Cincinnati, Ohio, to Omena, Mich.
Eads, S. E., from Science Hill to Somerset, Ky.
Goodrich, E. C., from Dyer Building to 807 Broad St., Augusta, Ga.
Ingold, Mattie B., from Baltimore, Md., to Hickory, N. C.
Kempker, J. F., from Keokuk to Valley Junction, Iowa.
Lukens, Anna, from New York, N. Y., to Wentworth Hall, Jackson, N. H.
Lanam, J. H., from Edinburg to Franklin, Ind.
Parker, W. T., from Groveland, Mass., to Torouto, Can.
Roseberry, B. S., from El Paso, Texas to Catskill, N. M.
Wiggin, F. H., from New York, N. Y., to Litchfield, Conn.
Woodbury, Frank, from Philadelphia to Glen Summit, Pa.

LETTERS RECEIVED.

Automatic Cycle Seat Co., Grand Rapids, Mich.; Aiden, C. H., Washington, D. C.; Allport, Frank, (2) Minneapolis, Minn.; Armstrong, C. L., St. Louis, Mo.; Alta Pharmacal Co., St. Louis, Mo.
Bennett, A. L., Boulder, Colo.; Bailey, S., Mt. Ayr, Iowa; Bernd, Henry, & Co., St. Louis, Mo.
Coone, Berthena, Peoria, Ill.; Columbus Phaeton Co., Columbus, Ohio; Craig, G. G., Rock Island, Ill.; Chaille, S. E., (2) New Orleans, La.; Canton Surgical and Dental Chair Co., Canton, Ohio.
Dietz, R. E., Co., New York, N. Y.
Edwards, Walter E., Cadley, Ga.; Eads, S. O., Somerset, Ky.
Fairchild Bros. & Foster, New York, N. Y.; Faradizer Co., The, Indianapolis, Ind.; Fite, C. C., New York, N. Y.
Gibbs, W. E., New York, N. Y.; Graham, H. G., Chicago, Ill.; Gotham Co., The, New York, N. Y.
Holekamp-Moore Instrument Co., St. Louis, Mo.; Hollopeter, J. S., Houston, Ohio; Harris, John J., St. Louis, Mo.; Hardy, F. A., & Co., Chicago, Ill.
Koelling & Klappenbach, Chicago, Ill.; Kelly, W. R., Watonga, O. T.; Kolb, M. G., Cleveland, Ohio; King, F. R., Wiota, Iowa.
Liceaga, E., Mexico City, Mexico; Littig, L. W., Iowa City, Iowa.
Madden, John, Milwaukee, Wis.; Martin, J. A., Palestine, Ill.; Martin, E. J., St. Louis, Mo.; Meadows, Ira E., Mangham, La.; Maclean, Donald, Detroit, Mich.; Manley, Thos. H., (2) New York, N. Y.; McAlister, Alex., Camden, N. J.
Newton, R. C., Montclair, N. J.; Nye, Geo. L., Wythville, Va.
Ott, Isaac, Philadelphia, Pa.
Packer Mfg. Co., New York, N. Y.; Publishers' Collection Agency, St. Paul, Minn.; Pasteur-Chamberland Filter Co., The, Chicago, Ill.
Reed, R. Harvey, Columbus, Ohio.
Spencer, George A., Haverhill, Mass.; Schachner, August, Louisville Ky.
Van Etten, C. S. Rhinebeck, N. Y.
Ward, Milo B., Topeka, Kan.; Ward, M. R., Pittsburg, Pa.

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ADDRESS.

CHAIRMAN'S ADDRESS.

Delivered in the Section on Obstetrics and Diseases of Women at the forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5–8, 1896.

BY JOSEPH TABER JOHNSON, M.D.

WASHINGTON, D. C.

I am required by the rules of the Association to open our session with an address, reviewing the gynecologic and obstetric work of the year. To say something on all the topics of interest in these two great departments of medicine would consume all the time allotted to one session. I shall only attempt to briefly draw your attention, therefore, to a few of the most prominent subjects in which we are all interested.

PUERPERAL INFECTION.

Its causation and treatment has been the cause of much writing and discussion during the year. While something has been added to our scientific knowledge of the history and behavior of certain pathogenic germs—the general course of treatment of these cases has been simplified and shortened, instead of amplified and broadened as has been the tendency heretofore.

One of the principal points made by Lusk of New York, in his recent paper before the Obstetrical Society of Philadelphia, on "Puerperal Infection," was "that the more these cases are let alone and the more simple the treatment the more likely they are to get well." Absolute cleanliness of the physician, nurse and patient is insisted upon and greater stress than ever is being laid upon the injunction to make as few examinations as possible after learning the nature of the presentation. In ordinary cases, where there is no rise of temperature, douches are not now recommended at all. Where chill occurs, followed by a rise of temperature preceded by putrid discharges, it is still recommended to ascertain if the uterus is entirely emptied of shreds of membrane and decomposing clots. The best instrument in use *is* now, as it always has been, the index finger, with which portions of after-birth or membranes can be removed, using, if necessary, bimanual pressure under ether.

Curetting was condemned by Lusk as likely to open sinuses and blood vessels, and create raw surfaces, all favoring quicker and more thorough absorption, and doing in this way more harm than good. While Baldy, Hurst and others, insisted in this discussion, that the wise and cautious use of the curette was a great advantage to the patient, accompanied by at least one thorough antiseptic irrigation. The long continued, frequent irrigation of the uterus seems to be condemned from all quarters.

Hysterectomy for puerperal infection seems to be gaining ground, notwithstanding the opposition of Lusk, Price and a number of other prominent men in this country and abroad; though the cases where it is indicated are very few. In a recent paper by Mordicai Price the operation is absolutely condemned as unnecessary in the first place, and moreover always fatal. He claims that the mortality of hysterectomy for puerperal infection is 100 per cent. Others, however, have reported successes, and it would seem as if advancement ought to be made along this line, so that cases surely doomed to death without surgical interference might possibly be saved. The great difficulty is to select the cases. So many apparently desperate cases have finally recovered that it takes great experience and wisdom to be able to say in any given case that this woman will die if her uterus is not removed, and that she will probably live if it is taken out.

The operation is useless where the infection has passed beyond the uterine walls. If colonies of germs are growing and multiplying in the general vascular or lymphatic circulation the removal of the uterus could do no possible good, but would add shock and useless suffering to the patient. The great point in the management of puerperal cases is now, as it ever will be, in the prophylaxis. Prevention here as everywhere else is better than cure.

Lying-in hospitals, which were formerly hot-beds of infection, are now under modern antiseptic management reporting a mortality of only six-tenths of one per cent. The whole system of prevention is summed up in two words, cleanliness and ventiiation.

SYMPHYSEOTOMY.

Since its revival it has been gaining prominence as a substitute for the difficult high forceps operation, craniotomy and Cæsarian section. In perfecting the technique of the operation, the aim has been to deliver the child without laceration of the parts about the urethra, and to so secure the separated symphysis that perfect union would result. In a number of cases, however, it has come to the knowledge of the writer that copious hemorrhages have taken place from laceration of the vascular tissues about the urethra; sometimes the urethra itself being torn, and too many patients were unable to walk after recovery without serious limping, which continued in some cases indefinitely. Unless these two slips in the technique can be overcome or prevented the modern Cæsarian section may be preferred by abdominal surgeons to the revived operation of symphyseotomy.

PLACENTA PREVIA.

The treatment of placenta previa is always a subject of great interest. Nothing especially new seems to have been added to our armamentarium during the year, except the suggestion that hysterectomy be done for the control of the hemorrhage. The diagnosis of these cases is generally not made until the occurrence of the hemorrhage. The patient is then either not in labor at all, or she is in labor and the cervix is not completely dilated, or we may find her with a completely dilated cervix.

There is little difference of opinion in regard to the axiom that "when the placenta is previa the uterus should be emptied." There is no wisdom or safety in delay. No one can tell when the next hemorrhage will occur and whether it may not prove fatal before the arrival of the physician. It is, therefore, our duty to act wholly in the interest of the mother and relieve her from a condition equally as dangerous, as if "the famous sword of Damocles were actually suspended over her head." If the hemorrhage is progressing, with little or no dilatation, in the absence of pains, the vagina should be so thoroughly tamponed as to completely arrest the flow of blood, and contractions of the uterus encouraged. In a few hours the tamponade can be removed, the vagina antiseptically douched, and if little dilatation has occurred and hemorrhage is still going on, the vagina should be again packed. When the cervical dilatation will permit, the fetus should be turned by the combined external and internal manipulation, known as the Braxton-Hicks' method, and one leg brought down into, and plugging up the cervical canal, thus arresting the hemorrhage, by making the child serve as a tampon. Hemorrhage, the main dangerous element in the case, being eliminated, very little else remains to be done but to watch, wait and guard further progress of the labor. Rapid extraction of the child is to be condemned as unnecessary and injurious. It is not only dangerous to the child but to the vascular tissues of the cervix, which are not in a condition favorable for rapid dilatation. A number of cases have been reported of the safe delivery of the child, but in which the mother died soon afterward from hemorrhage produced by laceration of the vascular cervical tissues. The only time in the management of these cases when haste is indicated is at the beginning. Hemorrhage once arrested, the principal danger is averted. It is believed that many patients have been lost by the excited, nervous, hasty and too vigorous efforts which have been made to rapidly extract a child in cases of placenta previa.

A case of puerperal diphtheria treated by antitoxin has been reported by Nisot. He claims it to be the first on record in which the Loeffler bacillus was found to be the sole cause, and in which antitoxin constituted the only treatment. Symptoms of puerperal diphtheria are stated with much exactness and no doubt exists of the correctness of his diagnosis. Three days after using injections of antitoxin the abnormal temperature disappeared entirely.

SURGICAL TREATMENT OF UTERINE DISPLACEMENTS.

The surgical treatment of uterine displacements is attracting more attention this year than last. Numerous articles have appeared in the journals during the year advocating a variety of surgical procedures for their relief. Prominent among which was a paper read at a recent meeting of the New York Academy of Medicine, comparing the relative merits of the Alexander operation, ventral-fixation and vagino-fixation. Mundé, after an experience of ninety-seven Alexander operations with eighty-seven permanent cures, gave his adherence to that operation, and closed his paper with a series of valuable conclusions.

Edebohls spoke in favor of ventral fixation and closed his remarks with the following conclusions: 1, vaginal fixation of the uterus does not come within the sphere of legitimate operations in women liable to subsequent pregnancy; 2, the indications for ventral fixation of the uterus should be limited to the utmost degree in women liable to subsequent pregnancy; 3, ventral fixation is never indicated in uncomplicated retroversion of the uterus; 4, inability of an operator to perform the shortening of the round ligaments may be an indication for ventral fixation, but not in the case of one claiming to be a specialist in gynecology; 5, ventral fixation is indicated as an adjuvant in the performance of combined operations for prolapsus uteri et vaginæ; 6, ventral fixation is indicated as a closing step in all celiotomies in which the adnexa are removed and the uterus is left; 7, ventral fixation may be indicated under exceptional conditions in cases of adherent retroversion with tubes and ovaries in good condition; 8, ventral fixation may be indicated in the most aggravated cases of uncomplicated, sharp retroflexion.

Vineberg spoke in terms of enthusiastic praise of the vaginal fixation operation and reported forty-eight cases with eight relapses. Four of these cases subsequently became pregnant, one ending in abortion. Vineberg believes "that vagino-fixation is indicated in all backward displacements of the uterus, with or without adhesions, and with or without diseases of the adnexa in which surgical interference for one reason or another is demanded. It is particularly indicated when the backward displacement is complicated by moderate prolapsus of the uterus and prolapsus of the anterior vaginal wall. It finds an undisputed field in very fat subjects with thick abdominal walls, in whom the ventral fixation constitutes a serious affair, and in whom an Alexandrian operation is extremely difficult of accomplishment. The same holds good in very thin subjects with thin and yielding abdominal parietes, so far at least as ventral fixation is concerned. The operation," he claims, "can be performed in nulliparæ and even in virgins." He urges that not enough stress has been laid on the large percentage of failures, and the mortality following the Alexander operation, or upon the frequency in which it was followed by hernia.

In the discussion of these papers by Noble, Boldt, Ill, Goffe and others, Alexander's operation was favored in cases where the indications existed, ventro-suspension in exceptional cases where the Alexander operation could not be done, while vagino-fixation was condemned, unless the patient had passed the menopause and was not liable to pregnancy.

Duhrssen, who was among the first to perform vagino-fixation, as one of the legitimate outgrowths of anterior colpotomy, in a paper read before the Berlin Gynecological Society, opposes the intraperitoneal vaginal fixation, but substitutes a much more irrational procedure by recommending a transverse incision in the anterior fornix of the vagina, to which he sutures the plicæ vesicæ, while the uterus is united to the peritoneum of the plica. Duhrssen had observed after vaginal fixation twenty-eight cases of pregnancy with seventeen normal confinements. The abnormal cases present a variety of serious complications. He also reports 148 intraperitoneal vaginal fixations with only one death and one relapse.

Leipold, when this subject was discussed in the Dresden Gynecological Society, opposed vagino-fixation of the uterus, but recommended its ventral fixation. He had performed seventy-three ventral fixations and had never witnessed serious complications during pregnancy or labor. He thinks in cases where trouble has occurred during gestation, that it was due to faulty technique, whereby the uterus was

fixed too near the umbilicus, or immediately above the bladder, that the fundus *plus* the posterior uterine wall was fixed to the abdomen or with sutures of non-absorbable material. The proper technique consists in fixing the uterus about one inch above the symphysis, and the sutures, two in number, should be passed through the anterior and upper portion of the corpus uteri, differing from the suspensio uteri operation as recommended and performed by Dr. Kelly of Baltimore, who passes his sutures through the posterior wall of the uterus, thus suspending it as it were, in a sling. Leipold also performed eight Alexander operations, and although he experienced no difficulty in finding the round ligaments, and placing the uterus in a normal position, he found that the patients frequently complained of pain in walking, and in the inguinal canal, and he also observed that the healing of the wounds was often protracted.

ANTERIOR COLPOTOMY.

In the discussion of the vaginal method of reaching pelvic troubles, another operation has been evolved by Duhrssen of Berlin, a confrère of Martin, which they, with Mackenrodt, have performed several hundred times. This operation, anterior colpotomy, consists, as you all know, in a transverse or vertical incision above the cervix, when the tissues are peeled back, the bladder separated, generally by the finger, which with the ureter is pushed back, then held up out of harm's way by a retractor, to permit the examining finger to be passed into the peritoneal cavity, and the condition of the pelvic organs thoroughly explored. A good-sized uterus can be drawn through this opening, dragging with it the appendages, after the separation of any existing adhesions. Martin is enthusiastic in his praise of this operation in an article in the *Annals of Gynecology* for October, 1895, in which he reports "109 successful operations, a remarkable point about which was the loss of so small an amount of blood that no ligatures or pressure forceps were required, until the abdominal cavity had been opened." Martin recommends this operation in cases of simple myomatous tumors, movable retroflexed uteri, for the breaking up of peritoneal adhesions fixing the uterus, for cases of procidentia, for small cystic ovarian tumors, and also for the treatment of various diseases of the tubes, including pyosalpinx, hematosalpinx and tubal pregnancy. He reported four of the last mentioned operations. When the uterus is drawn down through this incision Martin insists that both ovaries and tubes follow on the posterior surface, as soon as they are freed from adhesions. He states that the adhesions are easily broken up unless they are fixed to the posterior surface of Douglas' pouch—which he still recommends should be reached through the abdomen.

Martin states that "the wound takes only from eight to ten days to heal, so that by the twelfth day the patient may be allowed to leave her bed. No local treatment is required; feverish reaction was unknown in his cases. All of the 109 cases recovered." "In the majority urine was passed spontaneously from the first." This operation of anterior colpotomy presents also advantages in cases of vaginal hysterectomy, making it possible even in cases of cancer of the cervix to draw down the fundus of the uterus into the vagina, thus enabling one to ligate or clamp the tubes, ovaries and broad ligaments in sight, and free from danger of including the ureter or knuckles of intestine, as has been done when the blades of the clamp were thrust up through the posterior and anterior incision, to be guided in the dark, only by the ends of the fingers. The separation of the posterior vaginal wall can, in this way, be made the last act of the operation, and all septic contamination of the pelvic tissues prevented.

VAGINAL VERSUS ABDOMINAL OPERATIONS.

I do not wish to anticipate the discussion on vaginal versus abdominal operations, from which I expect very much of interest and profit for the Section, but even a very partial review of the progress of abdominal and pelvic surgery for the year would be incomplete without reference to this very important subject. While Péan, Richelot and Doyen of Paris were pioneers in the vaginal operation in France, Jacobs of Brussels has done more to popularize and create enthusiasm in this country by broadening the indications for vaginal hysterectomy. He has been ably seconded in the United States by Sutton of Pittsburg, Polk of New York and Henrotin of Chicago. The paper by Garceau of Boston, in the March number of the *American Journal of Obstetrics*, is one of the most descriptive and comprehensive which have appeared during the year. Equally enthusiastic claims are made, however, by advocates of the abdominal and vaginal methods of operating; each claiming advantages over the other both in facility of method and in immediate as well as remote results.

Women are more likely to prefer the vaginal operation when its claims are presented and their judgment convinced that the cure would be equally safe and permanent. The avoidance of the abdominal wound, the stitches, dressings, bandages, the scar, the supporter for six or twelve months, and the liability of ventral hernia, are all controlling arguments to the average female mind.

The increasing intelligence of the laity on these subjects, and their familiarity with abdominal and pelvic operations is no less true than surprising. Hardly a week passes by that the writer is not asked by some lady requiring an abdominal operation whether this work could not as well be done through the vagina, thus avoiding all the above-mentioned troubles. The average medical mind is likely, also, to be influenced by such statistics as are presented by Garceau in the paper above referred to, for very much the same reasons. Probably the same operators, however, who could perform 166 vaginal hysterectomies, with only four deaths would be equally successful when operating by the abdominal route. Péan in Garceau's table of statistics reports 150 vaginal hysterectomies with only 1 death; Richelot 103 vaginal hysterectomies with only 7 deaths; Landau 30 with no death; Pozzi 14 with no death; making with others in the same table, 724 operations with 34 deaths, giving a mortality of 4.6 per cent., while the mortality for vaginal hysterectomy for fibroids of the uterus is equally striking. These operations were mostly performed for small tumors, but Péan, Richelot and others have operated by morcelment on fibroids reaching to the umbilicus.

The following statistics are given by Garceau of hysterectomy for fibroids: Péan, 200 hysterectomies with only four deaths; De Ott, 100 hysterectomies with no death; Richelot, 43 hysterectomies

with 1 death; making, with others in the same table, 406 operations with only 7 deaths, and giving a mortality of 1.7 per cent.

While these operations, presenting such favorable results, are done by the most skillful men, who have gained their experience in abdominal surgery, it is probable that their success would have been quite as great, with most of these cases, had they performed celiotomy instead of vaginal hysterectomy. The great argument, it seems to me, in favor of the vaginal operation, is its completeness, the greater advantages of drainage, the avoidance of the shock occasioned by handling and exposing the intestines, infecting the peritoneum with pus, the abdominal wound, the stitches and the liability to hernia.

FIBROID TUMORS.

The evolution of the treatment of fibroid tumors is marching on, not only "from Atlanta to the sea," but around the world, wherever surgery is practiced, our technique and statistics are constantly improving. Martin of Chicago, my immediate predecessor in this chair, has recently, in a series of valuable papers in the ASSOCIATION JOURNAL, exhaustively treated the electrical, medical and surgical aspects of this subject. Myomectomy, morcelment, the various methods of extraperitoneal treatment of the pedicle, pan and vaginal hysterectomy, have all received much attention during the year. The statistics of hysterectomy mortality are now showing as favorable percentages as have been acquired in ovariotomy. The family practitioner has no longer any excuse for advising a patient suffering from pain, pressure and hemorrhage of a growing fibroid, that the change of life will cause its disappearance or a sure cessation of their troublesome symptoms. Those of us who have examined the subject have reported quite a large number of cases of fibroids growing after the menopause, giving rise to as disagreeable symptoms as before the change of life set in. Instead of disappearing, as was formerly supposed, they frequently take on a more rapid growth and degenerate into cysts, abscesses, calcareous deposits or malignancy. These unfavorable changes, in my experience, occur more frequently after the menopause than before. Instead of a mortality of 80 per cent. resulting from hysterectomy for fibroids, as formerly, it is now our proud satisfaction to be able to say to the family, as well as to the family doctor, that while a growing and bleeding fibroid ought to come out, the mortality accompanying the operation in good hands, is not above 10 per cent., and in early, uncomplicated cases is likely not to be more than 5 per cent.

The writer takes pride and satisfaction in stating that within a comparatively short time he has performed hysterectomy for fibroid tumors of the uterus twenty-five times by the Baer method with but one death, and that occurred five weeks after the operation from intestinal obstruction. Other reports, still more favorable, have been published in the medical journals recently, showing as good, if not better, results than an equal number of ovariotomies.

As this subject in several of its phases, is to receive attention at this session, from several distinguished delegates, I will not delay you longer by saying what will be so much better said by the authors of the papers upon our program. I desire, however, to call your attention to one or two improvements which have been made in the general management of desperate cases requiring surgical interference. The literature of our Section has been enriched since our last meeting by a number of papers suggesting improvements in the prevention of suffering and the saving of human life. The transfusion under the skin, or directly into an open vein, of a pint or more of the normal salt solution has undoubtedly saved a number of valuable lives, not only during a prolonged operation, where there has been a considerable loss of blood, but subsequently from secondary hemorrhage. This method of transfusion has been of service also in the restoration of patients from shock where little blood has been lost. The writer feels that he would recently have lost a case, from secondary hemorrhage, following the removal of the clamps, after a vaginal hysterectomy, at the end of forty-eight hours, if it had not been for the transfusion of nearly a pint of normal salt solution under each breast.

A paper upon our program suggests greater safety and comfort from improved methods in anesthesia. While a death from the anesthetic is as rare as it is horrible, there are many discomforts and some dangers following the administration of ether or chloroform in cases of parturition and also in our abdominal, pelvic or gynecologic surgery. If the author has a method or a combination which will avoid the occurrence of nausea, vomiting and nervous excitement following operations we shall all be very grateful to him. All patients and most operators have been tormented with anxiety on account of long-continued vomiting following difficult operations, lest stitches should give way, ligatures separate and hemorrhage come on, when quiet and calm are so desirable and necessary to the safe conduct of the case. We have fortunately in the chlorid of ethyl and the muriate of cocain local anesthetics which are frequently preferred by the patients as well as operators for minor operations of short duration.

The present Chairman hopes that his successor may be able to report great developments and improvements in the diagnosis of abdominal and pelvic diseases of women, from the evolution and perfection of the *X rays*, about which we have heard so much of late. If its promises are fulfilled we ought to find little difficulty hereafter in our diagnosis of extra-uterine pregnancy, pyosalpinx, fibroid, dermoid or ovarian tumors.

LECTURE.

ON HEALING AND IMMUNIZING SUBSTANCES OF TUBERCLE CULTURES.

Lecture delivered at the meeting of the Delaware District Medical Society, Dunkirk, Ind., June 17, 1896.

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CHICAGO.

I have proven in my book on "The causal Treatment of Tuberculosis," (Leipzig, 1894) that it was possible to heal, perfectly, tuberculosis of guinea pigs and man by certain products of tubercle bacilli, advancing the theory that this effect was obtained by a secretion product of these organisms, found mostly in the fluid portion of the cultures. If this opinion is a correct one the healing process in this disease would find an analogue in a great series of well known biologic processes, such as uremia, cholemia, etc. It

must be acknowledged as a general law that every organism forms substances poisonous to itself, if they are not secreted or separated from the body by the action of glandular secretion as by the kidneys, liver, etc.

The first substance having this property of destroying tubercle bacilli, I obtained from the whole culture, and gave it the name tuberculocidin (or tubercle-killer). It was prepared by the precipitation of the poisonous products of the tubercle culture and contained substances from the fluid parts of the cultures and such as were extracted from the tubercle bacilli. It could be shown that these substances were poisonous for tubercle bacilli, and wholesome for tuberculous animals and men. But it was not yet clear whether these healing influences were derived from the tubercle bacilli or contained in the culture fluid.

The further researches had therefore to be directed toward the preparation of still purer substances for healing purposes. The second step in this direction was the separation of a substance with healing properties from the fluids alone of ripe tubercle cultures, which I prepared in the same manner as tuberculocidin, but exclusively from the fluids after having separated the tubercle bacilli. I named this substance *antiphthisin*, and could demonstrate its effect upon both animals and men. In this country the experiments with antiphthisin could be made on a larger scale, and the effect claimed for it, established beyond question. The animal experiments made by me in the Winyah Laboratory afford sufficient guarantee of its success. But it still remains questionable if we have attained the highest possible results by the use of this substance.

To attain this last aim of our scientific work we can not rely alone on the results of clinical observation, as it is wholly impossible to obtain cases enough that are quite equal as to the intensity of the infection and the degree of resistance in the bodies of the infected persons. These researches can only be completed by experiments on animals.

I. IMMUNIZATION IN TUBERCULOSIS.

That there exists a very high power of resistance against tuberculous processes in normal animals has been shown by myself and others, through the different intensity of infection in the various animals. I have also demonstrated that the greater number of tubercle bacilli injected in the blood are destroyed there; in rabbits not more than seventeen of a thousand bacilli, injected into the blood vessels will find the opportunity of forming tuberculous knots in the tissues. I regard the nidulation (Nestbildung), which we call tubercle, as the first step in tuberculosis. These nests may be developed in very small number, and the tuberculosis can remain for a very long time in a dormant or latent state, as in a single tubercle of the brain, the bones, or the lungs. The spreading of tubercle bacilli from these nests is undoubtedly a consequence of an alteration of the general health. The tubercle bacilli in such nests will not develop without some help from the body of the infected person. If these organisms which lay dormant many years in their nests, begin all at once to increase in number and then propagate by detention in the blood or lymphatic vessels, there must be a diminution in the power of resistance, produced by other diseases (measles, influenza, etc.) or by the poisonous products of the tubercle bacilli. If this is true, there can be no doubt that a great number of the intermissions of the tubercular process, so often remarked by all physicians and patients, are effected by the natural or by the disease acquired immunity of the body. But why is this acquired immunity not developed in all cases of long standing tuberculosis? First it must be remembered that in nearly all cases of tuberculosis the first years of the disease have not the same deleterious character as the later phthisical period, so that for a long time the phthisis has been taken for a different affection. After having noted the unity of all these affections by the presence of the same organism, we conclude the difference must depend upon a change in the diseased body, whose resisting power is diminished.

From another side also this point of view is remarkably sustained. The therapeutics of tuberculosis show us clearly the helpful, sometimes healing influence of all improvements in the general health, whether they be effected by climatic, dietetic or other treatments working in this direction. But all these methods of treatment will prove inefficient if the poisonous effects of the tubercle bacilli on the strength of the organism has reached a certain point.

There are certainly two indications for therapeutics necessary in tuberculosis, the one toward the destruction of the bacilli; the other toward fortifying the infected organism. In their practical application the one without the other will not produce the highest possible effect.

The first question now on all lips will be: Can we arrive at the immunization of the normal organism, so that no tubercle bacillus will grow in such an immunized body?

My own researches to confer immunization against tuberculosis were first instituted by injecting dead tubercle bacilli into normal guinea pigs, secondly by injecting the glycerin extract of tubercle bacilli, thirdly by injecting Kochs tuberculin. The mode of preventive injections and of the following infections with living tubercle bacilli were varied in a manifold manner.

With tubercle bacilli two series of experiments were instituted, the first made Dec. 27, 1894, was commenced by myself, but executed in my absence by others. It embraced twelve guinea pigs, that received daily injections of small quantities of a suspension of dead tubercle bacilli in kresolwater in the proportion of 1 to 10. The three first animals Nos. 1 to 3 received for five days 0.2 c.c. of this mixture, together with 0.1 gm. dead tubercle bacilli; the second three, Nos. 4 to 6, 0.2 c.c. of the mixture for ten days, with 0.2 gm. dead tubercle bacilli, the third three, 0.2 c.c. of the mixture, for fifteen days with 0.3 gm. dead tubercle bacilli, the fourth three 0.2 c.c. of mixture for twenty days, with 0.4 gm. of dead tubercle bacilli.

These experiments were impaired by the cold weather of the winter and by other circumstances not necessary to state here. The worst condition was that the inoculation following with living tubercle bacilli was instituted with a material not at all efficient, as was proven by injections of the same in other, not preventively treated, animals. The tubercle bacilli were imported from Europe enclosed in a bottle without air, and were thus killed, a fact of some interest. If one encloses them in a glass tube, the ends of which are closed by cotton, and dries them by a stream of air deprived by sulphuric acid of its moisture, one can conserve their life a very long time.

From the above cause I was obliged to make a sec-

ond infection with living tubercle bacilli after my return from Europe, on March 25, three months after the commencement of the preventive inoculations. Of the above twelve animals only four could be used for the experiment, of which two had received 1 decigram, one 3 decigrams, and one 4 decigrams of dead tubercle bacilli.

Guinea pig No. 1, with one-tenth gram dead tubercle bacilli, was killed fifteen days after the second efficient infection; it showed fresh spreading miliary tuberculosis of no great extent. Guinea pig No. 2, with also one-tenth gram dead tubercle bacilli, died fifty-three days after the tubercle infection. Its temperature rose to 105 F., and there were found older tubercular changes in liver and spleen, partly cicatrized, and a slight spreading of fresh miliary tuberculosis in the peritoneum and lungs. The animal had received from the nineteenth to fortieth day after the tubercle infection six injections of Paquin's serum (½ to 1 c.c. per dose) evidently without any effect. It is clear also that the preventive dose of one-tenth gram dead tubercle bacilli was not sufficient to give the animal an absolute immunity against tuberculosis three months after the preventive inoculations. The dose of living tubercle bacilli used for the infection was a large one, nearly 8 centigrams. Some milligrams of the same tubercle bacilli have killed the animals in from two to three weeks. A certain retardation of the affection of the tuberculous development can be conceded as possible in these cases. The third animal, No. 8, received 3 decigrams dead tubercle bacilli and the same quantity of living tubercle bacilli at the same time as the others. It died eleven days after the tubercular infection without any sign of fresh tubercular formation, whereas a control-animal No. 50, inoculated the same date (March 25) with the same quantity of the same tubercle bacilli died after thirteen days with all the signs of miliary tuberculosis. As this animal No. 8 received no treatment, we can affirm with greater security than before a delaying influence which was apparent three months after the preventive injection of 3 decigrams (5 grains) of dead tubercle bacilli.

The fourth animal of the series (No. 10) received twenty preventive injections, with 4 decigrams dead tubercle bacilli, and was infected in the same manner and at the same time as No. 8. After the fever commenced it received Paquin's serum, but died with miliary tuberculosis, twenty-seven days after the tubercular inoculation, which proves that this manner of preventive inoculation is not effective in all cases.

As in this whole series it was not clear whether the injection of dead tubercle bacilli had proved fatal in so many cases (an inexperienced observer thought even that the deposition of dead tubercle bacilli in lymphatic glands as proved by Mitchell Prudden and Hodenpyl, could be interpreted as spreading of active tuberculosis), I resolved to repeat the experiment in a somewhat changed manner.

Five new guinea pigs (Nos. 52-56) received, the first one, the others two injections of dead tubercle bacilli, 0.714 gm. The whole quantity was much larger than in the first series and the frequent repetition of traumatism avoided. Not one of these animals died in consequence of the preventive injections. All were inoculated with living tubercle bacilli from ten to sixteen days after the preventive injections; the first three with 5 cg. and the two last animals with 1 dg. One of these animals (No. 52) died sixteen days after the tubercle infection (½ dg., nearly 1 grain of living tubercle bacilli having been injected). The cause of death in this case was accidental, escape of illuminating gas. As all these animals showed fever (102 to 103 degrees F.) and loss of weight after the tubercle infection, the first four received a different treatment. In another publication the history of all these cases will be related in an extended manner. Here it may be sufficient to remark that No. 52, which died after sixteen days, had no signs of tubercular development. No. 54, which died after thirty-six days, was free from infection in the internal organs, some glands were caseous, containing tubercle bacilli. No. 55, which died on the thirty-third day after tubercular infection, showed all inner organs free with the exception of the spleen, which was of normal size but contained two very small gray nodules; some lymphatic glands also contained caseous matter with tubercle bacilli. A small part of the right axillary gland was implanted in a normal guinea pig, No. 82. The animal died, though treated with large quantities of horse blood tubercle serum forty-nine days after the inoculation and proved evidently tuberculous.

We see also that there were infectious tubercle bacilli in this seemingly nearly healed case (No. 55). But it may be that the previous injection of dead tubercle bacilli had a retarding influence on the development of tuberculosis.

The last animal of this series, No. 62, received 1.4 gm. dead tubercle bacilli and was ten days later infected with 1 dg. living tubercle bacilli. It died thirty days after this infection. The axillary gland of the side of injection proved caseous and contained tubercle bacilli. The inner organs were wholly free from tubercles with the exception of the spleen, which contained a small quantity of gray nodules. The conclusions from these experiments are:

1. That the injection of greater quantities of dead tubercle bacilli is not at all deleterious to the animal.

2. That a quantity of 3 grams dead tubercle bacilli to 1,000 grams weight would be very effectual to retard the development of tuberculosis, introduced ten days after the preventive injection in the animal.

It is clear that this result, so interesting from a scientific view, has no practical value. If the dosage just given is available for men, a full-grown man weighing 120 pounds would need 180 grams, more than 10 ounces of air-dried tubercle bacilli. We must therefore search whether we can isolate the immunizing substance from the tubercle bacilli. This was the object of the third series of experiments, instituted with the watery-glycerinic extract of tubercle bacilli, for brevity named tubercle extract. This fluid itself would not be suitable, because it is too much diluted. It is therefore precipitated by strong alcohol; the precipitate, soluble in any quantity of kresol-water (½ per cent.) can be prepared in any desirable strength. I use it at present in 0.5 and 1 per cent. solutions. In this series nine guinea pigs of 500 grams received 2½, 5 and 7½ c.c. tubercle bacilli extract subcutaneous injected in from one to sixteen days. Three animals received the same dose. In each division two animals remained after the infection without treatment. The whole series was progressing exactly parallel to the first series with dead tubercle bacilli. The first infection in January was ineffectual; the second was instituted on March 25 with the same material as in the first series (7.85 cgr. air-dried tubercle bacilli and 2.15 cgr. cinnabar). Three ani-

mals, Nos. 15, 17 and 21, died previous to the effective tuberculous infection. These preventive injections therefore proved much less dangerous than the parallel cases with dead tubercle bacilli. Now we observe the results in the animals without any treatment:

Guinea pig No. 14, tubercle bacilli extract 2½ c.c., tuberculous infection three months later; died twenty-three days after the tuberculous infection. Weight, 585 grams January 9, 635 grams March 25 (tuberculous infection), 505 grams April 15 (loss, 80 grams day before death).

Postmortem—Liver yellow infarcts and few gray nodules; spleen not much enlarged, smooth, miliary tubercles; lungs free from infection; glands slightly swollen, not caseated; peritoneum: some old, but *very slight fresh tuberculous development.*

No. 18, 5 c.c. tubercle bacilli extract; tuberculous infection three months later; died twenty days after the tuberculous infection. Weight, 520 gms. January 9, 690 March 10, 630 March 26, 535 April 13; gained 15 gms. Died April 14.

Postmortem—Liver red, flabby, contains few small gray nodules; spleen slightly swollen (1 9-16x13-16 inches), weight 1.85 grams, pale, a few gray nodules; lungs congested, free from tubercles; glands not swollen; peritoneum: the masses of cinnabar and tubercle bacilli in this case injected directly into the peritoneal cavity are lying under the liver; they contain great, hard fibrous masses, very few miliary tubercles only on the mesentery; mesenteric glands slightly swollen, not caseated. Slight development of fresh tubercles.

No. 20, 7½ c.c. tubercle bacilli extract; tuberculous infection three months later. Died nineteen days after the tuberculous infection. Weight, 520 gms. January 9, 720 March 18, 645 March 26. Died April 13.

Postmortem—Liver not enlarged, surface smooth, yellow tinge (fatty degeneration), few miliary tubercles on surface; spleen not enlarged (1 5-16x⅝ inch), weight 1.37 grams, free from nodules; lungs partly collapsed, pleuritic exudation, in the right side particularly, some suspicious nodules in the thickened pleura, substance of lungs free; peritoneum: few nodules on the right side near the injected masses of tubercle bacilli and cinnabar; glands not swollen, not tuberculous.

In all three cases was a very slight development of miliary tubercles, no deeper tuberculous alterations of the great glandular organs (spleen, liver, lungs), as usually found in so intense infections after three weeks' standing. Tubercle bacilli extract proves therefore in a high degree immunizing.

That this conclusion is a correct one is proved by three control-animals, guinea pigs, Nos. 26, 49 and 50, infected with the same material in equal quantities, on March 25, without undergoing preventive injection of any kind. I give the results in the same manner as before:

No. 26, tuberculous infection 0.0785 c.c. with cinnabar March 25. Died April 14, twenty days after tuberculous infection (ineffectual injection January 6). Weight, 500 grams January 18, 480 March 22, 405 April 14; loss 95 grams.

Postmortem—Subcutaneous tissue contains an enormous infiltration with caseous masses spreading from the abdomen to the inguinal region and back, ulcerating at the sacral region. Peritoneum: In the great net, large nodules of firm caseous tissue, containing cinnabar in the center; some exudation, beside miliary tubercles in great number at the left side of peritoneum; tuberculous infiltration of lymphatic vessels near the great nodules; enormous tuberculous infiltration of mesenteric glands. Liver greatly enlarged, contains numerous masses of yellow tubercles, nowhere cicatrization; spleen enlarged (1½x1), firm, gray; lungs congested, somewhat collapsed (pleuritic effusion on both sides), contain numerous gray tubercles; glands, inguinal and crural, swollen, caseated.

No. 49, tuberculous infection 0.0785 c.c. with cinnabar March 25. Died April 14, twenty days after tuberculous infection. Weight, 560 grams March 26, 445 April 14; loss 115 grams.

Postmortem—Peritoneum: omentum majus forms a string of yellow nodules, two of them containing cinnabar, from here a spreading of tuberculous masses all over the mesentery and the right kidney; liver much enlarged, filled with yellow masses, no cicatrization; spleen somewhat enlarged (1⅜x⅝ inch), weight 1.88 grams, gray, firm, with many gray nodules on the surface; lungs: right lung totally gray, consolidated, in left some nodules. The injection in this case was made intermuscular on the right side of abdomen.

No. 50, tuberculous infection 0.0785 c.c. with cinnabar 0.0215 gm. March 25. Died April 4, twelve days after tuberculous infection. Weight, 580 grams March 26, 495 April 13; loss 95 grams.

Postmortem—Peritoneum: injection mass forms a protrusion of peritoneum, free from infection on this part, but on the great net many deposits of cinnabar, part with gray tuberculous formations, the same in the gastro-hepatic ligament, in the mesentery of spleen and in adhesions of the omentum to the liver and left kidney; liver not enlarged, contains numerous small and large nodules, the latter yellow, the former gray, sometimes containing cinnabar; lungs free, edematous; glands: substernal glands swollen and reddened.

We remark that the same tuberculous infection having made such small alterations in the animals previously injected with the tubercle bacilli extract, has without this, produced in twelve days a far disseminated peritoneal tuberculosis, the origin of which is clearly demonstrated by the cinnabar taken up with the tubercle bacilli by leucocytes and conveyed by them all over the peritoneum. In the farther progress of this affection we note in the first two control animals occur the greatest possible tubercular alterations of the liver, spleen and lungs. The same progress is made also by the tubercle bacilli, enfeebled by the preventive injections of tubercle bacilli extract, but not with the same effect. As this is the only difference in these six cases, we must say with as much certainty as is possible to obtain in animal experiments, *that the glycerin extract of tubercle bacilli produces a very high degree of immunization, proving effective three months after a very high degree of tubercular infection.* As the greatest injected quantity of tubercle bacilli extract was 7.5 c.c. to 500 gms., containing 7.5 centigrams of organic matter, the requisite quantity for men would be probably 15 cg. to one kilo., 7.5 grams for 50 kilo., or half an ounce for 100 pounds, a quantity of organic substance, dissolving readily in 50 c.c. kresol-water (0.2 per cent.). Such a small quantity would immunize a full-grown man for more than three months.

The clinical observations made by the use of tuberculocidin, that contains a large quantity of bacillus extract, agree with these results. The most success-

ful cases that I have seen in Europe and in this land, were those in which the application of tuberculocidin and tubercle extract followed the antiphthisin treatment.

The same conviction resulted from animal experiments I instituted in the last year, for the comparison of pure antiphthisin treatment and a mixed treatment with antiphthisin and tubercle bacilli extract. The tubercle-killing power of antiphthisin, proved by new experiments, must be diminished by immunizing, probably also by antitoxic influences. I will speak later about the best methods of the combined treatment. Now it may suffice to demonstrate the fact, that by such treatment the gravest tubercular changes in guinea pigs, namely the enormous tubercular development in liver and spleen, can be entirely healed. The differences in the two cases of guinea pigs, now to be related, may partly depend on a different power of resistance, but partly also on the different quantity of tubercle bacilli extract they received, the antiphthisin treatment being nearly the same.

The two animals, Nos. 109 and 110, of more than 300 grams weight, had received, before the tuberculous infection, injections of tubercle toxins, prepared by digestion of tubercle bacilli with pepsin and pancreatin, which proved non-effective, but caused high fever. Immediately afterward infected with one dg. air-dried tubercle bacilli, a very large dose, the typical tuberculous fever is developed ten days afterward, rising to 102.3 and 103 degrees average temperature.

The treatment commenced on the twenty-second day after the tuberculous infection with small doses of antiphthisin, 2 to 3 cg., sometimes 2 dg., per day, and such of tubercle bacilli extract 2 cg. No. 109 received in fifty-eight days 1.75 grams antiphthisin and 0.06 c.c. tubercle bacilli extract. No. 110 in fifty-nine days 1.51 grams antiphthisin and 0.12 c.c. tubercle bacilli extract. The daily average temperature varied from 100 to 101 degrees. During this time enormous alterations of the liver and spleen were developed; in No. 109 the spleen measured at the time of death, 142 days after tuberculous infection, two and one-fourth inches in length, one and five-eighth inches in breadth, and seven-sixteenths of an inch in thickness, whereas in No 110 this organ at the same time measured no more than one and three-sixteenths inches in length and thirteen-sixteenths of an inch in breadth. The first contained a great number of yellow spots, the second was quite free from tuberculous matter.

The liver is very much enlarged in the two cases, but contains in No. 109 hardly any normal substance, being very hard and fibrous throughout with many yellow spots, a little more conserved liver tissue in the left lobe. In No. 110 the liver consists of quite normal hypertrophic tissue, forming flat projecions between deep fibrous scars.

The lungs of No. 109 contain in all parts white nodules. In No. 110 the lungs are quite free from any tuberculous deposit.

The abdominal cavity is free from tubercles in both animals. The glands firm, fibrous; only in one inguinal gland of No. 109 was found a small purulent deposit, containing very few degenerated tubercle bacilli. A few more tubercle bacilli were found in the nodules of the lungs of the same animal. No. 110 was quite free from tubercle bacilli, so far as can be demonstrated by microscopic research.

No. 109 was very anemic, a consequence, as it seems, of the deep degeneration of liver and spleen.

But now we return to the clinical history of the cases. On the ninety-first day after the infection, ten days after discontinuing the first series of treatments, probatory injections with my tuberculotoxin 0.3 gm. were instituted. No 109 gave a reaction to 102, No. 110 no reaction.

In consequence of this result it seemed desirable to institute a new series of antiphthisin injections. In this was used a method that had effected good results in other cases. Commencing with small doses, one gives, every day, a little more until a very large dose is reached. One recommences then with small doses, increasing to larger as long as the temperature is elevated. In No. 109 we increased from 2 to 20 cg. in eighteen days and decreased the temperature from a maximum of 102.4 degrees to 99.6 degrees average temperature, the second time from a maximum of 101.2 degrees to an average temperature of 99.7 degrees. In No. 110 there was scarcely any change of temperature, the average being between 100 and 101 degrees. It is true that this temperature was higher than normal, but we find the same elevation in nearly all healed cases; it seems that in such animals the pyrogenic toxins remain a longer time in the body than the living tubercle bacilli, and the tuberculous tissue may be deposited in some irrecognizable residues of dead tubercle bacilli.

The difference in the healing process in these two animals may depend partly upon a different normal resistance of the two organisms, but perhaps the more prolonged use of tubercle bacilli extract has had a beneficial influence on the healing process in No. 110.

II. THE COMPOSITION OF TUBERCLE BACILLI.

The highly immunizing effect of the glycerin extract of tubercle bacilli must direct our attention more to the composition of tubercle bacilli. My researches have given me up to this time, the following results:

1. The tubercle bacilli contain a very great quantity of fatty substance, a fact first remarked by Hammerschlag and Neusky, then confirmed by Dr. von Schweinitz of Washington, D. C., who made the first quantitative determination; he found 25 per cent. fat. I commenced my researches before knowing of this last valuable work. I found not more than 22 per cent. fat, but this percentage depends very much on the degree of dryness of the bacilli. As they contain a great quantity of glycerin, a fact noted by Prof. Abell of Baltimore, in the alcoholic ethereal extract, which explains their high hygroscopic quality. The pure ethereal extract gave me a firm red colored fat melting at 42 C., 20.5 per cent. of the whole mass. But besides this fat the tubercle bacilli contain a white fatty substance that can be extracted by benzol and is not soluble in ether; this fat is harder than the first, the melting point higher, if I remember rightly above 50 degrees C. The quantity of this benzol fat was 1.14 per cent.

The second point regarding the tubercle bacilli-fat is that this substance is the single cause of the specific staining of the tubercle bacilli. The separated fat gives the fuchsin staining not destroyed by mineral acids, and tubercle bacilli deprived of this fat do not stain in the same manner. The granules stained by fuchsin in the so-called degenerative forms of tubercle bacilli are nothing but remains of this fat. They are therefore better called *atrophic tubercle bacilli.*

2. The greater part of tubercle bacilli is formed of nuclein. After extracting the fat by ether and benzol and digesting the residue by pepsin and chlorhydric acid, the nuclein can be dissolved in alkalin fluids and precipitated by alcohol. After repeated solution and precipitation we obtain a pure nuclein, containing 8 to 9 per cent. phosphorus, as much or more than was found by Miescher in the eggs of salmon.

This tubercle nuclein and the fats have no influence on the tuberculous process, that I could see in a large number of varied experiments on animals.

3. The third constituent of tubercle bacilli is the glycerin extract containing a substance precipitable by alcohol, giving biuret reaction. Whether this substance is a simple one or not, whether it acts in its totality in immunization or whether it contains only ferments with immunizing power, must be determined by further researches.

III. THE TUBERCLE KILLING POWER OF ANTIPHTHISIN.

I will here add a short note about an experiment fundamental to my theory, now repeated with some change. In my book on page 174, I had reported an experiment (No. 23) showing that fresh tubercle bacilli are killed, if treated by a mixture of tuberculocidin and erethin (similar to tubercle toxin) prepared from the bismuth precipitation of culture fluid. Tubercle bacilli treated in this manner six days proved totally inoffensive, whereas the same, untreated bacilli killed animals by tuberculosis in fourteen days. One of the animals, that had received tubercle bacilli treated with tubercle culture lived more than a year and was found quite free from tubercles (No. 4).

I repeated this experiment with pure antiphthisin in the following manner:

Jan. 12, 1896, 25 c.c. antiphthisin with 1 per cent. organic matter was precipitated by absolute alcohol, the precipitate firmly adhering to the walls of the bottle; the alcohol was poured off, the residue was slightly warmed, washed with ether, the latter evaporated, the residue was dissolved in 2.5 c.c. freshly distilled water. Each cubic centimeter contained 0.1 gram dry antiphthisin.

In this fluid I suspended under aseptic measures a large quantity of tubercle bacilli taken from a full grown culture.

Three guinea pigs received from this emulsion injections of the same quantity, No. 146 after one, No 118 after two, and No 150 after three days. Two control animals of the same weight (186 to 252 gms.) were observed in the same manner, the weight being taken in the morning, also the temperature at 5 o'clock P.M. No. 148 infected with living tubercle bacilli on February 2, weighed January 13, 252 grams; February 5, 325 grams; March 19, 242 grams. It died on this date after long continued high fever (102.6 max.) forty-three days after the tubercle infection, and proved highly tuberculous; in liver and lungs many gray tubercles, the glands caseated; at the injection point innumerable tubercle bacilli; in the organs also were great quantities of them.

No. 147 remained totally free from infection and showed the following weights: January 13, 186 grams; February 5, 249 grams; gain 63 grams; April 19, 430 grams; gain 181 grams. Total increase of weight in 97 days 244 grams.

No. 146 having received February 13 tubercle bacilli, treated twenty-four hours with pure antiphthisin, showed the following weights: January 13, 186 grams; February 5, 210 grams; gain 24 grams; February 25, 195 grams; loss 15 grams. It gained in 43 days 9 grams. It died on February 25 and showed on postmortem the external lymphatic glands enlarged and slightly caseous. In the inguinal and subclavicular glands were found a few degenerated tubercle bacilli; in the other glands none. The inner organs proved quite free from tubercles and tubercle bacilli. The temperature reached on one day 100 degrees F., was generally between 99 and 100.

No. 149 having received January 15 tubercle bacilli, treated seventy-two hours with pure antiphthisin weighed: January 13, 183 grams; February 5, 209 grams; gain 26 grams; April 19, 300 grams; gain 91 grams. Total gain in 97 days 117 grams.

No. 150 having received February 14 tubercle bacilli, treated forty-eight hours with pure antiphthisin, weighed: January 13. 323 grams; February 5, 365 grams; gain 42 grams; April 19, 469 grams; gain 104 grams. Total gain in 97 days 146 grams.

The temperature of the two last animals was in April higher than normal, varying from 100 to 102 degrees. The average temperature (5 o'clock P. M.) from April 1 to 19 was in No. 149, 101.20 degrees; in No. 150, 100.78 degrees. I think that these two animals were also tuberculous, but in such a slight degree that after 100 days their growth in comparison with the normal animal was but slightly retarded; in No. 149 (gain 117 grams) by 127 grams; in No. 150 (gain 146) by 98 grams. This proves that antiphthisin, in twenty-four hours, has a marked debilitating influence on living tubercle bacilli. I have noticed that such bacilli can kill an animal in twenty-two days, but with very slight tubercle development and without fever.

The treatment of tubercle bacilli with antiphthisin for two or three days gives a far better result, as these animals lived more than one hundred days after the injection of the treated tubercle bacilli.

That the absolute killing of tubercle bacilli in antiphthisin requires a longer time (in my experiment with tubercle culture six days were required) must be explained by the large proportion of fatty matter contained in the tubercle bacilli, diminishing in a high degree the osmotic power against watery solutions. The destruction of the tubercle bacilli in the living body by tuberculocidin or antiphthisin is a much more complicated process. I think that here the chemiotaxis is of decided influence; the leucocytes, assuming these substances transport them to the diseased parts and forcing them into the interior of the tubercles, destroy their vitality, at first dissolving the fats, then digesting the protoplasm of the tubercle bacilli.

As the tubercle bacilli extract has sixteen times higher power of chemiotaxis than antiphthisin, I recommend the addition of the tubercle bacilli extract to the antiphthisin treatment or the use of tuberculocidin alone in the treatment of human tuberculosis without higher inflammatory processes and fever. As antiphthisin is the mildest form of tubercle bacilli products and has no injurious effects, it should, in such cases, commence the treatment. Two hundred c.c. antiphthisin, 75 to 100 tuberculocidin and 50 c.c. extract, taken in six to seven months seems to be a sufficient dose in most cases.

Let us have a department of Public Health!

ORIGINAL ARTICLES.

TUBERCULOSIS OF THE MALE GENITAL ORGANS.

Read by title at the meeting of the American Surgical Association, at Detroit, Mich., May 26–28, 1896.

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The male genital organs are the seat of as yet imperfectly understood conditions which predispose them to tubercular infection. The literature on tuberculosis of these organs is scanty as compared with tubercular affections of other organs, such as the lungs, pleuræ, peritoneum, lymphatic glands, bones, joints, meninges and skin. A careful search of what has been written on tuberculosis of the male genital organs will convince the searcher for truth and instruction that this subject has not received the attention its importance demands. The observations of many clinicians in this comparatively new field of surgical pathology present no uniform and many times diametrically opposite results. The deductions drawn in the postmortem room by professional pathologists likewise lack uniformity, and the different results obtained have often been taken as a basis to fortify the opinion of individual surgeons. This department of surgical tuberculosis is in its primitive stage and offers many inducements and opportunities for careful clinical observation, and bacteriologic and pathologic research in the future. The great obstacle to a more perfect development of the surgical aspects of tuberculosis of the male organs of generation, in the past and to a certain extent at the present time, has been, and remains, accuracy in diagnosis. Since the mystic term scrofula has been almost completely eliminated from the present nomenclature of surgical affections it has been found that many of the chronic inflammatory diseases of the male organs of generation are of tubercular nature. The important questions whether the male genital organs are the seat of primary tuberculosis, or whether the disease extends to them by a progressive infective process from the upper portion of the urinary system have not been definitely settled; each side can show its exponents whose views command respect. For my own part I am firmly convinced that in a fair percentage of cases the male genital organs are the seat of primary tuberculosis, the tubercle bacilli finding in the blood vessels of the complicated genital apparatus a favorable condition for their mural implantation, growth and reproduction. These are the comparatively rare cases of hematogenous primary tuberculosis of the male genital organs caused by the deposition, growth and reproduction of tubercle bacilli floating in the general circulation, locating in some part of the genital apparatus without a discernible tubercular lesion in any of the other organs. Such cases occur, but are few as compared with instances of secondary tuberculosis complicating tubercular affections of other organs or occurring in the course of extension of a tubercular process by continuity of surface from the urinary organs. It is my purpose on this occasion to call your attention to some of the salient points in the etiology, pathology and clinical aspects of tuberculosis of the male genital organs on the hand of the current surgical literature and shall emphasize some of the topics which have attracted my attention by my own personal observations.

Tuberculosis of the Penis.—The frequency with which tubercular affections of the female organs of generation occur has recently received the well merited attention of gynecologists. The observations which have been made in this direction have reminded the surgeon of the possibility of direct inoculation during coitus. That such an occurrence is beyond the range of imagination no one can deny. Years ago Verneuil (Hypothèse sur l'origine de certaines tuberculeuses génitales dans les deux sexes. *Gaz. hebd.*, No. 14, 15, 1883) expressed the opinion that primary genital tuberculosis, which does not depend on scrofula is probably caused by direct infection during coition, that is, by the wandering of tubercle bacilli through the external genital organs to a point of the apparatus in which favorable conditions for their localization and reproduction exist. Poncet (*La Médecine Moderne*, Paris, July 29, 1890) reported to the French Congress for the Study of Tuberculosis an article on tuberculosis having its origin in the penis. Three varieties are mentioned: 1, balano-preputial tuberculosis; 2, tuberculosis of the mucous membrane (this variety usually showing itself first in the deep urethra), and 3, tuberculosis of the urethra which consists of fungous masses involving the periurethral tissues, thereby allowing the urine to infiltrate the penile structures. I have reason to believe that many of the cases of destructive lesions of the penis treated by amputation of the organ in which no recurrence followed the disease was not carcinoma as surmised, but of a tubercular character. During the last two years I have seen two cases of extensive destruction of the penis from what I believed to be a tubercular process. One of the patients under the care of Prof. Scales in Mobile was a colored man about 35 years of age, single, with no history of syphilitic infection. The ulceration commenced upon the external surface of the prepuce several years ago and was not attended in the beginning by enlargement of the inguinal glands. The ulceration and sloughing extended successively to the glands and body of the penis and finally resulted in almost complete destruction of the entire organ. Later the inguinal glands and skin covering the scrotum became involved. The inguinal glands became caseous and several well-marked tubercular abscesses developed. When I saw the patient he was confined to his bed and the discharge from the extensive ulcerated surfaces had resulted in inoculation tuberculosis which covered a considerable area of the gluteal regions on both sides. Some of the ulcers would heal from time to time when the new scar tissue would again break down and give place to an ulcerative process. No signs of syphilis could be detected upon any part of the surface of the body or in any of the internal organs. The patient had been subjected repeatedly to antisyphilitic treatment with various preparations of mercury and iodin without any improvement; in fact, such treatment appeared to aggravate the local conditions and still further impair the general health of the patient. Under anti-tubercular treatment, local and general, consisting in the use of antiseptics, balsam Peru, and later iodoform, repeated curettage, and the internal administration of guaiacol and cod liver oil, the disease was arrested, the ulcers healed rapidly, and the general health, which had been precarious for several years, was so much improved in the course of a few months that the patient was able to resume light work. I had no opportunity to make a microscopic examination of the tissues or to search for the bacillus in this case,

but I have but little doubt both from the clinical history of the case, as well as the character of the local lesions, that the affection was one of primary tuberculosis of the skin which extended rapidly to all of the tissues of the penis and later to the lymphatics, and finally to neighboring parts exposed to contamination from the profuse discharge from the ulcerated surfaces. The very fact that the lymphatic glands were converted in whole or in part into cheesy masses speaks for the diagnosis of tuberculosis and against syphilis. It is well known that in the negro tuberculosis often pursues an exceedingly rapid course. In a few weeks tubercular glands break down and suppurate, a condition often associated with quite extensive phlegmonous inflammation of the surrounding connective tissue, the consequence of a mixed infection with pyogenic organisms. It is therefore not surprising that in rare cases tuberculosis of the penis should result in extensive destruction or complete loss of the organ under the influence of a double infection in persons peculiarly susceptible to the ravages of this disease.

For a full report of this case, I am indebted to Professor Scales and Dr. Fonde:

John Mitchell, mulatto, aged 31. Entered City Hospital of Mobile, Dec. 22, 1893, with an ulcer on the balano-preputial fold and extending on the glans penis. The ulcer was cauterized with nitric acid and an iodoform dressing applied. The patient improved slightly and at the end of two months left the hospital. He returned again, after an absence of six months with the entire penis destroyed, and with a large ulcer on the nates which rapidly extended. He suffered great pain, showed serious pulmonary complications, was greatly emaciated and confined to bed for six months. During this time the actual cautery was applied, followed by dressings of a 5 per cent. solution of balsam Peru in castor oil, and also a short course of guaiacol. After the first two cauterizations there was decided improvement in the ulcer, but the third and last were followed by no benefit, the ulcer continuing to enlarge. He was, however, sufficiently improved to enable him to leave his bed for an hour at a time. The patient's condition remained about the same for four or five months, when he seemed to steadily grow worse. Dressings of iodoform were applied daily from this time until Jan. 15, 1895, when Prof. N. Senn saw the case and delivered a clinical lecture in the hospital amphitheater to the students of the Medical College of Alabama. The patient's condition was desperate at this time. The ulceration had extended by numerous ulcers closely adjoining and finally coalescing, the whole being purulent until the whole perineal region, coccygeal fissure and both nates were denuded, and in some places the destruction extended deeply. The bladder was emptied through several perforations in the perineum, and single shallow ulcers appeared on the scrotum. The entire extent of the ulceration on the nates measured ten inches vertically by nine inches transversely, being greater on the left buttock.

Dr. Senn advised a thorough course of guaiacol and tonics until the general condition of the patient would permit a thorough and radical removal of all infected tissues by curettement.

Guaiacol was commenced in doses of gtt. v, well diluted in milk, three times a day, and gradually increased until the patient was taking ten drops four times daily. He was also given a course of syrup of iodid of iron. Patient improved sufficiently in three months to leave bed and lounge around for most of the day, and slept and rested well, which he had not been able to do since his arrival at the hospital, unless under an opiate. He still suffered pain the greater part of the time. Curettement May 31; surgeon, William M. Mastin. Patient was anesthetized and the whole field of infection carefully and deeply scooped out, and edges trimmed with scissors. Some of the pockets extended deeply into the nates and some burrowing far under the skin. One at the gluteal creases penetrated nearly to the femur in the adductor muscles. A dressing of iodoform was then applied. Rapid healing followed and pain was almost entirely absent when patient recovered from the immediate effects of the curette.

Curettement July 10; surgeon, William M. Mastin. The condition very much better and healing had taken place in considerable part of the field of the ulcer. Was again thoroughly curetted with the same marked relief and improvement following.

Curettement August 7; surgeon, William M. Mastin. An occasional fresh breaking down in the cicatricial tissue beneath the surface invariably yielded to the curette and healed rapidly.

Curettement Aug. 30, 1895; surgeon, William M. Mastin. The same marked improvement. The main portion of the field showed healthy and pliable cicatrix.

Curettement Sept. 6, 1895; surgeon, William M. Mastin. Treated as before with same benefit.

Curettement October 31; surgeon, T. S. Scales. There were several small and shallow ulcers in the coccygeal fissure and in the inguinal fold on each side the scrotum, in addition to the large and deep one which remained in the gluteal crease. These were carefully scraped and iodoform thoroughly rubbed in. Followed by improvement.

Curettement Jan. 20, 1896; surgeon, James A. Abrahams. There were two remaining ulcers, one next the scrotum in the coccygeal fissure, and the other in the gluteal crease, which again received a careful and extensive removal of the involved tissue, iodoform rubbed thoroughly in, followed by healthy granulation at the bottom of the ulcer and rapid healing.

Curettement Feb. 20, 1896; surgeon, James A. Abrahams. There was steady improvement, the only large ulcer remaining was the one in the gluteal crease, which was filling up rapidly. Scraped and treated as before, improvement following.

Since the second curettement the patient has been able to do work around the hospital and acted as nurse for some time. He is six feet tall, weighs 185 pounds. Pulmonary symptoms have disappeared and he is robust, very strong and healthy. He suffers no pain. The only remaining ulcer is the one at the gluteal crease, which is now about the size of a half dollar and is shallow. This will be scraped again in a few days.

Very recently I have had an opportunity to examine quite a similar case in the service of Dr. Bouffleur; at the Cook County Hospital. In this case the lymphatic glands in the groins became involved after a considerable portion of the penis had become destroyed by ulceration and sloughing. Syphilis was suspected, but the most energetic treatment made no impression on the progress of the disease. Local and general anti-tubercular treatment with excision of the enlarged lymphatic glands, effected a speedy and permanent cure. Many sections of the diseased tissue were examined for bacilli with negative results, but the existence of isolated multinuclear giant cells furnished an additional proof of the tubercular nature of the primary disease and the secondary glandular complications. In both of these cases the base and borders of the ulcers were not indurated, the surface covered with pale, flabby, edematous granulations, the margins undermined, the overhanging skin of a bluish tint. The spongy and cavernous portions of the penis appeared to yield alike to the tubercular destruction. In neither of these cases did the disease involve the urethral mucous membrane above the level of the ulcerated surface. The strongest argument in favor of the turbercular nature of the destructive process is the fact that vigorous anti-syphilitic treatment not only failed in arresting the disease, but resulted in aggravation of the local conditions and general health of both patients, while the anti-tubercular treatment yielded the most prompt and satisfactory results.

Tuberculosis of Urethra.—Surgeons are familiar with the well-known clinical fact that foreign substances when introduced into the urethra are very prone to travel in the direction of the bladder unaided by any *vis a tergo*. It is reasonable to assume that microörganisms lodged in the meatus are conveyed in a similar manner along the urethral tract and unless they become arrested upon a soil propitious for their growth and development, they produce no symptoms. There can be but little doubt that direct infection of the urinary tract with the bacillus of tuberculosis occasionally takes place in this manner. Primary tuberculosis of the urethra is exceedingly rare, and when it occurs it takes place in a part of the urethral

mucous membrane prepared for the reception and growth of the bacillus by some antecedent injury or disease. Tuberculosis of the urethra must be mentioned especially as an affection which is prone to exist in cases of vesical and prostatic tuberculosis in consequence of a direct extension of the infective process from either of these organs to the mucous membrane of the urethra. It may occur in the prostatic, the bulbous, or any other part of the urethra. It is found more frequently in young females suffering from bladder tuberculosis than in men. It appears in the form of ulcers and is often attended by incontinence of urine. What English has designated as tubercular periurethritis is in reality a tubercular perineal abscess which can take its origin as well from a tubercular Cowper's gland as a tubercular urethral ulcer. I have now under my care at the Presbyterian Hospital a boy, 14 years of age, who about a year ago manifested the first symptoms of renal tuberculosis. In the course of a few months a large tubercular paranephric abscess developed on the left side which was incised but never healed. Soon after he was admitted to the hospital symptoms appeared which indicated that the tubercular process had reached the bladder. A few weeks later a urethritis set in, characterized by a profuse discharge. The meatus presented the same appearance as during the early stages of a gonorrheal urethritis. As soon as the disease reached the urethra incontinence of urine appeared and continued until the acute symptoms subsided. Four guinea pigs were inoculated by injecting a hypodermatic syringe full either into the peritoneal cavity or the loose connective tissue in the groin. All of the animals died in the course of five or six weeks and the postmortem in each instance revealed diffuse miliary tuberculosis. In this case the tubercular inflammation extended from the kidney over the entire urinary tract in the course of a year. Long before the infection reached the bladder and urethra, the tubercular nature of the primary renal affection was established by the detection of numerous tubercle bacilli in the urinary sediment obtained from the centrifuge. Tubercular urethritis gives rise most contantly to retention and incontinence of urine. Owing to the irritation caused by the urinary secretion, which will be voided the more frequently in proportion to the irritation of the bladder present, the inflamed mucous membrane will be kept in a constant state of disease, and the more so as in these situations the tubercular infiltration is not usually eliminated, but on the contrary, steadily increases in quantity, and on this account not only excites catarrhal inflammation in the adjacent healthy mucous membrane, but also affords an increasing impediment at the deepest part of the urethra to the flow of urine, and the most appropriate local surgical treatment only suffices to check in some measure the retention of the urine. Retention eventually leads to incontinence.

Michaut (Sur un cas d'ulcération tuberculeuse de l'urèthre consécutive à une tuberculose rénale primitive. *Bulletin* de la Soc. Anat. de Paris, 1887) observed a case of tubercular ulceration of the urethra in a man the subject of pulmonary tuberculosis. The disease appeared as a hard induration five centimeters behind the meatus which simulated clinically closely a hard chancre. Later tubercular granulations appeared around the meatus and upon the surface of the glans penis. The postmortem revealed tuberculosis of the kidneys, and a descending tubercular process which finally reached the urethra. The part of the urethra affected was indurated and the fossa navicularis was the seat of deep ulcerations. In the differential diagnosis of urethral chancres it is well to bear in mind tubercular lesions which may so closely resemble primary syphilitic infection.

Analécot (*Ann. des Maladies des Organes génito-urinaires*, November, 1893) records a rare case of secondary tubercular ulcer surrounding and involving the meatus, about the size of a ten cent piece. The patient was a boy 14 years old and had been circumcised eight days after birth. The appearance of the ulcer and the absence of induration excluded the idea of a hard chancre. The smooth base, absence of suppuration and the regularity of its border excluded chancroid. It was not painful. The patient had for three years been suffering with bladder trouble. Micturition was frequent, painful, and at times bloody. Although no bacilli could be detected in the ulcer, inoculation with debris taken from it nevertheless produced tuberculosis in guinea pigs, and so demonstrated its tubercular nature. The ulcer had remained stationary for nearly a year.

Ahrens (Die Tuberculose der Harnröhre. *Beitr. zur Klin. Chir.* Bd. VIII, p. 312) succeeded in finding the reports of only four cases of tuberculosis of the urethra in women. It is more common in men, but its relative frequency is estimated differently by different authors. Krzywicki believes that the urethra is affected in 1 per cent. of all forms of tuberculosis and in 17 per cent. of all cases of urogenital tuberculosis. In the majority of cases it is affected secondarily both in the ascending and descending forms of urogenital tuberculosis, and with few exceptions the prostate gland is simultaneously implicated. In exceptional cases it is met with as a primary affection, and in that event is nearly always mistaken for a primary syphilitic ulcer. In the primary form the infection takes place either through the general circulation, or by inoculation, the latter mode of origin was demonstrated experimentally to a certain extent at least by Baumgarten by his experiments on rabbits. As a pathologic curiosity must be mentioned tubercular stricture of the urethra. Such a case is described by Ahrens. (*op. cit.*) The patient was a boy 16 years of age who was at the same time the subject of tubercular coxitis. The stricture could only be passed with a filiform bougie. The patient died six days after his admission into the hospital in consequence of retentio urinæ and rupture of a diverticulum at the base of the bladder. The postmortem showed a caseous exudate upon the surface in the posterior part of the urethra as far as the pars cavernosa. The bladder, testicles, seminal vesicles, ureters, and most of the internal organs were the seat of recent tubercular infection. In primary tuberculosis of the urethra, when the disease is accessible, the most energetic local treatment should be resorted to with a view of eliminating the tubercular material, while its occurrence as a secondary affection to tubercular affections of other portions of the urogenital organs calls for palliation and improvement of the general health of the patient by appropriate treatment.

Tuberculosis of the Spermatic Cord.—The spermatic cord or vas deferens is the connecting channel between the essential organ of generation in the male, the testicle, and the seminal vesicle. It is never the

seat of primary tuberculosis. In tuberculosis of the testicle the disease usually manifests an intrinsic tendency to advance in an upward direction, implicating the cord and, if life is prolonged for a sufficient length of time, eventually reaching the seminal vesicle. The cord becomes enlarged, indurated, and usually nodular, so that when it passes between two fingers it presents somewhat the outlines of a rosary. In some cases the cord enlarges to the size of the little finger. The swelling is either cylindrical, nodulated, or spindle-shaped. The mucous membrane is most thickened, then the muscular coat and last the adventitia. Perforation of the wall leads to tubercular abscess around it. Pain is usually absent and tenderness on pressure slight. In cases of primary tuberculosis of the seminal vesicles the infective process frequently descends along the cord to the epididymis. The surgical interest in tubercular spermatitis centers in the operation for the removal of a tubercular testicle. In all cases in which the cord is affected the inguinal canal should be laid open freely as far as the internal inguinal ring and by gentle traction and the use of dull instruments as much as possible of the cord should be made accessible and removed. It has been shown that with proper care the cord can be liberated in this manner and excised to a point very near the seminal vesicle.

Tuberculosis of the Seminal Vesicles.—The seminal vesicles are occasionally the seat of primary tuberculosis, but in the majority of cases the disease is associated with similar affections of other parts of the genital organs, most frequently the testicle and prostate gland. Guyon believes with Lancereaux that the tubercular process begins very frequently in the vesiculæ seminales. Of twenty-six autopsies made with reference to show the frequency with which the seminal vesicles are primarily affected, he found this to be the case in two cases; in ten cases these were involved, but the prostate was simultaneously affected; in one case the prostate alone was implicated. Of thirty-six cases of disease of the seminal vesicles collected by Dreyer (*Beitr. zur Pathologie der Samenbläschen.* Inaugural Dissertation Göttingen, 1891), in eighteen the affection was of a tubercular nature. Of these cases one-half occurred in persons over 40 years of age. In three cases the vesicles were primarily affected, and in twelve the disease presented itself at a stage in which the organs were hard and nodular without any softening, while in six cases it had passed into the second stage characterized by caseation and liquefaction of the caseous material, that is, the formation of tubercular abscesses. In three cases the disease had extended beyond the capsule of the gland and had invaded the pelvic connective tissue. In one case the disease was complicated by tubercular peritonitis. Pulmonary tuberculosis was absent only in two cases. As a rule, different portions of the urogenital tract and distant organs were found implicated. The seminal vesicles can be palpated most satisfactorily by placing the patient in the knee-elbow position. In tuberculosis of one testicle the seminal vesicle on the corresponding side is frequently found affected, and in tuberculosis of both testicles the subsequent affection of the seminal vesicle is often bilateral. The existence of hard nodules in different parts of the organ which are not very tender on pressure is very suggestive of the tubercular nature of the disease. The close proximity of the seminal vesicles to the peritoneum in case these organs are tubercular must occasionally lead to peritoneal tuberculosis.

A number of surgeons have made bold attempts to eradicate one or both seminal vesicles by operative interference. Ullmann reports from Albert's clinic a case of extirpation of the tubercular vesiculæ seminales in a patient 17 years of age, who had been castrated for tubercular orchitis. Zuckerkandl's semilunar incision between the scrotum and anus was made and the space between bladder and rectum exposed, and the posterior wall of the former made prominent by the use of a steel sound. The vesiculæ seminales and vasa deferentia were now freely exposed and could be readily dissected out as well as the upper left angle of the prostate which contained a small abscess. Only the left, apparently healthy vas deferens was left. The hemorrhage during the operation was free, and this, as well as the secondary hemorrhage which occurred on the evening of the same day, had to be arrested by a resort to the iodoform gauze tampon. Healing of the wound took place quickly with the exception of a small urinary fistula. The fistula was supposed to have been caused by division of the ejaculatory duct in the substance of the prostate. The patient left the hospital with a small urinary fistula and claimed to have experienced erections at different times. Ullmann regards primary tuberculosis of the seminal vesicles and unilateral secondary infection in the course of testicular tuberculosis as legitimate indications for a radical operation. In two cases of secondary tubercular vesiculitis Roux (extirpation de la vésicale séminale. Congrès Francais de Chir., 1891) followed castration for tuberculosis of the testicles by excision of one of the seminal vesicles which had become involved by the tubercular process. After the removal of the diseased testicles and suturing of the wounds he brought the patient into lithotomy position, lying on the affected side, and made an incision 2–3 cm. from the median line as far as the ischium, exposing the rectum and penetrating finally as far as the affected vesicle. By pressure with the finger in the rectum from above downward the edge of the vesicle was made to appear in the upper portion of the wound. By the use of a traction ligature the vesicle was drawn further down, separated, and with the stump of the vas deferens, was divided close to the neck of the bladder. The patient recovered from the immediate effects of the operation, but the remote results of the procedure are unknown.

Weir (*Medical Record*, Aug. 11, 1894) reports a case in which he removed both seminal vesicles through Zuckerkandl's transverse perineal incision. Schede (*Deutsch Med. Wochenschrift*, Feb. 15, 1894) successfully removed a tubercular seminal vesicle and cord. He prefers the method of Rydygier, which consists of a lateral incision extending along the border of the sacrum to that of Dittel, which is the same as that which Schede employs for extirpation of the prostate, namely Zuckerkandl's transverse curved perineal incision.

Perhaps the most complete operation for tubercular vesiculitis has been performed by Fenger. (Personal communication.)

The patient was 22 years of age with a good family history. One year before his admission into the German Hospital he contracted gonorrhea which persisted for six weeks. During the latter part of this disease he complained of rheumatic pains beginning in the left foot and passing from there to the hip on same side, and later to the left knee and right ankle. At first the joints were not swollen, but about a week later the knee-

joint began to swell and he was confined to his bed where he remained for two weeks. At the end of this time he recovered almost completely from the joint affection. In November, 1894, he noticed that the left testicle was swollen, the swelling increased slowly until in about four weeks it was as large as the fist of an adult. When the patient came under Fenger's care the left testicle was firmer and slightly larger than the right. The epididymis was hard and nodular and slightly tender to pressure. Digital examination of the rectum showed no enlargement of the prostate, but the left seminal vesicle was felt as a hard mass, not tender to pressure. Reducible right inguinal hernia. General health not impaired. Operation April 25, 1894, in two steps, first removal of testicle and accessible part of the cord, and second, extirpation of the seminal vesicle on the same side through Roux's incision. In removing the cord after previous isolation of the testicle, the incision was carried as far as the internal inguinal ring, where the vessels were tied and the cord teased out of its canal as far as possible before dividing it. The wound was packed with iodoform gauze and sutures introduced, but not tied until after the completion of the second step of the operation. During this part of the operation the patient was turned on his left side and the knees drawn up and rectum lightly packed with iodoform gauze. Roux's incision was then made on the left side of the rectum four inches in length. A sound was introduced into the bladder to serve as a guide in making the deep dissection. The seminal vesicle was located by the finger in the rectum as an olive-shaped body. Access to the vesicle was difficult owing to the small size and great depth of the wound. Bleeding was not as profuse as was expected and was easily controlled by the use of large hemostatic forceps. The seminal vesicle was found close to the bladder and was drawn downward with Museux's forceps. During the dissection the prostate and levator ani muscle were seen and recognized. The vesicle was not encapsulated, as was anticipated, and was accidentally opened and the contents of the tubercular abscess escaped. By careful dissection with Kocher's director and scissors the vesicle, with about 1½ inches of the vas deferens, was removed without injuring the bladder or opening the peritoneal cavity. The prostate gland was found slightly enlarged. In the left lobe a whitish spot was seen which was incised and proved to be a small tubercular abscess. The abscess cavity with a portion of the lobe of the gland was excised. The wound was sutured and drained at each angle with tubular and gauze drains. The first wound was then closed and drained in a similar manner. Duration of operation two and one-quarter hours. The wounds healed kindly and the patient remains in perfect health, more than a year after the operation.

This case appears to show more conclusively than any other on record that a timely operation for secondary tuberculosis of the seminal vesicle, following an ascending tuberculosis of the testicle, may succeed in preventing the extension of the disease to the bladder and other portions of the urinary tract, and may even result in a complete and permanent cure. If the surgeon intends to remove both seminal vesicles, there can be but little doubt that Zuckerkandl's incision is the safest and renders the diseased organs more accessible than any other. The operation is greatly facilitated by placing the patient in the ventral position with the pelvis elevated.

Tuberculosis of the prostate.—Sir Henry Thompson (The Diseases of the Prostate, their Pathology and Treatment, London, 1861, p. 283) is of the opinion that the prostate is never the seat of primary tuberculosis. He says: "It would appear that at no period of the disease is the prostate affected alone. Some other part of the genito-urinary tract is the preliminary seat of the affection. In most cases the deposit appears to take place first in the kidney, or, at all events, to be present there in an early stage. The organs next in order of liability to the disease, among the genito-urinary group, is the testicle. Thus in 18 cases collected by myself, in which the results of postmortem inspections have been recorded, tuberculosis of the kidney is reported in 13, and of the testicle in 7. The state of the lungs has, I suspect, not always been recorded, but in 10 of these cases they are stated to have been diseased."

Marwedel (Aus der Heidelberger Chirurgischen Klinik des Prof. Czerny. Ueber Prostatatuberculose, *Klin. Beiträge*, Bd. ix, p. 537) has written a valuable monograph on tuberculosis of the prostate in which he describes four cases that occurred in Czerny's clinic, in two of which the disease appeared as a primary tuberculosis of this organ, and both were successfully treated by laying open and curetting the fistulous tract. In the other two cases temporary benefit resulted from incising the periprostatic abscess in front of the rectum and through the incision nearly the whole sequestered gland could be removed. In these cases the destructive process had extended to the urethra, a considerable portion of which was involved. Another fatal case was not subjected to operative treatment; it was complicated by pulmonary and testicular tuberculosis. These, as well as other cases of a similar nature that have been recorded, prove that the prostate may become the seat of primary tuberculosis. Tubercular disease of the prostate is as a rule met with in young adults. Out of 26 cases collected by Socin, 13 were less than 30 years of age. It can, however, occur in men advanced in years. In one of Socin's cases the patient was 72 years old, who was suffering from the consequences of an enlarged prostate, and several months later the symptoms revealed extension of the tubercular process from the prostate to the seminal vesicles, bladder and ureters, resulting in death after a long period of intense suffering. The primary nodules are situated first in the vicinity of the tubules (Rindfleisch), and not, as was formerly supposed, in their interior. By confluence and caseation of the miliary gray nodules large masses and cavities are formed which may be found in one or both lateral lobes, while the middle lobe is more rarely affected. The softening of the caseous material leads to the formation of tubercular abscesses which may rupture into the urethra. In a case observed by Adams the abscess ruptured at the same time externally in the perineum. Socin observed two cases which terminated in rupture into the bladder and in one case into the peritoneal cavity. The abscess may also discharge itself into the rectum. Much less frequent than softening is calcification of the tubercular mass with arrest of the disease. It is difficult to ascertain whether or not tuberculosis of the prostate appears as a primary affection. Besides the cases cited above Béraud and Pitha have observed cases in which this appears to have been the case. Postmortem examination, however, usually reveals additional tubercular affections in adjacent or distant organs. In cases of tubercular abscess of the prostate it is difficult to ascertain the exact chronologic order in the presence of additional tubercular lesions. Socin saw two cases of what appeared to be primary tuberculosis of the prostate. The patients were respectively 28 and 30 years of age, both of whom had contracted gonorrhea before symptoms of prostatitis appeared. Examination revealed well-marked chronic prostatitis without additional tubercular complications. One of the patients died of an acute renal affection of only ten days' duration. The postmortem showed disseminated cheesy foci in both lateral lobes of the prostate, ulcerative nephritis and miliary tuberculosis of the peritoneum, the right pleura and liver. In the other case, months after the appearance of symptoms indicative of prostatitis and vesical catarrh,

hectic fever set in with symptoms pointing to renal disease which rapidly proved fatal. The prostate was found completely destroyed and its place occupied by a tubercular abscess which communicated with the urethra. The vesical mucous membrane was the seat of numerous small ulcers, and at a point corresponding with the orifice of the left ureter, a deep ulcer; the left kidney was greatly enlarged; in the pelvis large ulcers; in the substance of the kidney many small abscesses containing cheesy material. In two other cases the tubercular prostatitis occurred in phthisical patients. Socin is of the belief that in all these cases the prostatic disease was primary. Of 26 cases of tuberculosis of the prostate collected by Socin, of which 6 came under his own observation, the postmortem showed in 24 tubercular disease in other parts of the genito-urinary organs, and only in 2 cases tuberculosis of distant organs, the lungs and bones. Most frequently the bladder and kidneys were found implicated, less frequently one or both testicles. In one case in which the epididymis was unquestionably the primary seat of the tubercular process, the lobe of the prostate on the corresponding side was similarly affected.

Symptoms.—There are no symptoms which are, strictly speaking, characteristic of this affection of the prostate. Undue frequency and pain in passing urine, occasionally blood in the urine, and at times the signs of cystitis, are commonly experienced. Wasting and extreme debility slowly show themselves. The symptoms present many things in common with other forms of chronic prostatis. Only in cases in which the disease is complicated by tuberculosis of other organs are observed hectic fever, rapid loss of strength, and marked emaciation. Adams has called attention to the similarity of the symptoms with those produced by stone in the bladder. Catheterization is always very painful and should not be unnecessarily resorted to. In one case Socin observed soon after it septic cystitis. Hematuria is often present, but of no particular diagnostic value. Incontinence of urine, which often appears during the advanced stage, indicates extension of the disease to the sphincter vesicæ muscles. Marwedel found tubercle bacilli in the urine in all the four cases reported from Czerny's clinic. In one case they were also detected in the urethral discharge.

Treatment.—Czerny obtained good results in two cases which had terminated in abscess by laying open the fistulous tract and vigorous use of the sharp spoon. In cases in which the disease has not advanced to abscess formation he advises Zuckerkandl's perineal incision for exposing and removing the caseous foci. Sir Henry Thompson advises conservative treatment, avoiding instrumentation which, he claims, provokes irritation and aggravates the disease without conferring upon the patient any benefit whatever.

Horteloup (De la Tuberculose génitale. *Gaz. méd. de Paris*, Nov. 25, 1892) recommends in the treatment of isolated tuberculosis in any part of the genital tract, with a view of preventing further extension of the disease, the injection of a few drops of Lannelongue's solution of chlorid of zinc. In two cases of tuberculosis of the prostate he made the injections through a boutonnière incision, but the communication was made too soon after the treatment was suspended to judge of its curative effects. During the early stage of primary prostatic tuberculosis parenchymatous injections of iodoform glycerin emulsion would appear to be indicated and might possibly prove a valuable addition to the treatment of this obstinate and unpromising affection.

(To be continued.)

A NOTE ON STENOSIS OF THE CERVIX AS A FACTOR IN UTERINE DISEASE.

Read in the Section on Obstetrics and Diseases of Women, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

BY HENRY P. NEWMAN, A.M., M.D.
CHICAGO, ILL.

Twenty years ago, the subject of this paper was one of the topics of leading interest in gynecologic circles. The literature of the day abounded with learned and exhaustive treatises upon the pathology and treatment of the affection.

The reputations of many of our pioneer gynecologists were founded largely upon their successful methods of operating for stenosis and the instruments they invented to correct the condition, as to-day they often depend upon the technique of the major surgical procedures.

J. Marion Sims, Montrose A. Pallen, Sir Spencer Wells, Savage, Greenhalgh, Barnes, Graily Hewitt, Sir J. Y. Simpson, Peasely, Emmet, Routh and Aveling, all these names and many more are associated with the rise and progress of the phenomenal career of a disease which is scarcely noticed in modern literature.

For, notwithstanding the amount of literature that was formerly written upon this subject, the hundreds of operations recorded by older gynecologists, and the nicely adapted instruments that remain as evidences of the reality of stenosis of the uterine cervix, there are some modern authorities who go so far as to deny the very existence of this affection as an anatomic fact.

Between this absolute negation and the over-zealous devotion of years past there is a happy medium wherein we may assign this undeniably important condition to its rightful place as a causative factor[1] in much of the gynecic disease which abounds.

Stenosis of the cervix is anything but a rare affection.

The text-book classification names the congenital and acquired forms. We are getting to know, more and more, that nature makes few mistakes, and that the abnormal conditions to be found at birth are extremely rare. Malformations of the *internal* organs of the fetus are still more rare than the various orthopedic lesions of the exterior body.

Such cases as we have been in the habit of listing as congenital are for the most part merely the persistence of the normal natal condition, and should properly be called acquired.

This brings us in accord with the modern movement toward the development of preventive medicine. It may be said without fear of contradiction that whatever may be acquired can be prevented.

This puts a great responsibility upon specialists in all fields, and enlarges the scope and province of each until the dividing line is nearly lost. Particularly is this true of gynecology in its relation to pediatrics and to obstetrics, since, with the exception of the rare malformations, and diseases due to specific infections and unusual traumatisms, nearly all gynecologic diseases have their origin in the physical errors of child-

[1] Clinical Gynecology, Keating and Coe, page 201.

hood and puberty, and the accidents or mismanagement of the puerperium.

I have said that stenosis of the cervix is not rare. It is a narrowing of the caliber of the canal, and may be situated at the external os, the os internum, or may include the whole extent of the canal.

This condition is recognized as causing sterility and dysmenorrhea, by offering a mechanical obstruction to the entrance of the fecundating element, and by preventing the free discharge of the menstrual fluid. It is of its importance in this last respect that I wish particularly to speak, and to call attention more forcibly to our obligation to the science of prophylaxis.

Whether, as some hold, menstruation has been developed in the human female as a result of civilization, a periodic protest against the progressive evolution of the higher attributes of the race at the expense of the lower, or whether it is indeed a higher manifestation of a function associated with the reproductive system in almost all varieties of animals, it is generally allowed that any abnormal disturbance of this function is detrimental to the health of woman, and a fruitful cause of gynecologic disease; particularly does stenosis give rise not only to functional derangements and actual structural disease in local organs, but various neuroses, frequently of a most serious character.

Dr. Montrose A. Pallen, in a prize essay read before this ASSOCIATION in 1867, enunciated these propositions: "1. Menstruation irregular in its character is always coincident with uterine disease. 2. All uterine abnormalities tend to a deformity of the organ, either in its neck or in its body, or both."

Ten years afterward the same writer gave to the New York County Medical Society a résumé of the subject, in which he states: "These propositions are correct in the main, without being absolutely and invariably true, particularly with regard to the first, as irregular menstruation may depend upon systemic causes, wherein the uterine disease is but functional and symptomatic.

"However, so correct is the principle that we may accept it without cavil, when we remember that the healthy functioning of any organism necessitates a healthy condition for its performances.

"No unhealthy cause can produce healthy effects; therefore from a uterus abnormal can no healthy menstrual flux proceed."

The pathology of Pallen and Schroeder is nearly thirty years old, but it is still so acceptable that I quote it here:

"The uterus undergoes involution every month during menstrual life, and if this process be retarded in consequence of congenital defect of development, or from pathologic accident, the woman's condition is in no wise ameliorated, unless pregnancy should supervene or art interfere.

"After a longer or shorter period of monthly agonies, the tissues of the cervix become indurated, frequently atrophied, the recently formed connective tissue becomes cicatricially retracted, the vessels become imperforate and the young mucoid connective tissue becomes firm and infiltrated.

"The uterus again diminishes in size, and on section exhibits an exceedingly firm, almost cartilaginous tissue, which creaks under the knife and has an anemic, cicatricial appearance. Whenever this condition exists, either in the intra-vaginal cervix or at the internal os, we may expect to find stenosis of the canal with a very small os externum."

A cervix, therefore, presenting these peculiarities, must exert a very injurious influence on a woman's health in so far as it depends upon the regular and normal performance of the menstrual function.

In a uterus which seems to have a fairly free outlet at the cervix, the hyperemia which accompanies the monthly molimen may bring the walls of the cervix so closely into apposition that the flow is materially retarded and the secretions more or less retained.

Retention of the secretions gives rise to an elaborate sequence of gynecologic evils, chief of which are endometritis, metritis, salpingitis, oöphoritis, etc.

When we observe the sufferer from chronic endometritis with her long train of general and special ills; her dyspepsia, neuralgia in different localities, headache, backache, anemia, her many nervous symptoms and her very natural mental depression, we can not but be convinced of the grave importance of all causative factors which can be traced in the etiology of her trouble.

In the milder types we know what these conditions mean, either a prolonged course of routine and palliative treatment, or the more radical surgical procedures.

In the graver degrees where there has been extension to the tubes or ovaries, oöphorectomy, ovariotomy or hysterectomy may become necessary, to remove the local effects of disease, but not always with hope of the reëstablishment of normal health in a constitution injured and disturbed by long presence of diseased conditions.

In other branches of medicine rapid strides have been made of late in the theories of the causation of disease.

Ophthalmology, for instance, has invaded the schools and with the help of public sanitation has insisted upon the better lighting of study rooms and public buildings.

The public are now looking to the medical profession with awakened interest as the conservator of the nation's health, and are offering cordial encouragement to the progressive effort for better conditions of physical life.

In our large universities there are already great and liberally endowed departments for the study of physical and sanitary problems, and the educational departments are no longer content with the old system of cramming the head with a conglomerate assortment of samples of many kinds of knowledge.

Instead, there is instituted the study of psychometry and psychology, with physics and the education of the child practically begins back in the embryonic period. Shall gynecologists be looked upon as a class who exist merely to batten on the ills of womankind, and who find their excuse for being, in the evils resulting from ignorance of the laws governing the hygiene and development of the female generative organs?

The place of rightful occupation for this specialty of ours is the highest we can hope to attain, and no higher could be desired, as custodians of woman's health and the leaders in the advance movement for improving all social and educational conditions which are mainly operative in the production of disease. To accomplish the needful reforms in this direction we must insist upon the better hygiene of puberty. In this I am convinced we would have generous public

recognition and coöperation. There is among the higher educational circles already a tendency to demand for girls the same physical advantages that are in vogue in our boys' colleges. But the higher private institutions can reach but the outer edge of this universal necessity. In our public schools and workshops the girls of 12 to 16 years of age are still plodding many times a day up and down long flights of stairs, sustaining the working hours of the day with food into which little real nutritive value enters.

They are still housed up in over-crowded, ill-ventilated apartments, when they should be breathing free draughts of vitalizing air and exercising their growing muscles in unobstructed sunshine.

I have said that at this period nature is supremely concerned with the development of the generative organs.

In the rapid transition from childhood to maturity the activities here generated demand full general nutrition and conservation of the entire physical constitution.

But at this period the growing woman is pushed to her utmost to support the intellectual and emotional faculties.

The rich current of the young circulation is turned into the channels opened by music, science and art, and being insufficient for these, the physical organs must suffer positively or relatively.

It is at this age, too, that the feminine organism begins to come under the dominance of the destructive power of custom in conventional dress and manners.

The first corset is put on and the growing body thereby constricted and deprived of the necessary freedom of respiration and circulation.

Is it any wonder that the process of pelvic development is often summarily interfered with and the infantile uterus with its small body and long conical cervix which should have changed entirely in contour and dimensions, remains as it was, with elongated, constricted canal and partially developed tissues inadequate to perform the functions so soon to be demanded of it?

In the radical changing of these conditions lies the rational basis of the treatment of cervical stenosis. This is a most striking instance of the importance of preventive treatment, and I appeal to my colleagues to use the same diligence to bring about a better environment for the developmental period of puberty as you have done in eradicating the causes of the once dreaded puerperal infections; the same zeal you have shown in establishing upon its present high plane the greatest prophylactic factor in modern surgery, cleanliness, and as our colleagues in general medicines are showing in their struggle for the prevention of all contagious and other diseases which arise from the wide-spread ignorance and neglect of nature's laws.

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DISCUSSION.

Dr. Wm. A. B. Sellman, Baltimore—At the last meeting of this Association I discussed this subject, and the relation which it bears to other pelvic diseases. I thought at that time that diseases of the cervical canal between the external and internal os were very often the cause of most serious trouble. We find many young women suffering from painful menstruation due to retained menstrual fluid. If we do not recognize painful menstruation as due to mechanical obstruction it is impossible to relieve it. At the last meeting I spoke of a means of curetting these cases, and I said that dilatation was of little or no avail, because the tissues would contract again, so that the good accomplished by dilatation is overcome by the involution which takes place after the next menstruation. My idea in these cases is to remove a portion of the tissue. The tissue is undeveloped on account of various causes, due to bad nutrition and bad habits during girlhood. The question is how to remove the diseased membrane which brings about the various conditions. It is not normal mucous membrane; it is converted into denser fibrous tissue, and my method is to remove it, not by dilatation, but to ream it out by the reamers which I showed at the meeting last year, and my results have shown that the dysmenorrhea is overcome. Girls who have suffered month after month have been relieved after the second or third month. The canal is sensitive after the removal of this tissue, but after the second or third month perfect relief is secured, provided a reamer large enough has been used.

Dr. I. S. Stone, Washington, D. C.—I think there are many cases of dysmenorrhea that are not relieved or cured by dilatation. For instance, a young girl, 19 years of age, in which dilatation was carried to such an extent that I could introduce my index finger and it would pass through the internal os. She has no apparent ovarian disease, yet suffers very much every month. I fail to see why Dr. Sellman's instrument is any better than a curette in skillful hands. With a sharp curette we can remove the same amount of tissue, whether we do it in the same manner or not.

Dr. Rufus B. Hall, Cincinnati—I think the most essential and difficult point to determine is the selection of cases in which we expect to afford relief either by dilatation of the cervix or by the operation proposed by Dr. Sellman. If we expect to cure dysmenorrhea by dilatation of the cervix or reaming it, as he terms it, by making the cervical canal larger in all cases, I think we will be disappointed in our results. It is not always possible to say that in a given case there is not local trouble above the cervix as a cause of the dysmenorrhea, and the narrow cervix of the patient may only play a minor part in the causation of her suffering, and it is not always possible to say that the cervix has nothing to do with the patient's suffering. We must go back and find out where the real trouble is. It may lie in non-development of the parts. I can see where we might, by curetting away sufficient cervical tissue to leave a large opening, bring about a still worse condition than we would have following dilatation of the cervix or the reaming-out process by the formation of cicatricial tissue. Therefore, in either operation, dilatation or the reaming-out process, or stretching the cervix, can we expect to relieve all of these cases? I do not think it is possible to differentiate every case before we operate, that is, to exclude trouble above the cervix, or a neurotic condition which has been the cause of the patient's suffering.

Dr. Newman (closing)—There is little more to be said. Heretofore the treatment of stenosis of the cervical canal has been considered by gynecologists as unsatisfactory. It is true that we accomplish a great deal by operative procedures and by instruments judiciously employed, but the condition returns unless auxiliary treatment is instituted. The object of the paper was to get behind the local treatment and remedy the evil before it began. This is the first responsibility of the profession.

The little instrument that I have passed around is designed for the class of cases we have with us, and presumably will have, in spite of any precautions, for all time. It has a purpose, but it is not intended by any means to supplant other treatments that are now in vogue.

A Lesson in Prognosis.—Boston Mamma: "Suppose you have four bunches of grapes, Willie, and eat three, then what would you have?" Boston Boy: "Appendicitis." — *Up-to-Date.*

HOW TO REMOVE PUS TUBES WITHOUT RUPTURE.

Read in the Section on Obstetrics and Diseases of Women, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5-8, 1896.

BY I. S. STONE, M.D.

WASHINGTON, D. C.

The contents of pus tubes may not be infectious, but it is desirable to avoid the usual soiling of peritoneal and wound surfaces with any kind of pus. It is, therefore, in the opinion of the writer, better to make a longer incision, to tie the ovarian and ovaro-uterine arteries and free the specimen at one or both ends or sides before attempting enucleation.

The method about to be described can be used in any case; the simple ones are always easy work, but it is in the difficult cases, where there are many adhesions and a large quantity of pus present, that the writer has found the greatest satisfaction in adopting the following plan:

METHOD.

Clamps are placed upon one of the tubes, closely hugging the uterus. The clamp may embrace about one inch of the broad ligament in its bite. The ovarian artery is either tied or clamped as near the pelvic wall as possible. A ligature may be placed on each severed end or placed before section if preferred, the incision to be made between these points. No bleeding of importance can occur after this, while the surgeon can leisurely enucleate the tube or ovary with contents safely, and with infinitely greater ease than after the ordinary fashion. In many instances the appendages can not be as readily rolled out from behind as from the front, and the separation from the broad ligament is often easier than from the bowel if strongly adherent. But the most important assistance given the operator by this method is the great amount of space afforded. There is plenty of room to work, as the tube comes right up when separated from the uterus. Quite naturally many pus sacs rupture easily, and this method will not prevent soiling the peritoneum in every instance, but that it will do so in most instances I know from frequent observation. Finally, a very serious defect in the technique of many operations is found in the large and infectious stump of the tube left after removal of the adnexa. Here an exsection of the cornua is demanded and is provided for in the beginning of the operation. The ovaro-uterine artery is ligated, the forceps removed and another deeper ligature used if much bleeding occurs. Then the exsection and suturing of the cornua is rapidly and easily done. The same technique is used on the remaining side and needs no further demonstration. The operation is easier in the Trendelenburg posture with a good light. I have used no flushing or drainage in any case of this kind for the past five months, and have had no sepsis in the wound or rise of temperature, or peritonitis or other trouble consequent upon this technique. In some cases rupture will occur in spite of the greatest care, but if a sponge is properly placed all the pus can be caught and flushing and drainage avoided.

SUMMARY.

This methed gives more space for careful enucleation. The larger blood supply is tied off at once. Smaller silk or catgut can be used as no *en masse* ligatures are used. The ligatures and sutures are not infected. No sinus will be formed. There can be no possible danger of hemorrhage after operation. No ligatures can slip. If rupture is avoided there is no need of flushing or drainage save in very rare instances, when time can not be given to careful suturing, which must be the rare exception. It facilitates enucleation by affording another point of cleavage, namely, from the anterior surface of the pus sac. Finally, it facilitates exsection of the uterine cornua.

The sketch gives a good idea of the steps of the operation and the appearance of the uterus and broad ligament after operation. The uterus can be removed in addition to the adnexa if the surgeon so desires. The specimen here exhibited was removed on the 20th ultimo. It is very large and came from the left side. The right tube was small and a small amount of pus escaped before I knew I had a pyosalpinx to deal with. The patient recovered without trouble of any kind.

DISCUSSION.

DR. JOHN M. DUFF, Pittsburg—I feel that with our modern experience in dealing with pus tubes, especially where the infection is of gonorrheal origin, that the patient would have been in less danger of infection and the subsequent history of the case would in all probability have been much better if these pus tubes had been removed through the vagina.

DR. CHARLES P. NOBLE, Philadelphia—I think all who are operating on pus tubes after the method of Tait, and who have adopted this method or one similar to it, can appreciate the great advantage which both the patient and operator have in such a method. I have been operating very much in this way for a year and a half and have been able to remove the great majority of pus tubes without rupturing. The method I have used is the same in principle. I agree with the author of the paper as to the facilities with which we can remove pus tubes in the majority of cases by this method without rupture. The author of the paper said nothing about special precautions except using a sponge in case the pus tube be ruptured. My own practice is to pack off the peritoneal cavity with folds of gauze, also to have some dry gauze packed behind the pus tube, so that should it rupture we will be in a position to get any pus that should be discharged. It is seldom necessary to rupture pus tubes unless they are down in Douglas' pouch. There are cases in which this technique is not feasible. We would necessarily rupture a certain percentage of them. Frequently I find it not only necessary to take out the pus tubes but the uterus as well. It has been said that leaving the uterus behind causes the patient no special difficulty. My own experience has been different from that of many writers on this point. By ligating the uterine arteries as well as the ovarian, we can do without drainage, when otherwise we would have to employ it.

DR. L. S. MCMURTRY, Louisville—I call the attention of the Section to one point in connection with the class of cases under discussion, which I am sure all familiar with them will recognize as the most difficult that are encountered in operations—cases of suppurative salpingitis and complications that result are certainly most difficult of all cases in pelvic surgery for operation; and they present, at the same time, the very greatest variety of almost any class of cases we have to deal with in an operative way. The number of cases of suppurative salpingitis must be comparatively limited where the method that Dr. Stone has described and practiced so successfully can be applied. It is very common for these adhesions to be so firm that you can almost lift a patient off the table by them. It is also common for adhesions to the bowel, to the uterus, to the floor of the pelvis to be very strong, and these refinements of operative technique just described are difficult of application. If we endeavor to apply Dr. Stone's method generally

we will meet with many disappointments. I am sure that any technique which contemplates dealing with large accumulations of pus in the pelvis, with the degenerations and cheesy deposits to take place, and dispense with irrigation and drainage will be followed by a large number of disasters. Furthermore, the very character of the tissues themselves that are rotten from disease, in a large proportion of cases, forbids such a nice dissection as has been described.

Dr. E. E. Montgomery, Philadelphia—This is a class of cases that render pelvic operations much more difficult than any with which we have to deal, but in dealing with such cases I should much prefer to remove the pus tubes through the vagina rather than by the abdominal method. We have in these cases large collections of pus, where the tube from its weight gravitates into and fills up the pelvis, is shut off more or less from the general peritoneal cavity, and can be entered and reached through the vagina prior to the operation for the removal of the mass itself. Having in this way thoroughly evacuated and irrigated the cavity, we have then to deal with the tubes, shell out the sac and the uterus itself. The reason why I prefer to go through the vagina in the treatment of these cases is that we are not only able to remove the tubes and ovaries but also the uterus. After removal of both ovaries the uterus is no longer an organ of any special advantage to the individual. More than this, the trouble has originated in the uterus, and from it the disease has extended to the tubes and ovaries, and the increased connective tissue results subsequently in a decrease in size of the organ, with more or less contraction of the nerves in the uterine walls. Patients frequently, after successful removal of the ovaries and tubes, suffer for months and perhaps years. The uterus then should be removed along with the ovaries and tubes in these cases.

Dr. R. S. Sutton, Pittsburg—There is no doubt but that the method which Dr. Stone has illustrated here is an improvement over the method of Tait in getting under the pus tube and shelling it out, when prolapsed and adherent, but does it follow that the pus contained in these tubes is very frequently infectious pus. Any gentleman who has endeavored to find the gonococcus in pus following gonorrheal infection will remember how often he has failed. He will often fail to find either the staphylococcus or the streptococcus. He may find, as Etheridge has done, the pneumococcus occasionally, or the bacillus coli communis. I endeavor, when I am operating in a case of pus in the pelvis, to have a bacteriologist in the operating room, give him a little of the material removed, wait a moment or two and then he tells me whether there are any pus producers found. If there are no pus producers I shut the cavity up. If there are pus producers in the cavity and you do not insert a drainage tube, you will lose your patient. The man who does the operation by the vaginal method under these circumstances will not lose his patient.

Dr. Noble tells us that he takes out the uterus in these cases, but tells me that he leaves the cervix in. That is not taking out the uterus. It is amputating the uterus at the supra-vaginal junction, and amputation of the uterus at the supra-vaginal junction and total extirpation of the uterus are two different things, mechanically and pathologically.

Dr. J. W. Bovee, Washington, D. C.—I have found in some of these cases that there is a great deal of exudate around the outer end of the pus tube or around the ovarian artery, and sometimes there is danger in ligating the outer end of this mass in the womb first. I operated in this way recently and after I had ligated the stump containing the ovarian artery and had cut it off, grasping the other end with the forceps, I found I had cut off the ureter. It was in the stump. In separating the adhesions the ureter had been lifted up. I had nothing left to do but to take off the ligature, extirpate beyond the ureter and do an end-to-end anastomosis.

Dr. Howard A. Kelly, Baltimore—My plan in the removal of pus tubes is, in all of those cases where there is a pus sac, to aspirate and empty it as much as possible; then free the tube and surround it with gauze packing made of many thicknesses to prevent further contamination during the handling. In the rest of the enucleation I take out the tube. If the other side is diseased I take out the other, with it by supra-vaginal amputation. But I rarely do that. The importance of this matter hinges on the bacterial contents of the tube, and while in all cases we ought to be very careful, the dangers of contamination are slight. Two years ago, in January, without knowing similar work was being done on the other side of the water, I had a microscopist in my operating room to examine under the microscope any pus which appeared to contaminate the peritoneum in any way. If no microörganisms were found, no drainage. If the gonococcus was found, no drainage. If found abundant, probably staphylococci or streptococci, drainage in all cases.

Dr. A. Vander Veer, Albany—I do not intend to discuss this excellent paper, but I feel like asking Dr. Stone if he has examined the contents of this tube. (Tube on exhibition in Section.)

Dr. Stone—I have not.

Dr. Vander Veer—Are you absolutely sure it contains pus?

Dr. Stone—I am. I know it does.

Dr. Vander Veer—It looks to me like a hydrosalpinx. In operating for pus within the pelvis, I have no reason to deviate much from the method of operating in these cases, as I do nearly the same operation that I did years ago. We must remember that this is one of the simplest forms of pus tubes we have to deal with. The adhesions are not so strong but that you can loosen the tube. If one could have a bacteriologist present to tell him the kind of microörganisms that are found it would help matters very materially. But these cases do not have much bearing upon the serious cases of pus tubes that have gone on for two or three years and in which you have extensive adhesions to the intestines, to the rectum, and a long-standing condition of perhaps recurrent pelvic peritonitis. When you attack these cases you have something far more serious to deal with. This operation must be limited to few cases. There are not very many cases in which the doctor will be able to turn out so neatly such a beautiful specimen as he has presented here.

Dr. Rufus B. Hall, Cincinnati—This technique can be carried out only in exceptional cases. We can remove large pus tubes easier than smaller ones which are imbedded in adhesions in the cul-de-sac. We all know the great danger of secondary hemorrhage after these operations, particularly in desperate cases of suppuration. Several years ago I had to reopen the abdomen of a patient on account of hemorrhage coming on. She had been vomiting for some ten or twelve hours after operation. The case was one of large pus tubes and the pedicle was half cut off. In all of those cases where the tissues are soft, instead of transfixing the pedicle I place a ligature on the outer side of the tube and ovary, including the artery from the pelvic side, then another separate ligature beside the uterus, then I feel sure that the possibility of secondary hemorrhage, from slipping of the ligature, or cutting of the pedicle from tension on it will be obviated.

Dr. Stone—When I first began to operate on these cases my technique was not as good as it is now. I do not drain as much as I formerly did. If we can dispense with drainage in these cases it is very desirable.

In reference to the remarks made by Dr. Kelly, I will say that if I can remove a vicious, malignant abscess without soiling the peritoneum, I do not care whether a bacteriologic examination is made of its contents or not. If we have an infected pus tube, I think it is difficult to enucleate all of the so-called infectious germs or germs of any kind. There is more or less shock following irrigation and handling of the intestines which is necessary in every case. I believe I am correct in saying that all pus cases are not infectious.

THE PRESENT STATUS OF ECTOPIC PREGNANCY—A SURGICAL DISEASE.

Read in the Section on Obstetrics and Diseases of Women, etc., at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5–8, 1896.

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The surgery of ectopic pregnancy is mature rather than old. It is little more than thirteen years ago that Mr. Lawson Tait first deliberately performed an abdominal section to rescue a woman dying from a ruptured ectopic pregnancy. The influence of this triumph in surgery is immeasurable. The number of lives saved is innumerable. The literature of the subject in text book, transaction, monograph and journal is stupendous. Methods of operation have been so far perfected that further progress in that direction is not likely to occur. However, women are yet dying the world over without any effort being made for their relief, or even the condition being recognized during life.

In view of the great interest taken in ectopic pregnancy these deaths should, for the most part, be avoided. Investigation will show that much of the literature is controversial in character. The disputed pathology and methods of treatment in ectopic pregnancy have already employed too much type to the detriment of sound diagnosis. While fine anatomic and pathologic distinctions are abstractly valuable in abdominal surgery, yet they do not always possess life-saving qualities. The minds of those who have studied carefully at the operating table and in the laboratory the intra-abdominal conditions found are often harassed by serious doubts. The demonstration of beautifully made, frozen sections do not always convey to every mind correct impressions. It is a sad commentary to have a man argue the probability of ovarian pregnancy with you while his patient is bleeding to death in the next room. He has lost the nucleus of the thing; it is the bleeding, not the possibilities, that demands action.

After all that has been said and written, I am inclined to the belief that, stripped of their controversial portions, the lectures of Mr. Lawson Tait, published in 1888, present about all there is concerning the matter. Mr. Tait was direct in his language; his pathology was simple; his operative technique was at once rational and successful. Further progress lies along the lines of simplicity in pathology, clearness in diagnosis, and definiteness in treatment. The general practitioner must be made to do this part, but first he must be taught the clinical history and diagnosis. Discussions of primary abdominal ectopic pregnancy, the living placenta, or electricity, are of no value when measured by diagnosis. It is upon these points that it is my purpose to dwell.

How much of fully demonstrated pathology is really useful in diagnosis and subsequent treatment of ectopic pregnancy? That all ectopic pregnancies are primarily tubal is demonstrable with so few exceptions that they need not be considered in the subsequent management of the condition. They remain tubal until rupture or abortion occurs. Tubal abortion, or the expulsion of the developing ovum from the fimbriated extremity of the tube into the abdomen may occur at any time between the second and eighth week of gestation. It is neither a complete discharge into the abdomen or incomplete, being arrested in the fimbriated extremity, and gives rise to the so-called tubo-ovarian, or tubo-abdominal pregnancies. Rupture at the site of primary attachmant is, however, the more common mode of tubal delivery, occurring at any time between the second and sixteenth week. Rupture is coincident with the period of greatest possible distention of the Fallopian tube. If the ovum develops in the uterine end of the tube and uterine tissue is involved in the walls of the gestation sac, the pregnancy is said to be interstitial; if in the middle portion, infundibular; if in the fimbriated extremity, ampullar. With rupture the ovum is, either wholly or partially, discharged into the broad ligament or the peritoneal cavity, and its life usually destroyed by the accompanying hemorrhage. Where the intraperitoneal delivery is incomplete or it occurs between the folds of the broad ligament, gestation sometimes continues until secondary rupture and renewed hemorrhage or term is reached. Hemorrhage into the membranes of the ovum may occur while it is yet within the Fallopian tube, and lead to fetal death and the development of a tubal mole. Bleeding more frequently destroys the fetus than the mother, in the first four months of gestation.

The contention that all ectopic pregnancies continuing until viability are developed between the folds of the broad ligament, is not borne out by conditions found on the operating table or in the laboratory. Repeated hemorrhage without secondary rupture of the gestation sac may destroy a broad ligament pregnancy at any period of gestation. Suppuration within the sac may lead to the discharge of the fetal bones and other detritus into adjacent cavities, or through the abdominal walls. Another termination is the formation of lithopedion and adipose. The child dies during or at the conclusion of spurious labor. The death of the placenta is not always coincident with that of the fetus. There are a number of cases illustrating this fact, one of which in my personal observation will be reported in connection with this paper.

The children who have been delivered living from ectopic gestation sacs, have many of them shown little post-natal vitality, fully half dying in the early days, and very few living beyond a year. Again, many of them show gross deformities, hemiplegia, spina bifida, cleft palate, hare-lip, contractions of the limbs and club-foot.

The uterus always undergoes sympathetic enlargement, and from its mucous membrane develops a decidua, corresponding very closely to that of early uterine pregnancy.

From a careful analysis of my own cases, and the experience of others, I believe that the foregoing pathologic statements are all that are fully demonstrated, and further, they are all that are needed for the proper understanding of the diagnosis and treatment of the condition.

DIAGNOSIS.

The importance of diagnosis can not be overestimated in ectopic gestation, yet its difficulties are at once serious, if not at times insurmountable. The history of ectopic gestation is largely that of operations undertaken after rupture and hemorrhage, or after viability. Those operations done before rupture were often a matter of accident, or the patients were in unusually favorable circumstances. That most cases of ectopic pregnancy are first seen by the general practitioner, will not be disputed. Here is the

point: The general practitioner is bound to possess a knowledge of the natural history and diagnosis of this disease that will keep in his mind the possibility in every woman, married or single, during her child-bearing period of this condition. Suspicion, with competent consultation, is the best substitute for precise diagnosis with which I am familiar. The profession at large have suspicions of appendicitis under proper conditions, and if under other circumstances their suspicions of ectopic pregnancy can be aroused and skilled assistance called, then will a considerable advance have been made. The reason is obvious. In appendicitis, a clear, unmistakable and unequivocal statement of facts have been so briefly and repeatedly made, that all are familiar with and governed by them. All the statements are not absolutely or entirely true. There are exceptions to many of them, but they are sufficiently general in their application to form a universal basis for opinion and action. What is wanted is a similar primer of ectopic pregnancy. On reflection, it will be seen that the difficulties attending such a plan are many. There are general considerations which apply to the condition. That all women suffering from ectopic pregnancy have previously suffered from some disorders of the organs of generation is a fallacy. In three of seven cases reported at the conclusion of this paper, there was no history of prior generative disorders. One with a baby, the youngest of five children; another with a good previous history a few months married, and still another the mother of three young children. The other cases present a variety of conditions, sterility, displacement and inflammatory disease.

In order to discuss the diagnosis intelligently, subdivisions must be made. Clinically the most natural ones are: 1. Before rupture or tubal abortion. 2. After rupture has occurred. 3. The fetus *a*, living and viable, or *b*, dead.

The difficulties of diagnosis before rupture or tubal abortion are very great, and its possibility will not be admitted by all. The greater number of cases are not seen by a physician until rupture or abortion occurs. A minority come to the operating table for inflammatory disease of the appendages. There is a lack of symptoms pointing to the condition. The patient either believes herself normally pregnant, or has no suspicion of it. Nausea and vomiting may be present, with amenorrhea and mammary changes. The metrorrhagia of ectopic pregnancy does not occur, in the majority of cases, until after rupture or symptoms of impending rupture present. The one particular point upon which diagnosis depends may be stated as follows: Any woman who during her child-bearing period presents symptoms of disease of the organs of generation, of recent origin, either new or entirely different from those heretofore experienced, if associated with any of the probable early symptoms of pregnancy, demands at once a careful examination. If this point can be made sufficiently clear, many more cases will be operated on before rupture occurs.

When rupture or tubal abortion occurs other symptoms arise which at once brings the physician to the bedside. There that general rule, "Pain in the abdomen calls for careful investigation," always applies. The clinical history is of exceeding value in making clear this point. The pain associated with rupture or abortion can only be mistaken for appendicitis, biliary or renal colic, acute intestinal obstruction, or uterine abortion. With a full clinical history and a careful physical examination, the diagnosis will be positive. Very few errors have been made and the abdomen opened to find another condition present. Few exploratory incisions are made in ectopic pregnancy.

Too great dependence can not be placed upon the expulsion from the uterus of decidual membranes. In a recently reported case where the diagnosis was chiefly based on that fact, no ectopic pregnancy was found at the operation. Membranous dysmenorrhea is associated with the expulsion of similar uterine casts. It is valuable rather than pathognomonic. Collapse is always an important symptom, and its source is to be carefully studied whether it arises from simple pain or pain associated with hemorrhage. It is not to be forgotten that many intra-abdominal conditions may give rise to collapse. Pain as a source of collapse is not always easily differentiated from bleeding or extravasation, with pain. In collapse from pain or fright, the administration of anodynes and the application of local heat is followed by reaction. The collapse from progressive bleeding is continuous, with little disposition to reaction.

After primary rupture, the fetus yet living, if the woman does not die or the fetus is not destroyed by the hemorrhage, gestation proceeds until the viability of the child becomes a contingency, or secondary rupture occurs. Very few of this minority ever reach term.

Defective clinical histories may make diagnosis very difficult. The bi-cornate uterus, uterine fibroids, may make the diagnosis difficult or impossible, and exploration of the cavity of the uterus unwarrantable. Under such conditions the patient ought to be under the most favorable auspices and in bed.

A sufficient number of cases of current intra- and extra-uterine pregnancy have occurred to keep its possibility in the mind of the surgeon. The pregnancies may date from entirely different periods. The most serious form of ectopic pregnancy is undoubtedly the interstitial. Unfortunately it gives rise to fewer direct symptoms than any other variety, yet when the rupture does occur the attack is explosive. The woman quickly bleeds to death within her abdomen. Four hours of inaction is quite sufficient.

TREATMENT.

What are the indications for treatment in ectopic pregnancy? The question may be conclusively answered by the phrase—a diagnosis. There are exceptions, but they are for the personal opinion of the experienced surgeon. What is the treatment? This also can be answered briefly in the interest of the patient—operative. Competent operators are so numerous and so successful in every part of this land that no excuse can be offered for non-surgical interference. When shall we operate? As soon as a diagnosis is made. Time forbids entering into the discussion of injections into the gestation sac to induce the death of the fetus, or the application of electricity in the treatment of ectopic pregnancy. These plans have been so repeatedly discussed and so universally condemned that nothing is to be gained by further consideration. If there be an advocate (there are a few yet living) of the use of electricity present, I can not hope to convince him, and admonition does no good.

It is quite superfluous to enter into the detail of operations to be undertaken at any period of ectopic

pregnancy, but certain subjects inevitably confront us: The position that vaginal celiotomy will assume in the treatment of ectopic pregnancy, the control of hemorrhage during operations undertaken at all periods, the time of operation, the child living and viable, the management of the placenta in operations undertaken after the sixth month, the management of cases where operations are to be undertaken for the removal of the dead fetus, either disintegrating or degenerating, the management of the general condition of the patient at the time of the operation.

The patient's general conditions and surroundings will influence the time and place of operation. Where rupture and progressive hemorrhage are not coincident, operation is to be undertaken deliberately under the best hygienic conditions. Progressive hemorrhage into the free peritoneum is emergency surgery, and operation must be done without delay. An operation can be well under way an hour after the diagnosis is made. In many cities there is an ambulance service. You call it from the nearest telephone and at the same time order the sterilizers lighted, and other preliminary preparations made. The patient is wrapped in blankets and is taken from the ambulance directly to the table. During early anesthesia the abdomen is prepared for incision. The direct or intermediate transfusion of normal salt solution is a valuable measure in collapse, far more than the hypodermatic administration of stimulants, and can be employed at any period by very simple apparatus. The experience of many operators has repeatedly shown the life-saving properties of saline transfusion.

The control of hemorrhage is the first indication in most operations undertaken in the early months of ectopic pregnancy. The first efforts of the surgeon are directed to that end, and with all the speed compatible with good surgery. First determine the side of the ruptured tube, and place a clamp on the broad ligament close to the uterus. When the pregnancy is interstitial, clamp both broad ligaments. These measures will control the bleeding at any period of gestation. The subsequent steps of the operation can be undertaken with greater deliberation. Usually they are simple enough, enucleation or suture of the gestation sac into the lower angle of the wound, the removal of the damaged appendage. In interstitial pregnancy, complete or supra-vaginal hysterectomy, or the resection of the horn of the uterus will be required. The choice of method will depend upon the experience of the surgeon and the condition of the patient. Hemorrhage during the later months of ectopic pregnancy from the site of living placenta, the fetus often dead and macerated, is most difficult in management.

Out of a large number of cases delivered at or about term the most serious difficulty experienced was in relation to the placenta. Two plans have been suggested: its removal with multiple ligature, and tying the cord close to the placenta, closing the abdomen in the hope that subsequent abortion will take place. Both methods have succeeded and failed. A third plan has suggested itself to me: first preliminary ligature of the ovarian and uterine artery on the side from which the placenta receives its blood supply, second the placing of Mickulicz tampon of sterile gauze over the placenta establishing pressure atrophy; third, preliminary suture of the abdominal walls, the sutures to be tied after the removal of the tampon and placenta. Such a tampon may be safely left for three days, and then removed with the placenta, and the sutures tied. I want to add that in two cases where the fetus had died, become macerated and disintegrated, that operations undertaken through the rectum were followed by fatal hemorrhage from a yet living placenta. Both of these cases should have been attacked by abdominal section.

The child living and viable, what shall be done? A considerable number of mothers have been already sacrificed while waiting for term to arrive. A surgeon recently described as a triumph in surgery, the saving of a child suffering from pressure hemiplegia and spina bifida. Another civilization of another and less human age conducted such to the unknown early in their careers. To-day the number of children a year old and undeformed, who had their origin in an ectopic gestation sac, can be counted on the fingers of one hand. The living child is subsidiary to the living mother.

Vaginal operations undertaken for the relief of ectopic pregnancy will always be limited, yet early cases may often be remedied by this method. Where suppuration in broad ligament pregnancies has occurred, there can be no doubt of the value of this method in many cases, an abscess, incision and drainage through the vagina.

There remains yet another topic in relation to the treatment of this condition, that of the opposite ovary. No question can arise where gross pathologic changes have already occurred. It is worthy of our attention that subsequent ectopic pregnancies have occurred in appendages left at operations. The other ovary and tube should be carefully examined and removed if any evidences of disease are found to warrant the procedure. The question is placed largely on the same basis as unilateral removal of the appendages for inflammatory conditions.

In conclusion, the histories of seven cases of ectopic pregnancy are given with the results of treatment, five recovered and two died. One death to be attributed to an improper operation advised by me, the other (case 1) to carelessness or want of knowledge upon the part of the gentlemen who were in attendance during the earlier period of gestation. I believe that the clinical histories given, together with the results of the physical examination, lead to an irresistible diagnosis of the condition.

Case 1.—Mary R., aged 38, married, native, was seen August 16, 1894. This patient was seen only a few hours before death. Between the second and third month of a supposed normal pregnancy, she had a severe attack of abdominal pain with fainting and uterine hemorrhage. The pain was confined principally to the left side of the abdomen. An abortion was supposed to have occurred at this time. She recovered from this illness after two weeks, and was able to attend to household duties. A month subsequently a second illness, supposed threatened abortion, occurred. There was at this time a sharp attack of peritonitis. Another physician in attendance discovered an abdominal tumor thought to be ovarian in character. She again improved and was able to be about. At the sixth month she "felt life" and was satisfied that she was pregnant. All uterine hemorrhage had ceased.

The onset of labor was delayed until about the three hundredth day of gestation. She was under the care of a midwife for two days, during which time labor pains were severe, but no progress was made toward delivery. Dr. Brierly was called, and he was soon able to determine that some serious abnormal condition was present. He called Dr. Andrew MacFarlane to his assistance, and they dilated the cervix, and determined that the uterus was empty. A diagnosis of extra-uterine pregnancy was now established. Dr. J. P. Boyd saw the case, and an hour later we met in consultation. An active general peritonitis was now present. Pulse could hardly be felt in the radial artery and was very rapid. Her general condition forbade operation. She died in a few hours.

She was the mother of five children, had had one abortion in 1892, was suffering from no uterine disease at the time of this pregnancy. Autopsy: The abdomen when opened discharged several pints of foul, blood stained, flocculent serum. The normal anatomical relations of the viscera were greatly disarranged. The intestines were distended and their coats discolored. All the evidences of acute septic peritonitis were present. The gestation sac was opened and the child delivered. An effort was made to determine the source of the sac and its relations, as well as the attachments of the placenta. The intimate union of intestine, omentum and mesentery made this most difficult. The left broad ligament and uterus formed a part of the anterior wall. The posterior and superior walls were formed by adhesive, inflammatory material, intestine and omentum.

The placenta had its attachment in the pelvis, to the rectum and folds of small intestines. It could not have been removed during life without causing a fatal hemorrhage. The left ovary was not to be found, and undoubtedly formed a part of the wall of the gestation sac. The left Fallopian tube was traced with a probe some distance along the wall of the sac.

Case 2.—A. G., aged 27, married, native. April and May, 1892, she missed two menstrual periods and presented the usual early symptoms of pregnancy. At about the tenth week there was an attack of uterine hemorrhage, associated with abdominal pain. She did not improve. Breasts continued to enlarge and contained milk. Soon a diagnosis of tumor was made. The uterine hemorrhage continued and repeated attacks of abdominal pains occurred. Early in September a localized peritonitis was associated with partial intestinal obstruction, rigors and high fever. A few days later a discharge of purulent matter from the rectum was observed. Some small fetal bones were discovered in the discharge. Dr. Beach found a distinct opening into the rectum through which a portion of the fetus was removed. This was followed by considerable bleeding, although the utmost gentleness was employed. During the afternoon of the day I was called; without any interference, a second and fatal hemorrhage from the rectum occurred.

Autopsy, eighteen hours after death: The local conditions revealed a gestation sac made up of omentum, mesentery and uterus, cemented together by plastic lymph, containing a macerated fetus of about the fifth month, and a living placenta attached to the intestines and pelvic wall.

The attempts made to remove the fetus through the rectum had made a partial separation of the placenta, and it was from this source that the fatal hemorrhage came.

Case 3.—Mrs. Mary R., aged 28, married, native, was seen January 16, 1896. She was taken suddenly with "colic" early in the afternoon. At the time of my visit, the pain was so severe that repeated hypodermic injections of morphia were required. The pain was intermittent in character, or like labor pains, located chiefly in the left ovarian region. Her last menstruation occurred November 20–24, 1895, and was normal in character. About January 1 she suffered from nausea, and her breasts began to swell. She believed herself pregnant from her experiences in previous pregnancies. She suffered from a degree of uterine prolapse since her first child.

Physical examination showed an enlarged uterus, soft, with a patulous os. To the left of the uterus was a tense tumor the size of a small orange. Temperature normal, pulse one hundred and of good quality. I believed that I had an ectopic pregnancy with impending rupture. The next day uterine hemorrhage commenced and continued for two weeks. Shreds of decidual membrances were expelled. There was evidence of pelvic peritonitis for a few days. No indications for operation occurring, the patient was kept in bed. After four weeks there were no physical signs of disease in the pelvis, other than uterine prolapse.

I am of the opinion that tubal abortion occurred within the four hours between the onset of the symptoms and my second visit, and that the ovum was discharged into the peritoneum, died and was absorbed.

Case 4.—Caroline S., aged 42, married, native of Germany, entered the Albany Hospital, February 19, 1895. She suffered from metrorrhagia, which at times had amounted to severe flooding. This symptom was of six weeks duration. The beginning of the flooding was associated with severe pains in abdomen, and syncope. The pain has continued at intervals since. There was a mucous discharge from the rectum and partial obstruction of the bowels. Was unable to leave her bed without fainting. Last normal menstruation in December, 1894.

Her previous health had been good. First menstruation at 16, always regular; married at 26, mother of six children, the youngest 3 years old. All her labors were normal. Physical examination showed a distended abdomen, resonant on percussion, and quite tender, particularly in the lower portion. Investigation showed a tumor in the right lower abdomen, coming from the pelvis, rather larger than a child's head. It was tender, slightly movable, and gave no sign of fluctuation. Vaginal touch revealed an enlarged and softened cervix with uterine hypertrophy and lateral displacement; to the right, a tumor continuous with the horn of the uterus, and bi-manually it was found to be the lower segment of the one already mentioned. The uterus moved with the tumor. The finger introduced into the rectum discovered a band-like stricture, and almost complete obstruction by the tumor. There was no distinctive changes in the breast. She had suffered from morning nausea somewhat early in January, and had had at least three severe attacks of pain. There was no evidence that decidual membranes had been expelled from the uterus.

The history presented lead to the probable diagnosis, extra-uterine pregnancy, and the operation for its relief undertaken. The abdomen was opened and the relations of tumor explored. It occupied the folds of the right broad ligament. The ligament was incised and a large blood clot and the placenta removed. Both weighed four pounds. No fetus was found. Conditions showed that the hemorrhage had been intermittent. The borders of the incision were sewed in the lower end of the abdominal wound, and its cavity drained and tamponed after bleeding vessels were controlled by ligature. The subsequent history of the case was uneventful. She left the hospital well April 13, 1895, and is now in good health.

This woman had consulted many physicians before entering the hospital, and many diagnoses had been made—cancer, uterine-fibroid, uterine polypus, and miscarriage. Since, she has given birth to a fully developed child, after normal gestation. The labor was uncomplicated.

Case 5.—Frances G., aged 24, married, native of Italy, entered the Albany Hospital, May 2, 1895. Pain and discomfort in lower abdomen, irritable bladder, uterine hemorrhage, great prostration, and subsequently fever. The duration of this illness had been more than two months. She had not menstruated in January or February, 1895, had nausea and considered herself pregnant. About the middle of March she suffered from a severe attack of colicky pain in lower abdomen, associated with flooding. It was regarded by the physician called as a miscarriage. The patient growing no better, Dr. L. F. Neumann came in charge of the case in the early part of April, and at once became suspicious of the true condition.

Her first menstruation was at fourteen, and normal. Married at sixteen, mother of three children, the youngest two and one-half years old. Had suffered in the meantime from no menstrual or uterine disorders. Her general health had been good. There is no apparent heredity. Physical examination revealed a tumor in left lower abdomen, the size of a cocoanut. It was solid, tender and quite movable. The cervix was found enlarged and softened, the os patulous, the uterus displaced to the right as an appendage of the tumor. This history indicates that the patient had two attacks of hemorrhage before the operation.

May 3, 1895, the removal of the gestation sac from the left broad ligament was undertaken. The enucleation was tedious and associated with free bleeding. The right ovary and tube were removed on account of gross pathologic changes. Drainage was employed for three days after the operation. The subsequent history was uneventful and the patient returned home in three weeks, her wound soundly healed. An examination of the gestation sac revealed the point of rupture in the tube, a small portion of permeative placenta, but no parts of the fetus.

The health of the woman is now good.

Case 6.—Florence S., aged 26, native, married, entered the Albany Hospital, May 20, 1895. Pain and distension of abdomen, fever and chills, general weakness. The beginning of the illness was on April 26, 1895, when she had a severe attack of abdominal pain and immediately began to flood, although it was not the time for normal menstruation. She was confined to her bed much of the time until May 10, 1895, when she sat up. This slight exertion brought on a second attack of pain more severe than before, associated with symptoms of collapse. Abdominal distension and tenderness came on, associated with diarrhea and fever. May 18, 1895, Mrs. S. had a well-marked rigor followed by high temperature and partial intestinal obstruction. This was repeated on May 19, and her condition became serious. I saw her on this date and aspirated a swelling in left lower abdomen, with drawing five pints of very foul, blood-like fluid, mixed with gas. The abdomen was generally distended and very tender. By vaginal touch nothing could be made out; everything was matted together. There was a very foul discharge from the vagina.

Her previous health had been fair. First menstruation at

sixteen, normal until eighteen, when it became scanty, irregular and painful, married at twenty-two, one child living, two and a half years old. Mother died of puerperal fever. Father living. There is no history of tuberculosis or tumor in the family.

She was brought to the hospital May 20, 1895; an abdominal incision was made. Adhesions were universal. A large cavity, including the pelvis and left side of the abdomen, was filled with decomposing blood clot and pus. This cavity was washed as clean as possible, and filled with iodoform gauze. There were no distinct walls to the cavity. Agglutinated intestines, omentum and mesentery enclosed it for the most part. She was taken from the table in severe shock. However, she rallied and after forty-eight hours the gauze tampon was removed from the pelvis, a large glass drain introduced, and the abdominal sutures tied for the first time. An enema was ordered shortly after and it came immediately out of the glass drainage tube. For two weeks all the bowel motions were through the drainage tube. Careful attention to the fecal fistula, repeated irrigations daily, enabled us to avoid any general infection. June 2, only a small fistula remained and the patient returned home. The bowels now acted naturally.

Late in September she returned to the hospital for relief of the fistula, but after exploration and curettement it closed with little trouble. She is well and strong.

Case 7.—Mrs. Anna DeR., aged 34, married, native, was seen July 10, 1895. She had been in bed for some time suffering from abdominal distension and pain, fever, rigors and sweating. Menstruated March 24, 1895, for the last time. In the latter part of May she was suddenly attacked with severe abdominal pain, and noticed a small tumor in the left groin. This disappeared in a few hours, but the distress continued. A week later a similar attack was experienced, after which nausea was experienced and continued. Her family physician at this time discovered a hernia which was treated by a truss. The abdominal pain continned. On June 29, an attack of vomiting, great pain and fainting occurred. She went to bed and remained there until removed to the Albany Hospital June 30, 1895. Three weeks before entering hospital flowing began and a membrane was expelled from the uterus, supposed to be a "false conception." Just prior to entering the hospital she had a chill lasting for twenty minutes. Physical examination showed the usual signs of ectopic gestation with rupture. On July 20, she was removed to the hospital for operation the following day. During the night an attack of hemorrhage occurred and her condition became serious. The operation was made early the next morning. Blood clots and fresh blood flowed from the incision, which was at once arrested by a clamp placed on the left broad ligament. The blood, fetus and placenta were at once turned out of the abdomen. The broad ligament was immediately tied and the remnant of the left appendage removed. After the peritoneum was cleared the abdomen was filled with normal salt solution, and closed with drainage—a glass tube. The subsequent history is uneventful. The woman is now in good health.

SYMPTOMS, DIAGNOSIS AND TIME FOR OPERATION IN RUPTURED TUBAL PREGNANCY.

Read in the Section on Obstetrics and Diseases of Women, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5–8, 1896.

BY JOSEPH PRICE, M.D.

PHILADELPHIA, PA.

Careful study of the physiologic, anatomic and pathologic conditions of cases coming within our experience, while such study has not altogether removed from controversy very many subjects connected with gynecology, it has led some of us to positive convictions and to the adoption of well defined lines of practice. We are concerning ourselves less about theories, though we are not able to dispense with them altogether, but we are growing to base our rules of practice more upon the results of our observations and experiences. Pathologic systems are continually changing, one system succeeding another in quick and confusing succession. There should be no element of mere conjecture in our every day working experience. After the surgeon has discovered and relieved conditions which his experience, his observation, has taught him to detect with almost mathematical certainty, the pathologist can step in and display his science in explaining cause and effect.

The occurrence of tubal pregnancy is regarded in widely different light by the theorist and the surgeon who has learned to deal with it practically, and who has accordingly come to understand, the manifold directions in which speedy disaster may troop down upon unfortunate women subjected to this calamity. The argument that many cases get well of themselves, in the presence of the multitude of disasters possible, and in the light of the horror of some of these very recoveries, is so puerile that the surgeon of practical and positive bent can not regard them with complacency, nor consider that those who advance them have any authority from which to speak more positive than the vaporings of fancy. As to the causes of aberrant gestation, we are to consider them both as anatomic and moral. They may have their origin in anatomic loss of structure or in perversion of function, such as absent ciliary motion in the epithelium, or in absolute disease of the tube, or, as I have had more than once called to my attention, in the fright of illegitimate conception. Causation can rarely be determined with certainty; there are many agencies which operate to produce the trouble. The character of the attack, the whereabouts of the patient, at what employed, are always interesting considerations. The attacks are exceedingly sudden. A vigorous woman may in a few minutes look pale and exhausted and have a very feeble pulse. Any effort to change position increases the pain and she will start with a scream; the pain may be quite general and not confined wholly to the abdomen. The rational symptoms of pregnancy are not very marked. Morning sickness is never very prominent. For weeks they may complain "on and off" of sharp pain in one groin or the other. These pains are followed by bloody discharge; the odor of the discharge is also characteristic. Later the sharp and severe pain is followed by faintness and increased flow mixed with shreds and débris. Ruptures with large effusions are easily recognized upon examination. The finger detects an ill-defined boggy tumor, the uterus enlarged and posterior or pushed well to one or the other side. If the rupture is quite recent it may be difficult to determine a tumor of any character; there is simply a feeling of general resistance. In examinations made one or two days after rupture it is easy to define the irregular boggy tumor, also to locate the uterus, determine its size, position and mobility.

There is very frequently associated with these cases a history of sterility, inaptitude to conception and mild forms of pelvic disease, abortion or doubtful abortion antedating the pregnancy some four or five years, absence of one or more periods. Very frequently there is peculiar nervous disturbance, morbid apprehensions, irritability followed by acute pain, severe and recurring, pain of a variety rarely associated with other troubles. Usually the pain is followed by anemia or symptoms of concealed hemorrhage; the common symptoms of loss of blood are prominent. It is then other symptoms develop, intra-pelvic or perineal tumor due to clot or pressure, there is characteristic vesical and rectal disturbance, peculiar central fullness of the abdominal walls. Slight distension, tympany and marked tenderness rapidly follow the first rupture, recurring hemorrhage and all symptoms become more marked. The restlessness of the patient is alarming; probably 25 per cent. die in twenty

hours, where there has not been prompt and skillful surgical relief. Hemorrhage is the real cause of death; they die both early and late in the history of the trouble; early, from rupture of tube, late or at term in primary sections done for saving both mother and a viable fetus. The non-contractile tissue of the tube favors free and continuous hemorrhage. Ruptures on the outer half of the tube or about the pavilion extremity are the least fatal. As the rupture nears the uterus the hemorrhage is most fatal. These points have been demonstrated in the experience of every one who has done any considerable number of sections. So marked has been my own observation of these facts that I commonly allude to it in my cases, exhibiting it as an object lesson to those witnessing the section, and these facts have led me to classify the cases; first, ruptures in the outer half of the tube belong to the surgeon; the second or inner half go to the coroner or coroner's physician. Rarely can you improve volume, quality and frequency of the pulse in such cases where all the symptoms are as I have narrated.

It is my conviction, fortified by my own experience, counting now one hundred and twenty-eight cases with five deaths, that the operative treatment is the only one to be considered. I am fully satisfied also that these pregnancies are rarely, if ever, in the broad ligament. In the case of fetus gone to term, in my own direct and indirect experience, the child has in no instance been in the broad ligament. I regard the chief danger of the operation as that of hemorrhage. If the patient is found so weak as to render operation an almost certain failure, I resort to salt water transfusion in order to restore the arterial tension.

Rupture with fatal hemorrhage is the most frequent termination; pyemia, septicemia and peritonitis are much rarer.

Relating to such cases Goupil says: "It is but true, I fear, that we are authorized in saying that all the cases of intra-peritoneal hemorrhage arising from extra-uterine pregnancy end in death, and although death has been delayed for six months, it is wholly exceptional. This was absolutely true in my own experience until I was emboldened—I say it—until I was shamed by Mr. Hall Wright's case into opening the abdomen and saving their lives."

The consensus of opinion by those who are competent to speak from results must be for early operation. But there are, in addition, those cases to be considered in which, after primary rupture, the fetus has still lived and advanced to full term. Here the question is one of operation with the view of saving both the life of the mother and that of the child. If one is to be lost, it is my belief that it should be that of the child; that the life of the mother is of paramount consideration. The chief danger to the mother in the operation at term in tubal pregnancy is the removal or accidental detachment of the placenta. It is easy enough to remove the child and save it, if it is viable, by operating at or near term; but the danger of fatal hemorrhage from vascular walls that can not contract, as do the uterine structures, is the vital question of the operation, so far as the mother is concerned. If we do not remove the placenta the risk of septic infection still remains.

The old and non-surgical rule of leaving the placenta to slough away is too dangerous and prolonged to be practiced. The placenta should be removed in every case, or washed and hermetically sealed, thus favoring its healthy digestion and avoiding gangrenous separation and detachment. Secondary rupture of broad ligament, discharge of placenta and fresh adhesions, or the second implantation or grafting of the placenta, have never occurred in my experience, nor have I any knowledge of such cases except that conveyed through the literature on the subject. Basing the conclusions of my judgment upon my own clinical experience, I must hold to the tubal origin and the intra-peritoneal rupture. All that follows tubal rupture is within the pelvis and peritoneal cavity, and not within the leaflets of the peritoneum forming the broad ligament.

It must be admitted that the removal of a growing and almost universally attached placenta is one of the most difficult procedures in surgery. The hemorrhage is profuse and sometimes uncontrollable; the contraction of all tissues to which it is attached simulates that of uterine tissue. Rapid separation, heat and firm pressure will commonly succeed in controlling it. As to choice of time for the operation, I am of the strong conviction that there is but one choice, and that is prompt removal when the accident is first recognized.

It is better to act promptly. The steps of procedure are clear and should be completed at any risk. It is better to contend primarily with the loss of blood than later with overwhelming sepsis. Tubal pregnancy is dangerous throughout its existence; the subject *is never safe until surgically relieved. Exceptionally,* is the trouble recognized before rupture. I have never recognized one before rupture, all before is conjecture rather than knowledge.

An important element of the history connected with these cases is that few of them are kept under observation with the definite purpose of removing the viable child at the period of spurious labor; alarming symptoms develop and subside, and consultation with a specialist, if they are at any time consulted, follows the death of the child, it rarely antedates it. Then all the conditions are found greatly aggravated by delay or neglect, or that which is infinitely worse than either or both, inexcusable ignorance. Consultations for suspected extra-uterine pregnancy are quite common in those peculiar cases of much-attenuated uterine walls in normal gestation, but the ectopic cases are permitted to pass through the primary rupture, recurring ruptures, almost constant pain and spurious labor, entailing impaired general health, without suspicion of the patient's peril.

An English authority has stated what, in connection with these cases, should be accepted as sound dictum: "As all know, the Fallopian tube is, in the vast majority of instances, the starting-point of extra-uterine gestation; the most common result of this is that rupture occurs usually at the second month, through some part of the tube covered with peritoneum; a result almost universally fatal if left alone, and as *invariably curable if operated on in time* by abdominal section."

DISCUSSION ON PAPERS OF DRS. MACDONALD AND PRICE.

Dr. Joseph Eastman, Indianapolis—So far as I am able to judge from reading the literature of this subject and from experience, there is but one treatment for extrauterine pregnancy, and that is surgery. I will refer to one case which came under my observation because it was an extraordinary one, and it illustrates still further the futility of packing with ice and the use of electricity. A man supposed to be a competent electrician and well posted in the treatment of extrauterine

pregnancy by electricity tried for six months to kill the fetus and failed. He then tried packing with ice for three weeks more. When the patient was *in extremis* there was a change of physicians. On opening the abdomen, I found the sac containing a living child in such an advanced gangrenous condition that I could not for a moment think of leaving it. Following the rule which I always insist on, that we shall first find the uterus, if possible, I slipped my hand down, found the origin of the tube toward the uterus, believing that all cases of extrauterine pregnancy are primarily tubal, seized the tube at the cornu of the uterus, which felt fully as large as my wrist, and in doing so I detached a portion of the placenta from the gangrenous sac. Blood poured out freely; my assistant had gone to resuscitate the child, leaving me with a couple of nurses to do the best I could under the circumstances. Crushing down the sac (as you would crush a cherry-stone out by squeezing the cherry) with clamped forceps which I have with fingers like my own, I seized the sac below, then to my own astonishment I found the sac was adherent in a number of places to the intestines. With this clamp attached, after applying six ligatures around the points of hemorrhage, we got the gangrenous sac out, then quilting with iodized silk, we had the pedicle, to the cornu of the uterus, covered with iodoform collodion. Where we find a dead or living child with a gangrenous sac, the proper way to deal with such cases is to get at the cornu of the uterus either with clamps or ligature, shut off the blood supply, and remove the sac. I do not believe that it is good practice to leave the placenta to slough out. I do not believe there is a case where such men as Dr. Price would be induced to leave a gangrenous sac. I believe the sac can be removed in many cases with less risk to the patient than in leaving it or the placenta to slough out, or both combined.

DR. C. A. L. REED, Cincinnati—My experience has led me to attach particular importance to the symptom of shreddy metrorrhagia as an early manifestation of this condition, and I have not been able to verify the fact that this symptom occurs only after the symptoms of rupture. On the contrary, I have found that it has occurred among the earliest manifestations of pregnancy, and no doubt it has occurred when there were no symptoms of pregnancy, and I was prompted on one occasion to make a careful study of a case and a diagnosis before rupture by following the case as suggested by the symptom, and that was one case in my experience in which a diagnosis was made before rupture, was operated upon before rupture had taken place, and the diagnosis subsequently verified by careful microscopic examination of the specimen removed. Therefore we did have in this one instance a confirmation of the fact that a shreddy metrorrhagia may occur prior to the symptoms of rupture.

It has fallen to my experience to observe so few instances, that I hesitate to allude to them, for the reason that their example has led to many errors and many fatal delays; but I have seen a number of cases in which primary rupture had occurred in the broad ligaments, for the reason that there was a definite extension of the tumor downward, and no particular extension of it upward, although its upper margins were definitely outlined. The tumor became stationary and disappeared. This was manifestly a hematocele. You may say that I had no evidence that it was a case of ectopic pregnancy, but if we are justified in saying that given cases upon which we operate were cases of ectopic pregnancy by virtue of the existence and persistence of certain sypmtoms which lead to the diagnosis, and which diagnosis is confirmed by operation, certainly we are justified in interpreting as having similar consequences a similar aggravation of symptoms, and these symptoms did exist in the few cases that I saw. While that is true, I believe it is a dangerous expedient to rely upon absorption. The maximum of safety is upon the side of operation at the earliest practicable moment, and if we have such primary rupture with such limitation of hemorrhage, the safest expedient is to avail ourselves of the quiescent interval and proceed to operate when we can do it without serious complication, and without being forced to deal with an exsanguinated patient.

DR. JAMES F. BALDWIN, Columbus, Ohio—There was one point made by the first essayist which is of prime importance, and that is with reference to educating the general practitioner to suspect the existence of ectopic pregnancy, and thus lead to a thorough examination and to a diagnosis. It has been my fortune within the last few months to have seen seven cases of ectopic pregnancy. Two of these were seen in my own practice, the others in consultation. In five of them the diagnosis was made before rupture and operation performed. The diagnosis was subsequently confirmed, and the five patients are well to-day. Two of these cases occurred in the same patient at an interval of six months. In each I made a presumptive diagnosis of ectopic pregnancy and operated. In two other cases no suspicion had occurred to the attending physician of ectopic pregnancy until I suggested to him that in the five cases mentioned the diagnosis had been made by the general practitioner. This case was one of ectopic pregnancy, the diagnosis confirmed, and the woman operated upon. In two cases the diagnosis was not made until repeated hemorrhages had occurred. The eighth case was one that was sent to the hospital during my absence, and the physician who sent the patient had made a diagnosis of peritonitis. The patient died within forty-eight hours after admission to the hospital from peritonitis. A post-mortem was made which revealed a normal uterus and tubes, but an ectopic gestation sac in the cul-de-sac of Douglas which had ruptured, producing a considerable amount of hemorrhage which resulted in peritonitis. This is an exceedingly rare condition, one which is denied by many pathologists.

We have educated the general practitioner to make a diagnosis in a large number of cases of appendicitis, and I think if we impress them in the matter of ectopic pregnancy until they suspect its existence when they have anything abnormal during the early weeks of pregnancy, they will make a diagnosis then or will have a suspicion sufficiently well grounded to send for an expert to make a thorough examination. When the general practitioner is educated up to this point cases of ectopic pregnancy will be diagnosed much earlier than they are now, and before rupture, and then the operation will be comparatively simple and few deaths will occur.

DR. A. VANDER VEER, Albany—Papers of this kind are lessons in object teaching. They teach the general practitioner regarding the matter of an early diagnosis in these cases.

With reference to general peritonitis, inflammation of the bowel, etc., I have lived long enough to hear papers on idiopathic peritonitis, and in abdominal surgery the comparison or difference between these terms and appendicitis have been and are presented in their true light. The general practitioner has been taught that pelvic hematocele will be absorbed, that it will disappear. Does it disappear? Look at the cases of pelvic abscess—cases where a portion of bone protrudes through the vagina and rectum. Look at the cases of secondary hemorrhage and death which occur before you are fairly in the house. Some of these cases if diagnosed early and operated upon immediately would be saved. So many papers have been presented in the past that they have mystified the general practitioner as to the classification of this condition, as to the true pathologic state present. What is the use of standing before the general practitioner and arguing with him as to the form of ectopic gestation. If you keep it up for twenty minutes your patient is beyond relief. When the clinical symptoms are presented the general practitioner must know that an operation is absolutely necessary, and we have the authority of one man who has perhaps operated more than any other in America in these cases, and he tells us emphatically what ought to be done.

Stress should be laid upon the sympathetic symptoms. The general practitioner should be educated in this matter as much

as he is in regard to cases of appendicitis, and in case he does not wish to operate himself he should call in a specialist to share the responsibility with him. I find that when we teach the general practitioner what to do he is not slow in following our advice.

Dr. F. J. Yager, Campbellsburg, Ky.—I am a general practitioner, but I am firmly convinced that in these cases of ectopic pregnancy as soon as a diagnosis is made we should operate. If the general practitioner feels that he is not sufficiently expert to undertake the operation himself he should call in a specialist. The more we study these cases the more we are convinced that delay is dangerous.

Dr. Rufus B. Hall, Cincinnati—My experience leads me to believe that a large percentage of these cases have a history of some pelvic trouble. I have known pelvic trouble to precede tubal pregnancy for at least five years in some cases. The cases are few in number in which we do not get a history of long continued pelvic trouble. We have a shorter space of time in which the patient has considered herself not entirely well since her last labor. A number of cases do not have these symptoms, but when we take the large number of cases operated on, a large per cent. of them have pelvic symptoms following some uterine or appendiceal trouble preceding their ectopic pregnancy. I have seen two women die inside of ten hours from ruptured pregnancy, before the third month of tubal gestation, as subsequently proven by autopsy. One patient lived twelve minutes after I reached the house. The time to operate is as soon as the diagnosis is made. In making a diagnosis we should not disregard the possibility of tubal pregnancy occurring in an unmarried woman, I have had two cases, one in a widow, who denied the possibility of pregnancy until after operation.

Dr. J. G. Carpenter, Stanford, Ky.—The model practitioner is a diagnostician the world over. If the general practitioner knows his business he makes a diagnosis and brings his patient to the abdominal surgeon if he does not want to operate himself. If he is the practitioner that he ought to be, he should be prepared to operate on the patient himself, because the best abdominal surgeons are made from the best general practitioners. Early diagnosis is the thing of prime importance, followed by prompt surgical interference. Operate before the patient bleeds to death from hemorrhage, before secondary lesions are set up. The patient is often unaware that she has had long standing uterine trouble. As soon as the diagnosis is made the patient should be promptly operated upon. If this was done a large number of cases that are now lost would be saved.

Dr. Milo B. Ward, Topeka, Kan.—We all agree that it is absolutely essential to resort to early operative interference in cases of ectopic pregnancy, particularly before rupture has taken place, if possible. The general practitioner must be educated to the point that in cases of ectopic pregnancy it is necessary to operate as soon as a diagnosis is made. Operative interference must not be postponed. I would like to report two cases which illustrate the danger of postponing surgical interference, but I will not do so at this time.

Dr. W. G. Macdonald, Albany—Regarding the general practitioner, I will say that in those cases which I have seen the matter of diagnosis or suspicion of ectopic pregnancy by him has been the exception, and not the rule. We must educate the general practitioner that we have in these cases certain definite symptoms.

When we are called in consultation we sometimes give diametrically opposite advice in regard to what is best to be done after the diagnosis has been made, and this puts the general practitioner in trouble. We want to act together in these matters and establish uniformity of opinion.

Dr. Joseph Price, Philadelphia—The subject is not so difficult to understand, and a study of differential diagnosis is rather easy. From a general standpoint, the general practitioner is a very much better diagnostician than the specialist. You are in the habit of calling in specialists to do your special work; sometimes after studying your cases two or three days you come to a positive diagnosis by exclusion, and now I am going to rebuke you for permitting the specialist to take the attitude which he commonly does. After studying your case you summon a specialist, he examines your patient, shrugs his shoulders, looks wise, and says he will tell you what the condition is when he opens the abdomen. The general practitioner is as good a diagnostician in a great many cases as a specialist, and when his attention is once called to a subject he recognizes and realizes its importance. I have the greatest respect for the general practitioner, and in ninety-nine times out of one hundred I have found him usually right. If we save these patients, there is no time for the specialist to be called in, because the operation must be done before the specialist arrives. I have said that at least 25 per cent. of the cases die within twenty-four hours. The symptoms are simple, physical characteristics are prominent. There is an absence of one or two menstrual periods, a delayed menstrual period, and along with this we have the characteristic agonizing pain. The attack of pain differs from any pain to which your attention has ever been called. We have the characteristic shreddy *débris* which is nearly always present; a rapid pulse, and the symptoms of concealed hemorrhage. In some cases the pulse may not be bad, and the symptoms are not alarming; but if the case is an acute and typical one, cut down upon the peritoneum only, and it will be found to be black. You have only gone to the peritoneum to make a diagnosis. You will find black blood beneath it in a large number of cases.

With reference to general practitioners making a diagnosis in these cases, I will say that nurses occasionally after listening to discussions in the operating room and taking a record of the case, will make a correct diagnosis. I have had nurses who have sat by the bedside of patients for some time tell me that the case looks like one of extrauterine pregnancy.

GAUZE AS DRAINAGE IN ABDOMINAL AND PELVIC SURGERY.

Read in the Section on Obstetrics and Diseases of Women at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5-8, 1896.

BY MILO B. WARD, M.D.

TOEPKA, KANS.

Human life so frequently depends upon the tying of a ligature, the use of one more suture, the perfection of an operation in every minute detail, that the subject of peritoneal drainage, which is, perhaps, the most vital of all questions connected with the always grave procedure of opening the peritoneum, should never become too trite to demand careful consideration, even though much has already been written on this subject, and every phase of the question thoroughly discussed.

Viewing my failures retrospectively, I am forced to the confession that no one feature of my work has given so much cause for regret as that of insufficient drainage.

It is idle to say that drainage is needed only when the work has been carelessly done. However perfect the technique may be, it is still a fact known to every operator, that there are cases whose recovery depends entirely on the drainage employed after the surgical toilet is made. The only question for consideration then is: What kind of drainage shall be used in a given case? It is so frequently necessary in choosing the material for drainage to provide means of controlling hemorrhage, thus filling two important func-

tions at the same time, that the problem is at once solved whenever we have suitable method to meet the dual requirements. The kind of drainage so often depends upon the customs of individual operators that it is impossible to lay down any rule to govern all alike. This statement holds good in the use or non-use of drainage, for some operators use drainage in almost every case and others seldom if ever use it. Another important fact to be borne in mind in considering a question of this magnitude is, no one kind of drainage can be expected to meet the indications in every individual case. The object of this brief paper is merely to urge the importance of the thorough use of gauze, in a large variety of complications, as the material meeting the most indications and tending to save lives that would, I think, be sacrificed if other methods of drainage should be employed. My experience in the use of gauze has been so pleasing, in a large number of cases presenting the gravest complications, that I can not refrain from recommending with great emphasis this important feature in abdominal and pelvic work.

It is not my intention to deprecate in the least the usefulness of other forms of drainage; neither would I be understood as urging the use of gauze drainage to the extent of making a hobby of this practice, because there are a number of reasons why gauze should not be employed unless its use is absolutely demanded. The most potent objection to this kind of drainage is the large opening necessary through which to remove the drainage material after it has performed its proper function. Another objection to its use is the pain caused by removing the gauze, and in some cases necessitating the use of an anesthetic. These objections, however, apply only to cases where the gauze has been introduced through the abdominal parietes, because the removal of gauze from the vaginal opening does not usually cause suffering. Frequently it is necessary to employ lavage subsequent to the operation, where the field is primarily septic. In this class of cases the gauze drainage will be found the most useful, because it leaves sufficient opening to convey the fluids to the septic area.

Much has been recently said relative to the poisonous tendency of iodoform gauze when used as drainage, but I have never experienced the least untoward symptom, even when used in large quantities. Perhaps there is a difference in the kind of gauze used. My method has been to use the Johnson & Johnson moist gauze, as it is furnished in glass jars. However if there is the least question of absorbing enough of the iodoform to poison the patient, this gauze may be used in the form of a sac to come in contact with the peritoneum, and the carbolated or borated used for the filling.

It would be quite improper for me to suggest to this learned body anything regarding the minute technique of the use of gauze, and, therefore, I have only to suggest that it be used freely, and that the entire surface made raw by the separation of adhesions be covered with the gauze. In operations in the peritoneum through the vaginal route, it is very essential that a free opening should be made, thus enabling a generous amount of gauze to be used without packing it too tightly. It has been suggested by a number of operators that the gauze should be cut in long strips, so that the distal end will reach below the plane occupied by the proximal end, but I have not found this plan at all essential in order to ensure perfect drainage. Gauze applied externally, coming in contact with that which is introduced into the abdomen, carries on the drainage quite as well, and does not require so large an amount of material.

The most natural interrogation is: What character of cases demand gauze as drainage? My answer is, almost all seriously complicated conditions of the pelvic and abdominal peritoneum, especially when the intestines are involved, and also in all cases where the peritoneum is opened through the vagina. There are no objections to the use of rubber or glass tubes in connection therewith, but I have never found it necessary to employ anything but the gauze. Where this kind of drainage is used for the purpose of controlling oozing, the result of separating adhesions, it is my custom to introduce silkworm gut sutures, and remove the gauze in twenty or twenty-four hours, and then tie the sutures, thus securing primary union of the incision. This plan may be carried out in nearly all cases of sepsis by tying a part of the sutures and introducing a smaller piece of gauze for continuous drainage.

In conclusion, I beg to state that it is my conviction and experience that many patients will undergo surgical operations and recover, when gauze is freely used for drainage, who could not survive with the use of any other material to perform this important function.

DISCUSSION.

DR. HOWARD A. KELLY, Baltimore—I no longer drain for tubercular peritonitis, and these cases practically all get well. The cases I drain stay in the hospital on an average of fifty-nine days, while those in which I do not drain remain on an average only thirty-nine days. The cases where I drained had fistulous tracts. When I drain I use gauze, for the reason that a glass drainage tube may do harm by introducing septic material, by its perforating the intestine, producing a fecal fistula. In the second place, it does not drain. I find pockets of fluid within half an inch of the tube walled off by intestinal adhesions. I advocate gauze drainage because it covers a large area. Any quantity can be used, and it can be employed in curved and angular spaces, and a constant capillary action is kept up. The disadvantages of the gauze drain are that the drainage is apt to stop after a while unless watched, and there is the further disadvantage in removing it because of the pain it causes to the patient. It is my plan to remove the gauze very soon if it has been used for hemorrhage; but if for sepsis, to leave it in for five or six days.

DR. CHARLES P. NOBLE, Philadelphia—The more I operate the less I drain. In the beginning I drained a larger percentage of cases than Dr. Kelly, but the longer he operates the less he drains. Of the first hundred cases upon which I operated about ninety were drained. I did not feel comfortable about my early cases unless a tube was inserted. If my patients recovered where drainage tubes had been used I felt happy. If they got well without drainage, I felt it was a fortunate accident. Further experience taught me that it was not necessary, and at present I drain but little. My experience is that gauze drainage does not drain. The serum collects in the gauze, and if you do not get it out in any other way it stays in and poisons the patient. I insert a glass drainage tube in the middle of the gauze to get the fluid out. I am quite sure after the first day that gauze does not drain by capillary action, it simply becomes impregnated with the fluid which is in the pelvis and retains it. If the case is actively septic, unless the infected gauze is removed the patient dies. In my opinion the chief function of the gauze is to pack off the infected area. I have never found it necessary to use drainage for hemorrhage, and I think that with the patient in the Trendelenburg position it can always be controlled. In a case in which it is necessary

to employ drainage for this purpose I would prefer a glass tube for twenty-four hours.

Dr. Rufus B. Hall, Cincinnati—Where I use gauze to pack off raw surfaces in the pelvis, I also insert a glass drainage tube to remove the accumulated fluid. I do not use gauze for drainage as frequently as some operators. I think gauze is indicated in pus cases where we have large denuded surfaces, because it keeps the intestines from becoming soiled, or where they will become adherent. I have employed it in many instances only to keep the intestines away from the soiled area until it was walled off. As to the best time for removal, if you remove it sooner than the fourth day the patient complains of pain. After the fifth day it hurts but very little. The lymph is not reabsorbed before the fourth day. I never think of using gauze for drainage alone, as I am so confident that it will not drain pus and blood clots. I would not use it without a glass drainage tube alongside of it, or in the meshes of the gauze where it would take up extra fluid.

Dr. Henry O. Marcy, Boston—It is unnecessary for me to rehearse the long battle some of us have had in reference to drainage. For many years I stood alone on this question and I am glad to see others coming to my views. I have laid down two rules for my own guidance. If the case is aseptic, no drainage; if septic, drainage. The reason I think gauze sometimes ceases to drain is because the operator tries to drain uphill. The proper place to drain is not through the abdominal wound, but through the vagina, and a large opening should be employed.

An objection to the application of gauze through the abdominal wound has not been referred to. The gauze will adhere to lymph if it is not disturbed. Even if it is loosened you are liable to displace organs, as lifting a considerable piece of gauze out through the abdominal opening is quite sure to dislocate the restored omentum, and if you are not very careful you have complications in consequence that are serious. Therefore, when we drain, let us drain properly, by which I mean drain by the vagina in such a way that you may profit by gravity. Let your opening be sufficiently large for drainage purposes. He who makes a small opening through the vagina and packs it tightly with gauze will certainly fail. If he makes an opening not larger than my little finger and wedges it tightly with gauze he has practically made a plug of it and has precluded the possibility of capillary drainage.

Dr. George M. Sternberg, Washington, D. C.—In regard to the general question of destruction of bacteria in wounds, the views of surgeons have been modified. Lister commenced years ago with the idea of killing the germs in the air, and then various propositions were advanced by hygienists to destroy bacteria in the water closet, and the discharges of normal individuals were to be disinfected. Now we have precise information as to what agents will destroy bacteria and in what proportion, and this precise data has been utilized by surgeons who are now very well informed upon this matter. They know that the particular micro-organisms which they have to fear are the staphylococcus aureus and the streptococcus pyogenes, and they know that the ordinary saprophytic bacteria which may drop upon the surface of a wound are not likely to do any great harm. Fortunately nature will provide for a certain number of bacteria, and even the most virulent varieties of the pus cocci are destroyed by nature. When you have a virulent streptococcus, such as you may get from the abdominal cavity of a woman who has died of puerperal fever, why then you must beware. The attenuated varieties, such as are found not infrequently upon the surface of the mucous membrane in the vagina of healthy women, must be kept out of wounds. You must take every precaution to do this, but nature will render harmless a limited number. Infection depends upon two or three things. 1, a virulent micro-organism; 2, a susceptible individual. All individuals are probably susceptible to wound infection, but there is a difference in the susceptibility. Any woman who has lost considerable blood may be more susceptible to infection than another. Experiments have shown that alcoholics are especially susceptible and those who have been suffering from inflammation have a predisposition to infection. A streptococcus of slight virulence might produce infection, and one may have a streptococcus with increased virulence which would be extremely dangerous for a person in poor health. You are familiar with the various chemical agents used to destroy these microörganisms.

Dr. Wiggin, Connecticut—I think drainage in ordinary abdominal troubles is a mistake. It is true we have a moderate amount of infection, but in breaking up adhesions it has been my practice to shut off the general cavity before the adhesions are ruptured and to use peroxid of hydrogen in fifteen volume solution strength, and after allowing a little time to elapse, washing out the cavity with a normal saline solution and closing the wound. By following this method I have no cause of regret. I have no septic peritonitis.

Dr. H. O. Pantzer, Indianapolis—I performed my first laparotomy in 1888, in which I resorted to the use of a drainage tube. I have not used it since and I have no reason to regret it. It is a clinical fact that the peritoneum is a tissue quite different from the tissues that we meet with it in wounds in other parts of the body, and it acts differently from those cavities which contain pus. The peritoneum is able to take charge of a certain amount of infection. Gauze packing is quite unnecessary, and pernicious when used to a great extent. It might be necessary in some cases to use a single layer of it, at most a double layer applied to the infected area. In most aseptic cases I use only a little bit of iodoform gauze and I have no reaction in most of my septic cases. I think iodoform gauze has a danger which has not been touched upon, namely, that of producing fistula. I know of one surgeon who has had at least one hundred cases of intestinal fistula which followed packing by gauze. I infer that the fistulæ were established here because of the violence with which the gauze packing was removed. There is an incentive to remove the gauze rapidly and violently because of the pain it produces. I would suggest the use of peroxid of hydrogen to loosen the gauze from its attachments. It acts admirably.

Dr. A. P. Clarke, Cambridge, Mass.—Dr. Sternberg brought out one point that ought to be emphasized. It was recognized some years ago before antiseptic surgery came into use. Many years ago I recognized the fact that in cases where there was great loss of blood there was a tendency on part of the absorbents to rapidly absorb everything, and that in such cases where there was absorption of pus we could predict that pyemia would follow. Even in these days in cases with little loss of blood and good health drainage is unnecessary. On the contrary, in cases where there is great loss of blood, drainage should be used. An alcoholic solution should be given to restore the circulation as rapidly as possible if the germs can not be absorbed from the wounds. This is a matter of vital importance. We must distinguish between those cases which require drainage and those which do not. It is not a local trouble, but a general condition of the system. If the members will review their cases and note which ones have become poisoned, they will find it was those in which there had been great loss of blood and the patients very much reduced in health.

Dr. Henry P. Newman, Chicago—This matter of drainage is of great interest, and I think some of the statistics are a little misleading in regard to its use, even those of Dr. Kelly. We do better operating than we did formerly, and our last one hundred cases are showing this. It is not to be ascribed in all instances to either the use or the non-use of the drain. Our work is cleaner; the tissues are better protected; the surfaces are less abraded; there is less handling of the intestines, less exposure, etc. Consequently we do not need to drain as much

as formerly, and necessarily we have better results. Then, too, the resisting power of the structures is correspondingly great as they are less manipulated and exposed, or brought under the influence of trauma.

With reference to the material used for drainage, I have used for the last six or eight years properly prepared wicking, which I have found far superior to gauze. It can be used in large quantities. Its threads are continuous and very easily removed. The capillary action is better and it is easier to introduce and remove. This ordinary lamp wicking is prepared very much the same as iodoform gauze, and it can be made antiseptic with any of the germicides. The advantage of this material in the abdominal cavity means simply more than drainage; it protects abraded surfaces and prevents adhesions of the intestines. I think we are learning to do away with the drain through the abdominal wall and shall soon use it exclusively through the vagina. The bugbear of vaginal infection is fast fading away.

DR. WARD—We are mostly agreed that we should not use drainage if it is not absolutely necessary. Gauze does not drain after twenty-four hours. A glass tube does not drain after twelve hours, therefore, we have gained twelve hours after that method by the gauze. Gauze will carry away all the material thrown out in the abdominal cavity. The portion on the outside will be filled with clotted blood. I believe that we should drain through the vagina where it can be done. The gauze must not be packed too tightly if we expect good drainage.

HOW TO CURE RHEUMATISM.

Read in the Section on Practice of Medicine, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5–8, 1896.

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The names of diseases are determined, principally by the prominence of a certain group of symptoms. The disease under consideration follows the general rule. Special names are attributed to particular groups of symptoms, all of which, however, constitute merely varieties of one disease.

Rheumatism is acute when it is recent, and chronic when the disease has extended over a longer period; articular, when the manifestation is chiefly in the joints; inflammatory, when the whole body exhibits the symptoms of inflammation and pain; muscular, when relating to the striated and non-striated tissues; sciatica and lumbago belong to the same family; even gout is itself closely related in its orgin, differing only in its symptomatology.

The present paper is concerned with a practical review of the author's system of managing this disease in its various forms.

Disturbance of nutrition with consequent impairment of the solids and fluids of the body, always precede rheumatism. Invasion of the soft tissues can not take place unless the functional activity of both structures is impaired. It is impossible to name the first symptom in the series of alterations of the elementary forms. But in almost all cases which have come under observation, certain functions are almost uniformly abnormal. Variation in the volume as well as the nature of the fluid elements of the body, and changes in the quality and proportion of the solids, are constant factors in the pathology of rheumatism. The influencing or producing causes of these changes in the body are, indeed, hard to exactly discover. But fortunately, they are not indispensable to successful treatment of the condition that requires remedial aid.

Whenever there are functional changes they consist for the most part, of abnormal muscular action in some portion of the body, principally with reference to the capillaries and small arteries. The same condition may be an exciting cause of other diseases, the peculiar spmptoms determining the character of the affection, being dependent upon the state of the general system of the individual. Thus a given influence may produce in different individuals quite contrary symptoms. With disturbed nutrition, alteration of the fluids and solids of the body are accompanied by obstructions in the circulatory and excretory systems. Lowered vitality is the necessary result, which is the basis upon which rheumatism is determined. If functional activity remains normal, the vital resistance of the soft structures prevent retention of the impurities. There is no one portion of the economy which suffers alteration so readily as the circulating fluids. Upon the relative maintenance of the normal proportion of the fluids and solids, the health of the body depends.

It has been found by examinations of the blood that there is a loss of balance between the fluid and solid ingredients. It has also been determined by scientific investigation, that the origin of diseases lies largely in the imperfect circulation of the fluid elements of the body through the capillaries, altering in turn the functional activity of the lymphatic vessels. Congestion is a disturbance, or, an obstruction in capillary circulation, whether it be in the surface of the body or in some internal organ. The consequent result, which follows even a slight interruption in these minute passages, produces obstructions which in turn, undergo changes that are fatal to the life of the elementary cell. If the harm done is slight, and the balance of the circulation is quickly regained, the symptom of this disturbance may not be even appreciable to the central nervous system. If, however, a great number of slight disturbances in the capillary circulation occur, the resulting evidence is determined by symptoms which are noticeable. There are many causes which may produce impeded vascular circulation in the minute spaces, the chief of which is some form of exposure of the body to external influences.

The first impression upon the system is necessarily received by the nervous system, and through it the influence is carried to the muscular structures. If the vitality is sufficiently strong the evil influence is scarcely appreciable, for it is the natural tendency of the system to recover from disturbed equilibrium. Few individuals there are whose physical condition is normal; consequently, the result of even a slight cause of physiologic disturbance is often productive of disaster. The point of my argument, at this time, is to establish the value, in the maintenance of normal health, of the part which is performed by preserving the quality and the volume of the circulating fluids.

The capillaries are so exquisitively small, that even the red cells themselves are unable to enter them. The watery element of the blood alone finding its way through the millions and millions of these diminutive channels. The ultimate cell depends for its nutrition upon the albumin, the fibrin and the salts which are held in solution by the water of the blood. Ever so small a disturbance in capillary circulation interrupts the processes of nature, and, if these instances occur sufficiently frequently, morbid products are retained in the lymphatics and the intercellular spaces. The efforts of physiologic action to remove and expel these products when retarded, constitutes the first

element in inflammatory processes. The accumulation of these minute centers of interrupted action, establish an appreciable area of disease, which spreads more and more according to the state of the tissues. When the area of inflammation is sufficiently large, and destruction of cells is advanced, the heat of the body is augmented, both by the decomposition of the morbid products, and by the physiologic disturbances produced throughout the system, constituting an inflammatory fever. With the determination of the fever, other symptoms appear which hitherto were not present in our picture of pathologic changes.

The exact pathology of rheumatism is undetermined. The analyses of the blood indicate no chemic or organic changes. The cellular structures are identical with those of usual conditions found in health. Lactic acid and uric acid and other chemic substances are not found to prevail to a greater degree than at other times. The only change that is discoverable, is the diminution of red corpuscles. The various theories concerning the cause and origin of rheumatism, in the light of the exact knowledge, determined by physic and chemic analysis of the blood, are not satisfactory. The exact knowedge on the subject consists in the single, positive statement that there is alteration in the number of red cells of the blood. In addition to this it is also able to be definitely stated that there is diminution in volume of the fluid element of the blood. These facts would seem to throw the responsibility upon the capillary circulation rather than upon change in the blood chemistry. It is upon recognition of the foregoing physical alterations of the blood that my practice in the treatment of rheumatism is founded.

Postmortem examinations reveal no changes not found in other diseases. Chemic analysis of the fluids and the solids of the rheumatic body are also negative in showing the origin of this disease. The flow of urine is greatly diminished and through this condition, it is able to determine that the volume of the blood is also diminished, corresponding precisely to the symptom of scanty urine. The average number of cases, in which the urine has been calculated as to the quantity, shows a uniform decrease as well as an increase in color and specific gravity.

After very careful examination of the extensive literature on the subject of rheumatism, my conclusions are as follows: that rheumatism is, so far as the conditions of the solids and fluids of the body are concerned, a disease not dependent upon chemic changes of the fluids; nor is it due to any particular chemical that may be found, either in the fluids or the solids of the body. The only definite knowledge that is irrefutable, is that there is a change in the physical character of the blood, consisting of an alteration of the relative proportions of fluid and solid elements.

The inflammatory processes which take place are similar to those in other diseases, under similar conditions. The differences in the forms of rheumatism are produced by variations of the intensity of the disease, and the state of health at the time of attack, of the individual. The three principal symptoms of rheumatism, namely, pain, fever and swelling are able to be explained by my hypothesis. The condition of impaired nutrition, and functional derangement of the bowels, either constipation or diarrhea, is almost constant.

Clinical experience teaches me, therefore, that the first indication in the treatment of this disease is the supply of proper and sufficient nutrition. The next indication is attention to the processes of elimination by which the system is relieved of dead matter. 'Nature is the greatest remedial influence in the cure, and whatever introduces new strength and saves the vitality is the safest therapeutics. Next in order in the line of remedial measures, is to restore and preserve the normal volume of the blood. If there is a reduction in the number of red blood corpuscles, that reduction, it is found, is only relative, for there is a consequent loss of serum. This condition is exactly determined to be true, by quantitive estimation of the urine of each twenty-four hours. The high specific gravity of urine, which is referred to as a prominent symptom in febrile diseases, is evidence that there is deficiency in the liquid element of the blood. Nothing could be more natural than a waste through the kidneys in proportion to the volume of blood serum, so that this symptom is so slight in importance, relative to the ease with which it can be corrected, that it is a surprise, that so much is made of it in referring to the symptoms of disease.

Every one of these pathologic and physiologic changes which have been enumerated in the paper, are directly amenable to control by the proper use of hydriatics. There is no question as to the fact. It has been so many times proven in my clinical work during the past period of six years, that it is no longer subject to the least doubt in my mind. It is not altogether an easy matter for those not acquainted with hydriatics, to give full credence to such positive statements, unsupported by clinical demonstrations in hospital wards. Neither is it an easy matter to learn the various processes which constitute intelligent and common-sense use of water, pertaining to the cure of this disease.

Before detailing the plan which is regularly followed in my practice, it is my wish to lay before you some therapeutic measures which were recently employed in the treatment of a case of acute rheumatism in one of the Metropolitan hospitals. The recital of this list of remedies may be instructive, as it furnished me many points for thought and criticism of the prevailing measures in vogue to-day, in the treatment of rheumatism. The list comprises the following drugs and remedies used upon one and the same patient, the result of which was the fatal termination of the patient:

Here it is: Salicylic acid, salicylate of soda, gaultheria, salol, salophen, antipyrin, iodid of potassium, wine of colchicum, iron, arsenic, strychnin, bicarbonate of soda, epsom salts, bromid of sodium, morphin, turpentine, lanolin, lard, digitalis, cod-liver oil, whisky, and menthol in alcohol. Great stress was placed upon the fact that 15 grain doses of salophen, combined with 15 grains of bicarbonate of soda, were borne by the patient at intervals of every two hours. The patient grew steadily worse from the inception of the treatment, and it would be strange indeed, had it been otherwise.

The criticism of this plan of treatment is not owing to a lack of an orthodox education, or to ignorance on my part of the recommendations of the materia medica. The practice of therapeutics has been going on for a period of, perhaps, over three thousand years, and while the list of remedies presented above does not represent the sum total of our ability in the treatment of rheumatism, neither does it reflect creditably upon the education and the intelligence of a learned

profession, and it is not strange that odious comparisons are instituted by the laity between the advancement of surgical treatment compared with that of medicine. There is some excuse in the allied sciences of electricity and other departments of physics, for imperfect processes, and room for further scientific development, but it seems to me there is hardly the same excuse for a class of highly educated, broad-thinking men who have had so many centuries during which to work, and in which to perfect the treatment of diseases of the human body.

We must remember that steam and electric energy are discoveries of comparatively recent years, and that further improvements are in order and perfectly natural; but we must also remember that the human body with its physiologic and pathologic nature has been known and practiced upon for more than thirty centuries. What hope for the future would there be if the foregoing list of remedies should be taken as the total of our ability in the treatment of this disease? If our science was no older than steam or the telephone, our mistakes would be but natural and pardonable. It is not wholly the fault of the physician that such an incongruous and contradictory collection of substances should be used in the treatment of rheumatism. The education of the people and the use of drug remedies from childhood, almost force physicians to employ them in the treatment of their cases. Beside this, the circulation of enormous quantities of spurious medical literature by commercial agents, advocating and urging the use of their patented and proprietary preparations, has a harmful and misguiding influence upon the younger members of the profession, who are eagerly seeking, and ready to receive information which purports to represent the very latest ideas in therapeutics. It is not my purpose to condemn or to harshly criticise any one in particular, but rather, in a sympathetically critical attitude to point the way to the truth.

The treatment of rheumatism by hydriatic processes is based now upon an experience in practice during a period of six years. The plan which is pursued is satisfactory to the highest interest of the patient and the physician. It is something that is definite; it is reliable, and the gains that are secured in the progress of the treatment are real, and can be determined with an accurrcy approaching true science. The only difficulty that is experienced in pursuing the hydriatic plan, lies in the fact that it is considered by the patient and friends as novel and, therefore, to be guarded against. Besides, the support of the profession, is withheld, owing to misunderstanding, by reason of clinical inexperience, lack of actual knowledge, and doubt, which operates to the disadvantage of both the physician and his patient. It takes a great many clinical experiences to establish the courage of one's own convictions, and until belief is based upon many carefully conducted experiments, there is always room for a question whether it is right or wrong. The disposition is, among clinicians, to prove each point in practice and to lean toward conservatism. For my part, my courage is established, and the practice of hydriatics, according to my experiences, is now approaching a definite and scientific system of therapy.

For the purposes of clinical practice the gross symptoms of rheumatism are sufficient in all cases to determine the line of treatment. It is only where experiments for scientific purposes are instituted that differentiating instruments and chemic tests are employed. When first called to see a patient it is of course impossible in most cases to exactly determine, even to my own satisfaction, the precise nature of the affection. The first inquiries that are made of the patient refer to the general condition, followed by questions and examinations to determine the details concerning the physiologic functions. Inquiry is especially directed to the excretory system, with reference to the quantity of urine which is passed, the condition of the bowels, the appearance of the skin and the mucous membrane, and especially the state of the appetite, the kind of food taken, and the habits with reference to the nature and the quantity of fluids taken as drink. The temperature of the body, the movements of the pulse and the subjective symptoms of the patient, constitute a list of inquiries sufficiently to determine the treatment. The physiologic requirement of the system is two litres of water per day. In no single instance of a case treated has this quantity been consumed by the patient prior to his sickness.

The treatment is begun by prescribing regular, definite doses of pure, soft water at frequent intervals. Each dose of water contains some harmless remedy to satisfy the notions of the patient and his friends. The amount of water which is prescribed at each dose is scientifically determined by the whole weight of the body, the age of the patient and the degree of the fever. Starting upon the basis of an average man, two to four litres of pure water is prescribed every day, in properly apportioned doses, to avoid mistakes and excessive use of water at any one time. If the patient were of seventy-five pounds weight my estimate would be that one and one-half to two litres of water would be absorbed per day with comfort and advantage. The next process in the use of hydriatics is irrigation of the bowels if circumstances favor it. One teaspoonful of elixo, a liquid soap, is mixed with the water used for irrigations. Many cases have been treated by me, in which it was inconvenient or undesirable to practice irrigation of the bowels. It is therefore, established clinically that while irrigation is in all cases an aid to treatment, still it is not indispensable.

The third hydriatic process is the use of water upon the surface of the body. If the patient is agreeable to direction and conveniently located, the full bath is recommended. The temperature of the water should be a few degrees below the temperature of the body. When the toilet room is inaccessible or it is inconvenient to remove the patient, three bathing processes are followed in my practice: 1, sponging the body with water from a basin; 2, the wet pack; and 3, the use of my sprinkle-bath. The sprinkle-bath consists of cool water applied to the surface of the body, at intervals of two or three hours, during the day and evening, by means of a small sprinkle nozzle attached to the end of the tubing of a fountain syringe, which is suspended from a chandelier, bedpost or a nail in the wall. Swelled and painful joints are packed in a compress of cold water until relief comes. Briefly speaking, the foregoing measures have availed in the treatment of rheumatism. The precise detail work must necessarily vary in every case. The food is immaterial; whatever is the most simple, the easiest to provide and which is agreeable to the patient, is all that is required. Purposely the recital of cases has been omitted. Such recitals are tedious, and for this reason are omitted from this paper.

103 State Street.

DISCUSSION.

DR. LOUIS FAUGERES BISHOP, of New York—I do not think we ought to pass over the subject of rheumatism without any consideration of the fact that in all probability acute rheumatism is of miasmatic origin. I think that any one who studies the whole literature of the subject will come to that conclusion.

Further discussion was interrupted by the lateness of the hour.

MALARIA.

BY ELLSWORTH D. WHITING, A.B.

AURORA, ILL.

(The L. P. C. Freer Prize Essay, Rush Medical College, 1896.)

(*Continued from page 123.*)

Before entering upon a systematic study of the organism, a description of the manner in which specimens are obtained may be of advantage.

The technique of obtaining specimens for a fresh examination, though simple in theory, presents many slight, but annoying, difficulties in actual practice. The main points ever to be kept in mind are cleanliness, quickness and skill of hand and eye. The instruments necessary are a small lancet, two pairs of blood forceps, slides and cover slips. The site of puncture should be thoroughly cleansed, first with soap and water to remove dirt, secondly with alcohol to remove oily materials, and then allowed to dry.

Blood for examination may be taken from any part of the body. In adults the finger tip or lobe of the ear is most satisfactory. The writer has had most success in taking specimens from the lobe of the ear. Here there is practically no pain; a very minute puncture only is required to obtain the necessary amount of blood; it is out of the sight of the patient; immobility is easily obtained and infection is not liable to follow. The puncture of the finger tip is painful; being in the sight of the patient much annoyance is caused in children and hysteric subjects and there is more danger of infection. In infants the most desirable site is the inner surface of the heel.

Great cleanliness should also be observed in the preparation of the slide and cover slip. Both should be thoroughly cleansed immediately before using. In preparing the cover glass it should first be allowed to stand in 25 per cent. sulphuric acid for one half hour. It should then be washed in alcohol and finally dried with a perfectly clean and dry silk or linen handkerchief. In the preparation of the slide such precautions are not necessary as cleanliness can be secured by brisk rubbing.

If it is convenient it is of great advantage to have the slide as near body temperature at possible. This may be obtained by the judicious use of the alcohol lamp or by friction at the hands of an assistant.

The site of operation and the necessary articles being in readiness, a slight puncture, directed upward, is made in lowest point of the lobe of the ear. The lobe is then turned upward and the blood allowed to flow without pressure. The first few drops are wiped away when a cover glass held in blood forceps is touched to the summit of the following drop as it emerges from the opening. The slip is then quickly transferred to the slide. In order to guide and steady the hand that the cover may not touch the skin, the following procedure may be followed. Let the left hand, which is holding the lobe of the ear, rest against the neck of the patient, then by placing the fingers of the right hand, in which the cover slip is held, lightly upon the left hand, steadiness and accuracy of tactile sense may be acquired to a remarkable degree. It is also of advantage to hold the forceps as near the cover slip as possible.

If the cover slip and slide have been perfectly cleaned; if the operation has not taken too long and the cover glass has not touched the skin nor the drop been too large, the blood on touching the slide will immediately spread out between the slide and cover glass. No pressure should be applied. On microscopic examination the corpuscles will be seen to lie separate and distinct side by side and unaltered in the surrounding plasma.

Often in spite of the most careful preparations the drop of blood will not spread, a condition which the uninitiated will be at a loss to explain. This may be explained in four ways at least:

1. After immersing in sulphuric acid, the acid may not have been entirely washed away. Especially does this occur when a number of slips are washed at the same time. Long cleansing in water is necessary to thoroughly remove the acid. When the acid can not be tasted it will do no harm in the spreading, fixing and staining processes.
2. A raveling may be found lodged in between the slide and cover slip, which prevents the hugging of the slide by the cover glass.
3. The surface of the slide may be uneven.
4. The slip may be warped.

Blood prepared in this manner will keep from one and one-half to two hours without crenating and may be kept longer by annointing the edges of the cover slip with vaselin or glycerin. In the examination of blood for the organism of malaria a one-twelfth oil immersion objective with ocular number five is recommended. These high magnifications are not absolutely necessary. Laveran made his first observations with dry lenses of low powers.

The preceding methods are the simplest and most practical for clinical work. Some observers use methods much more complex. Hayem's slide is used to some extent. This consists of a hollowed out slide. The drop is placed in the depression and protected by a cover slip. Plehn describes a most elaborate method by which he keeps microscope, slide and specimen at body temperature. He mounts his specimens in parafin and thus keeps them intact for three hours.

In the preparation of dried specimens for future staining the technique is the same except that instead of placing the drop collected on the slip upon the slide, it is placed upon a second slip, held likewise with blood forceps. The slips are left in contact from one to two seconds when they are drawn apart being continually held by forceps and the lines of force kept parallel. They are then set aside to dry with the clean side down. The drying process takes but a few moments.

When it is necessary to take dried specimens without aid, the operator is compelled to fall back upon devises which may best suit the circumstances. The writer has been very successful in the pursuance of the following plan. One cover slip is placed upon a clean piece of paper at the very edge of a table while the second cover when the drop of blood is collected is placed upon the first. As the blood cements the slips together both are raised by lifting the one in the grasp of the forceps when they may easily be separated.

Before specimens can be stained they must be

fixed. Fixation consists in bringing about some molecular change in the corpuscles in which condition certain elements take certain stains. The nature of this process is not known. Some say that the change is that of coagulation of the albumin, but this can hardly be true as carbolic acid does not fix blood. Fixation is probably simply a process of dehydration.

There are many methods by which blood is fixed. This may be accomplished by passing through a flame, heating at 120 C., immersing slips in picric acid, mercuric chlorid, absolute alcohol, osmic and glacial acetic acid or alcohol and ether, equal parts. The writer has been most successful in the use of the latter method. He generally leaves the specimens in the fixing agent for twelve hours but good results have been obtained after one-half hour's fixing. Unsuccessful attempts at fixing with alcohol and ether often arise from the fact that the alcohol is not absolute or contains enough acid to destain the specimen. Commercial alcohol is rarely pure. The reagents used in the fixing of blood should be distilled for the purpose and kept in an air-tight container.

Results obtained from heating on the graduated bar are variable, due to the fact that it is exceedingly difficult to keep the bar at an even temperature. In this method of fixing, an ordinary one-burner oil stove is used. Across the top of the stove is placed a copper bar two feet in length, four inches in width and one-eighth of an inch in thickness. After the bar has attained a stationary degree of temperature, the boiling point is determined. This is accomplished by dropping water upon the bar and noting the point at which it boils. At this point a line is drawn across the bar and a row of slips, smear side down, are placed one inch within this line. The specimens are permitted to remain at this temperature from one to three hours. Although simple of description this method is open to many criticisms. The apparatus must be continually watched, as a rise of temperature ruins the specimens. It is best to protect the bar as much as possible from drafts and to determine the temperature every few moments with water.

Many investigators have used an oven in which the temperature may be accurately regulated. By means of this devise good results have been obtained.

The parasite of malaria takes the stain of all basic anilin dyes. It is unaffected by the acid dyes except when they are of great strength and left in contact with the organism a long time. These facts have given rise to a host of methods of staining, a description of all of which would be futile; therefore a few of the more important ones will be described.

An exceedingly interesting and ingenious method is given by Celli and Guarnieri, who succeeded in staining the parasite while alive. For this purpose they employed aseptic ascitic transudation in which methylene blue was dissolved. They placed this solution over the site of the puncture, allowing the blood to flow with the fluid, which was quickly transferred to the slide. It was then kept in a warm moist chamber for three hours, when the organisms were seen to be well stained. This method, however, does not procure permanent specimens.

Chenzinsky successfully stained specimens which had been previously fixed and dried by placing them for five minutes in a mixture composed of a 50 per cent. aqueous solution of methylene blue, and an equal amount of 5 per cent. of eosin, in 60 per cent. alcohol.

A cumbersome yet ingenious plan has been devised by Feletti. After allowing a 25 per cent. alcoholic solution of methylene blue to dry upon a slide he places upon it a cover slip upon which a drop of blood has been collected. He then surrounds the cover slip with parafin. The serum of the blood dissolves the methylene blue, which stains the organisms.

Mannaberg, after fixing the specimens in alcohol and ether, equal parts, for half an hour, stains them in a concentrated aqueous solution of methylene blue for an equal length of time. After having been washed and dried in water, the specimens are left for thirty minutes in a 2 per cent. solution of eosin in 60 per cent. alcohol. They are then washed, dried and mounted in balsam.

The method described by Romanowsky is effective yet impracticable for routine work. Immediately before using, he makes a fresh solution composed of one part of a filtered, saturated, aqueous solution of methylene blue, to two parts of a 1 per cent. watery solution of eosin. The specimens, fixed by heat, are floated smear side down upon this mixture, contained in a watch glass. The specimen is covered by an inverted glass and the whole enclosed in a moistened beaker. The specimens are allowed to remain in this solution from one-half hour to three hours. By this method Romanowsky claims that he stains the red corpuscles red, the parasites blue and the nuclear chromatin violet.

Mannaberg has devised a method by which he brings out in great clearness the finer structure of the parasite. At first the dried specimens are floated for a few moments upon distilled water, and after being dried are bathed in dilute acetic acid until there is a complete disappearance of the hemoglobin. The specimens are then permitted to float for two hours upon the following fixing solution:

Concentrated aqueous picric acid . . .	20 c.cm.
Distilled water	30 c.cm.
Glacial acetic acid	1 c.cm.

The specimens are next placed in absolute alcohol for twenty-four hours. After this they are stained from twelve to twenty-four hours in a solution consisting of one part of hematoxylin (hematoxylin grams 10 to 100 c.c. acid alcohol) to two parts of a .5 per cent. ammonia alum solution. The specimens are destained in acid alcohol (hydrochloric acid 25 per cent., alcohol 75 per cent.) and ammonia alcohol (three drops of ammonia to 10 c.cm. 75 per cent. alcohol). They are then washed in 8 per cent. alcohol and mounted in balsam. By this method the parasite and leucocytes are stained blue, the red corpuscles being colorless.

The preceding methods and numerous others have been used since the discovery of the organism by Laveran and the staining methods set forth by him. Moreover, the method advised by him, although the simplest and oldest, is most practical and efficient for ordinary use. Laveran fixes blood in alcohol and ether equal parts. He first places the specimen, for thirty seconds, in concentrated aqueous eosin, and after washing and drying, stains for thirty seconds in concentrated aqueous methylene blue.

In his experimentation with staining the malarial organism the writer, although he has used the methods of Laveran to considerable advantage, has been most successful in the use of methylene blue alone. He finds that as the organism is endoglobular, its outline is blurred to some extent by the eosin. Speci-

mens stained in aqueous solutions are more easily decolorized by washing in water than those stained in alcoholic solutions.

No definite limit can be given to the length of time and strength of dye required to properly stain a specimen, even when the strength of the staining reagent is known. These points can be accurately estimated for normal blood, but as it is a rare occurrence for two pathologic specimens to be physiologically the same, their staining is necessarily a subject of great variance. To procure a properly stained specimen it is necessary to obtain its stain-absorbing qualities by making a test specimen. This is accomplished by applying a stain of known strength for a certain noted time. Using this as a guide, a good specimen may be obtained by varying the strength of the stain and length of the time of its application. A good standard for comparison may be found in the leucocytes. When the small lymphocytes take a deep blue stain and the large polynuclear neutrophiles a faint blue, the methylene blue is of proper strength. When the leucocytes are thus colored the malarial organism will be distinctly stained and therefore recognizable. The eosin should but faintly color the red corpuscles.

When the staining is completed previous errors, if they exist, are brought to light. If acid is present, specimens refuse to stain. If the specimen is thick individual corpuscles are not distinguishable. If the blood has been allowed to dry before separation of the slips the corpuscles are not arranged evenly, but in concentric circles and rows. If the blood was forced from puncture there will be a large amount of plasma present which will obscure the field. If fixing material has not been pure, the specimen will not stain. If the heating apparatus has become overheated the corpuscles will be ruptured, charred and disintegrated.

In the examination of blood for the "plasmodium malariæ" most satisfactory results are obtained by examining fresh specimens. The great advantage of this method lies in the fact that the ameboid movements of the organism may be observed.

The organism must be differentiated from, 1, blood plaques; 2, vacuoles; 3, discs of red corpuscles; 4, crenated corpuscles; 5, oil globules (?).

1. The blood plaques are colorless, extra-corpuscular and might be readily mistaken for hyalin forms of the organism, were the ameboid movement not considered. The plaques are more translucent, their outlines more clearly marked and irregular than hyalin bodies. There is a tendency toward the grouping of the plaques in grape-like clusters. On staining they take the methylene blue, as does the organism, and must be differentiated by position and contour.

2. The vacuoles are lighter in color, translucent, outlines distinctly marked, are non-motile and always spherical in form.

3. Discs of red blood corpuscles are spherical and when present are usually found in large numbers and situated in the center of the corpuscle, except in cases of poikilocytosis. These discs are of indistinct outline, non-motile, and when present in small numbers they can only be differentiated from resting hyalin bodies by staining methods.

4. Crenated corpuscles appear as coarsely spiculated balls. These spicula are caused by the irregular contraction of the cell wall of the red corpuscle(?). Although colorless these spicula appear black when viewed through reflected light, and on this account are often mistaken for pigmented organisms.

5. It is scarcely necessary to differentiate hyalin bodies from minute, spherical, translucent, rapidly moving bodies which are frequently seen in the blood of malarial patients. These particles are found in normal blood and their nature is unknown, but they probably consist of oil globules from sebaceous glands, commingled with the blood during its exit from the puncture.

It is of vast importance in the differentiation of the hyalin bodies from the foregoing bodies to note the kinds of motion visible under the microscope. In the field can be seen distinct currents, probably produced by heat radiation. These currents give to the corpuscles a vibratory, oscillating and rotary motion, which is in turn transmitted to the contents of the corpuscle. These movements are possessed by all of the previously described bodies, plaques, vacuoles, discs, crenated corpuscles, and oil globules, and must not be confounded with the ameboid movements of the malarial organism, which is entirely independent of currents; is slow and characterized by a change in *form* of the parasite.

Through the opportunities afforded by the medical clinics of Rush Medical College and the medical wards of Presbyterian and Cook County Hospitals the writer has been able to observe and study the blood changes in many malarial patients. The classification proposed by Thayer and Hewetson will be adopted in the following description:

In describing the tertian parasite the writer will make use of a series of specimens taken from a patient in Cook County Hospital, exhibiting tertian paroxysms. Specimens were taken every four hours, night and day, for forty-eight hours. In this manner a complete cycle of the life of the organism was obtained. By a microscopic examination of these specimens stained with methylene blue the entire development of the organism was traced with remarkable accuracy. Fresh specimens were examined as far as possible. The patient's history is taken from history sheets of the hospital, and the temperature recorded by the writer at the time the specimens were taken. The blood count was made after the series was completed.

James W., admitted Feb. 2, 1896; age 31; born in Scotland; single; carpenter by trade. Family history: father had stroke of paralysis some years ago, but is still living; otherwise negative. Personal history: has been in Chicago eighteen months; drinks occasionally, smokes, habits regular, no venereal history; has been working of late in Brighton Park. Previous illness: measles and whooping cough. Present illness: had first chill last April, which was followed by chills every other day. These disappeared upon the administration of quinin, but reappeared late in September, occurring every other day. The attacks were again stopped by quinin. The last attack began February 1 and patient has had a chill every other day since. Chills occur between 6 and 8 o'clock in the morning. During the chill the patient complains of great pain in the back, head, left side and shoulder; the chills are followed by high, burning fever, profuse perspiration and great prostration. Appetite poor and bowels regular.

Physical examination.—Body well nourished; mind, clear; eyes and pupils normal; tongue, clean; pulse, full and strong; thorax, well developed; heart negative; lungs, negative. Abdomen: liver normal; spleen (palpable) is situated in mammary line from sixth rib to one inch below costal arch. Limbs, negative; no adenopathy. Hemoglobin, 67½ per cent.; red corpuscles, 4,500,000; white corpuscles, 5,000.

In this description of a serial examination the writer shall attempt to follow out the development of the organism, commencing with the group of hyaline bodies

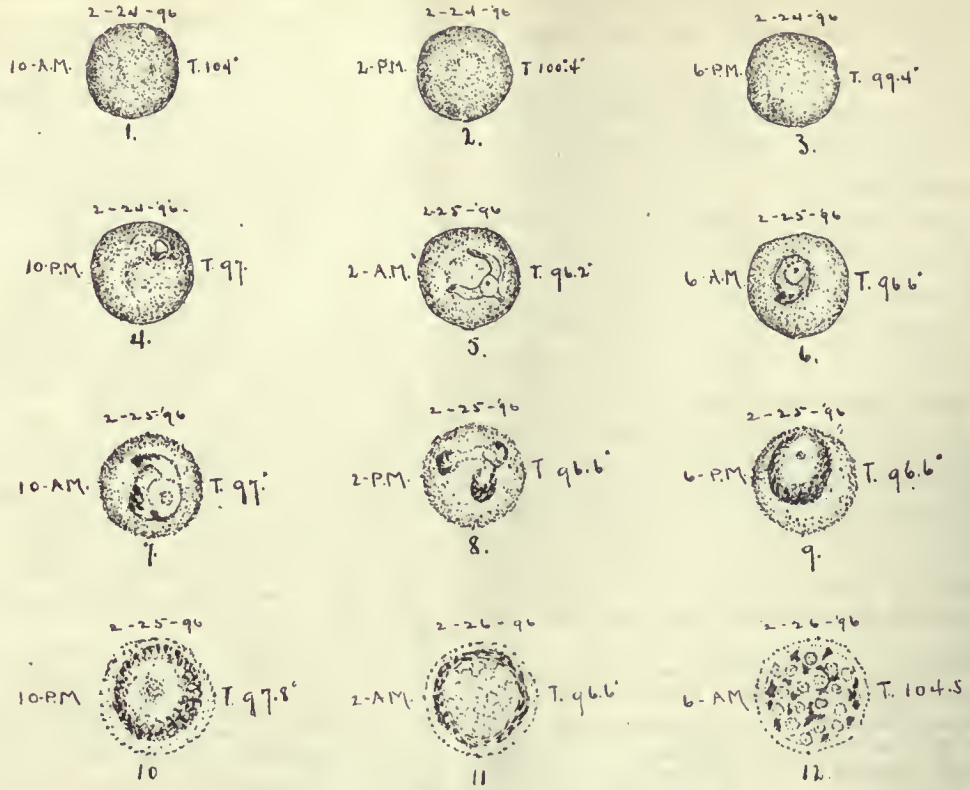


PLATE IX.—THE PARASITE OF TERTIAN FEVER.

EXPLANATORY.—1, 2, 3, Hyaline Forms; 4, 5, Beginning Pigmentation and Appearance of Nucleus; 6, Appearance of Nucleolus; 7, 8, 9, Further Development of Orgaulsms; 10, Full-grown Organism; 11, 12, Segmenting Forms. Magnification—Zeiss, Obj. 1-12 oil immer., Oc. 5. From James W., C. C. H., W. 4. See also Plate XIV.

present in the first specimen. However, he wishes it distinctly understood that he does not for an instant intimate that the separate stages of the parasite described include all the organisms present in the blood at the stated times. As a matter of fact, in every slide examined adult, intermediate and hyaline bodies were demonstrable, although these latter forms in some instances were present in small numbers. In the great majority of cases of malaria examined by the writer he has been able to demonstrate every form of the organism at any time during the course of the disease. This fact has therefore led him to conclude that pure forms rarely or never exist. The symptoms are caused by larger groups of organisms.

The first specimen (Plate ix, Fig. 1) was taken Feb-

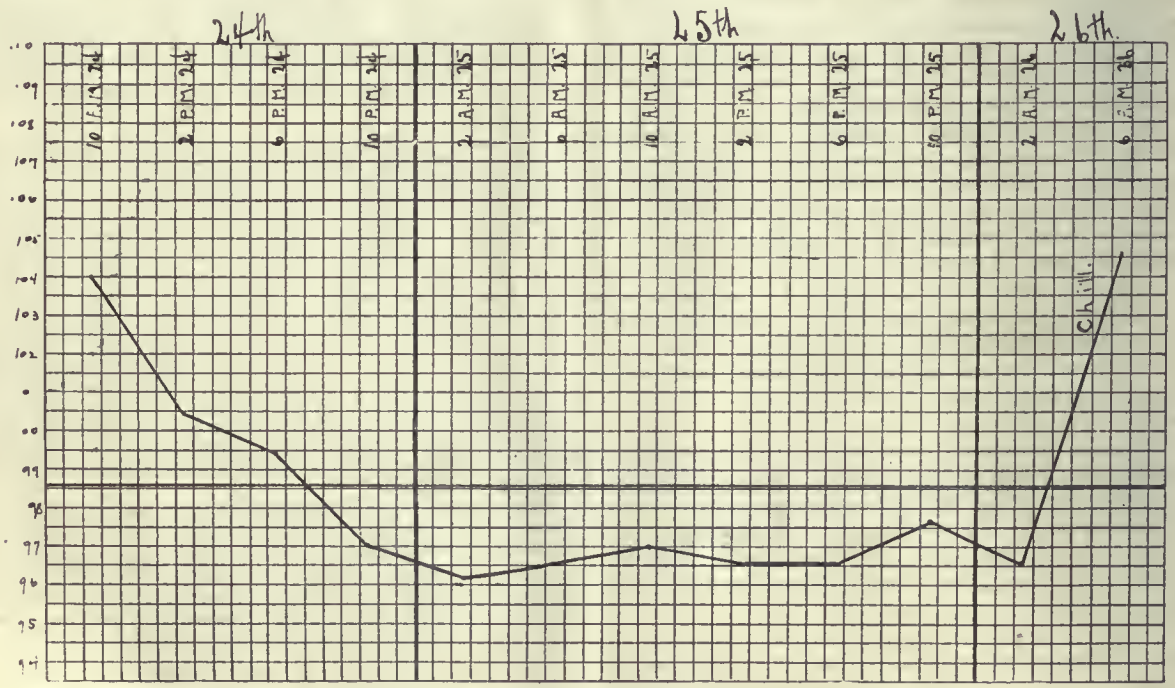


PLATE XIV.—INTERMITTENT TERTIAN FEVER, TEMPERATURE CHART.
James W., Cook County Hospital, Ward 4, February 24, 25 and 26, 1896. See also Plate IX.

ruary 24 at 10 o'clock in the forenoon, one hour after the chill, the temperature being 104 degrees F.

On examination of fresh specimens, many organisms were present in various stages of development, the hyaline forms, however, being in the greatest numbers. These consisted of small, round, endoglobular motile bodies. The ameboid movement at this stage was marked, a complete change of shape taking place in a few moments. These forms have been described as colorless, but this is probably not strictly true, as they seem to possess a very faint shade of color similar to that of the red corpuscle. The borders were indistinct, the blending thus produced often making it difficult to distinguish the point where organism ended and corpuscle began. Although there were organisms within and outside the corpuscles, none were seen in the act of entering, a circumstance which has never been observed. At this stage no nucleus could be demonstrated in the fresh specimen.

Specimens were also stained with methylene blue. The periphery of the organisms took a greenish-blue stain, fading toward the center into a lighter shade of the same color, indicating the embryonic nucleus. In this specimen, beside the adult and hyaline bodies many degenerate forms of the organism, together with degenerate red corpuscles and free pigment granules, were present.

The second specimen (Plate ix, Fig. 2), taken the same day at 2 P.M., the temperature having fallen to 100.4 F., showed a large number of hyaline forms somewhat larger than those observed in the first specimen. These possessed the same activity, no pigmentation was demonstrable. A marked decrease in the number of adult organisms was noticed, also the absence of free pigment.

The third specimen (Plate ix, Fig. 3), taken the same day at 6 P.M., the temperature being 99.4 F., showed the same characteristics as the foregoing, except that the hyaline bodies were larger and a more clearly defined nucleus was present. This nucleus nearly filled the organism. In most instances it was round, regular and distinctly outlined. On staining with methylene blue, while the surrounding protoplasm took a deep greenish-blue color, the refractive nucleus showed a faint blue. No nucleolus was demonstrable.

Specimen four (Plate ix, Fig. 4) taken the same evening at 10 o'clock, temperature 97 F., showed that the organisms had increased in size, and for the first time an increase in size of the red corpuscles was noted. Slight pigmentation was also observed in the periphery and pseudopodia. This pigmentation consisted of small brownish granules or rods, closely resembling bacilli. These were in rapid motion. This motion was not brownian in character, as the granules appeared to pass from one portion of the organism to another. The nucleus was well marked. By careful focusing, a small area at the side of the nucleus, encroaching upon the cell body, was observed in stained specimens. This area, which is composed of chromative filaments, stains with methylene blue and corresponds to the nucleolus of Mannaberg, Feletti and Grassi, and was demonstrated in only a few instances. At this stage the peculiar forms which the parasite assumes were very apparent. At times the organism would lengthen out into a long, curved, crescented shape. Again it would assume a spherical contour, or the form of a cross.

The fifth specimen (Plate ix, Fig, 5) showed a progressive growth in both size of organism and number of granules. There was also present a pronounced increase in the size of the corpuscle with a noticeable decrease in its coloring matter. However the most marked new feature was the decided prominence of the nucleolus which though scarcely perceptible in the former specimens could be easily seen in this one. The chromatin fibers in one instance filled up fully one-eighth of the nucleus while a few could be traced to the nuclear membrane.

Specimens six, seven and eight (Plate ix, Figs. 6, 7 8) showed a decrease in the number of organisms present. However, in those present there was noted an increase in pigmentation, size of organism and corpuscle.

On examination of specimen nine (Plate ix, Fig. 9) several startling facts were brought to light. As if by magic the field teemed with organisms in numerous instances, as many as ten organisms being present in the same field at the same time. The explanation of this phenomenon, that is, the great difference in the number of organisms present in so short a time, probably is that the parasites were collected in the internal organs when specimens six, seven and eight were obtained. These organisms showed especially a great growth of nucleus and nucleolus. In many cases the ectoplasm, or portion surrounding the nucleus, staining deeply and containing the pigment, formed but a narrow band around the nucleus. The nucleus often seemed to be double, consisting of two equal or unequal portions. On close observation and careful focusing it was possible to distinguish narrow bands of ectoplasm stretching over the nucleus or endoplasm, but not *through* it. Some organisms of normal size and appearance were present which appeared to possess no nucleus, but here again very often careful focusing showed that we were probably looking upon that portion of the ectoplasm which covers the endoplasm. In some instances organisms of this description showed no nucleus whatever. There were moreover, many large extra corpuscular, irregular, granular, pigmented bodies having no nuclei which were probably degenerated organisms. These bodies were often filled with vacuoles.

In specimens ten, eleven and twelve (Plate ix, Figs. 10, 11, 12) were found many adult forms which in size equaled that of red corpuscles. These were endoglobular or free in the plasma. When intra-corpuscular the corpuscle was greatly enlarged and decolorized, the cell wall showing as a thin film. The pigment granules were motionless.

In specimens eleven and twelve (Plate ix, Figs. 11-12) segmentation was observed in two forms. In the first a very large nucleus was observed, in which, and partially filling it, could be made out faintly staining, sporelike bodies, numbering from fifteen to thirty. The second form showed the organism diffusely and faintly stained throughout, in which pigment granules and sporelike bodies were scattered. This second form was probably a later stage of the first described, and resulted from the rupture of the nuclear membrane, setting free the sporelike bodies or daughter-nucleoli into the ectoplasm. These bodies seemed to contain distinct nuclei, and though nonmotile while in the organism, appeared to acquire motion on reaching the plasma of the blood. In no instances was fragmentation observed, nor Golgi's rosette forms.

Thus we have followed the tertian organism through

the cycle of its existence, and have once more arrived at the hyaline forms.

As regards the function and mode of reproduction of the elementary parts of the organism there is to-day a difference of opinion. Grassi and Feletti are of the opinion that the process of reproduction originates in the nucleolus. This, on dividing, is at first surrounded by the nuclear juice, a semifluid substance, which, together with the fibrils running from the nucleolus to the nuclear membrane forms the nucleus. In a short time these daughter nucleoli receive membranes and constitute the spores. The pigment is developed and retained in the surrounding ectoplasm. These pigment granules he supposes are formed from the hemoglobin of the corpuscle, but do not react to tests for iron.

Romanowsky goes so far as to say that by the use of eosin and methylene blue he has been able to distinguish karyokinesis during segmentation.

Mannaberg, in speaking of the development of pigment, agrees that it is first seen at the periphery of the organism in the outer plasma or ectoplasm. His theory of reproduction is unique. He holds that the nucleolus shortly before segmentation entirely disappears, withdrawing from the nuclear portion of the organism into the ectoplasm. It soon reappears in the nucleus and segmentation progresses as described by Grassi and Feletti. Investigators agree that reproduction is in all probability accomplished in the same manner in the parasites of tertian and quartan fever, but in the estivo-autumnal type no nucleus has as yet been demonstrated.

There is to-day, as there was at first, a difference of opinion in regard to the nature of the flagellate bodies. The two theories still exist, Laveran and his associates contending that these forms are reproductive in their functions, while Golgi and his followers insist that they are degenerate. The theory that they are produced by thermic influences has been generally abandoned.

(*To be continued.*)

A NEW OPERATION FOR THE RADICAL CURE OF INGUINAL HERNIA.

BY GEORGE TULLY VAUGHAN, M.D.

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Of the various operations for the radical cure of inguinal hernia, I believe it is generally agreed that those of Bassini and Halsted respectively are the best; as to the choice between these two methods there is some difference of opinion.

Unquestionably the method of Bassini comes nearer to restoring the tissues to their original condition and relations before they were stretched and distorted by the protruding viscus than any other operation now before the profession, and the number of relapses following this operation when carefully done is probably less than from any other.

Halsted's method has the appearance of strengthening a naturally weak place in the abdominal wall by increasing its thickness beneath the cord by the addition of the aponeurosis of the external oblique and some fibers of the internal oblique and transversalis muscles, but he brings the cord straight through the entire thickness of the abdominal wall (except the skin and fascia) at a point slightly higher and more external than the normal position, dividing partially the external, internal, and transversalis muscles in order to do so.

In the operation proposed the normal inguinal canal is obliterated, the cord is placed deep, next the peritoneum and passes through the abdominal wall both obliquely and where it is strongest, more than half the circumference of the anterior opening being formed by bone and tendon.

Another advantage is that the two ends of the inguinal canal are placed nearer on the same level, so that a viscus engaging in the posterior end would not have the same tendency, not being aided by gravity, to descend through the canal, as it does when the anterior opening is lower than the posterior.

Two objections would naturally be suggested to this operation; 1, that division of the muscles forming the conjoined tendon weakens the abdominal wall, and 2, that the new position of the cord may produce constriction and harm the testicle. To the first objection it may be said that with aseptic care and accurate approximation the muscle unites through the medium of muscular tissue not connective tissue. (See Senn, Principles of Surgery 1896, p. 46, and others) and is probably as strong as ever.

So far as I have heard, Halsted has had no trouble from dividing the muscular fibers above the internal ring and relapses from Halsted's operation, judging from my own experience, are owing to the cord being brought straight through the abdominal wall instead of obliquely, and, that this opening is surrounded by yielding muscle unsupported by bone or tendon. In reply to the latter objection I can only say that there has been no interference with the integrity of the testicle in any of my cases. The objection to bringing the cord out over the symphysis pubis in a more exposed position is of no importance.

The operation is performed as follows:

1. Make an incision over the inguinal canal from the internal abdominal ring to the center of the symphysis pubis through the skin and fascia; then split the fibers of the aponeurosis of the external oblique, exposing the cord and hernial sac.

2. Separate the sac from the cord, ligate or sew across well within the internal ring and cut off the redundant part.

3. Divide the conjoined tendon through it's muscular part four or five centimeters above its insertion including the internal pillar of the ring, down to the peritoneum, avoiding the deep epigastric artery..

Separate by blunt dissection the conjoined tendon from the rectus and pyramidalis muscles down to the pubic bone and place the cord in this position between the conjoined tendon and rectus. The cord still passes through an oblique canal at its anterior portion, as the conjoined tendon overlaps the rectus and pyramidalis for two and a half centimeters or more, being inserted in front of these muscles. Unite the divided ends of the conjoined tendon and of the internal pillar with mattress sutures, and accurately approximate them with continuous or interrupted sutures.

4. Close the old inguinal canal with interrupted sutures, uniting Poupart's ligament to the conjoined tendon, and in the outer part including the transversalis fascia over the cord. I usually pass two or three of these sutures through the conjoined tendon to include the edge of the rectus.

5. Unite the superficial structures with a continuous suture and the skin with a subcuticular suture.

Kangaroo tendon is the best suture material to be

used throughout the operation. The cord is thus placed next the peritoneum and brought obliquely through the abdominal wall at the strongest point. This operation is more difficult and requires rather more time in its performance than that of Bassini. I have performed it only five times but so far as known the results are all that could be desired. One patient was seen five months after the operation. He had been at work and was then in good condition. The others have not been heard from though they were requested to write to me in case of relapse.

SELECTIONS.

Pica or Dirt-eating Among Children.—In Volume I of the *Edinburgh Hospital Reports* for 1895, Dr. John Thomson publishes a study of this morbid habit in the various parts and periods of our planet. It is his belief that the dirt has a well defined hygienic value, and is eaten by children for medical purposes. The physical ailing which brings on the appetite for dirt is in most cases anemia, which simply means a running down of the system. In these cases, the habit might be formed from an instinctive craving for earthy salts, such as iron and lime, just as a cat or dog, when needing a little physic, will eat a blade or so of grass. The eating of substances of various kinds which are not wholly indigestible, but are also devoid of any natural attractiveness of taste, is a morbid habit which has often been observed both in human beings and among certain of the lower animals. Many names have been applied to this craving, such as pica or kitta (the Latin and Greek words for a jay or magpie), geophagie, allotriophagia, malacia, mal d'estomac; and it has been observed to occur under a considerable variety of conditions. From his experience and that of others in the reported cases collated by him, Dr. Thomson formulates the following eight principal points of the natural history of this affection: 1. Surroundings and upbringings. Some of the patients had been much neglected in every way; but quite as many of them were evidently, so far, at least, as their bodily condition was concerned, most carefully tended. The moral training may, perhaps, have been deficient, however. 2. Bodily condition. In many of the cases diarrhea existed, in some otorrhea, and other minor complaints. In most there was no sign of organic disease, no special anemia, and no indication of the presence of worms. No connection could be traced between the commencement of the habit and the state of the teeth, or of the diet in any case. 3. Mental condition. All the children seemed quite normal mentally, and there was no other bad habit constantly, or even frequently, found associated with this one. 4. Beginning of the habit. When the pica began it was often difficult to fix the time exactly, because it had attracted so little attention at first; but the age given varied from four to eighteen months. Probably this depended chiefly on the chances the child had of getting at the forbidden articles, his freedom from restraint, and his powers of locomotion. 5. Cessation of craving. It is interesting to notice that in those cases where the habit was formed in early infancy, and where the patient was some time under observation, the craving ceased entirely (in all but one instance) at about the age of three years. This seems probably connected with the growth of the child's intelligence and the widening of its interests. 6. Substances eaten. In some cases only one or two abnormal things are eaten; in many, almost anything within reach is swallowed. From the cases reported here and elsewhere it seems that the variety of the unnatural substances craved for is much more limited in cachectic cases than in those beginning in young babies. 7. Physiognomy. Children who have suffered from pica for some time usually have a peculiar look about the face. Their complexion has has not the rosy tint of healthy childhood, it lacks clearness, and is dull and unhealthy looking. 8. Results of the practice. In those of the cases in which the children were allowed to indulge their craving to any great extent, there was always some diarrhea, and occasionally obstruction from impaction of hard bodies in the rectum. In none of his cases was the patient ever seriously ill as the result of the habit, but instances have been recorded which have ended fatally. Under the head of treatment, the author holds that medication plays but a small part, while a modification of the morbid environment is the main issue, and in this relation the following summary will point out the chief indications: 1. Keep the child away from the substances for which he has a morbid craving. All habits are strengthened by practice, and their hold slackens under disuse. 2. Improve the condition of the digestion. It seems more than likely that local uneasiness often plays some part in the etiology. 3. Improve the general health. It is to the weakly that such cavings come, and the strong readily throw them off. 4. If possible, change the child's surroundings and take his mind up with new things, and let him be kept busy and happy. 5. The small amount of dirt eaten by children will do little harm of itself, but the great danger is that they will ingest something poisonous or some parasite which, once entering the stomach will reverse the operation by preying upon the patient.

Diagnosis and Indications for Treatment of Intra-Abdominal Injuries Without External Evidence of Violence.—Dr. John B. Deaver says: In severe intra-abdominal injuries there are a few symptoms common to all, and in the majority of cases warrant immediate operation. Most prominent of these is pain accompanied by shock. The pain is not like that of ordinary intra-abdominal affections, but is accompanied by consciousness of impending death. When vomiting is associated with agonizing pain and tympanites is also present, indications point to intestinal or vesical rupture. Collapse with evidences of rapid exsanguination point to hemorrhage from rupture of one of the larger vessels, liver or spleen. There is often a characteristic rigidity of the abdominal walls, due to intra-abdominal irritation. It is sometimes so pronounced as to call to mind the checker-board appearance of the normal abdominal wall as represented in sketches by artists of former times. This condition of the walls is invariably associated with some form of serious lesion. In injuries of the abdomen in the female, pregnancy normal or extra-uterine, ovarian tumors, pyosalpinx, etc., must be borne in mind. Rupture of any of the solid viscera is usually followed by fatal hemorrhage.

The symptoms of rupture of the liver are usually great lividity of the skin, marked embarrassment of respiration, distention of the abdomen which is not altogether tympanitic, itchiness of the skin, and, if the patient survives the immediate effects of the injury, jaundice. Rupture of the gall-bladder or biliary ducts may occur as the result of blows upon the abdomen, especially if the gall-bladder be filled with gall-stones. The commonest seat of rupture of the biliary organs is the cystic duct. Peritonitis follows rupture of the gall-bladder or ducts. If the tear be small and the leakage slow, the escaping bile may become encysted and the peritonitis remain localized. If rapid, there will be general peritonitis and death. If there be no rapid extravasation, there will be collapse, vomiting and dyspnea and abdominal pain. If the bile escapes into the general peritoneal cavity, there will be prompt general acute peritonitis, with intense jaundice and clay-colored stools. When the gall-bladder has been ruptured death almost invariably follows.

The treatment of laceration of the liver, gall-bladder, hepatic, cystic, or common duct resolves itself into prompt surgical interference.

If a tear of the liver be superficial, by early operative interference we are enabled to remove the blood and bile which

have escaped into the peritoneal cavity, to surround the rent with strips of gauze with a twofold object: 1, to prevent a second invasion of the peritoneal cavity by blood or bile; and 2, to invite adhesions between the liver and parietal peritoneum. The hemorrhage can be controlled by searing the torn surfaces with the actual or thermal cautery or packing with gauze strips. When the tear in the liver is of such a character as to permit of suture, the latter, which should include the capsule, should be used. If there is doubt as to the thorough control of the hemorrhage by the sutures, the wound should be treated by the open method, gauze strips being placed between the liver and the parietal peritoneum to the outer side of the line of suture. When the gall-bladder, the hepatic, cystic, or common duct has been torn alone or in connection with injury to the liver, it may be necessary to establish a biliary fistula; however, the attempt, if possible, to suture the bladder or duct should be made.

Injury to the splenic artery or vein is invariably followed by sudden death. The symptoms of ruptured spleen are those of exsanguination, precordial pain, gasping and shortness of breath (air-hunger), weak, rapid pulse, vomiting and thirst. When the spleen has been the seat of the injury under consideration its removal should follow.

Rupture of the kidney varies in intensity and location. Laceration of the pelvis or ureter is not immediately fatal as hemorrhage is not profuse. The inflammation following obliterates the duct, consequently there will be developed in a few days a hydronephrosis, with a corresponding tumor of the loin. The kidney will sometimes become a multilocular abscess after long periods of time when the impervious ureter atrophies. Collapse invariably follows severe injury of the kidney and is accompanied by pain in the lumbar or hypochondriac region, vomiting and an anxious countenance.

If there is a history of severe injury to the abdomen or loin, followed by faintness, anxious countenance, coldness, vomiting and severe abdominal pain; if the urine contain blood in quantities, either clotted or mixed, immediately or within a day or so after the accident; if in several days pus appear as well as blood; if there is a rigidity of the lumbar or abdominal muscles and ureteral pain with retraction of the testicle; and if these symptoms are followed by enlargement of the lumbar and hypochondriac regions, with percussion dullness, we may be fairly sure that extensive renal laceration has occurred. Rupture of the ureter is extremely rare; in a few cases reported, the tear was so close to the hilus of the kidney that practically they may be considered as rupture of the kidney itself. The symptoms are the same and the treatment identical.

There are many symptoms common to both gastric and intestinal rupture and can be described together. The immediate symptoms are faintness, collapse, agonizing pain, either localized or general, weak, rapid pulse, thirst, vomiting, tympanites, and rigidity of the abdominal walls accompanied by extreme tenderness. The facial expression is indicative of the serious nature of the intra-abdominal lesion. We should never wait for secondary symptoms if the patient's condition warrants operative interference. Where operation has not been resorted to the above symptoms may redevelop at a later period in an insidious and unexpected manner, and the patient suddenly expire from either shock or general septic peritonitis due to intestinal perforation from pressure necrosis. Incomplete tears of the stomach do no produce sufficient symptoms to render their recognition possible. When the wound is in the immediate neighborhood of the pylorus, and particularly if it is longitudinal, it will be necessary to introduce the sutures in the line of the long axis of the stomach in order to avoid constriction of the orifice. The early recognition of rupture of the bladder is of paramount importance to a successful termination of a case. The introduction of a catheter will definitely settle the question of its rupture. If no urine escapes, but instead a few drops or a considerable quantity of blood, the inference should be that the organ has been torn. Before the catheter is withdrawn a measured quantity of boric acid or normal saline solution should be injected, when if the full amount thrown in is not recovered there can be no question of the nature of the injury. If the tear be intraperitoneal more liquid than that thrown in may be recovered or perhaps less. Where the tear is so small as to prevent the free escape of the injected fluid or where the opening in the bladder is valve-like, occasioned by a loop of intestine becoming herniated through it, this means of diagnosis may fail. In either event the prevesical space should be immediately opened, when it can be decided whether an extra- or intraperitoneal rupture exists. When the rent in the bladder is extraperitoneal, it is necessary to drain the prevesical space by a drainage-tube carried through the abdominal incision; if the urine has found its way along the sides of the pelvis, drainage should be introduced laterally through an incision above and to the outer side of the middle of Poupart's ligament. The bladder is also to be opened by a lateral incision through the perineum. The diagnosis of injury to the vascular system is unsatisfactory at best, as the injury to the vessel may be complicated by an injury to the abdominal viscera, entirely overshadowing the blood vessel lesion. The prognosis is grave under all circumstances, even when there has been only a contusion; there is the possibility of future aneurysm from weakened vessel wall, the result of the trauma.—*University Med. Mag.*, July.

Malarial Parasitic Infection Diffused by Air-Currents as Well as by Water.—Dr. P. Manson has given in the London *Lancet*, a clear and concise statement of his views regarding the spread of malarial fevers, inclusive of his original theory that the mosquito is the intermediate host of plasmodium or malaria, with many observed facts and his conjectures dovetailing in with those facts, in order to complete the parasitic cycle. "It can not be doubted," he says, "that there are many cogent reasons for believing that the plasmodium malariæ on leaving man, and as a normal step in its life history, becomes parasitic in the mosquito, and that in this insect it enters some cell—as any gregarine or coccidium would do—and probably develops into its reproductive sporulating form just as it does in the blood corpuscles of man. What then? How can its spores get out of the mosquito so as to increase and multiply and preserve its species from extinction when, in the course of nature, the mosquito dies? How, too, does it spread over the land and how does it get back to man again? Before attempting to answer these questions, I must first describe very briefly a passage in the life of the mosquito. The female mosquito, after she has filled herself with blood—the male insect is not a blood-sucker—seeks out some dark and sheltered spot near stagnant water. At the end of about six days she quits her shelter and, alighting on the surface of the water deposits her eggs thereon. She then dies and as a rule falls into the water beside her eggs. The eggs float about for a time and then in due course each gives birth to a tiny swimming larva; these larvæ, in virtue of a voracious appetite, grow apace, casting their skins several times to admit of growth. Later they pass into the nymphal stage during which, after a time, they float on the surface of the water. Finally, the shell of the nympha cracks along its dorsal surface and a young mosquito emerges. Standing, as on a raft, on the empty pelt the young mosquito floats on the surface of the water while its wings are drying and acquiring rigidity. When this is complete it flies away. The young mosquito larvæ to satisfy their prodigious appetites devour everything eatable they come across, and one of the first things they eat, if they get the chance, is the dead body of their parent, now soft and sodden from decomposition and long immersion. They even devour their own cast-off skins. In examining mosquito larvæ one often comes across

specimens whose alimentary canals are stuffed with scales, fragments of limbs, and other remains of the parental insect. As we have seen that the mosquito larva devours its own and its neighbor's exuviæ, we can readily understand how, once gregarines have been introduced into a pool of water, the larval mosquitoes in that particular pool become infected by the parasite. But as the mature mosquito, when she quits her nympha husk, also contains numerous gregarines we can also understand how she, too, carries the infection with her, scattering it about the country in her feces or conveying it to any other pool where she may lay her eggs and afterward die. Her body is then devoured by her progeny, or by any other mosquito larvæ that already chance to be in the pool. Along with her body the larvæ swallow any gregarine germs it may contain, if they have not already been picked up by the larvæ when feeding on the mud at the bottom of the pool. Does not this little story of the gregarine indicate the way, or a way, in which that other mosquito sporozoon, the plasmodium malariæ, multiplies? Does it not indicate how this parasite, in which man is so much interested, passes from mosquito to larvæ, from larvæ to mosquito in never-ending series? Does it not indicate how the plasmodium disease of mosquitoes spreads from pool to pool and is scattered broadcast about the country, and does it not indicate how it may get back to man again? We can readily understand how the mosquito-bred plasmodium may be swallowed by a man in water, as so many disease germs are, and we can readily understand how it may be inhaled in dust. Mosquito-haunted pools dry up. The plasmodium in the larvæ and those that have been scattered about in the water finding themselves stranded by the drought and so placed in a condition unfavorable to development, pass into a resting stage, just as they do, when by quinin or other means, man is rendered temporarily unsuited for their active life. The dried specimen of the pool, blown about by the winds and currents of air, is inhaled by man, and so the plasmodium finds its way back again to the host from whom its ancestors had, perhaps, started generations back. I would conjecture that on entering man and on entering the larval mosquito it develops into a flagellated spore similar to the flagellated spore into which it develops in the mosquito's stomach. In this way it would be enabled to penetrate the mucous surfaces and get into the human blood-cell. Many mosquitoes die without getting to water; all male mosquitoes die without seeking water. They may die far from water, blown away, as we know mosquitoes are, by winds. The bodies of such mosquitoes fall in time on the soil and decompose. The parasites they contain pass into the resting stage, and in this form they also may be carried into the air by currents, or be blown about as dust, or be shaken out by man when he disturbs the soil. In this way the plasmodium may find a route back to man again. In this way, too, we may explain the occurrence of those cases of malaria which apparently, though not really, are unconnected with swamp or stagnant water. Such is my view of the life history of the malaria parasite, and the rôle of the mosquito with regard to it, and the process by which man becomes infected."

Pyelophlebitis; Operation; Death.—The May *Scalpel* reports that Dr. Godlee has operated in two cases of hepatic abscess due to the above-named cause. A warehouseman, aged 41, had an acute illness in June, 1895, which left him with pain in the region of the liver, for which he was seen in September. He had a hectic temperature and one rigor. There was obvious swelling of the liver. The diagnosis lay between suppurating hydatid and abscess. The abdomen was opened on October 18 and a large abscess found at the front of the liver. A drainage tube was inserted. There was a slight improvement for a day or two, which was not maintained. Postmortem, there was old inflammation about the cecum, clotting of the right branch of the portal vein, and the corresponding part of the liver was riddled with abscesses. The left portal vein was patent, and the left lobe of the liver was free from suppuration. The patient had also purulent meningitis. Remarks were made on the pathology and treatment of this condition. A somewhat similar (fatal) case, a previously healthy Scotch manufacturer, aged 58. Disease began insidiously a month before he came under notice; there was very rapid enlargement of the liver accompanied by rigors. An abscess was found upon the under side of the liver, containing about one pint and a half of stinking pus. The patient was very feeble before the operation and died of shock. Mr. Arbuthnot Lane recalled the case of a patient who had suffered from attacks of what at first appeared to be biliary colic, but the distension of the gall bladder was associated with tenderness over that region and her temperature rose to 103 degrees F. He made out the presence of stones in the gall bladder, and cut down and removed them. It was adherent to a large intestine. He left a tube in, though he made no attempt to see whether there was anything in the transverse fissure, owing to the numerous adhesions. Moreover, there was no jaundice. He saw her a morning or two after the operation just after an attack of the old pain had come on. Her temperature was then normal, but it rapidly ran up to 107 F., and she died seven hours later. Postmortem they found an abscess behind the portal vein, and the liver was filled with large hemorrhagic patches. Although no opening into the vein could be made out it seemed absolutely certain that the abscess had burst directly into it or one of its branches.

PRACTICAL NOTES.

Massage in Treatment of Post-operative Intestinal Obstruction.—A Ernest Gallant, M.D., says that by early massage we can give immediate relief, independent of the use of laxatives or enemata, and that in these cases the bowels move more readily and with less stimulation than when massage is delayed. Laxatives tend to increase gas formation and intensify peristalsis, thus adding to the pain and discomfort. Enemata can not reach above the ileo-cecal valve, and cause colitis, rectal tenesmus and proctitis, followed by exhaustive diarrhea. Intestinal cramps from gas or too active cathartics may be relieved by repeating the rubbing at frequent intervals. Infection of the line of wound union or damage to structures involved in the operation by massage thirty hours after operation is not likely to occur.—*Mathews Med. Quarterly.* July.

Identification of Morphin in Toxicologic Cases.—J. B. Nagelvoort reports results of experiments to determine the stability of morphin under certain conditions. A practical test seemed to be needed to determine how small a quantity of morphin could be isolated and identified; the sensitiveness of morphin to different reagents being well known, $\frac{1}{6}$ grain was taken. This was dissolved in a plate of soup, selected to imitate volume and contents of a human stomach in natural condition. The next step was to mix 0.050 gram morphin with a suitable portion of refuse meat, fat and some bulk of vegetable matter. Ten mixtures of this kind were left to putrefy for fifty days, in a warm room, covered with a glass jar. Three mixtures of the same quantity of morphin with human flesh, furnished by the medical school, were also left to putrefy. At the end of the fifty days' exposure morphin was searched for in all the mixtures by the methods of Dragendorff, Stas-Otto and Graham (the dialysation process), due precautions being taken against confusion in the chemic reactions. Characteristic morphin reaction was obtained in each case. No better conclusion can be drawn than that a popular belief in the destructive power for alkaloids, of the decomposition of cadavers, has no foundation in the facts.—*Am. Jour. of Pharmacy*, July.

Infantile Scurvy.—Lack of fresh food is the most important cause of infantile scurvy, the use of the proprietary foods and condensed milk produces more than all other causes combined. Even fresh milk in small proportions is not sufficient to insure protection. It has been shown more recently that proprietary foods, condensed milk, and cow's milk too freely diluted are not the only offenders, but that sterilization or prolonged boiling of new milk of good quality is sometimes an important factor in the development of infantile scurvy. The diagnosis of this disease is a matter of some moment, the more so since the failure to institute treatment early is often followed by fatal results. The diseases for which it is most apt to be mistaken are rickets, rheumatism, stomatitis, congenital syphilis, infantile paralysis, osteitis and sarcoma. As a rule, however, symptoms of scurvy are so pronounced that there is but little difficulty in making a diagnosis when the condition is borne in mind. On the treatment of the disease there is but one opinion, and that is that the best results are secured by the prompt substitution of "living food," such as fresh milk, fresh beef-juice, and orange-juice for proprietary food, condensed milk and sterilized milk.—*University Med. Mag.*, July.

The Lewaschew Method of Substituting the Effusion in Pleurisy with Equal Amount of Salt Solution.—This method was first announced at the Berlin International Congress, but further success with it impels L. to recommend it in still stronger terms, as he has now a record of fifty-two cases, all followed by marked relief and prompt recovery. Thoracocentesis is first performed and as the effusion is gradually aspirated, it is replaced by physiologic salt solution, which prevents the collapse of the organs into the empty pleura, while the solution is gradually absorbed and exerts a general tonic and local antiseptic effect. The *Therap. Woch.* for June 28 devotes ten pages to a complete *résumé* of the results and technique of this treatment.

Diabetes in Early Infancy.—W. B. Bell, in the *Edinburgh Med. Journal*, reports the following case: A. B., aged 3 months 5 days; parents noticed that the child was very restless, suffered from a very intense thirst, and required a large quantity of fluid in addition to the breast. They also noticed some increase in the amount of urine, and that there was a good deal of cutaneous irritation around the genitalia and thighs. Occasionally the child was very drowsy, and his breath had a peculiar odor. The child was born as a face presentation and the labor was protracted and difficult, but not instrumental. Parents both alive and healthy; one sister healthy; one aunt on the father's side, died from diabetes mellitus. The patient is a well-nourished male child. Urine in excess, but amount not estimated or specific gravity ascertained. Clear and with a sweet taste, containing a large amount of sugar by Fehling's, Moore's and Johnson's tests. Marked weeping eczema of the privates and thighs, especially in the folds. Patient fretful and restless. Breath normal, excessive thirst, bowels regular.

Head-Swaying in Children.—Dr. William Osler, in the *Montreal Medical Journal*, June, has the following case to report of a neurotic affection that is well-nigh unique. He says: "Among the curious coördinate movements in children, head-nodding and head-banging are among the most interesting. The following case presents an interesting condition, which I do not remember to have seen described, in which the head is swayed from side to side in a rhythmic manner: E. C., female, aged 5, third child; always healthy; when born was not a blue baby and instruments were not used. Developed naturally and had no trouble with teething. Both mental and bodily growth were normal and she is now a well-nourished, healthy-looking child, very bright and intelligent. She is a Hebrew, and many members of the family are excitable and nervous. The parents are bright, intelligent people. From the time the child sat up it was noticed that she moved the head from side to side, or dropped it on the shoulder and this habit has persisted. The father states that it was noticed from the very earliest infancy. She never has had any other movements: never any rotation of the head, or head-nodding, or any twitching of the muscles of the face or of the arms. She is not a mouth-breather and she sleeps quietly. At times, however, she is very restless and gets on her hands and knees in her sleep and bores her head into the pillows and climbs up until she knocks her head against the foot of the bed, as her father says, 'rooting about like a pig.' She never has had spasms, and has been a very healthy child in every respect."

Dolphin Oil in Acne.—Dr. Boeck, in *Annales de Determatologie*, says that dolphin oil inhibits the growth of bacteria in the skin, and consequently he finds the following useful: Camphorae 0.30, acidi salicylici 0.50, sulphuris precipitati 10, zinci oxidi 2, saponis 1, olei delphini 12. Misce. Make the application each night; wash the face in the morning with soap and warm water.

Local Treatment of Diphtheria with Sodium Hyposulphite.—Dr. Henry A. Wickers writes to *Lancet*, for June 3, that in his opinion, the above named treatment has been too much neglected by his medical confrères. He has for some time been using a solution of sodium hyposulphite as a local application in diphtheria and has been well satisfied with the results, three or four applications having generally been sufficient to clear away the false membrane. The solution is prepared for use by mixing equal parts of pure glycerin and a saturated solution of hyposulphite of sodium in water, and is applied with a brush to the exudation and inflamed fauces once or twice daily or as often as may be deemed necessary. The glycerin by its adhesiveness keeps the solution longer in contact, and also, by its well-known local action, helps to relieve that engorgement of the mucous membrane which seems especially favorable to the growth of exudation. It is probable that the hyposulphite has a continuing action as a germicide in the following manner: Chemic decomposition is first set up by contact with the acid secretions of the mouth and throat, sulphur and sulphurous acid in a nascent state being set free; the latter being gradually converted by oxidation into sulphuric acid, would in the same manner decompose further portions of unchanged hyposulphite, and so on until the hyposulphite was exhausted. This local treatment will not interfere with the general treatment, which must be adapted to the necessities of each individual case.

Lactation Atrophy of the Uterus.—Dr. Hiram N. Vineburg says: "Whether or not puerperal hyper-involution apart from lactation frequently occurs must be left to future investigation. To its non-occurrence may be attributed many of the gynecologic cases seen in private practice. By examinations up to the twelfth puerperal week the condition can be recognized, if existing, and the ill consequences of deficient involution averted. Care should be taken that the hyper-involution does not become permanent." He summarizes his observations as follows:

1. Modern researches tend to prove that post-puerperal involution consists chiefly in a retraction and contraction of the individual muscle-fibers whereby the whole uterus is reduced in size.
2. When involution goes on to its full completion the uterus is reduced to a size smaller than that of the non-parous organ.
3. This condition of complete involution is known as post-puerperal hyper-involution. It is principally seen in nursing-women, and from this circumstance has received the cognomen of *laetation-atrophy*.
4. The so-called lactation-atrophy is a normal and desirable condition. It is temporary in its duration; but very rarely, under unfavorable circumstances, may become permanent.
5. When the parturient is unable to perform the function of lactation it is the duty of the physician to endeavor to bring about hyper-involution by other means at his disposal. An observance of this course will prevent many a woman from developing a host of gynecologic affections which frequently result from imperfect involution.—*Am. Jour. Med. Sciences*, July, 1896.

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It would greatly facilitate the prompt delivery of the JOURNAL to those members of the ASSOCIATION living in large cities, if they would kindly furnish this office with their street address in those cases where it is omitted from the wrapper of their JOURNAL, as we have been notified by the postmasters of the larger cities that second-class mail matter not having street address, would be placed in the general delivery to await call.

SATURDAY, JULY 25, 1896.

THE JOURNAL ITSELF.

Owing to the increase in the number of pages of the JOURNAL and the larger issue, we are obliged to go to press earlier than heretofore. We therefore request correspondents to send their communications so as to reach us not later than Tuesday instead of Wednesday as heretofore. We herewith append the detailed statement of the circulation for the last six months:

Jan.—1st week. . .	6,500	April—3d week . .	6,800
" 2d " . .	6,700	" 4th " . .	6,900
" 3d " . .	6,800	May—1st week . .	7,000
" 4th " . .	6,800	" 2d " . .	8,000
Feb.—1st week. . .	7,000	" 3d " . .	8,000
" 2d " . .	7,000	" 4th " . .	7,200
" 3d " . .	7,000	" 5th " . .	7,100
" 4th " . .	7,200	June—1st week . .	7,000
" 5th " . .	7,200	" 2d " . .	7,100
Mar.—1st week . .	8,100	" 3d " . .	7,100
" 2d " . .	8,000	" 4th " . .	7,200
" 3d " . .	7,900		
" 4th " . .	8,100	Total	188,300
April—1st week . .	7,800	Weekly average for six months,	7,242 4-13
" 2d " . .	6,800		

Our members should be reminded that the Treasurer, HENRY P. NEWMAN, M.D., Venetian Building, Chicago, is ready to receive the annual dues; and to those not present at the Atlanta meeting, who have not already responded to the Treasurer's call, we wish to remind them that their great weekly costs vastly more money than it did a few years ago, and that prompt payment of dues and subscriptions are more than ever necessary. Let every member help us obtain a new member, and we can celebrate the semi-centennial at Philadelphia with one of the strongest medical organizations in the world.

THE ANNUAL REPORT OF THE SANITARY COMMISSIONER WITH THE GOVERNMENT OF INDIA.

We have read this document with more than ordinary interest and pleasure, for it shows how keenly alive the British Government of India have become to its sanitary interests.

The report deals not only with the sanitary situation in India, but gives the returns of sickness and mortality among the European and native troops and prisoners in India for the year 1894. With the last we can have only a passing interest, but with the progress of sanitation in India, the whole world is interested. We have been included among those who have frequently animadverted on the indifference and neglect of the ruling power in that empire. We have urged that any nation was responsible for maintaining endemic cholera and yellow fever centers within its jurisdiction. We have set forth this sin of omission as an infringement of the *jus gentium*, that should be recognized in international law. The specific examples, the bad object lessons, were Spain in its failure to arrest yellow fever in Cuba, and Great Britain in its failure to stamp out cholera in India. The world has suffered untold misery from these preventable diseases, and the nations responsible for their maintenance have been apathetic. Spain is now suffering the loss of the flower of her army. Regiment after regiment sent to Cuba becomes decimated and leaves most of its gallant membership in eternal sleep. The *febre amarilla*, rather than the bullets of the patriots, plays havoc with Castilian and Aragonian alike. The expenditure of a few millions in carrying out sanitary measures would make Cuba one of the most healthful spots on the globe. Spain has deliberately shut her eyes to this fact, and allowed the island to become a land of death to all comers. If that were all! This insanitary apathy has cost this and other countries thousands of lives, and incalculable loss to commerce both by sea and land. If Spain shall lose Cuba at this time, every civilized country will rejoice, because, with other and different government, "yellow Jack" will cease to prey upon the world's commerce from Cuban ports.

English rule in India should be welcomed by the world, so far as advances in civilization are concerned, but up to a very recent period, it is questionable whether, in view of her neglect to carry out sanitation, the world would not be much better off with Russia in full control. Russia knows how to stamp out cholera and plague within her dominions, and she not only has the power to enforce sanitary regulations where necessary, but never yet has failed to exercise it.

Such being the general views held by hygienists in

this country, it is a great pleasure to take up the report of the Commissioner and see that great work is now being done throughout the Empire.

The water supply is being looked into, and it seems at last likely that renewed energy will be shown in the next succeeding reports. The enormous mortality from cholera throughout India and Burma is stated by the Commissioner (Surgeon-Major General CLEGHORNE), page 168, to be 529,049 as against 218,113 in 1893 and 762,695 in 1892.

What may be done in the matter of prevention of cholera by proper management is well shown by the result of the precautionary measures taken in the Northwestern provinces. We quote from the report:

"Turning now to the *Magh Kumbh* of 1894. In view of the large assemblage expected, special arrangements were made as soon as the site for the fair could be definitely fixed. This, owing to the direction of the main stream of the Ganges after the heavy rains in the hills in October, 1893, could not be done until late in December. It was decided to lay out the main site of the fair on the Cantonment land on the right bank of the river, between it and the Beni embankment, which runs north from the fort to the village of Daraganj. It was arranged that the religious brotherhoods or *akharas* should be encamped on an island in the bed of the river near the left bank, their encampment being connected with the main site, on the other side of the Ganges, by a bridge of boats. The general site, on alluvial land, immediately north of the fort, comprised a broad street of shops, and to the north of this again, an extensive camp, with broad thoroughfares and lanes which left the main roads at right angles. On the island a broad road running eastward from the bridge of boats divided the camp in two. At the general site the municipal water was laid on, the numerous standposts, each surrounded by a platform of flagstones, being situated at a convenient distance from each other. All wells were closed and fenced in, so that no one could use water from them. It was not practicable to supply the municipal water to the camp on the island, but arrangements were made for a supply from the main stream of the Ganges, access to the back waters being prevented by a cordon of police. Conservancy was thoroughly carried out. At the general site, dry earth latrines were used, solids and liquids being collected in separate vessels and conveyed to a distant trenching ground by means of a light tramway. On the island there were trench latrines, round which were placed police cordons. Ample urinal accommodation was provided. Rubbish and sweepings were removed in carts, except when the accumulations were very large, when they were burned at convenient places. Provision was made for the prompt removal of the sick to hospital for treatment. For police, sanitary and medical purposes, the general site was divided into five areas and the encampment on the island into two, and arrangements were made for continual patrolling by day and night. The Deputy Sanitary Commissioner was placed in executive charge."

The result was that out of the vast multitude comprising more than one million five hundred thousand persons assembled on February 5, only 185 died from January 9 to February 20. Of these deaths 47 were due to fever, 59 to dysentery and diarrhea and only 3 deaths to cholera.

There is no longer any doubt that with the steady improvement of the water supply and the prevention of pollution of the supply, cholera may be eradicated from India as thoroughly as from England itself.

The report on inoculation by HAFFKINE, which was submitted to the government August 25, 1895, is printed in full, with a rather noncommittal comment (see p. 269). Altogether the report shows wonderful sanitary progress.

HEMATOZOA IN THE LOWER ANIMALS.

The recent discovery by SURGEON-CAPTAIN BRUCE of the Indian army that the tsetse fly of Africa acts as the carrier of living virus is of interest from a double standpoint: First, to the student of human and comparative pathology, in clearing up the origin of a mysterious disease; and, second, as furnishing another instance of an insect carrier of contagion. For the last fifty years, from the time of LIVINGSTONE, successive travelers have regaled us with accounts of the ravages of this fly. We learn that it is a terrible scourge to live stock and that it is one of the greatest obstacles to colonization in the central part of the "dark continent." The tsetse fly (*Glossina morsitans*) is slightly larger than the common house fly; it has a slender proboscis, nearly twice as long as its head, and is able to puncture with great force. Its bite is fatal to the ox, horse, ass, sheep, dog, and elephant; the goat, buffalo, antelope, zebra and man himself are not seriously affected by it. In fatal cases, after an incubation of short duration, the animals have fever, followed by marked anemia, marasmus and dropsy for several weeks or even months.

The geographic distribution of the insect is extensive, though rather erratic. It is found in localities here and there over Central Africa from the Transvaal to the Zambesi, on the right bank of the latter, and from Zanzibar as far inland as Ugogo. In these situations it is to be found in low-lying localities, the borders of marshes and water holes, and in beds of reeds. The fly makes a loud buzzing noise which is said to cause more terror among domestic animals than the lion's roar. Horses which have passed unscathed through the fly country and become immune are called "salted," in South African parlance, and command extraordinary prices.

Up to the time of BRUCE'S discovery the nature of its virus was unknown. LIVIGSTONE, who was one of the first to give an accurate description of the insect, attributed it to the glandular secretions; other observers to germs of some description. MÉGNIN was of the opinion that the fly carried anthrax virus from one animal to another. BRUCE has discovered that the fly itself has nothing to do with the disease save as the carrier of a living virus from infected to healthy

animals. This virus is a flagellated infusorian, apparently identical with the *Trypanosoma Evansi*, which was the cause of a similar disease among the live stock in India. Some ten years ago RAILLIET had nearly solved the problem, for he wrote: "In reality the tsetse can merely be regarded as a carrier of virus and its bite is only dangerous when its proboscis has been previously infected. With regard to the virus that it habitually inoculates, it is difficult in the present state of our knowledge to say what it actually is." etc.

Horses, mules and camels in India are attacked by a pernicious anemia to which the name "surra" disease has been given. The disease, which is invariably fatal, is characterized by fever, rapid emaciation, extreme debility and death, in marasmus and coma, occurs in from ten to sixty days. The mortality from the disease in India and Burmah[1] is enormous. Blood drawn during life has an increase in the number of white cells with a diminishing number of the red; the latter are mostly crenated. In the midst of the corpuscles is seen an organism with a long, flexible tail. EVANS, who first discovered it, supposed it was a *spirillum*; CROOKSHANK, after a minute examination, recognized it as a flagellate infusorian, and BALBIANI gave it the name of *Trypanosoma Evansi*. A similar flagellate organism is found in the blood of rats and hamsters in England and on the continent of Europe. According to LINGARD the Indian *trypanosoma* is innocuous to Indian rats, in the blood of which it is found. The disease is inoculable. Dogs and monkeys have been successfully inoculated; rabbits are very susceptible, though the disease is not so fatal in them. Dogs appear to be spontaneously affected and die. (FLEMING.)

The question arises, is there any relation between these three forms? This might be partly settled if experiments with the European *trypanosoma* showed it to be pathologic for horses. However, while the Indian form is only feebly pathologic to the ox, the African form is deadly. A writer in the *British Medical Journal*[2] suggests that "the European, Indian and African trypanosomes, although closely resembling each other morphologically and biologically, yet differ in their pathologic properties, the trypanosome of Europe being innocuous in the case of all animals, the trypanosome of India, if deadly to certain domesticated animals, being almost innocuous to the ox of that country, while the African trypanosome is deadly to nearly all four-footed domestic animals, the ox included. Seemingly, the pathologic qualities of the three varieties are graded, as it were, by climate or by breed or by other circumstances. A similar peculiarity has long been known to exist in connection with the bacillus of anthrax, which, though fatal to the sheep of Europe, does not affect the Algerian sheep."

1 Nour. Dict. Prat. de Méd. Chir. et Hyg. Vétérin, xii, Paris, 1885.
2 May 16, 1896.

It seems that the hematozoa in the lower animals play fully as important roles as we know their congeners do in man.

WATER SUPPLIES.

We seldom notice a new book editorially, but we have at present before us one which fills a long felt want: WM. P. MASON'S "Water Supply, Chemical and Sanitary," as announced by the gold lettering on its handsome red cover, but "principally from a sanitary standpoint," according to the title page. Our health officers and sanitary men have been waiting for several years for a book of this kind. If W. RIPLEY NICHOLS had lived they would have had it several years ago, for he gave them its nucleus in his article on "Drinking Water and Public Water Supplies" in 1879, in the first volume of Buck's "Hygiene," and this nucleus, but for his untimely death, would have expanded *pari passu* with the extension of his experience. DR. SMART of the Army published excellent directions for sanitary water analysis in the Reports of the National Board of Health, and in the same volumes the account of MALLET'S investigation into the value of the processes of water analysis presents a fund of information concerning the analytical results given by waters of known quality. DR. SMART'S article on water in Wood's Reference Handbook of the Medical Sciences was also of value. DR. FLOYD DAVIS of Des Moines, Iowa, and DR. LEFFMANN of Philadelphia, gave us excellent little books on the sanitary analysis of water and Professor MASON himself contributed a booklet, known to but few because it was printed mainly for the laboratory use of his students, and yet from the precision of its directions it was worthy of a more extended publication. Nor must we forget the valuable work of the State Board of Health of Massachusetts on filtration, published in recent annual reports, nor the many special reports on the water supply of particular municipalities by health officers and special committees. In England we have had new editions of WANKLYN'S book condemning waters on the ammonia and albuminoid ammonia distilled from them; of FRANKLAND'S condemning them on the absolute quantities of the organic elements; the relation between the carbon and nitrogen and the skeleton of sewage as represented by the nitrates in solution in the water; articles by TIDY on the oxygen required to oxidize organic matter and by EKIN on the dangerous character of waters containing more than so many milligrams of nitrates per million of the water, and so on. But all these publications, with the exception of NICHOLS' article, dealt merely with the laboratory work of analysis and the more difficult work of translating the results of the analysis into an opinion on wholesomeness or unwholesomeness that could be understood by the laity. These authors took the water supply into the laboratory and told us all

about it from the laboratory point of view, so that we came to know this quite well; but what we did not know, yet wanted to know, what we could not find out from chemic and medical books, was how the water supply came to be a water supply. In Washington we knew all about the dam and the conduit, the reservoir and distributing mains, and in Chicago about the tunnels, but about the methods of water supply and its purification in other cities we were ignorant, because the publications mentioned gave us nothing from the engineering and financial points of view. Fortunately Professor MASON went to Europe and enlarged his experience, not only of laboratory methods, but of methods of purification on the wholesale scale for municipal supplies. As a result of his European trip and his earnest desire to promote purity of water supplies for home consumption, his small but valuable laboratory brochure has blossomed into what may without flattery be called the best work on water supplies in the English language. The author is modest; he speaks of his work as a compilation, which he hopes will prove of interest to several classes of men quite widely separated in tastes and occupations; to the physician, who wishes to keep in touch with this particular phase of sanitary science, but whose time does not permit of his undertaking such investigations personally; to the hydraulic engineer, whose professional duties prevent his sifting out from the mass of recent bacteriologic and chemic results such facts as bear upon his specialty; to the water analyst or the chemic student, who may seek to employ analytic methods widely used and largely based upon the report of the Committee of the American Association for Advancement of Science, and finally to the general reader, who as a water consumer feels a natural interest in the continually recurring water problem of the day.

Critics have on several occasions stated that medical men in discussing a professional subject are never satisfied unless they go back to HIPPOCRATES and drag it along through the ages to show their perfect familiarity with it. Professor MASON starts from HIPPOCRATES, but in his defense it is to be noted that he does place M.D. after his name and that although he does begin away back he does not fail to bring his subject up to date. He shows the connection between water supply and such diseases as malarial fever, typhoid fever and cholera, citing the instances on which the argument is based instead of dealing with vague assertions of the belief of certain medical men. He describes the filter bed system so common in Europe, so practically unknown here, not only from chemic, bacteriologic and sanitary points of view, but from the practical and financial. Rain, ice and snow water; river, stored and ground waters; dug, driven and deep wells, receive full consideration, and our knowledge of them is brought up to date. But it is needless to go over the whole subject. The volume will be of value to all those mentioned by the author in his preface as bringing to their notice matters that could be found heretofore only by hunting over the entire field of sanitary literature.

SECRET CURES OF INEBRIETY IN BELLEVUE HOSPITAL, NEW YORK.

The commissioners of charities in New York have considered it their duty to place two wards of Bellevue Hospital at the disposal of a physician who has a secret cure for inebriety. This physician is not a member of the hospital staff or board, and apparently proposes to prove to a skeptical public that his remedy is of such value that the authorities must adopt it at once. But literally he has secured a golden opportunity to pose before the public as a great deliverer and benefactor. The newspaper accounts from day to day of the treatment, and the interviews and statements of cured men, far exceed the wildest dreams of any gold-cure specifics in the past. The superintendent and the various reporters, together with some of the political managers, assume that it is wonderful. Even the mayor is impressed and convinced, and altogether it is the most startling exhibition of therapeutic wisdom and knowledge, outside the profession, seen for many years. Several weeks have past, and the cured cases are still posing in letters to the public as examples of this marvelous cure, which, strangely, is veiled in mystery. In the meantime the physician visits the wards three times a day, administers the drug and the reporters call regularly to write up the results in the dailies. The public write letters to the hospital authorities and physicians for information to the extent of hundreds daily. The next step will be the endorsement by some leading clergymen, and the sale of privileges to use it in other hospitals. This is said to be an experiment which the authorities feel justified in conducting, but where are the medical board and hospital staff? Are they considered incompetent for this work? Perhaps they are aware of the nature of the remedy and are willing the trial should be invested with mystery and quackish glamour; or perhaps they are powerless in opposition to the hospital authorities, and dare not protest for fear of losing their places. At all events their silence is strange and unaccountable, and the suspicion which gathers about such an effort should be dispelled by some authoritative statement of their position. If the lay authorities of a hospital arrange for and conduct therapeutic experiments outside of its medical board we shall expect a new era. The various specifics and empiric cures will seize this new method of advertising and utilize it to its greatest extent. The moribund gold-cure speculators awake and listen to the glowing accounts of this Bellevue experiment, and turn away with anguish that such an oppor-

tunity did not occur in their day. On the other hand the new armies of quack curers watch with breathless interest this pioneer effort to turn the wards of great charity hospitals into places for advertising their drugs. Two New York medical weeklies have protested against this movement, while a third journal, which is usually very outspoken, has preserved a dignified silence.

We shall follow with great interest this experiment and shall hope its results will come to us by other mediums than the daily press and the hysteric assertions of its so-called cured victims.

CORRESPONDENCE.

An Open Letter to the Members and Friends of the Medical Profession (Regular) in Michigan.

DETROIT, Mich., July 20, 1896.

An organization calling itself "The Michigan Medical Legislative League" has, in a printed circular, appealed to you and to me for aid and comfort in its efforts to accomplish a certain self-imposed task, namely: "To secure through organized effort just and equitable laws regulating the practice of medicine in Michigan and to promote the interests of the medical fraternity." Truly a noble object and worthy the utmost effort of every lover of science and friend of humanity. The Executive Board of the League consists of three irregulars and two members of the regular profession.

For almost a quarter of a century in this State, I and my professional associates have labored and waited and hoped for the accomplishment of this, which is plainly declared to be the main "object" of the "Legislative League." It is needless to say that its attainment is as dear to our hearts to-day as it ever was. We stand ready now as in times past to do anything and everything within the bounds of honor and decency to secure legal medical protection for the sick and suffering. It is therefore with extreme sorrow that we feel compelled to say that the course of procedure and policy publicly avowed by the "Legisiative League" is, in our opinion, deserving only the pity and contempt of every true friend of regular medicine and every individual who sincerely wishes to do what he can for the relief and protection of the sick and hurt. The plainly avowed ultimate "object" of the so-called league is the securing of an act of the legislature as follows:

A BILL to establish a Board of Registration and to regulate the practice of medicine, etc. Of this proposed bill Section 1 reads: "The people of the State of Michigan enact that the Governor shall appoint nine physicians, residents of the State, *not more than four of whom shall be regular*, two homeopathic, two eclectic, one physiomedical (whatever that may be) who shall constitute a Board of Registration in Medicine."

Section 3 reads: "All persons engaged in the practice of medicine and surgery in any of its branches and all who wish to begin the same in the State shall apply to this Board to be registered and for a certificate of such registration."

If this bill had originated with non-professional politicians, or with quacks and irregulars, the pitiful degree of recognition accorded the adherents of true science and the followers of every great and noble name in medicine and surgery from Hippocrates to Pasteur and Lister might have been dismissed with a smile of ridicule and contempt; but coming, as it appears to come, from men who still profess loyalty to honest scientific medicine, words fail us to adequately express our amazement and sense of humiliation. The regular profession of Michigan numerically exceed all other so-called schools or sects in the proportion of two to one. In the matter of talent, education, character and influence the difference is surely immensely greater. Can it then be possible that the representatives of the great profession of honest scientific medicine in this State are ready and willing to join forces with every quack and pathy and sect for the purpose of securing a law which in the most practical and unmistakable manner declares the inferiority of regular and the superiority of irregular medicine? Many years ago the profession of this State submitted to a severe rebuke at the hands of the AMERICAN MEDICAL ASSOCIATION for having even thought of a somewhat similar proposition. Can it be possible that at this late date the regular profession in Michigan feels itself so feeble and unable to maintain itself that it stands ready to defy the public professional sentiment of this and all other lands and in the hope of obtaining a little milk and water degree of protection (*for themselves rather than their patients*) enter into a combination and unholy alliance with its most insidious and meanest foes, and place the balance of power in the hands of the enemy?

The occasion is, in our opinion, critical. The honor and the good name of the profession in Michigan is at stake. It is not yet too late to rescue that good name and keep it safe from disgrace and misfortune. For myself and others who love and honor our profession, we earnestly implore the members to come forward at this time and openly approve the only attitude consistent with the honor and best interests of the profession. Let us earnestly and persistently oppose any and all legislation which tends to increase the power of the quack, the charlatan and the sectarian, and which at the same time degrades and humiliates the only real school of medicine, namely, that school which rises above all pathies and all sects and seeks only the welfare of the sick and suffering and in doing so eagerly accepts anything and everything which holds out reasonable hope of being practically useful. Let us as a profession demonstrate by our lives and our works our claims to legislative recognition and convince the people that *our* interests are *their* interests.

Legislation so earned and secured would be a glorious triumph for science and for humanity. Legislation obtained by compromise and abdication and unholy alliance with everything and every creature in the shape of a medical parasite only confers upon the latter undeserved honor, while it stamps the word *shame* upon the brow of each one of us in Michigan who claims to be, to the best of his ability, the representative and the exponent of the noblest of all professions.

Perfection can not be claimed for any man or set of men, and we have no choice but to confess to many failures and imperfections on the part of the regular profession in thie State and everywhere else. Nevertheless the fact remains that our aims are avowedly higher and in practice our record incomparably grander than that of all the other so-called schools and sects combined.

Why, therefore, in the name of all that is true and good, should we condescend to join hands with any sect, school or pathy, thereby uplifting that which we condemn and despise and at the same time dishonoring that for which we have always been willing to do our utmost to protect and save?

DONALD MACLEAN, M.D.

Leprosy.

NEW YORK, June 23, 1896.

To the Editor:—I inclose a letter just received from Dr. Wm. Havelburg, the Director of the Bacteriologic Laboratory, Hospital dos Lazaros, Rio Janeiro, Brazil, which will be of interest to American dermatologists.

Yours truly, ALBERT S. ASHMEAD.

"Rio de Janeiro, May 26, 1896.

"Dear Dr. Ashmead:—I take for granted that you are conversant with the German language, in which I can express myself so much more easily. Accept my best thanks for your many different messages, either of a literary or other charac-

ter, and I beg you will excuse me for not having rendered my thanks to you before, as I have been prevented by very sad private occurrences.

"Your different publications have interested me very much. In regard to the modern way of doctors concerning serum-therapy, I am thoroughly skeptical. Perhaps diphtheria has, for some time been your field; in regard to leprosy, we hardly could talk of such, as long as the culture of the lepra-bacillus has not been made. Those experiments made in Colombia (with Carrasquilla serum) appear to be very naive. I neither believe in nor trust them.

"You mention a proposition made by Dr. Goldschmidt, regarding a leper congress. That gentleman is known to me by name and by many publications. Although I have not had the same experiences of therapeutics as those which Dr. Goldschmidt has published, I feel with regard to a congress that a real motive is wanting. The increasing danger of leprosy is well known. The Culture States, in their administrations take due regard of hygiene and protect themselves, and those States which do not do so, can or will not, and they do not understand the affair. Particular progress in our knowledge of leprosy and its treatment has, in the last years, not been made. Therefore, what are we going to do with a special congress? He who in this matter wants to talk about it, finds ample opportunity in the general congresses (Interior Medical Dermatologic Hygiene, or the International Congresses).

"I am just about undertaking a journey to Europe for study's sake, and intend to visit the leper hospital in Bergen. I would be highly interested to learn how much knowledge they have there in regard to lepra.

"While in this way answering some of the points of your letter, which has greatly interested me, I greet you and sign myself always your devoted friend, WM. HAVELBURG."

A Cure for Whooping Cough.

GAINESVILLE, FLA., July 16, 1896.

To the Editor:—In Keating's Cyclopedia of the Diseases of Children, the assertion is made that one-fourth of the infant mortality of London is caused from whooping cough, and from a study of the vital statistics as published in Public Health Reports issued by Supervising Surgeon-General Marine Hospital-Service I believe that the same ratio will hold good in many other cities. Having for a number of years used, with such happy results in this affection, a combination of old and approved remedies, I feel it to be my duty to publish the formula, feeling assured that almost any case can be cured in a week if the remedy be properly used. Where the doctor can not supervise the administration of the medicine and thinks it not advisable to push the drugs to their physiologic effects the length of time necessary for a cure may be longer than a week, but the distressing paroxysms and dangers to life will have been quickly overcome.

This is the formula as I usually write it:

℞. Tinct. belladonnæ . . . . . ℥iv to ℥vi
Phenacetin . . . . . ℥iiss
Spirits frumenti . . . . . ℥i
Fl. ext. castaneæ (chestnut leaves) . . . q. s. ad ℥vi

M. Sig.: Shake well.

Dose: From 10 drops for a one-year-old to teaspoonful for ten-year-old child, every two to six hours.

I am inclined to think that the substitution of atropiæ sulphate for the tinct. belladonnæ would be a more elegant prescription, but I have had such good results from the formula as written above that I have had no occasion to change it.

This remedy should be given every two hours or oftener until the flushed face or dilated pupils show that the physiologic effects of the belladonna has been obtained, then the dose can be lessened or the interval between doses lengthened, but the effects must not be allowed to die out until the paroxysms of cough have ceased which will usually be after a very few hours.

When one member of a family has developed the disease others who have been exposed can be prevented from developing any unpleasant symptoms by administering a few doses of the remedy. R. A. LANCASTER, M.D.,
Ex-President Florida Medical Association.

Typhoid Secondary Infection.

WOODHULL, ILL., July 20, 1896.

To the Editor:—It was with considerable pleasure and satisfaction that I read the decision of the court of appeals of Colorado, Jones vs. Vroom, reported in our JOURNAL, July 18, page 169. The reason it is interesting to me is that I have a case pending, to come in the October term of court, where I have been sued for the loss of an eye from typhoid fever. My case was one of four cases that got their contagion in the same locality. Three different physicians treated the four cases. They were all extremely bad cases and they all died except this one case which lived, but has lost the sight of one eye from sloughing of the cornea. The case you reported appears to be very similar to mine, except the fact that they promised to provide a specialist and did not, while I simply did the best I could, never claiming to be a specialist. If you know of a record of any similar cases to the one you reported, or mine, and could advise me where to find the record, it might do me some good in my coming trial. My case is on the streets, fat and apparently well, but blind in one eye.

Respectfully, W. S. MCCLANAHAN, M.D.

The Business Committee.

CHICAGO, July 15, 1896.

To the Editor:—I wish to call the attention of the members of the ASSOCIATION to a recommendation made at the last meeting by the Business Committee. The recommendation was not presented to the ASSOCIATION until the last session and was then, through a misapprehension I am sure, laid on the table. The belief that those who voted to lay the resolution on the table, would have voted to adopt it had they understood its provisions; and the belief that it is much easier to consider a proposition of this kind between meetings, than it is in the hurry of a session is my excuse for presenting it now. The recommendation was as follows: (See JOURNAL May 16, 1896. Page 988).

"*Resolved*, That there be made an Executive Council of five, consisting of the three officers of the Executive Committee, and two members chosen by election. Of this Council of five, one must belong to the Section on Practice of Medicine and one to the Section on Surgery and Anatomy. To this Executive Council shall be delegated all the duties of the Executive Committee, during the intervals between its meetings."

The resolution is perhaps a little ambiguous, but the intention is very simple. It only gives permission to the Executive Committee to delegate their regular duties to a smaller committee of their own number, during the intervals between the meetings. It is impracticable for the whole committee to meet, but a sub-committee of five could meet and would be of great service in preparing for the annual meetings, and in attending to such matters as would naturally come before them. No new powers or duties are delegated to this committee. They only act upon such questions between the annual meetings as come under the jurisdiction of the Business or Executive Committee during those meetings. Those being questions that do not particularly belong to any other officer or committee, it would be a decided gain to have some one with proper authority to consider and act upon them at any and all times. The ambiguity in the resolution as presented from the Executive Committee is in the first sentence. Had that been something like this, the resolution would probably not have met with opposition:

"*Resolved*, That there be made an Executive Council of five, consisting of the three officers of the Executive Committee, and two other members of that committee to be elected by the Executive Committee from their own number." This certainly does not involve a change of the constitution. It scarcely involves the necessity of reference to the general session, as it is a simple delegation of powers by a large committee to a smaller committee of their own number.

Very truly yours,

HORACE M. STARKEY, M.D.

Drops His Membership.

ROCKFORD, IOWA, July 20, 1896.

To the Editor:—I have been a member since the New Orleans meeting in 1885, but now drop it to get membership in the Medical Society of the Mississippi Valley, whose meetings are usually more easily reached. Yours truly,

LUTHER BROWN, M.D.

Location of the Journal.

CHICAGO, ILL., July 13, 1896.

To the Editor:—In the JOURNAL of the 11th inst. a Chicago correspondent wishes to change his vote on the permanent location of the JOURNAL to Washington, D. C., and in stating his reasons, says: "Financially, as I notice from the advertising columns, the principal support of the JOURNAL comes from east of the Alleghenies, I do not see that the ASSOCIATION would be any worse off." Such a statement led me to examine the facts on which it should rest. Doubtless the advertisements in the JOURNAL vary more or less from week to week. In actually examining the advertisements in the JOURNAL containing the letter of your correspondent I found considerably more advertising space occupied from west of the Alleghenies than from the east. Then turning to the more important source of financial support, that from members and subscribers, I found the last complete list of paying members and subscribers was published in December, 1891. A fair count showed the total number of members and subscribers in the United States at that time to be 5,028. Of these only 1,967 were from east of the Alleghenies, allowing Alabama, Georgia and Florida to be included in that division; while 3,061 were from west of the mountain range. Indeed, the seven States usually called northwestern, viz., Ohio, Indiana, Illinois, Iowa, Minnesota, Michigan and Wisconsin furnish more members and subscribers than all the States east of the Alleghenies from Maine to Florida. And Illinois alone furnishes one-third more patronage to the JOURNAL than all the six States east of New York.

In regard to your correspondent's allusion to the proximity of the JOURNAL in Washington to the Library of the Surgeon-General's Office, the Army Medical Museum and the Smithsonian Institute, it is sufficient to say that the medical libraries and institutions in Chicago, with the ample list of exchanges and new publications coming to the JOURNAL's own office, afford a wider field for reference and study than its editorial corps can find time to cultivate. And his allusion to proximity to congress, and the influencing of congressional legislation, fairly raises the question whether it is more desirable to have the JOURNAL converted in a few years into an *organ of medical politics and specialism*, or to keep it as it is, the strictly professional organ of the great body of practitioners of medicine in the United States. Yours truly, N. S. DAVIS, M.D.

SAN JOSE, CAL., July 8, 1896.

To the Editor:—Permit me a word on the question of permanent location of the JOURNAL OF THE ASSOCIATION. This question has been submitted to the members of the ASSOCIATION, and each one should have been allowed to come to his own conclusion and cast his ballot in accordance therewith without any attempts at electioneering or log-rolling from any quarter. The editor has wisely abstained from any suggestions whatever. This is as it should be. But the silence has been broken by Dr. Newton of New Jersey. If electioneering is in order there may be a thousand members who would like to have a say. Shall we say it? If so extend the time of voting a month or two and keep everything else out of the JOURNAL and we will have a picnic. I move that there be no further electioneering allowed in this matter.

Yours truly, A. C. SIMONTON, M.D.

BOOK NOTICES.

A System of Medicine, by many writers. Edited by THOMAS CLIFFORD ALLBUTT, M.A., M.D., LL.D., F.R.C.P., F.R.S., F.L.S., F.S.A. Volume I. New York: Macmillan & Co., 66 Fifth Ave. London: Macmillan & Co., Ltd. 8o, cl. Price $5.00.

This is the beginning of an elaborate "system," which is destined to become a very important addition to our literature. The work is a pioneer in many directions, as will be seen by glancing at the synopsis of this volume.

The first division contains articles on: 1, Medical Statistics; 2, Anthropology and Medicine; 3, On Temperament; 4, On the Laws of Inheritance in Disease; 5, Medical Geography of Great Britain; 6, Inflammation; 7, The Doctrine of Fever; 8, General Pathology of Nutrition; 9, General Pathology of New Growths; 10, Principles of Drug Therapeutics; 11, Climate in Treatment of Disease; 12, Artificial Aerotherapeutics; 13, Balneology and Hydrotherapeutics; 14, Medical Applications of Electricity; 15, Massage: Technique, Physiology and Therapeutic Indications; 16, General Principles of Dietetics in Disease, or the Feeding of the Sick; 17, Diet and Therapeutics of Children; 18, Nursing; 19, Hygiene of Youth: 30, Life Assurance.

After these comes the second division, devoted to "Fevers," of which part I consists of 11 pages on sunstroke, and part II is on the infections. This is disposed of in sixteen separate articles as follows: 1, General Pathology of Infection; 2, Septicemia and Pyemia; 3, Erysipelas; 4, Infective Endocarditis; 5, Puerperal Septic Disease; 6, Furuncle, Carbuncle; 7, Epidemic Pneumonia; 8, Epidemic Cerebro-spinal Meningitis; 9, Influenza; 10, Diphtheria; 11, Diphtheria; 12, Tetanus; 13, Enteric Fever; 14, Cholera Asiatica; 15, Plague; 16, Relapsing or Famine Fever. The volume concludes with a very full index. The illustrations are excellent. No library will be complete without this work. In the treatment of diphtheria, Herringham views favorably the serum treatment, but it is only mentioned as a special treatment. His usual treatment in practice is set forth on p. 744, and is seen to consist of the usual topical and general remedies. Sulphoricinic acid receives a favorable mention, although we are instructed (p. 745) no drug is a specific, "and the indications for their use must be left to the judgment of the practitioner who is directing their use." The best way of giving chlorate of potash, he says, is by the old-fashioned chlorin mixture. A foot note states that chlorin vapor was recommended by J. Johnstone as early as 1779.

In enteric fever, Dreschfeld mentions the antiseptic treatment, calomel receiving the first notice. Of this drug he says, p. 852: "Of its antiseptic virtue there can be no doubt, and experimental investigations have shown that it readily kills bacteria, that it prevents butyric acid fermentation—a fermentation brought about by microörganisms, that it checks the formation of products of decomposition usually found in the digestive tract (indol, skatol), and that it does not interfere with the action of the unorganized ferments of the saliva, gastric and pancreatic juices (Wasseljeff)." Concerning use of perchlorid (bichlorid) of mercury he says (p. 852): "One-half to 1 drachm (2 to 4 c.c.) of the solution of perchlorid of

mercury, with 1 or 2 grains (.06 or .12) of quinin given every four hours for several days, has been highly recommended by Sir W. Broadbent, especially when the motions are offensive and accompanied by much gas, the abdomen much distended and the fever high. Calomel and perchlorid of mercury are only to be given for a few days; but within the last few years more thorough antiseptic treatment has been advised, and numerous drugs have been recommended, not so much with the object of checking the action of the typhoid bacilli which have already passed the intestines and reached the internal organs, as with that of acting on any toxins as yet unabsorbed, and particularly of checking fermentation and the action of numerous microörganisms found in the alimentary canal, the growth and development of which are favored by the presence of the typhoid bacillus, and the product of which may be absorbed through the ulcerated surface of the intestines." In conclusion he says: "My own experience from a number of cases in which the various antiseptics have been tried, makes me think well of this treatment, though it is certainly inferior to the cold water treatment."

Lack of space alone prevents a more extended notice of the highly scientific articles which make up this first volume, and give it character as an able exponent of *fin de siècle* British medicine.

Transactions of the Medical Society of the State of New York for the year 1896. Published by the Society, 1896; 8o, cl.; pp. 544.

We notice with pleasure the following remarks of the President, Dr. Roswell Park, in his inaugural address, Transactions, p. 15: "It is now more than fourteen years since an event in the history of this society, which has had a most marked influence not only upon its affairs, but upon professional matters throughout the land. I allude to the differences of opinion which brought about a separation of this organization from the AMERICAN MEDICAL ASSOCIATION. Whatever the causes which operated at that time to cause this deplorable state of affairs, it is certain that they have since been made less operative. I am sure that a majority of members of the national body long to see this society restored to its early affiliation, and I am sure that a majority of our own members would gladly welcome the day when harmony might be restored, and when the national ASSOCIATION would again receive our delegates with their old-time cordiality. That day, it seems to me, draws ever nearer, and were it not for the ill-advised and much-deprecated animosity of a few opponents of peace and good will, would be plainly in sight. I would urge upon our members the importance of hastening by all judicious means the restoration of former relations and the election once more of delegates to that ASSOCIATION just as soon as we are assured that they will be received in the same spirit in which they are sent. Only the prejudices of a comparatively small number of men stand in the way of this most desirable accomplishment. I urge no lowering of our dignity; only that the actions of fifteen years ago by men who did not then understand our position, and who are perhaps not yet moved by the liberal spirit of the age, be forgotten, and that brothers of the noblest of all professions again clasp hands across the breech which was not of their own making." The committee to whom was referred the President's address reported on the foregoing recommendation as follows: "That this society approves of the sentiments expressed in the President's address concerning the relations of the Medical Society of the State of New York and the AMERICAN MEDICAL ASSOCIATION, and is ready to coöperate in any plan compatible with the dignity of both organizations whereby existing differences could be adjusted in the interests of professional harmony and in accordance with the liberal spirit of the age."[1] In addition to the numerous scientific articles, the volume contains a biographic sketch of Dwight Morgan Lee by D. A. Gleason, memorial of Judson C. Nelson by Frank H. Green, and a memorial of Erastus D. Chipman.

[1] Transactions, p. 37.

Le Gonocoque. Par le DR. MARCEL SÉE, Ancien Interne des Hôpitaux de Paris. Cl. 8o. Pp. 359. Paris: Felix Alcan. 1896.

This monograph gives an exhaustive study of the gonococcus, and the results of several years of study of that interesting object. The literature of the subject has been diffused in the pages of medical journals and in different languages. The author has gathered in this volume all the important facts concerning the microbe of Neisser. The work is divided into two parts, viz.: Experimental and Clinical. There are four chapters in the first part, viz.: I. Microscopic Examination. II. Cultures in (*a*) Albuminoid Media, (*b*) Acid Media. III. Biology of the Gonococcus. IV. Inoculations. The second part is divided into eight chapters, viz.: I. Microbes of the Urethra. II. Importance of the Gonococcus in Urethral Pathology. The Urethrites Non-Blennorrhagic. III. The Process of Blennorrhagic Urethritis. IV. Complications by Direct Propagation of Urethral Blennorrhagia. V. Blennorrhagia of the Genito-Urinary Organs of Woman. VI. Blennorrhagia Inoculated Within the Genital Organs. VII. Gonorrheal Metastases, Generalized Blennorrhagia. VIII. Conclusions Relative to the Biology of the Gonococcus in the Organism and Its Diagnosis. General conclusions. There is also an appendix in which is given the details of many experiments and observations and a fairly complete bibliography since 1893.

In Sickness and in Health, a Manual of Domestic Medicine and Surgery, Hygiene, Dietetics and Nursing. Dealing in a Practical Way with the Problems Relating to the Maintenance of Health, the Prevention and Treatment of Disease, and the Most Effective Aid in Emergencies. Edited by J. WEST ROOSEVELT, M.D., late physician in charge of Seton Hospital for consumptives; visiting physician to Bellevue Hospital, and attending physician to Roosevelt Hospital, New York. Complete in one volume of over a thousand pages, illustrated with four colored plates and numerous engravings. Full analytic index. Sold only by subscription. D. Appleton & Co., Publishers, 72 Fifth Avenue, New York. Price, cloth, $6.00.

What a vast gulf between the old domestic medicine of a quarter of a century ago and this highly scientific one under the reviewer's notice! It is questionable whether notwithstanding the great advances made in popular education, this work will not prove too scientific; and with perhaps the exceptionally practical chapter on hygiene by Dr. Armstrong, be passed over by the average lay reader as too technical. The large class of college-bred men and women will find it exactly adapted to their needs. The others will find it valuable for reference, but probably will not read it *seriatim*.

The precepts are sound, the theories correct and the advice given is uniformly excellent, and in accord with the latest teachings of medical science. No attempt is made to supplant the family physician, as it is obvious that the treatment of disease and the operations mentioned can only be instituted by a trained physician.

Philadelphia Hospital Reports. Volume III. 1896. Edited by GEOROE E. DE SCHWEINITZ, A.M., M.D., member of the Ophthalmic Staff, Philadelphia. Printed by M. H. Power. 1896. Pp. 221. Cl.

These reports are carefully written and reflect credit upon the authors and editor. There are some twenty-five original articles, exclusive of tables, by such well known physicians as Tyson, Packard, Anders, Deaver, Bevan, Horwitz, E. P. Davis, C. K. Mills, Sinkler, Dercum, Lloyd, Stellwagon and others.

Transactions of the American Association of Obstetricians and Gynecologists. Vol. VIII. For the year 1895. Philadelphia. Wm. J. Dornan. 1896. Pp. 404. Cl.

The abstract of the proceedings of the interesting annual meeting, which forms the subject matter of this volume, was duly published in the JOURNAL, Oct. 5, 1895. We have now only to add the notice of the appearance of this volume, and to congratulate the society and its veteran secretary, Dr. Wm. Warren Potter, on the appearance of this carefully edited and hand-

some volume of Transactions. The volume includes portraits and obituary sketches of Franklin Townsend Jr., of Albany, J. Edwin Michael of Baltimore, Thomas Keith of Edinburgh, and L. Ch. Boisliniere of St. Louis.

PUBLIC HEALTH.

Health Report of Salt Lake, Utah.—The Board of Health report for June: Number of deaths 52, against 27 for same month last year; death rate per thousand 8.91, against 4.62 last year.

Definite Diagnoses Required.—The Board of Health of Spokane, Wash., at the meeting of July 6, passed a resolution that in future the health officer shall not accept "heart failure" and other indefinite terms as the sole cause of death in returns. This rule will be strictly adhered to by the health officer in the future.

Smallpox in Cuba.—Reports to July 14 from Cuba, show that smallpox is proving more deadly than yellow fever. The fever is epidemic at the seaport towns, where the Spanish troops are garrisoned, but the smallpox is virulent throughout the interior. A recent letter from Dr. Caminero, United States sanitary inspector at Santiago de Cuba, says there are 2,000 cases in that city, which has 16,000 population.

Colorado State Board of Medical Examiners.—The Colorado State Board of Medical Examiners, July 7, granted licenses to practice to seventy-eight physicians who presented their diplomas from reputable medical colleges, date of graduation being in each case indicated. The annual election of officers of the board was then held, which resulted in the choice T. J. Forhan, M. D., of Rouse, as president, and T. A. Hughes, M. D., of Denver, for secretary and treasurer.

Crusade on Rear Tenements in Jersey City, N. J.—The Board of Health of Jersey City, have begun a crusade against poorly ventilated and improperly drained tenement houses, particularly rear tenements. During the last three weeks diphtheria has raged in the city and twenty-three deaths have resulted. On July 13 seven new cases were reported, and July 14 eight more. The outbreak is believed to be due to poor ventilation and bad drainage.

Vaccinate the Children.—An old and valued correspondent of the JOURNAL, who is one of the most efficient health officers in the United States, writes to us as follows: Now is a good time to begin a systematic effort to arouse the profession to the truth (so much obscured by the battle against humanized vaccine by the commercial methods used to further the various "brands" of animal vaccine) that *given, a typical vaccine,* it *must be properly used to be efficient* and to avoid "accident" which is as a rule caused by a broken vesicle admitting the infection of septic or other foreign disease cause. I wish you would fire a shot in that direction, for it is a fact that physicians avoid vaccinating now where, when we were students, they considered it a simple duty, in infancy.

New Health Laws Desired in Indiana.—Dr. J. N. Hurty, Secretary of the State Board of Health, has sent out a letter to the doctors of the State, outlining a proposition of the Board to bring about at the next session of the Legislature the enactment of a new health law, the present one being considered inadequate. It is proposed to have a State Board of seven members appointed by the Governor, with no salaries attached except for the commissioner chosen by the Board, who shall be experienced in sanitary matters, chemistry and bacteriology. A sanitary laboratory shall be established where all necessary sanitary analysis and bacteriologic examinations and all health work may be done for the people without charge. A modern health board without a sanitary laboratory in charge of skilled and learned specialists would be almost helpless. County health boards shall consist of two physicians and a lawyer or business man, appointed by the commissioners. One of the physicians to be made secretary and county health officer. Secretary to be paid $10 a year for each 1,000 of population, except in counties of over 100,000. The other two members to receive no salary. Expenses to be paid by the county. Duties and powers to be carefully defined.

Health of Buffalo, N. Y.—Buffalo's death rate for the first six months of this year is reported at 11.67 per thousand. The *Buffalo Enquirer* enumerates the causes of the reduction of mortality, some of which are of interest: Frequent examination of all lodging and tenement houses; the maintenance of a bacteriologic laboratory at which free tests of all suspected cases of diphtheria and consumption may be made; the sanitary inspection of schools; a weekly examination, chemic and bacteriologic, of the public water supply; the prompt reporting of contagious diseases by telephone at the expense of the city; the placarding of houses in which there are cases of diphtheria or scarlet fever; the medical and sanitary inspection of all premises exposed to infection; a health office open day and night for the reception of reports and complaints; the publication of reports concerning work done by the several bureaus; the examination of the premises of all milk dealers by sanitary officers and plumbing experts; the registration of all dairy herds from which milk is supplied to consumers, showing by the certificates of a veterinary surgeon whether the cows are free from tuberculosis; a register containing reports concerning all cases of disease on each milkman's delivery route. Particular attention is given to the milk business.

Regulation of Midwives in Chicago.—In this JOURNAL of May 2, 1896, there was published the action of the Illinois State Board of Health concerning the practice of midwifery, based upon a communication from Dr. Frank W. Reilly, Assistant Commissioner of Health of Chicago. This action authorizes municipal health authorities to prescribe rules and regulations governing midwives in their respective jurisdictions, which rules, when approved and adopted by the Board, have the force and effect of law, as do all rules and regulations of the Board. Dr. Reilly has acted promptly on this authorization and has submitted to the Board a code which, if judiciously enforced, can not fail to save many lives and curtail the fast-growing encroachment of the midwife upon the legitimate field of the practitioner.

That there is need of some such regulation is shown by a recent brief search of the records of the coroner's office which discloses no less than thirty-four cases of unfortunate women and girls who have come to an untimely and cruel end through the unregulated practice of midwives in Chicago. Mention was made of one of these in the JOURNAL article above referred to; another came to light on the 24th ult., when a woman was arrested for the third time in seven months for procuring abortion resulting in death. Under instructions the woman was discharged on the ground, as alleged, that there was "no use in holding her to the grand jury, since she had been twice acquitted on trial, although she once admitted in the criminal court that she had used the catheter (found on the postmortem) pushed through the uterus and lying in a bed of pus in the omentum." Close on the heels of this came the arrest of two most notorious abortionist midwives—the postmortem of their victim showing lacerations of the fundus and a perforation through which a loop of intestine had been dragged down, torn apart and the fecal contents filling the cavity. The details of some of the cases are simply sickening—the least offense, but the most frequent, being failure to remove the placenta and consequent death from septic peritonitis. In only thirteen of these thirty-four cases was there any clue to the operator; but this is of minor importance, since in no case was any punish-

ment inflicted and the women are allowed to continue their nefarious pursuits unhampered by any restriction or regulation. It is obvious that the midwives' victims who find their way to the morgue and become the subjects of a coroner's inquest represent but a small number of the total, whose deaths are attributed to other causes.

The rules and regulations follow, in effect, the lines of the Austrian code which, in a modified form, have been approved and urged for adoption in Great Britain. They are as follow:

RULES AND REGULATIONS FOR MIDWIVES IN THE CITY OF CHICAGO.

Under the authority and with the approval of the State Board of Health of the State of Illinois, the Department of Health of the City of Chicago hereby prescribes the following rules and regulations for the practice of midwives within its jurisdiction.

Wilful violation of any of these rules will be visited by prosecution under Section 12 of the State Medical Practice Act, or by suspension of the right of practice, according to the gravity of the offense.

Rule 1.—No person shall practice midwifery in the City of Chicago unless authorized so to do by the State Board of Health of the State of Illinois. If authorized to practice only midwifery the certificate of said Board conferring such authority shall be kept in view in the office or reception room of the midwife, for the information of those seeking her services and for the inspection of the proper city officials. For the purposes of these Rules and Regulations all such duly authorized persons, and none other, shall be known as midwives.

Rule 2.—Within thirty days after the approval of these Rules and Regulations by the State Board of Health, every midwife then engaged in the practice of midwifery in the city of Chicago shall register her name and address with the Medical Inspector of Midwifery, Room 2, City Hall, and shall exhibit to said medical inspector her certificate from the State Board of Health. And thereafter no midwife shall engage in practice in Chicago until she has so registered.

Rule 3.—Midwives shall attend cases of natural labor only. In any case which is not "natural" as hereinafter defined, the midwife shall at once tell the family that the assistance of a physician is necessary. The family shall be asked to choose the physician; but, if too poor to pay, the midwife shall immediately send for the nearest Department physician. A list of Department physicians who will assist in such cases without pay must be kept by every midwife. The list may be obtained at Room 2, City Hall.

"Natural labor" is hereby defined to be one which occurs at or near full term (nine calendar months); one in which the head and no other part presents; and one in which there is none of the conditions specified in the following:

Rule 4.—A midwife must seek the assistance of a physician in any of the following conditions:

A. During Pregnancy.—1. When she has discovered or suspects a narrow pelvis. 2. When there is hemorrhage. 3. When the patient is threatened with an attack of any illness of a serious nature. 4. When a pregnant woman dies suddenly.

B. During Labor.—1. In all cases of unnatural position of the child and if possible before the liquor amnii escapes. 2. In presentations of hands or feet, or when the cord presents with the head. 3. In every case where, from the smallness of the pelvis or largeness of the child's head or from any cause whatever, the descent of the head is interfered with. 4. In disturbance of the labor pains, leading to delay of birth; or in cases of excessive pains followed by exhaustion; or where a child, whose head has already deeply descended, is not delivered for two hours after the opening of the mouth of the womb and the escape of the liquor amnii. 5. In bleeding, at whatever time in labor it may occur. 6. In presenting placenta. 7. If the afterbirth be not expelled an hour after the birth of the child, even if no bleeding has occurred. 8. In all cases of rupture or tear of the perineum as soon as such occurs. 9. In all cases where abortion or premature labor is threatened or has occurred. 10. In twins or multiple births when there is delay of more than half an hour between the deliveries or when there is any complication, and in all monstrosities. 11. In all cases of apparent sickness or threatened danger, as well as on the sudden death of the woman. 12. In the apparently dead newborn child. 13. In all cases of stillbirth, no matter what the stage of development of the child.

C. During Childbed.—1. In the lying-in woman when there is a rise of pulse or temperature (101 degrees F. or over) rigor, tender abdomen, stoppage of the lochia or bad smell of the same. 2. In all cases of illness attacking the newly born child, and especially if the eyes show redness or other signs of inflammation.

When a physician is sent for to a protracted labor the midwife shall, when possible, send a written description in a few words of the cause of the delay, such as "narrow pelvis with head presentation," "cross presentation," "hemorrhage during the afterbirth period," and so forth, so that he may know what it will be necessary for him to take. If a patient or her relations wish a physician called in, even if the midwife does not see any abnormal symptoms, she is not to object or try to persuade them not to do so. The choice of the physician—except in the case of a Department physician—rests with the patient or her relations, and the midwife is not to express any opinion unlsss requested to do so. The midwife must inform the physician truthfully and accurately of all she has observed about the case previous to his arrival and stay as long as he wishes, to assist him and conscientiously carry out his orders.

Rule 5.—Under no circumstances shall any midwife have in her possession a set of obstetric forceps, or any other instrument for the performance of an obstetric operation nor any drug or instrument or other article which may be used to procure an abortion or to cause or hasten the expulsion of a fetus, whether at term or otherwise. Nor shall any midwife give chloroform, ether or any other anesthetic, except by the advice and in the presence of a physician. Nor shall any midwife give or advise the use of any drug or medicine, except the simple domestic remedies commonly used in the household. Any violation of this rule shall be considered evidence that the midwife performs operations and practices medicine in violation of Section 10 of the Medical Practice Act, and is subject to the penalties prescribed in Section 12 of said Act.

Rule 6.—Every midwife, in addition to her usual equipment, must be provided with a case book, in which she shall keep a full and correct record of all cases of labor attended by her. This book shall be subject to inspection by the Department Medical Inspector, and shall be open to the physician (if one is called in), who may write therein, and sign, his own remarks upon the case in hand.

Rule 7.—Every midwife shall make and keep a registry of each birth at which she professionally assists or advises; and shall report the facts thereof to the Department of Health on the blanks furnished by the Department within five (5) days after each such birth.

Rule 8.—Midwives must keep themselves and all their appliances scrupulously clean and must avoid contact with sick persons and decomposing substances of every kind, so that their fingers, appliances or clothes may not contain any infective material which might be conveyed to the lying-in woman during examinations and thereby produce puerperal or childbed fever. They are strenuously enjoined before touching a lying-in woman to wash their hands and instruments thoroughly with a disinfectant. It is particularly dangerous for a midwife who is attending a lying-in woman, or any sick person, where there are foul-smelling emanations, to go direct to another case without first thoroughly cleansing her hands and appliances and changing her clothing. Unless the cleansing process be thoroughly carried out even after a healthy confinement there will be remains of blood and other fluids on the fingers, and especially under the nails, which will there decompose and be dangerous to the next case attended. The midwife must, therefore, keep her nails cut short and preserve the skin of her hands from chaps, injuries and indurations.

Rule 9.—After assuming charge of a lying-in case the midwife must not leave the patient during delivery and must stay with the woman at least one hour after the expulsion of the afterbirth in a natural labor. In cases of other labors or in threatened danger she must always await the arrival of the physician and remain with the case so long as he thinks necessary and faithfully carry out his instructions. The midwife shall see to the proper ventilation of the lying-in room, and to the keeping of the bed and body linen in a thorough state of cleanliness. She shall be responsible for the cleanliness, comfort and proper dieting of the mother and child during the lying-in period, which in a normal case means the time occupied by the labor and a period of ten days thereafter.

Rule 10.—No midwife shall visit—much less nurse or attend—a case of chicken pox, diphtheria, erysipelas, measles, membranous croup, scarlet fever, smallpox, whooping cough or other contagious or infective disease. If she should unfortunately be exposed to such contagion or infection, she shall report the fact to the Department and shall not attend or visit a lying-in case until she has thoroughly disinfected her person and clothing and has been pronounced safe by the medical inspector. In the case of a lying-in woman contracting puerperal fever or any septic condition whatever the midwife must abstain from attending any other woman at the same

time. A midwife must not under any circumstances assist in the laying out of dead bodies.

Rule 11.—In apparently dead-born children at or near term, in whom no sign of putrefaction has developed, the midwife, in the absence of the physician, who must be summoned at once, should practice the methods of resuscitation taught her until the child breathes regularly or for at least half an hour.

Rule 12.—Midwives must conscientiously guard the secrets of their patients and must only divulge them if the law requires them to do so.

Health Report.—The following health reports have been received in the office of the Supervising Surgeon-General, Marine-Hospital Service:

SMALLPOX—UNITED STATES.

New Orleans, La., June 1 to 30, 11 deaths.
Shelby County, Tenn., June 1 to 30, 3 cases.
Mobile County, Ala., June 5 to July 5, 2 cases.

SMALLPOX—FOREIGN.

Bombay, India, June 9 to 16, 8 deaths.
Calcutta, India, May 30 to June 6, 1 death.
Corunna, Spain, June 13 to July 4, 1 death.
Genoa, Italy, June 27 to July 4, 1 case.
Madrid, Spain, June 23 to 30, 11 deaths.
Matanzas, Cuba, July 1 to 8, 3 cases.
Montevideo, June 6 to 13, 4 cases.
Moscow, Russia, June 13 to 20, 1 death.
Nogales, Mexico, July 4 to 11, 6 cases.
Odessa, Russia, June 20 to 27, 9 cases, 2 deaths.
Osaka and Hiogo, Japan, June 13 to 20, 86 cases, 27 deaths.
Prague, Bohemia, June 20 to 27, 2 cases.
St. Petersburg, Russia, June 20 to 27, 7 cases, 6 deaths.
Tuxpan, June 20 to 27, 2 deaths.
Warsaw, June 13 to 27, 5 deaths.

CHOLERA.

Bombay, India, June 9 to 16, 5 deaths.
Calcutta, India, May 30 to June 6, 49 deaths.

YELLOW FEVER.

Matanzas, Cuba, July 1 to 8, 63 cases, 39 deaths.

SOCIETY NEWS.

Wayne County, New York, Medical Society.—The annual meeting of this society was held at Lyons, N. Y., July 14, and was largely attended. The opening address was made by President T. H. Hallett, of Clyde. The following officers were elected for the ensuing year: President, J. W. Atwood, of Marion; Vice-President, Alice Brownell, of Newark; Secretary, A. A. Young, of Newark; Treasurer, Darwin Colvin, of Clyde.

Iowa and Illinois Central District Medical Association.—The annual meeting of this association was held at Davenport, Iowa, July 9. The guest of the meeting was Dr. Frank Billings, of the Chicago Medical College, who read an interesting paper on pyelitis and exhibited plates illustrative of the subject. The following officers were elected for the ensuing year: President, Charles M. Robertson, of Davenport; Vice-President, J. R. Hollowbush, of Rock Island; Secretary, E. S. Bowman, of Davenport; Treasurer, A. W. Cantwell, of Davenport.

The Winnipisiogee Academy of Medicine held their first annual meeting at Laconia, N. H., July 6. The following officers were elected for the ensuing year: President, A. W. Abbott, Laconia; Vice-President, P. S. Foster, Laconia; Treasurer, Joseph Theriault, Laconia; Secretary, George H. Saltmarsh, Lakeport. The post-prandial exercises were presided over by President A. W. Abbott, and included addresses by Governor Busiel, Dr. Conn and others. Dr. Conn gave an able and interesting address on "The Progress of Antiseptic Surgery," in which he contrasted surgical methods of to-day with those of forty years ago. In closing he said:

"The triumphs of surgery are very startling to the laity, and in fact, the profession must keep step to the music else they are in danger of being considered a back number. The time has gone by when any one can imitate Mr. Bergh, who was a great friend of the animal creation and took every occasion to stand up for their rights. He was throughout his life the acknowledged leader of the anti-vivisectionists in America. In a lecture on this subject, after describing the experiments of Dr. Robert McDonald, who successfully practiced the transfusion of animal blood into the veins of a dying person, Mr. Bergh comments as follows: 'In other words, this potentate has discovered the means of thwarting the decrees of Providence and snatching away from its Maker a soul which He had called away from earth.'

"To us as a profession it seems as if the above was the utterance of an insane person, but we are told that Mr. Bergh was a thoroughly honest, upright man, and believed that he was doing a good work. We will grant that his intentions were of the best, that he was heartily in sympathy with the brute creation, that his object in life being the saving of animals from any unnecessary suffering he had a great work to perform. At the same time any man who would express himself as he is recorded to have done, and at the same time not express any sympathy for poor suffering humanity, must have been without some of the common instincts of human love, or else he had delusions, of which devotion to the brute animal was one, and complete disregard of the rules governing the good Samaritan was another."

NECROLOGY.

Adolph Oldendorff, M.D., at Carlsbad, June 16, in his 65th year. Founder and editor of the new periodical, *Zeitschrift f. Sociale Medicin*, and a prolific writer for medical journals, encyclopedias, etc.

Luigi Villa, M.D., Professor at the Institute Sieroterapico at Milan. The promising career of this talented devotee of science was closed abruptly last month, by an accidental scratch on the finger received while inoculating an animal with some virulent culture (glanders). Death ensued in about a fortnight.

Leloir, Professor of Dermatology and Syphilology, at Lille, France. Although only in his 41st year the list of the various articles and works he has published, as given in the *Progrès Médical* of June 27, nearly fills two closely printed pages.

W. Schlesinger, M.D., at Vienna, in his 58th year; editor of the *Wien. Med. Blaetter* until recently and founder of the "Ambulatorium" for poor sick women.

Joseph Barkley, M.D., died at his home in Leesburg, Ky. after an illness of less than a week, aged 69 years, on the 11th inst.

Samuel Sexton, M.D., died in New York city on July 11. He was born in Ohio in 1833; a graduate of the University of Louisville in 1856, and five years afterward was appointed an assistant surgeon of the Eighth Ohio Volunteers, and served in Virginia. He came to New York after the war and established himself as a successful aurist. He lectured in the New York Eye and Ear Infirmary and was a member of many societies besides having been decorated in 1889 by the Venezuelan Government for services in the cause of public education. He was the author of numerous reports and pamphlets on aural and dental subjects. He was Past-President of the American Society of Otologists, a fellow and office bearer in the Academy of Medicine, and an interested member in a number of scientific and patriotic organizations.

M. S. Thomas, M.D., at Leavenworth, Kas., July 9, aged 66 years. He graduated from the University of Maryland School of Medicine, Baltimore, Md., in 1853. The diseased came to Leavenworth in 1856, and at the commencement of the late Civil War he was a surgeon at Fort Leavenworth. At the breaking out of actual hostilities, however, he resigned this position and entered the Confederate service as a surgeon, serving in the Army of North Virginia throughout the war. At the close of the struggle he returned to Leavenworth and resumed the practice of his profession. He was physician-in-charge, St. John's Hospital and St. Vincent's Orphan Asylum, Leavenworth, member of the Kansas State and Eastern Kansas Medical Societies and President of the Leavenworth County Medical Society.

R. L. DUNN, M.D. (Tulane University, Medical Department, New Orleans, 1859), at Yazoo City, Miss., July 10, aged 60 years.——A. J. Rutherford, M.D. (University of Buffalo, Medical Department, Buffalo, 1889), at Milwaukee, Wis., July 11, aged 36 years.——Samuel H. Griswold, M.D. (Castleton Medical College, Castleton, Vt.. 1844), at Rutland, Vt., July 13, aged 78 years.

MISCELLANY.

Oliver N. Huff, M.D., has resigned his position as Medical Superintendent of the Palmyra Springs (Wis.) Association, and will resume his practice in Chicago.

Free Medical Tuition.—Governor Atkinson announced nineteen appointees to the Augusta (Ga.) Medical College, July 9. A number of years ago the State gave $10,000 to this college with the understanding that the governor should be allowed thereafter to send two pupils from each congressional district in the State each year free of tuition. This privilege was not taken advantage of for a number of years as the law was overlooked.

New York Post-Graduate Medical School.—The fifteenth annual announcement of the New York Post-Graduate Medical School and Hospital has just been issued. Five hundred and forty-two physicians from all over this continent have attended the courses at the institution during the past year. More than one thousand operations were performed in the hospital, which is one of the largest in the city, containing special wards for babies and children, while nearly twenty thousand patients were treated in the outdoor department.

Extension of the Bertillon System in New York State.—The work of establishing the Bertillon system of identifying criminals has just been begun at Sing Sing prison. On July 3 Mr. George Porteous, formerly the chief of the identification bureau at Chicago, arrived at Sing Sing with a supply of the instruments used for measuring bones, cranial angles, etc., and after instructing the officials there in the manner of measuring criminals and classifying the descriptions he will proceed to Brooklyn, where it has been decided to introduce the method into the Kings County penitentiary.

Intoxicants and Sunstroke in Australia.—The *Medical News* states that during the month of January there occurred over three hundred deaths from sunstroke in Australia. When called upon to offer suggestions relative to its prevention the Board of Health promptly informed the Colonial Government that of all predisposing causes none was so potent as undue indulgence in intoxicating liquors, and in its treatment nothing seemed to have a more disastrous effect than the administration of alcoholic stimulants. After this precaution, suggestions were offered regarding the selection of proper clothing, etc.

Connection between Articular Rheumatism and Pneumonia.—Oliva describes in the *Gaz. degli Ospedale e delle Clin.*, No. 60, a couple of cases of typical pneumonia appearing as a tardy complication in acute articular rheumatism. In one case Fränkel's diplococci were found in the sputa. He concludes that articular rheumatism, in certain cases, is evidently produced by Fränkel's diplococci. Maragliano also notes (No. 74) bronchopneumonia as a complication in the course of various kinds of infective diseases, in most of which Fränkel's diplococci were observed in the sputa.

Plural Ectopic Gestation.—P. Minehard, M.D., reports a case with the following points of interest: At the time of rupture the tube contained two fetuses, each with its individual placenta. One fetus was small (two and a half inches long) and flattened. The other fetus was normal in appearance and about thirteen inches long. At the time of rupture the patient had not menstruated for nearly nine months. The patient never had any symptom that indicated disease of the uterus or of the appendages. The tube on the opposite side was healthy in appearance. The patient is now in the fourth month of uterine pregnancy and does not present any sign of tubal or ovarian disease.—*Am. Jour. of Obst. and Dis. of Women and Children*, July.

Human Actinomycosis.—The *Nordisk Med. Arkiv*, 1895, No. 27, reports the number of cases treated in the hospitals of Sweden to date as 84, but Ljunggren adds 27 in his own practice in the province of Schonen, where it is also quite prevalent among the cattle. He ascribes it to the common habit of chewing grains of corn. The location was the cheek, mouth or neck, except in one case of peritoneal actinomycosis, and another that affected the general health. All recovered after the indicated treatment: Extensive incision, curetting and rinsing the infected focus, and drainage.

The New Religion—Pasteurism.—The *Journal de Méd. de Paris* ridicules the way in which the French and some others have installed the antitoxin treatment as a fetish, putting up statues to Roux in Paris, and offering all kinds of sacrifices on his altar. It remarks in its usual sarcastic style that the Parisians consider the Institut Pasteur a sort of Olympus, with Roux and Marmorek for the gods, who promise their followers health and happiness in this world instead of waiting for the next. It concludes that in five years antitoxic serums will have had their day and been relegated to oblivion, quoting Auerbach: "Behring's serum is more dangerous than useful" (*Cbl. f. Inn. Med.* No. 18); Gottstein: "It does not confer immunity, and has no prophylactic action" (*Therap. Monatsch.* No. 5), and Soerenson, "It is useless in cases of croup" (Ib. No. 3).

Action of Porcelain Filters on Viper's Venom.—Porcelain filters do not allow the ferments and toxins of microbes to pass through them, nor the toxic elements in the venom of vipers. But it is known that this filtered product is not entirely without physiologic action, as it raises slightly the temperature of animals inoculated with it. Phisalix reports that he inoculated guinea pigs with strong doses of the filtered product, which would have been immediately fatal if they had not been filtered. Twenty-four hours later he injected a fatal dose of the unfiltered venom. The control animals promptly succumbed, while the others resisted perfectly. They had therefore been effectively vaccinated. These experiments showed that the toxic and vaccinating elements are distinct substances. Their separation by the filter is an additional support of the theory of vaccination by specific substances.—*Semaine Médicale*, June 24.

A Cactus Alkaloid, Pellotin.—From a species of cactus, known to the Mexicans as "pellote," Dr. Hefter, of Leipzig, has separated the active principle which he has named pellotin. Professor Jolly of Berlin has made a number of experiments with it upon patients in Charité Hospital, Berlin, following those previously made by Dr. Hefter upon animals and himself. He found that three-quarters of a grain would almost always cause several hours of sleep, and that no subjective symptoms followed its use beyond a little giddiness in about 20 per cent. of the patients. He observed, however, a marked influence upon the pulse rate, which was ten to twenty beats slower during sleep, but returned to normal on waking. It is estimated that half a grain is equivalent to fifteen grains of trional or thirty grains of chloral hydrate. The alkaloid is quite insoluble, hence the hydrochlorate is always employed.—*Medical News*, July 4.

Budapest Exposition.—We are pleased to advise our readers that at the Milleniel Exposition now going on at Budapest, the owners of the Franz Josef Natural Aperient Water have established a special department for the convenience of all medical practitioners visiting the Exposition. Copies of the leading medical journals of the world are kept on file there and

arrangements are provided for the reception and care of all mail matter, and those contemplating visiting the Exposition are cordially invited to make this department their headquarters for receiving their letters, conducting their correspondence, meeting their friends and consulting the various medical journals while on the Exposition grounds. Letters may be addressed care of the Franz Josef Aperient Water Exhibit, Milleniel Exposition, Budapest, Austro-Hungary. Any inquiries of those intending to visit the Exposition may be addressed to the American representative of the Spring, Elijah J. Molloy, 101 Beekman St., New York City.

Indications for Radical Cure in Inguinal Hernia of Children.—First try and reduce the hernia with a light and suitable bandage, which may alone produce a cure. If the hernia is accompanied by ectopic testis, the bandage must be made specially for it. The latter alone only indicates an operation when it is found impossible to protect the testes from the pressure of the bandage. If difficulties arise in the application of the bandage, then surgical intervention is inevitable. With incarcerated hernia the radical cure should always follow herniotomy. The radical cure must always be performed without regard to the age of the child, in cases of very large scrotal hernia. Under 6 years it consists in ligating the hernial sac and then tamponing the hernial cavity, according to Karewski's method. Above this age, Kocher's method is to be preferred.—Schoenfeldt in *Memorabilien*, April.

Hennig's Successful Treatment of Diphtheria with Lime Water and Ice.—Commenting on the statistics gathered by the government, of serum treatment in diphtheria, showing a mortality of 12.9 per cent. Hennig states that he has only lost 3.06 per cent. during the last eighteen years, 59 out of 1,927 cases. His method is the prompt and continuous use of pure lime water every fifteen minutes night and day, freely gargled and some swallowed, made fresh each time, with an ice bandage applied to the throat outside. He uses for the latter a beef's esophagus, as lighter, cheaper and better for other reasons than a rubber bag. It is filled with ice and extends from ear to ear, securely fastened at the ends to prevent the escape of water. He insists also on absolute cleanliness, nourishing food, with egg lemonade and vanilla ice cream, and alternate doses of liq. ferr. sesquichlorat. and sol. kal. iod. He treats nasal and laryngeal complications with lime water also, sprayed from a Richardson atomizer for several minutes at a time, into the patient's wide open mouth while he breathes tranquilly.—*Therapeutische Wochenschrift.*

The Toxin of Tuberculosis.—Numerous experimenters have endeavored to separate the disease producing principle or toxin in tuberculosis, and their observations may be summed up as follows: Prudden and Hodenpyl have ascertained that the poisonous substance (or substances) is not present in the nutrient media in which the bacilli are grown, but fixed in the bodies of the bacilli themselves in a very resistant form. The poison is not altered when within the body, for a considerable length of time, so that a person will recover from tuberculosis only after the dead bacilli are gotten rid of, or the poison rendered harmless. Maffucei claims that the toxic substance evolved by the tubercle bacilli acts only after a long period of time has elapsed. Riechet and Hericourt have separated a toxic substance from these bacilli which is poisonous to tubercular rabbits, but has no effect upon healthy ones. Thomas Weyl has succeeded in separating an extremely poisonous substance from cultures of the tubercle bacillus, and to which he has given the name toxo-mucin.—Dr. Chas. F. Craig in *N. E. Med. Monthly*, July.

Rupture of the Uterus; an Unusual Case.—Dr. Sherwood Dunn reports a case which he saw at Professor Richelot's clinic, Paris: On opening the abdominal cavity M. Richelot found a soft tumor intimately adherent to the peritoneum which he first thought to be a neoplasm of the ovary, and then, by reason of its soft, mushy consistency, a possible pyo-salpinx, or caseous or dermoid cyst. On carefully separating the adhesions and following it downward, it was thought to be attached to the uterus. On circumscribing the pedicule he discovered that it was not attached to, but really protruded from a rupture, opening into the uterine cavity about the size of a silver dollar. He enlarged the opening and carefully detached and removed the mass; and not until then was it found to be a placenta weighing from one to one and one-half pounds. The patient passed a comfortable night with but little chloroformic vomiting, but the following day the temperature became elevated and she died on the evening of the second day after the operation. It is probable that the placenta, when expelled through the ruptured uterus, came in immediate contact with the peritoneum, and an adhesive membrane was thrown out which protected the neighboring organs from contamination. When this protection was removed, both from the peritoneal surface and the uterine cavity, the septic material caused blood-poisoning to which the patient succumbed.—*Pac. Med. Jour.*, July.

Vesical Tumor.—The *Clinical Journal*, May 13, quotes from *Annales des Maladies des Organes Génito-urinaires* the following case: Dr. Ferria has observed the case of a patient, aged 24, who complained of painful micturition and hematuria. This latter symptom had been two years in existence, hemorrhage occurring at considerable intervals at first; latterly more often, with increased pain and frequent urgent desire to empty the bladder. The hemorrhage occurred more abundantly at the close of the act of micturition till shortly before advice was sought, when severe pain occurred at the beginning of the act and bleeding on almost every occasion, and only at the beginning also, the remaining urine being limpid. On examination it was determined that there was a considerable degree of retention, and that while the prostate and seminal vessels seemed normal, the sound, when introduced, on approaching the neck of the bladder came in contact with a surface apparently irregular and friable. On relieving the retention the catheter enabled Dr. Ferria to recognize a tumor in the bladder. Suprapubic cystotomy was performed, and a papilloma found on the anterior bladder wall to the left side, about three finger breadths from the urethral orifice. The pedicle was slender, 2 and 1½ centimeters in length, and the tumor was of half a walnut, with a prolongation on one side which reached the neck of the bladder and penetrated the prostatic urethra.

Discontinuance of "Climate and Health."—

U. S. Department of Agriculture, Weather Bureau.
Washington, D. C., June 22, 1896.

The discontinuance of the publication, *Climate and Health*, is announced to take effect with the end of the present fiscal year, June 30, 1896. Vol. II, No. 3 (four weeks ended March 28, 1896), will be the last issue of *Climate and Health*. It has been deemed necessary to take this action in view of a doubt having arisen as to whether the publication of *Climate and Health* was authorized by the act making appropriation for the Department of Agriculture for the fiscal year ending June 30, 1897. With the discontinuance of *Climate and Health* will also terminate the weekly collections of the statistics of mortality and morbidity that have heretofore been published therein, and the physicians and health officials who have coöperated with the Weather Bureau in collecting these statistics are requested to return, by mail, under the Departmental frank, all blank forms and franked envelopes on hand upon the receipt of this announcement. The Chief of the Bureau wishes to express to all coöperators his sincere appreciation of their voluntary services rendered in connection with the publication of *Climate and Health*. It is the intention of the Chief of the Bureau to have prosecuted during the coming fiscal year a number of special climatologic studies, and it is expected that the statistics collected during the present fiscal year will be of much value in this connection. The results of these special researches will, if their importance justifies the so doing, be published in the form of special bulletins, at such times and in such shape as the circumstances may warrant and make necessary. Willis L. Moore, Chief of Bureau.

Puncture in Hydrocephalus.—Schilling reports in the April *Memorabilien* his experience in four cases of hydrocephalus treated with puncture, two of which recovered. Ages, seven weeks to a year and a half. The oldest child was taken with convulsions a month after an attack of influenza, with vomiting, strabismus and absence of spastic phenomena. Head increased in size to 57 cm. The left ventricle was punctured and aspirated, and 300 c.cm. was removed, followed by violent convulsions and collapse. A week later another puncture removed 270 c.cm. and the head measured only 45 cm. Phosphorus treatment and recovery. Three years have passed since, and the head now measures 52 cm. The youngest child was relieved of 2 c.cm. of a bloody serous fluid from the right ventricle, although puncture of the left ventricle had been barren. Marked improvement followed, but strabismus and vertical nystagmus later ensued. There was a suspicion of meningitis in this case, due to septic infection from the rite of circumcision. The cases not benefited were congenital hydrocephalus and tubular meningitis. Schilling recommends puncture of the side ventricle as an easily performed operation. A broad elastic bandage should be applied to the head afterward, and phosphorus administered.

Fallopian Tube Tabloids Among the Latest Therapeutic Innovations from London.—The *Medical Press and Circular*, June 10, considers with all due seriousness the alleged innovations of extracts of extra-glandular origin. It says: "Although it is discordant with medical opinion that any of the tenets of homeopathy should have a place in educated medical practice, we admit that the most modern phase of therapeutics trends in this direction. The fashion just now is to prescribe for the disease of any organ an extract from the active principle of that organ itself. Thus it happens that the firms which cater for advanced therapeutic ideas of this sort are offering to the profession suitable preparations of such active principles. Messrs. Burroughs, Wellcome & Co., for instance, announce that they are ready to supply: Salivary-gland tabloids for use in amylaceous dyspepsia; pineal-gland tabloids for softening of the brain, etc.; nuclein tabloids for nervous prostration, etc.; kidney-substance tabloids for diseases depending upon disturbance of the renal functions; cervical lymphatic-gland tabloids for glandular swellings, etc.; Fallopian-tube tabloids for neurotic affections; liver-substance tabloids for uremia, etc.; spinal-cord tabloids for brain diseases. They have retained the services of a former pupil of Pasteur, who devotes his whole attention to this branch of the business, and who maintains that the active principles can be thus isolated and preserved in perfection. No doubt, if disease does not 'mock the meat it feeds on,' these preparations will prove effectual."

The New York County Medical Association.—At the June meeting of that society the special committee on hospitals made a report condemning the action of the appointing powers in the city institutions, in part as follows: "The committee desires to report that though it has used its best endeavors to secure a just balance of evidence in the hospital patronage affair, yet the testimony given before our body has been given entirely by the profession and not by the colleges. The faculties have ignored our communications and have kept strangely silent Yet the very fact of their casting honorary positions broadcast among those physicians who were unjustly removed from places long and ably filled is circumstantial evidence that injustice was done at the instigation of the colleges, and that peace offerings are now necessary. The campaign of the colleges is one of deception, and in order to make such a campaign successful it was necessary to ensure no medical man being appointed a Commissioner of Public Charities, as the whole scheme would have been transparent to a physician. Several members of the faculties waited upon the Mayor and urged that 'no doctor should be a commissioner, as that would break up the harmony between the colleges and the board.' Having thus rendered deception less easy of discovery, they proceeded to hoodwink the Mayor and the board, making many statements which you have seen exposed as perfectly ridiculous by the medical journals. The latest plan is to give a sop to complainants for quieting purposes, and then to address the commissioners with the idea that the profession was satisfied. These sops are appointments as consulting physicians. As is well known such an appointment is only a superannuation and practically is of no value to anyone; but the idea seems to be to convey to the commissioners the impression that injustice has been righted, while concealing the fact that the appointees are not returned to their old places, but are expected to be satisfied with positions that exist only on paper."

Investigation of the HCl Secretion and Motility of the Normal Stomach.—Schüler has been investigating the action of the healthy stomach. He finds that the quantity of free and combined HCl varies very much at times in the same person and in different persons. The maximum of free acid is between 0.05 and 0.2 per cent.; of acid in combination, between 0.012 and 0.11 per cent.; and of total acidity, between 30 (0.11 per cent.) and 70 (0.26 per cent). When the free acid amounts to more than 0.22 per cent. and the total acidity is over 70, there is hyperacidity. (This limit is too high for some persons.) The figures refer to Ewald's test meal; the time required for digesting it was found to be from 45 to 75 minutes. Pentzoldt's statement was confirmed that acid was secreted later with solid foods than with broths, etc., but was then more concentrated. Meat and milk were found to be about equal in inducing the secretion of the acid, while porridge and potato soups were followed by a smaller total amount of acidity. The effect of various medicines and foods was also studied. Salt, five grams, produced no effect on the digestion, while sixteen grams diminished the HCl secretion and interfered with the peptic action of the gastric juice. Twenty-four grams first stopped and then stimulated the secretion of HCl. Bicarbonate of soda first stopped the secretion of acid, but this was followed later by an increase in the secretion, which rose then to normal and above. Repeated doses of it (7-1-2-2-1 grams) resulted in permanently diminishing the amount of acid secreted, while increasing the amount of mucus. Bismuth subnitr. was found to be a genuine antiacid, and it diminished the amount of acid secreted without any subsequent increase. HCl medication produced no apparent effect on the degree of acidity. The motility of the stomach was studied by means of fistulas on dogs, 17-27 cm. below the pylorus. It was found that the temperature of the food had a great influence on the emptying of the stomach. Three hundred grams of spring water at 18 degrees C. had all gone from the stomach in ten minutes, while water at 28 and 40 degrees retarded the motility of the stomach to a marked degree. Ice water first retarded it for fifteen minutes, and then stimulated it, the first retarding effect extending to the muscles of the pylorus. Solid ingesta remained longer in the stomach than fluid foods. Milk can leave the stomach almost as rapidly as water (dogs). Carbonic acid in statu nascendi diminishes the motility, to which Schüler ascribes the favorable effect of bicarb. sod. a few hours after meals, in some gastric affections. From the *Zeitschr. f. klin. Med.* xxviii and xxix., in the *Centralblatt f. Phys.* April 4.

The Action of the Pupil and its Relation to Disease.—Irritation myosis is found in all inflammatory affections of the brain and meninges. In these affections, when the myosis gives way to mydriasis, it has the same significance as in opium and chloroform poisoning, *i. e.*, it indicates paralysis and a probable fatal termination. We find this form of myosis in apoplexy, which may thus be distinguished from embolism. It occurs early in the development of tumors near the oculo-motor center or

nerve. It is seen in the beginning of an hysteric or epileptic attack, in neuroses of the parts supplied by the fifth nerve and in morphin habitues. Paralytic myosis is found in those conditions affecting the integrity of the spinal cord above the dorsal vertebræ. The scleroses, destruction of the cord by traumatism, tumors, caries of the cervical spine, late stages of this portion of the cord, etc., cause this form of myosis. In acute mania the appearance of this form of myosis following mydriosis is prognostic of dementia. Irritation mydriosis is found in hyperemia of the cervical cord, irritation of the cervical cord by morbid growths, or from spinal anemia and in the primary stages of tabes. An increase of intra-cranial pressure and sensory excitement by intestinal worms will cause it; physical influences produce it in mania, melancholia and paretic dementia. What is known as Rampoldi's signs of phthisis is a fluctuating irritation of mydriasis. Paralytic mydriasis is found in progressive paralysis, and diseases of the base affecting the third nerve; Knapp saw it late in thrombosis of the cavernous sinus; orbital and intraocular tumors and glaucoma cause it by destroying the ciliary nerves. Diseases at the periphery of the afferent apparatus have this form of mydriasis as a symptom if the process has destroyed their functional activity. This form of mydriasis sometimes comes as a post-diphtheritic paralysis.—*E. C. Ellett, M.D., in Memphis Medical Monthly*, June, 1896.

Problems in Army Medical Administration.—Lieut.-Col. A. A. Woodhull, Chief Surgeon, Department of Colorado, has lately beeu testing the ability of the medical officers of his department to deal with active service conditions. He has issued a series of problems in which the surroundings of a command with all the observable conditions affecting the troops are particularized, and the medical officer is required to state what would be his course of action and to give his reasons for adopting it instead of some suggested alternative. He has ample time to mature his views in solving the problems, as although the last series, No. 4, was issued June 30, 1896, the time limit for solution is December 31, next. In active service prompt action is often imperative, as in the selection of a camp when two sites are available, each of which has its advantages more or less offset by insanitary conditions. The time given to the consideration of the arguments for and against each site in the hypothetic case will assuredly be productive of good resuls should the officer who has solved such a problem be confronted hereafter with the necessity of choosing. Colonel Woodhull's last series consists of the three following problems: 1. A regiment of regular cavalry, with two lieutenants of the medical department attached, is coöperating with a brigade of infantry against a large body of outlaws carrying on a guerilla warfare. The troops are armed with the modern small-bore firearms, and the outlaws with large-bore muzzle and breech-loading rifles, shot-guns, muskets for buck and ball, and a few modern weapons. The climate of the region corresponds to that of Arkansas in the summer; the country is broken and wooded, interspersed with prairies of moderate size; there are numerous small streams with rocky beds the hills and alluvial banks in the lowlands; there is freedom from swampland, but the banks of the lower streams are marshy; the country is sparsely settled and not well cultivated but there is grazing for the animals; the villages are very small and the population, generally speaking, is disaffected. There are no available railroads and few good country roads. As a rule the cavalry will be broken up into troops or smaller bodies engaged in running down the guerillas who have descended from the hills, in cutting off their escape into the hills and occasionally in penetrating the hills in pursuit or search of them. There will be few collisions of masses, but a number of harassing encounters with resulting casualties. At the end of three months the outlaws will have been disarmed or will have surrendered. A base hospital for the infantry, to which cavalry may be admitted, will be established on a stern-wheel boat on a navigable stream fifty miles by land from the average line of the mounted operations. State in a general way what supplies would be required for three months' field service, especially the kind of tentage and the transportation for the disabled. What detachments of the Hospital Corps would be necessary? How will the sick list proper probably be made up, and what proportion and character of casualties may be anticipated? How will the medical service generally be rendered, bearing in mind that the cavalry will usually operate in detached bodies of a troop or less? As the senior of the two officers, indicate what you would anticipate and how you would provide in advance for the sanitary, the medical and the surgical care of the troops without drawing upon the infantry in the field. 2. A division of newly-raised infantry volunteers recruited in the central Western States, goes into three brigade camps, a mile apart, on the left bank of the Ohio, above Fort Thomas, June 1. The camp was originally intended only for temporary purposes, but circumstances prolonged its occupation until September 30. The usual diseases affecting such troops prevailed in due course, but by July 10 the sick list represented 10 per cent. of the strength and there had been ninety deaths in camp. Visiting the camp as a medical inspector, July 15, and continuing as such for these and other troops until this camp was broken up, what would you expect to find the medical condition had been and to be at the time, what diseases would you fear might arise or continue to prevail, and what result would you hope to attain should your advice be followed, with reasons. Give in this connection a carefully prepared schedule of the advice proper to be tendered for the preservation of the health of these troops. 3. A general engagement has occurred between forces of nearly equal fighting capacity and equipped with modern arms. During the night the enemy, who has been on the defensive, retired, leaving his dead, a large proportion of his severely wounded still on the field, and his hospital two miles in rear of the line of battle with 300 badly wounded. With these there were left five officers and twenty-five enlisted men of his medical corps, with tents, medical supplies and subsistence for one week, but no transportation. The army that held the field went into action with 30,000 men of all arms (divided into two corps) present, of whom 25,000 were actually engaged. The battle occurred in October in latitude 38° 30′ north, ten miles south of a river navigable for fair-sized steamers. The field base was on that river against which the defeated army had been advancing. The country is fairly level and moderately wooded with three good country roads five miles apart, but with no railroad between the base and the battlefield. The medical director was informed twenty-four hours in advance of the probable site and time of the battle. What arrangements should be made for the field and base hospitals? What number of wounded should be expected and how would they be divided, in anticipation, among those requiring no transportation, those who could be carried in army wagons and those for whom ambulances would be necessary? Explain the arrangements made for the medical department, assuming that the full complement of medical officers and men is with the troops and that the base hospital is independently equipped. The army moves forward at daylight after the battle and anticipates contact with the enemy's rear guard, leaving one regiment of infantry to guard the hospitals and for urgent outside fatigue. The Medical Director remains throughout the day and rejoins the army in the night. Explain in such detail as convenient how he will have been engaged through the day and write out the principal orders he will give for the disposition of his own wounded and those of the enemy. It may be assumed that it will rain hard within twenty-four hours after the battle.

Gleanings.—(*Semaine Méd.*, June 24.) Efficacy of faradization of the uterus in accelerating delivery and arresting postpartum hemorrhage. Three cases.——(*Revue Int. de M. et de C.*, June 25.) All that is sold for entire wheat flour is not always what it pretends to be. Capsules keep the thyroid gland fresh longest. A new operation for hemorrhoids removes the tumors if the skin does not adhere to them, ligates and divides them and sutures the skin again. An inguinal hernia is described, 55 c. long, 40 in diameter and 95 in circumference. 3,000 boils and carbuncles successfully sprayed with hot phenic solution à la Verneuil. Athetosis found to be almost invariably preceded by diphtheria.——(*Therap. Woch.*, June 28.) Recovery from abdominal extirpation of a large myoma and duplex uterus.——(*Progrès Méd.*, June 27.) Able illustrated article on the lesions found in multiple neuritis.——(*Gaz. Méd. de Paris*, June 27.) Coli bacilli found in the blood of gastric fever cases. Intense hemophilia in female infant.——(*Union Méd. de Canada*, July.) Milk diet with cream of tartar lemonade, absolute prophylaxis of puerperal eclampsia.——(*Deutsch. Med. Woch.*, June 25.) Beneficial effect of the constant current in a few cases of traumatic peripheral paralysis.——(*Nouveaux Remèdes*, June 8.) Painting the nipples with cocain will suppress the lacteal secretions.——(*Wiener Klin. Rundschau*, June 28.) Efficacy of compresses wet with alcohol in incipient phlegmons. Case of gallstone causing suppuration and finding its way into the pleura and bronchus, until the stone and pus were coughed up. Demonstration that sulphureted hydrogen is formed in the mouth during mastication, which digests alone certain vegetables.——(*Cbl. f. Chir.*, June 27.) Fraenkel's method of narcosis: Before administering the chloroform, he injects 1 c.cm. of a solution of morph. muriat. 0.15; atropin sulph. 0.015; chloral hydrat. 0.25. He has never had a fatal case nor severe asphyxia in twenty-two years. Artificial creation of bone tissue by implanting calcined bone.——(*Medittina*, No. 8.) Cholera found to produce grave lesions in the brain.——(*Tidsskrift for den Norske Laeg.*, June 15.) Beneficial action of antispasmin in whooping cough confirmed. Dose under 1 year 0.01 to 0.015 three or four times a day, 0.02 under 3 years, and 0.04 over 3. Or by this formula: Antispasmin, 2; aquæ dest., 900; elixir pectoral, 98.

Louisville.

DEATH REPORT.—There was a total of seventy deaths for the past week and eight stillbirths. Consumption was the cause of nine. One case of diphtheria and four of scarlet fever were placarded.

DR. H. HORACE GRANT will deliver the annual address on Surgery at the next meeting of the Mississippi Valley Medical Association.

BOARD OF SAFETY.—Impeachment proceedings have been instituted against the Board of Public Safety by the Common Council and the trial will be by the Board of Aldermen. Among the charges submitted by two members of the council to the Board of Aldermen are the following: General and intentional disregard of the enforcement of the laws of the State against gamblers and gambling, pool-rooms, and houses of ill-fame; the ordering a discontinuance of a list of these houses which is required to be kept by the police department under orders from the above board; the creating of great confusion in the financial accounts of the city hospital and alms house by causing the discontinuance of all the financial books of the institutions, making it impossible to tell the cost per month or year of either institution, and making it possible for unjust and false claims to be brought in against them, and the bringing in of claims which should be charged to another year; the wilful violation of an ordinance passed by the council providing for the number of officers in charge of the Eruptive Hospital by their wrongfully increasing the number of paid employes and fixing illegal salaries, without the consent or approval of the mayor or council and to the injury and prejudice of the city treasury and the city service, for all of which they claim the Board is guilty of usurpation in office for which they and each of them ought to be removed from office.

THE PUBLIC SERVICES.

Army Changes. Official List of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from July 11 to July 17, 1896.

Major Clarence Ewen, Surgeon, leave of absence on account of disability is extended one month on account of disability.

Col. Dallas Bache, Asst. Surgeon-General (Hdqrs. Dept. of the Platte), is granted leave of absence for two months, to take effect on or about July 15, 1896.

Major James C. Worthington, Surgeon, extension of leave of absence granted on account of sickness is further extended one month on account of sickness.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending July 18, 1896.

Surgeon R. C. Persons, orders to duty at naval hospital revoked and ordered to continue on present duty.

P. A. Surgeon H. N. T. Harris, ordered to the Pensacola navy yard.

Surgeon S. H. Dickson, ordered to the "Texas."

Asst. Surgeon J. M. Moore, detached from naval hospital, Norfolk, and ordered to the "Texas."

Asst. Surgeon A. Farenholt, detached from the "Monterey" and ordered to the Mare Island hospital, Cal.

Marine-Hospital Changes. Official list of changes of station, and duties of Medical Officers of the U. S. Marine-Hospital Service, for the period from June 21 to July 15, 1896.

Surgeon George Purviance, to assume temporary command of Service at Philadelphia, Pa., for thirty days, July 3, 1896.

P. A. Surgeon C. T. Peckham, placed on waiting orders, July 3, 1896.

P. A. Surgeon J. H. White, to proceed from New York, N. Y., to Key West, Fla., for special duty, July 10, 1896.

P. A. Surgeon G. T. Vaughan, granted leave of absence for thirty days, July 7, 1896.

P. A. Surgeon W. G. Stimpson, to assume temporary command of Service at Port Townsend, Washington, July 3, 1896.

Asst. Surgeon E. K. Sprague, to proceed from Boston, Mass., to New York, N. Y., for temporary duty, July 10, 1896.

Asst. Surgeon H. W. Wickes, granted leave of absence for twenty-seven days, July 8, 1896.

Asst. Surgeon J. B. Greene, to proceed from Baltimore, Md., to Pt. Pleasant, N. J., for physical examination of crews of life saving service, July 13, 1896.

Asst. Surgeon W. M. Jordan, to proceed from Birmingham, Ala., to New York, N. Y., for temporary duty, July 13, 1896.

PROMOTIONS.

Asst. Surgeon J. A. Nydeggar, commissioned by the President as Passed Assistant Surgeon, July 7, 1896.

Asst. Surgeon W. J. S. Steward, commissioned by the President as Passed Assistant Surgeon, July 8, 1896.

APPOINTMENT.

William M. Jordan, of Alabama, commissioned by the President as Assistant Surgeon, July 7, 1896.

Change of Address.

Baughman, J.N., from Flat Lick, Ky., to 617 Chestnut St., Evansville, Ind
Caldwell, J. R., from West Liberty, W. Va., to St. Clairsville, Ohio.
Collins, R. G., from 5059 State St. to 5139 Wabash Ave., Chicago.
Guyon, E. F., from Pendleton, Ore., to Montpelier, Idaho.
Kellogg, G. M., from Las Vegas, N. M., to 2310 Indiana Ave., Chicago.
Kellogg, W. H., from Oakland to Palo Alto, Cal.
Lewis, W. M., from 154 N. Spring St. to 248 Wilcox Building, Los Angeles, Cal.
McDaniel, E. D., from Mobile, Ala., to Milton, Fla.
Osborne, G., from 75 Rush St. to 161 Michigan St., Chicago.
Roy, G. G., from 1¼ Edgewood Ave. to 20 E. Ellis St., Atlanta, Ga.
Seiler, Carl, from Philadelphia, Pa., to Saranac Lake, N. Y.

LETTERS RECEIVED.

Abrahams, R., New York, N. Y.; Appleton, D. & Co., Chicago.
Battle & Co., St. Louis, Mo.; Brown, F. F., New York, N. Y.; Brumme, Carl, Detroit, Mich.; Bartlett, Edward P., Springfield, Ill.
Canton Surgical and Dental Chair Co., Canton, Ohio; Castle, Wilmot & Co., Rochester, N. Y.; Cone, Andrew, New York, N. Y.; Chart Co., The, Boud Hill, Ohio.
Doliber-Goodale & Co., Boston, Mass.; Dietz, R. E., Company, New York, N. Y.; Dick, E. B., Oakville, Ill.; Davison, F. B., Fleetville, Pa.
Eads, S. O., Somerset, Ky.; Eichelburger, W. C., Terre Haute, Ind.
Fletcher & Hudson, Mt. Clemens, Mich.; Foster, Eugene, Augusta, Ga.; Fairchild Bros. & Foster, New York, N. Y.
Gihon, A. L. 2), New York, N. Y.
Hamilton, E. E., Wichita, Kan.; Hamilton, Augustus, Coleridge, Neb.; Hosmer, A. J., Vienna, Austria: Hubbard, Thomas, Toledo, Ohio; Hummel, A. L., Advertising Agency (2), New York, N. Y.
Ingals, E. Fletcher, Chicago.
Johnson, H. L. E., Washington, D. C.
Klebs, Edwin, Chicago; Kruell, T. J., Los Angeles, Cal.; Kegan, Paul, French, Trübner & Co., Ltd., London, Eng.
Levy, M., Paris, France; Lancaster, R. A. Gainesville, Fla.; Leighton, N. W., Brooklyn, N. Y.
Manley, Thos. H. (2), New York, N. Y.; Merrick, M. B., Passaic, N. J.; Maltine Mfg. Co., New York, N. Y.; Marks, A. A., New York, N. Y.; Minor, J. C., Hot Springs, Ark.; Mettler, L. Harrison, Chicago; McDaniel, E. D., Milton, Fla.; Mulford, H. K., Co., Philadelphia, Pa.; Macey Co, Fred, The, Grand Rapids, Mich.; Mellier Drug Co., St. Louis, Mo.; Maclean, Donald, Detroit, Mich.; Mackie, L. V. G., Brant Rock, Mass.; Miehle Printing Press and Mfg. Co., Chicago; Murray, N., Rye Beach, N.H.
Pasteur Chamberland Filter Co., Chicago; Press Clipping Bureau, The, Boston, Mass.; Paquin, Paul, St. Louis, Mo.; Publishers' Collection Agency, St. Paul, Minn.; Parker, W. T., Cleveland, Ohio; Parkhill, C. S. (2), Hornellsville, N. Y.
Rio Chemical Co., St. Louis, Mo.
Slagle, Jacob, Portsmouth, Ohio; Stearns, F., & Co., Detroit, Mich.; Summerfield, J. E., Atlanta, Ga.; Sutherland, J. Lue, Grand Island, Neb.; Scott, J. W., Springfield, Ill.; Schaehner, August, Louisville, Ky.; Smoog, D. P., New York, N. Y.; Scott, W. A., Swanton, Ohio; Stechert, G. E., New York, N. Y.; Smart, Charles, Washington, D. C.
Tuley, Henry E., Louisville, Ky.
Wyckoff, R. M., Brooklyn, N. Y.; West, C. J., Washington, D. C.; Widman, J. F., McGregor, Iowa; Wilkinson, Geo., Omaha, Neb.; Walker, A. B., Canton, Ohio; Ward, M. R., Pittsburgh, Pa.; Warfield, Clarence, Galveston, Texas.

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ORIGINAL ARTICLES.

PUERPERAL FEVER; ITS PROPHYLAXIS AND TREATMENT.

Read in the Section on Obstetrics and Diseases of Women, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5–8, 1896.

BY E. E. MONTGOMERY, M.D.

PHILADELPHIA, PA.

The mysterious condition known as puerperal fever has been a prolific theme for discussion. Its insidious character, its multiple lesions and its grave mortality sometimes depopulating lying-in hospitals or causing the death of every parturient women in a district, have naturally directed interest to its study.

When we review the conflicting theories as to its genesis we find they may be resolved into two views; the one, the more simple and concrete, but less satisfactory, which seeks to associate the disease with the discovered anatomic lesion. With the development of the anatomy the distinction of the lesions has become more delicate and is limited to the tissues, as peritonitis, adenitis and the various abscesses of the pelvis. This is the localization theory. The other theory is that known as the essential doctrine, that the disease is due to some special miasm or infectious poison from which has been evolved the microbic etiology.

The repetition of cases of similar character in the same institution, or the same district naturally led to the recognition that it was an infectious disease and to the supposition that it was due to a special miasm. The specific identity of this poison was ably championed by Fordyce Barker, who claimed that puerperal fever was a distinct disease.

The researches of Pasteur rendered it probable that it was due to the presence of microörganisms which were conveyed to the victim by contact, through the atmosphere, or had developed as ferments in her body. Siredey as early as 1875 determined the absolute similarity between surgical and puerperal infections, and further asserted that puerperal peritonitis was secondary to a uterine lymphangitis. The continuous association of certain forms of bacteria in the uterine discharges of puerperal fever, the ability to develop similar septic conditions in the male by the injection of these organisms or their products, demonstrate the certainty of their baneful influence. Bumm, as a result of his researches into the microörganisms of puerperal sepsis accepts two forms of infection; 1, putrid infection, produced by retained portions of placenta, decidua or blood clots infected by the saprophytes, various bacilli and cocci, developing a condition know as sapremia; 2, the septic form, the result of the presence of the pyogenes, the streptococcus and staphylococcus. Widal claims to have seen a fatal case of puerperal suppuration which was apparently due to the bacterium coli.

The investigations of Doleris have demonstrated the identity of the streptococcus of erysipelas with that which results in puerperal fever, or sepsis. Careful investigation no longer leaves a doubt that the puerperal inflammation is induced by a streptococcus identical in its characteristics with the streptococcus of erysipelas and the pyogenes. It can not be denied that inflammation of a less intensity may develop from infection by the staphylococcus. Some cases of peritonitis and puerperal lymphangitis are undoubtedly produced by the bacilli of putrefaction. Rarely the bacillus coli communis may engender a suppurative peritonitis. The process of infection is greatly facilitated by obstetric traumatisms, the existence of previous attacks of gonorrhea, and the presence of bacilli in the vagina.

The streptococcus conveyed to the patient by the finger of the physician, or nurse, or by instrumental manipulation during or following labor, makes its habitat in the debris of the mucous membrane, in the lymphatic fluid and blood clots at the situation of the placenta, in the material which forms the lochia, or vaginal discharge following parturition. The canals of mucous glands, tears of the cervix, vagina and vulva afford opportunity for further development; without producing marked effect upon the uterine or tubal surfaces the infection may pass through these organs and produce violent and dangerous infective processes in the ovaries or peritoneal cavity. The writer has seen one case in which there was developed an abscess of the ovary without any uterine or tubal complication. In this case, the uterus and tube afforded access of infection to an ovary which was probably rendered more vulnerable by the existence within it of the corpus luteum of pregnancy. The infection proceeds by continuous extension through the Fallopian tubes to the peritoneal cavity, but in addition it extends through the lymphatics and blood vessels. The multiplication of germs results in the formation of ptomain or toxin products. The increase of the toxin results in irritation, swelling, congestion and the exudation of liquid plasma into the cellular tissue. The presence and multiplication of the germs results in the destruction of the vitality of the infected tissue, the necrosis in mass of large layers of tissue, producing a superficial acute gangrene, or pseudo-diphtheria. The condition is always pus-producing and septic.

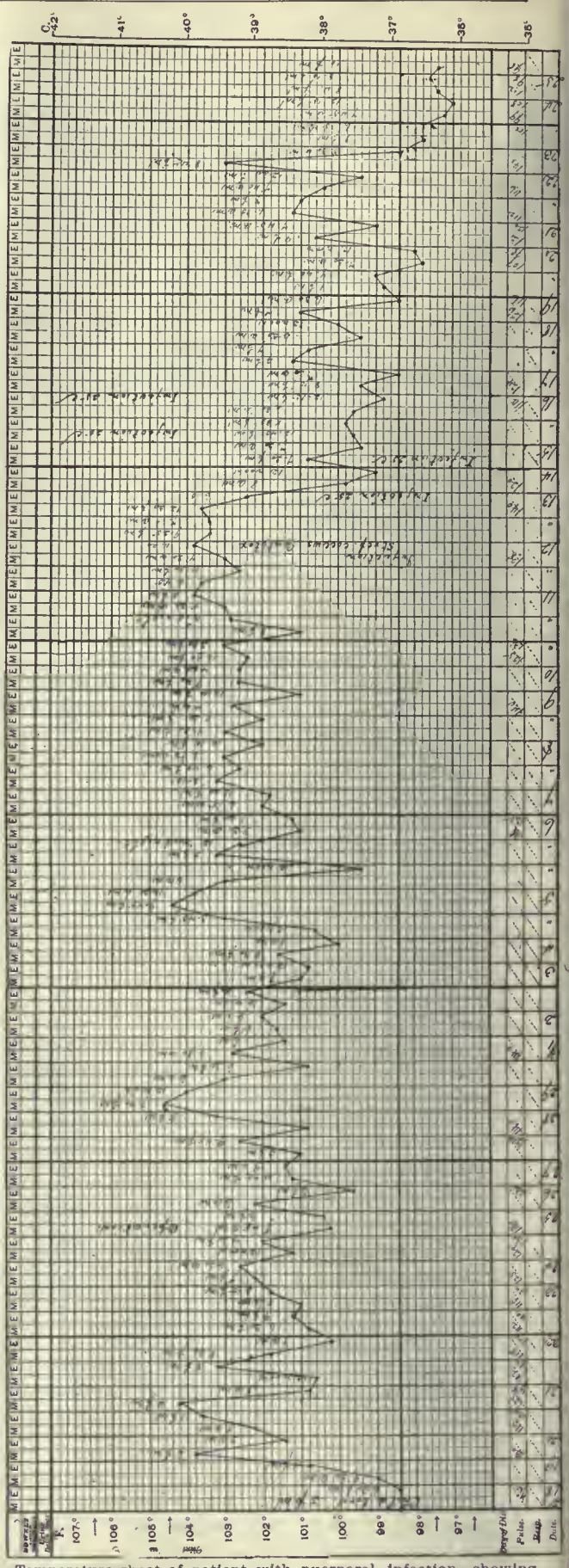
Clinically we find the disease varies in different patients. This is due to the varying immunity to the microörganisms. The varying power of resistance in different individuals produces different types. These have been resolved into three: first, inflammation, and local suppuration; second, inflammation and migratory suppuration, and third, hypertoxic infection without suppuration. The point of infection varies in labor and abortion. In the latter, the placental site, and erosions of the cervix will generally be the avenue through which the infection has found

entrance, while in the former entrance may be provided by lesions of the vulva, as lacerations of the fourchette, lateral wall, or anterior commissure, an injury of the duct of Bartholin, adenitis, lacerations of the vagina, laceration or desquamation of the cervix by the fetal head. The previous conditions of the tube may render puerperal infection certain, or displacement of the uterus, presenting an obstruction to drainage, may present a favorable soil for infection. The combat between the invading infection and the powers of resistance in the patient may result in the limitation of the disease to local inflammation or suppuration occurring in abscess in the labium, cellular tissue of the pelvis, wall of the uterus, or in the Fallopian tube. Barriers of limitation are provided, immunity against farther invasion is early secured. Second, the inflammatory processes result in migration of the inflammation; sometimes exclusively by way of the mucous lining of the tube to the peritoneum, which is rare, or it extends from without inward, resting upon the external layer, or it may be mixed, involving the mucous membrane, the blood vessels and the lymphatics. Migration by the mucous membrane exclusively, will produce a puerperal salpingitis, by the external part a phlebitis, while the mixed migration results in a multiplicity of lesions. In some cases, the entrance of infection is so rapid, and the power of resistance so slight, that a toxemia results, which produces a rapidly fatal termination with slight or no indications of the formation of pus.

The fatal termination in puerperal infection may be occasioned by profound organic vices anterior to the confinement, which render the power of resistance faulty. Second, by a regular progression of the lesion, and invasion of its economy by the poison, continually augmented in quantity and toxicity. Here there is a struggle and the forces of nature are finally beaten down. Third, the virulent character of the toxic force results in a paralysis of the nerve forces. Here the multiplicity of the microörganisms is at the maximum, with minimum resistance.

Treatment.—The first and most important consideration in treatment is prophylaxis. With a correct knowledge of the source of danger, we are the better prepared to meet or avoid it. As the contagion in the majority of cases is conveyed by contact, scrupulous aseptic or antiseptic precautions should be preserved. The nearer the measures of the careful surgeon can be imitated and practiced, the less will be the danger to the patient. The physician in general practice who is in attendance upon sepsis or erysipelas can not be too rigid in his measures of preparation; indeed, it is a serious question whether he should go from a virulently infected patient, whether it be with sepsis or erysipelas, to the lying-in chamber. During the writer's term as resident physician in the Philadelphia Hospital in 1875, he went from the surgical ward, where he was in attendance upon cases of erysipelas, to the obstetric department; no special precaution outside of cleanliness of hands and person was practiced. An epidemic of puerperal sepsis developed, in which twenty patients became seriously sick, and four lost their lives.

The measures particularly to be practiced are the removal of the coat, baring of arms to the elbows, careful washing of the hands with soap and hot water, with diligent use of the nail brush, hands should be immersed in 1 to 500 bichlorid and subsequently in



Temperature sheet of patient with puerperal infection, showing effect of use of streptococcus antitoxin.

alcohol. The bedding and personal clothing of the patient should be clean, the vulva should be washed with soap and hot water, the bowel emptied by an enema and an antiseptic douche given. Digital vaginal exploration should be infrequent and only after careful disinfection of the hands. Instruments should be sterilized by boiling. Long continued manipulation, instrumental delivery or manual delivery of the placenta, should be followed by antiseptic intrauterine irrigation.

The parts should be carefully cleansed subsequent to delivery, the placenta carefully observed to make sure no portion remains, and the uterus should be left firm and well contracted. Laceration of the vagina and vulva, unless the tissues are bruised or the vitality destroyed by long continued instrumental delivery, should be at once sutured; excoriations may be cauterized by carbolic acid. The vulva should be covered with an antiseptic pad which should be changed as frequently as it becomes soiled. With each changing, the vulva should be cleansed with an antiseptic solution. Aside from the immediate postpartum irrigation mentioned, intrauterine or vaginal douching should not be practiced.

But physicians will reply that they have attended large numbers of confinement cases without such precautions and no bad results have followed. This may be true. With ordinary precautions the chances are favorable, and much depends upon the condition of the patient. Not every patient, fortunately, to whom contagion is conveyed, yields to its influence. The normal secretions of the vagina are unfavorable for germ culture. The tract is irrigated by discharge of the liquor amnii and swept clear by the passage of the fetus. Many eminent obstetricians, among whom may be named Lusk, are content to depend upon these conditions in ordinary cases; still, the preliminary douching does not seem useless.

Treatment of *infection* may be considered as, first, maintenance of the powers of resistance; second, production of immunity; and third, the resort to surgical procedures for relief of local manifestations. This classification of treatment has reference to septic conditions. Sapremia or putrid intoxication is relieved by removal of the decomposing placenta, portion of membrane or blood-clot, and subsequent irrigation and drainage. The diagnosis is determined by the character of the lochia and the digital exploration of the uterine cavity. Decreased or absent lochia, elevation of temperature, rapid pulse, depressed, anxious countenance, should betoken the suspicion of beginning sepsis. It may or may not be accompanied by local tenderness. Exploration of the uterine cavity reveals a smooth surface, which should confirm the diagnosis. The rapidity with which the vital forces are depressed contraindicates the use of depleting agents, unless it be the moderate use of purgatives to aid in elimination. Early resort should be made to the use of tonics, stimulants and easily assimilated and nourishing food. The most efficient stimulant will be found in strychnin, which should be given for effect, and may be administered hypodermically in doses of gr. 1-15 every two or three hours, where there is much depression. Opium, morphin and antipyretics should be given with great circumspection. For the control of temperature, cold sponging or the cold pack should be practiced. Pain, whenever possible, should be relieved by the ice bag. The natural tendency of disease germs is to develop toxins which are toxic to themselves, and render the individual immune to further ravages. The better the nutrition, the more the strength is sustained, the earlier immunity will be secured. In many cases, however, the progress of infection is so rapid, the intoxication so profound, that the patient can not survive until immunity has become established. As we can not foretell in any individual the virulence of the infection, nor the possible powers of resistance, the use of an antitoxin should be considered as indicated wherever infection is recognized. This is best given by hypodermic injection. These injections of streptococcus antitoxin should be given in doses of 25 c.c. once daily for four days. They may be made into the cellular tissue of the abdominal wall, or into the buttocks or thighs. Of course, every precaution must be practiced to render their use aseptic.

Bacteriologic study should be made of the secretions, but as the large majority of septic troubles arise from the presence of the streptococcus, valuable time may be saved by immediate use of the antitoxin.

The following history is of interest: A young woman gave birth to a child February 18, at 6:30 P.M. Twenty-four hours later her temperature was 103.8 degrees, pulse 130, the next evening 104.2 degrees. Her husband at the time was suffering from numerous boils, and her physician, the day following her confinement, developed an onychia of the right index finger. The writer saw her upon the sixth day, when her temperature was nearly 102 degrees; the uterus was large, situated to the left side, quite tender, and vaginal examination disclosed some induration in the left broad ligament. The vagina was inflamed and filled with thick muco-purulent material with no especial odor. The vagina was carefully irrigated and scrubbed, the uterine cavity cleansed and packed with iodoform gauze, an opening made into Douglas' pouch, some flakes of lymph removed by irrigation and a gauze drain inserted. Her symptoms improved for two days, and then became aggravated. An erysipelatous blush was noticed extending from the vagina to the buttocks, and the vulva much swollen. This extended in a wave-like course until the entire body became involved. March 11, over three weeks from her confinement, the temperature had been but twice below 100 degrees and now was nearly 104 degrees, with a renewal of the erysipelas at the vulva. The antitoxin was now begun and given daily for five days after the first dose, and the temperature subsided and convalescence was subsequently uninterrupted.

Surgical Measures.—Curettement is advised early. If the condition is due to putrid intoxication this procedure, followed by irrigation and drainage, will give prompt relief. In streptococcus infection the germs are imbedded in the mucous membrane, sinuses and wall of the uterus, so that a curettement would not accomplish their complete removal, and affords more surface for ptomain absorption. Hysterectomy has been advocated, but it is a question whether in this form of infection the tissues have not been invaded to such a degree that the removal of the uterus would be ineffectual. The first aim should be the establishment of immunity, then local manifestations should be treated as they make their appearance with the assurance that farther spread will be avoided.

Let us have a Department of Public Health!

PUERPERAL INFECTION; ITS PATHOLOGY, PREVENTION AND TREATMENT.

Read in the Section on Obstetrics and Diseases of Women at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

BY R. R. KIME, M.D.

ATLANTA, GA.

The term "puerperal fever" should be abandoned, as it is too broad and includes conditions which are not peculiar to the puerperal state, hence misleading.

Puerperal septicemia as used by many is also objectionable; it should be limited in its application and used only to indicate cases of true septicemia. Textbooks and lexicons define "puerperal fever" as an acute infectious disease due to septic inoculation. Some authorities apologize for the definition, and well they may under the present light and knowledge of these conditions.

In writing upon this subject, some five years since, for the Tri-State Medical Association I endeavored to demonstrate the existence of two general classes of puerperal infection. Such a view then met with strong opposition and some of our best authorities wrote me such a distinction could not be maintained. To-day I am more fully convinced than ever that we have a septic and a putrid infection occurring during the puerperal state and that they can be distinguished bacteriologically, pathologically and clinically. We may have cases of mixed infection, as in other diseases, but that does not justify the wholesale grouping of all these cases under the cloak of septicemia as is done by many authorities, even at the present time. As our knowledge of puerperal infection becomes more accurate, our bacteriologic demonstrations more definite and our clinical histories more minute, we will find the distinction between *putrid* and *septic* infection broadens in the same proportion.

Putrid infection, or sapremia, is due to the absorption of ptomains developed by putrefactive bacteria or saprophytes; the bacilli remain localized in the dead tissue; the alkaloid, being absorbed, produces constitutional symptoms in proportion to the amount imbibed, is not contagious nor inoculable from case to case, except where foreign substances are retained in the uterus. Putrid infection can not graft itself in healthy tissue, foreign or dead tissue must exist as a nidus for its development.

Septic infection or septicemia is due to invasion of septic germs producing constitutional and local disturbances by their presence and invasion of new tissue with absorption of leucomains, their alkaloidal development. They enter living tissues; migrate from point to point, entering the circulation; are highly contagious and inoculable from case to case. Streptococci are said to travel one centimeter[1] per hour, penetrate the tissues and spread by the lymphatics and blood vessels. A variety of germs are capable of producing septic infection; among the most frequent are the streptococci and staphylococci. The infection may be local, affecting the endometrium (Bumm), extending, may involve the lymphatics (lymphangitis) or the venous channels (thrombo-phlebitis) with various complications and general systemic infection. It is here we may have the much-talked of pelvic cellulitis, with or without abscess formation, salpingitis with or without pyosalpinx, pelvic peritonitis and even general peritonitis, while the thrombo-phlebitic variety may result in multiple abscesses in the uterine wall.

[1] J. W. Williams, M.D., Amer. Jour., Obs., February, 1896.

Prevention of puerperal infection is accomplished by strict asepsis in obstetric practice, as well as thorough emptying the uterus and securing proper contractions with repair of lacerations. All recognize the necessity of strict cleanliness of physician, nurse, patient, bedding and everything that comes in contact with the patient. We do not desire to sing the old song of "antiseptics in obstetric practice," but for the sake of suffering women desire to urge the necessity of *strict asepsis* and often of disinfection. Even after the physician's hands have been scrubbed with soap, warm water and brush the application of ammonia, solutions in proper strength of creolin, lysol, carbolic acid or mercuric chlorid can do no harm and will often add to the safety of the patient. The patient should have a warm bath, vulval region washed with soap and warm water and a disinfectant will add to her safety. She should be dressed in clean clothing suited to the occasion, placed in a clean bed properly arranged, bowels moved and bladder emptied, then she is ready for labor.

As to use of the antepartum douche there is a difference of opinion, which has been well presented by Charles Jewett, M.D. (April issue *American Gynecological and Obs. Journal*). He states that the statistics at the Dresden Clinic (Leopold) show that of 5,784 cases douched, 82 per cent. were free from fever; of 4,088 cases not douched, 94.8 per cent. were free from fever, which goes far to establish the claim that the antepartum douche is useless and it should not be used, especially in private practice, except for cause. In hospital practice among the lower classes there is greater necessity for its use. If diseased conditions be present, indicated by a "yellowish, greenish or fetid discharge, especially of excoriating character," then prophylactic vaginal disinfection is required. Unless such conditions be present nature's protective, lubricating, disinfecting vaginal secretion is too important a factor in labor to be interfered with.

Postpartum douches, as a rule, are to be condemned as useless and frequently injurious, by exposing the patient unnecessarily and increasing the risk of infection.

After labor cleanse the patient externally with an antiseptic solution and apply antiseptic vulval pad. The antiseptic pad properly applied and attended to, adds to the comfort and safety of the patient, lessening the risk of infection, especially if any cough be present. The vulval region should be cleansed two or three times a day with 1 per cent. solution creolin, lysol, 3 per cent. carbolic acid, 1 in 2,000 mercuric chlorid or saturated solution of boric acid. As few vaginal examinations as possible should be made. The patient, unless some special contraindication exists, should be lifted up over a vessel in bed for the bowels to move or kidneys to act, thus favoring vaginal drainage. The thorough emptying of uterus and securing proper contractions of the same are preventive measures of great importance, as the presence of placental tissue, membranes, blood clots, etc., is an inviting field for germ development and essential for putrid infection. The repair of lacerations, especially of perineum, should not be overlooked, as such repair closes raw surfaces and closes avenues for infection.

The treatment of puerperal infection is a subject of grave importance and especially so at the present time, when hysterectomy and abdominal section for these conditions seem to be a fad. I am confident that a far greater number of cases of infection occur

than the general profession are willing to admit and that many cases of mild infection are overlooked or attributed to other causes; severer forms are treated as other diseases and when the patient dies the death certificate reads typhoid fever, malaria, inflammation of bowels, etc. The recorded deaths do not represent the actual number, much less the vast number of cases of infection that either recover or go through life maimed.

If the obstetrician could follow up his work closely he would frequently find results of infection which he had overlooked or attributed to other causes, but his services usually cease with the puerperal period and later the patient seeks the specialist for advice and he frequently finds results due to infection after labor or abortion.

Drainage is the most essential factor in the treatment of puerperal infection. It is a process of elimination from the uterine cavity, alimentary canal and abscess cavities by tubular or capillary drainage and cathartics. For uterine drainage the tubular form is the best, and salines for alimentary drainage. During pregnancy we have a hyperplasia of tissue with consequent increased vascularity of the generative organs, which must be reduced after the uterus is emptied by a process of retrograde tissue metamorphosis requiring great activity of the lymphatics. This process, with an open placental site, accompanied by the traumatisms of labor render the parts very vulnerable to the entrance of germs and absorption of toxic principles. We have as a natural result of labor or as an acquired pathologic result a discharge from the uterine cavity, following delivery, in which nature throws off waste material by a process of elimination or drainage. This discharge contains cellular elements of the blood, leucocytes and other débris which can not be drained off by gauze. We tampon with gauze to check hemorrhage and wall off septic material in abdominal work. Shall we tampon the uterus with gauze, checking nature's process of elimination, choking up nature's channels with débris and dead leucocytes ladened with septic germs, by placing an impenetrable barrier in the way of their exit, or shall we imitate nature and give free egress to all noxious material? Does the successful surgeon tampon a large abscess cavity with a small opening with gauze alone, especially where there is a septic process and necrotic tissue? As a rule, abscess cavities have a protective wall around them which lessens dangers of absorption, thus favoring the use of gauze, but not so in septic infection. Large opening and free drainage is the rule in surgery. In puerperal infection one can not secure a large opening or free drainage with gauze tampon. Again the dangers of gauze packings are very greatly increased by curetting off the endometrium, especially in septic infection. The curette should rarely, if ever, be used in septic infection; it is too dangerous and deleterious in its results.

Frequently we hear physicians say, "I curetted, disinfected and tamponed yet the patient died"; and it might be added as a result of the treatment. If a curette is used at all it should be a large dull one and used simply to hook up tissue which, as a rule, can be more readily removed by forceps, and not used with a view of removing endometrium or even adherent tissues, as is done by some. In putrid infection the curette can be used vigorously, the uterus tamponed and yet the patient recover regardless of the treatment; but nature is not so well able to overcome such treatment in septic infection, and it is frequently a method of manufacturing cases for hysterectomy.

These remarks are applied to cases of infection after labor and not cases of abortion prior to the fourth month. Infection after incomplete abortion, in the majority of instances, are typical cases of putrid infection and easily relieved by the curette, disinfection and tampon, because we have different conditions to deal with.

To make a clinical distinction and give separate treatment for putrid and septic infection would make this paper too lengthy, so we will briefly consider them collectively.

As soon as puerperal infection is diagnosed, irrigate the uterine cavity with a disinfectant fluid, then remove any foreign substances that are present by a method least likely to injure the endometrium and best suited to the individual case and dexterity of the operator, then irrigate freely again. If much hemorrhage, irrigate with very hot water containing comp. tr. iodin or alum; never tampon except for serious hemorrhage, but introduce as large-sized drainage tube as cervix will admit. Soft rubber tubing is as efficient as any and may be used in the form of a † or loop with perforations in the uterus, and the T or free ends of loop left in the vagina, which ends should also be perforated to allow free egress.

If capillary drainage is also desired a strip of gauze can also be carried up into the uterus by the side of the drainage tube with free end left in the vagina or, if desired, may be carried out to antiseptic vulval pad, but I prefer at this time to dispense with the pad, using a pledget of absorbent cotton, so as not to obstruct drainage. The end of the strip of gauze in the uterine cavity may be saturated with pure camphorated phenol before introduction, so as to prolong disinfection of the uterine contents and is far better than any suppository for such purpose. Boric acid, pure, may be also carried into the uterus on the gauze, and a tablespoonful left in the vagina is efficient. Drainage tube should be removed once or twice in twenty-four hours, uterus irrigated with disinfectant solution, *not too strong*; carbolic acid, boric acid and creolin are best. If uterus is relaxed or there is hemorrhage, a solution of compound tincture iodin should be used. It may be added to carbolic solution. Weak solutions should be used, as strong ones will interfere with nature's process of repair. If the tube is removed but once a day a vaginal douche should be used midway between times. The drainage should be continued until patient has fully recovered. At commencement salines should be given to produce free catharsis, thus eliminating poison, relieving pelvic hyperemia and abdominal distension and pressure.

The combined use of drainage tube and salines will control temperature far better than antipyretics and relieve pain better than opiates, beside they are curative by relieving the cause and more permanent in results. The coal tar derivatives, as antipyretics and opiates for pain, only combat symptoms, depress the patient, interfere with elimination of effete material, assimilation of food and obscure symptoms; in short, injure more patients than they benefit. They should never be used except in extreme cases of high temperature or severe pain as a palliative measure until other treatment can be instituted. Sulphonal is the best soporific. Viburnum and the bromids act well in some cases. Quinin in ten grain doses at four hours' intervals at first, later in smaller doses, is efficient in

checking germ development, counteracting toxic principles, sustaining vitality of the patient and controlling the tendency to chills. Strychnia given every four hours, combined with pepsin, disinfectants and bitter tonics best suited to the individual case, are essential as well as good nourishing diet given systematically. In debilitated cases stimulants are needed and frequently artificial foods will be required to keep up the vitality of the patient. Of these I have found beef peptonoids, panopeptones and malted milk most reliable. After acute symptoms have subsided some of the most assimilable forms of iron are beneficial. Frequent alcoholic baths with or without quinin are useful in tranquilizing the patient, stimulating cutaneous surfaces and checking profuse perspiration.

If the above outlines of treatment with the efficient, systematic, persistent use of the drainage tube are carried out, surgical measures will rarely be required in puerperal infection. I found from inquiry of eighteen leading gynecologists and obstetricians, five were opposed and thirteen in favor of hysterectomy for puerperal infection. Of fifteen cases reported by them up to that time, eight died, making a death rate of $53\frac{1}{3}$ per cent. The advocates of hysterectomy advise it for disease limited to the uterine body, such as septic metritis, multiple abscesses in uterine wall, uterine thrombo-phlebitis and gangrene of uterus. The diagnosis of such limitation of septic processes is very difficult and mistakes are frequent, with disastrous results. In a majority of cases of septic infection the septic process has extended beyond the uterus, involving other tissues with systemic infection which can not be reached by hysterectomy, but when it is local such an operation is indicated. Most gynecologists that favor hysterectomy advise to curette and tampon the uterus, and if the patient does not improve or grows worse, then remove the uterus. With them it is not a question of diagnosis, but a failure of a certain line of treatment to give relief, which indicates hysterectomy, and that line of treatment frequently creates the demand for the operation in cases of *septic infection*. Pus accumulations in the pelvis can frequently be relieved by vaginal drainage, as advised by Dr. Henrotin of Chicago, thus saving lives that would be sacrificed by more heroic measures. Pyosalpinx, ovarian abscess, etc., the secondary localized results of infection, should be dealt with on the same principle as when produced by other causes.

In conclusion, I again emphasize the fact that use of the drainage tube, with treatment as outlined above, will save more patients than all surgical measures combined; and more important, the uterus, tubes and ovaries will be preserved for future usefulness and the surgeon's conscience left more at ease.

GONORRHEA IN THE PUERPERIUM.

Read in the Section on Obstetrics and Diseases of Women, at the Forty-Seventh Annual Meeting of the American Medical Association at Atlanta, Georgia, May 5-8, 1896.

BY ALBERT H. BURR, M.D.

ATTENDING PHYSICIAN PROVIDENT HOSPITAL. CHICAGO.

In these latter days of widespread knowledge of aseptic measures for shielding the parturient woman from harm, the occurrence of puerperal sepsis is looked upon, even by the laity, as evidence that some one has blundered, and the attendant is fortunate if he escapes the charge of criminal negligence or inexcusable ignorance. If the infection of the lying-in woman happened only during labor, or her subsequent stay in childbed, the charge might be sustained with justice, but we are convinced that it happens more frequently than is apprehended that an infection has antedated childbed by weeks or months, if indeed it has not preceded conception itself and invaded territory absolutely beyond the reach of any possible antiseptic treatment.

With a unilateral pyosalpinx, or a tubal infection, existing before pregnancy, or a subsequent gonorrheal infection of vulvo-vaginal glands or urethra, who can be certain, even though forewarned, that he can be effectually forearmed against such dangerous and hidden foes?

I confess to a feeling of insecurity in every approaching case of confinement where I know beforehand, or have reason to suspect, the existence of gonorrheal infection, either active or latent. In an obstetric experience of five hundred cases I have had three fatalities, each of which is directly traceable to gonorrhea. In many of the remaining cases of puerperal sepsis, more or less severe, I have found by clinical history or by microscopic verification, the presence of a gonorrheal infection. An epitome of the

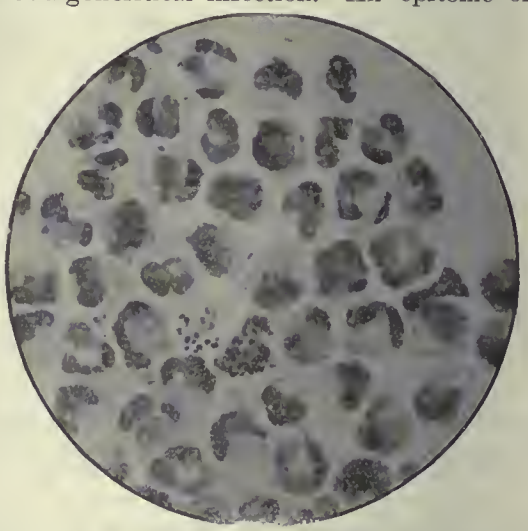


Plate 1; Case V.—Gonococci from ophthalmia neonatorum, fifth day after birth.

fatal cases, with a few added cases of non-fatal sepsis, culled for their instructive features, may serve to emphasize dangers too often ignored by the unwary. Moreover, it may comfort the troubled soul of some good brother who, believing he has neglected no reasonable precaution for the safety of his patient, has met with disaster where it was least expected. It may enable him in the future to trace the offending cause and place the responsibility where it rightfully belongs.

Case 1.—Elizabeth B., single, aged 20; French Canadian; primipara of vigorous physique, progressed in labor without incident until the separation and expulsion of the placenta brought with it a gush of most offensive fluid, the stench of which drove other attendants from the chamber. No odor was present at the rupture of the amnion. Nothing abnormal was apparent in the secundines. The child was robust. Here was a case of encysted septic material behind the placental attachment which no possible foresight or treatment could have reached in preparation for an aseptic confinement. Thorough infection of the whole placental site and of the parturient canal with a most deadly poison was instantaneous and inevitable. Peritonitis developed in thirty-six hours and ran its distressing and fatal course in less than a week, despite antiseptic uterine irrigations and other recognized treatment. In the absence of an autopsy the only logical conclusion is that the location of the decidua over the cornua had converted an

infected tube into a closed sack which discharged its saprophytic contents into the uterus when the detachment of the placenta had freed its uterine orifice. The vocation of the woman makes gonorrhea the most probable cause of a pyosalpinx.

Case 2.—Emma M., aged 20 years; German; married ten months; remarkably strong in physique; consulted me soon after marriage for metrorrhagia. Examination revealed an acute vaginitis, characteristic of gonorrhea. Subsequent examination of the husband showed an acute urethritis. These symptoms in the wife yielded promptly to treatment and pregnancy soon put an end to metrorrhagia. Both husband and wife, however, had recurrent attacks of sub-acute gonorrhea during the wife's pregnancy. Confinement was normal, on March 12, 1888. Antiseptic vaginal irrigation was practiced for several days. No untoward symptoms resulted until March 20, the eighth day, when a severe chill occurred followed by high fever, but without pelvic symptoms which never became a factor throughout her fatal illness. General systemic intoxication, however, persisted to a high degree. Knowing the previous history, uterine irrigation was practiced twice daily. On March 24 temperature suddenly arose to 108 degrees, which was quickly reduced by cold packs and antipyrin. Dr. H. W. Byford saw the case in consultation the following day and curetted for diagnostic purposes, with negative results. March 30 temperature reached 108.5 degrees with delirium and typhoid state, severe arthritis of shoulder and hip joint, followed with temperature of 103 to 104 degrees, till fatal termination April 5, on the seventeenth day of fever

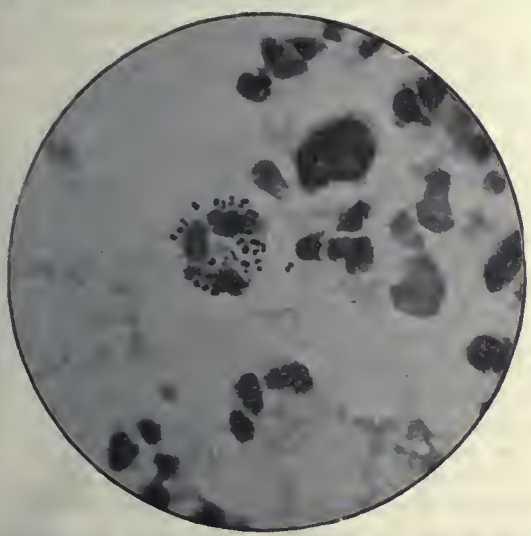


Plate 2; Case V.—Gonococci from cervical discharges, ten weeks after childbirth. Subinvolution.

and twenty-fourth day from confinement. The good health of the patient at childbirth, the sudden onset of high fever, the absence of bowel symptoms, exclude typhoid fever. My distinguished consultant concurred with me that gonorrheal infection was the most probable direct or indirect cause in this most singularly virulent case.

Case 3.—Luella B., American, single, aged 18, consulted me because she had not menstruated for several months. Under a suspicion of pregnancy an examination was obtained, revealing a four months' pregnancy and an acute vaginitis, believed to be gonorrheal. The case was lost sight of until summoned to her confinement. Labor was normal in all respects. On the fourth day there was a chill followed by high fever from an acute metritis. This was controlled after two or three days and patient was dismissed on the eighth day. In one week there was a recurrence of symptoms which again responded to treatment as before. Patient was about the house again when she had a second recurrence, under the care of another physician, and died, as I learned, one month after childbirth.

The following three cases of puerperal sepsis are interesting on account of microscopic verifications.

Case 4.—Ida H., four months married, was delivered at full term by a midwife. On the fifth day after the confinement I found her with a temperature of 105 degrees and an acute arthritis of hip joints with immobility of lower extremities. The child was suffering from acute ophthalmia. The pus, from which a slide was prepared, showed the gonoccocus in abundance. The father acknowledged having had gonorrhea a few months before marriage. Mother and child made a good though tedious recovery under appropriate treatment.

Case 5.—Mrs. Ida T., age 21; ten months married. Labor normal. On the fifth day child developed ophthalmia of gonorrheal infection. (See plate I.) The condition was at once explained to the father, who stated that he had an attack of gonorrhea four months before marriage, but considered himself cured at the time he wedded his wife. He remembered having had some gleet (?) afterward. On the seventh day the mother had a chill with fever and acute arthritis of shoulder joint of right side. As pelvic symptoms were absent, no irrigations were given. Mother and child were discharged convalescent on the twelfth day. Ten weeks later the mother came to my office suffering from sub-involution. Microscopic examination of cervical discharges showed gonococci. (See plate II.) Case yielded promptly to treatment.

Case 6.—Mrs. Amelia S., age 26, primipara, was well advanced in second stage of labor when seen for the first time. Labor terminated without incident. Child developed gonorrheal ophthalmia on the fifth day. (See plate III.) On the tenth day the mother was dismissed, after a good recovery, much to the relief of an anxious medical attendant. Two days later an urgent call in the early hours of morning cut short my slumber and dispelled my sense of security. Patient had a violent chill in the night, followed by high fever, with acute metritis and pelvic pain reflected to the diaphragm, causing dyspnea and a sense of suffocation. Before making intrauterine irrigation a slide from the cervical discharge was obtained and the inevitable coccus came to light. (See plate

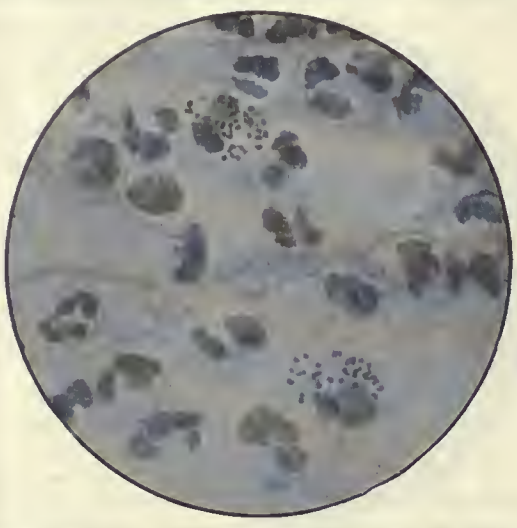


Plate 3; Case VI.—Gonorrheal ophthalmia in babe five days old.

IV.) The husband being an actor an investigation behind the scenes was undertaken, disclosing a history of infection a few weeks before the confinement of his wife, whom he unfortunately infected also before he was aware of his own condition. This complication was almost a fatal experience, but finally yielded and the mother was again convalescent in one month. The ophthalmia in the child was also quite obstinate for some time, though daily applications of silver solution, grains xxx to the ounce, was faithfully and thoroughly applied with brush to the whole conjunctival sack.

This list of well determined gonorrheal sepsis in childbed could be extended, but enough has been detailed to serve our purpose.

To summarize: All the above cases were primiparæ much above the average in physique and general good health. Their delivery was without complication or instrumental interference. All necessary examinations or manipulations were guarded against sepsis. In no case was there more than the usual slight laceration. In all, the presence of gonorrhea is closely proven except in case 1, where the tubal abscess is believed to have been the result of a gonorrheal infection previous to conception. Three of the cases developed rheumatoid arthritis during the pyrexia. This is a well known complication due to systemic infections of the gonorrheal germs or their ptomains.

No doubt exists in my mind from the evidence in the cases above enumerated and others which I could add to the number, that the microscope and other means of investigation as to the gonorrheal infection would clear up the etiology of many septic complications and fatalities in childbed. These unnecessary woes too frequently attendant on motherhood, and the sad lessons taught on the tables of our gynecologists, take away the bliss of ignorance from our profession and add to our knowledge the responsibility and imperative duty of vigilant measures for prophylaxis. Every case of gonorrhea in the male should be treated as a matter of serious import, for even though it may seem trivial to him, it may blight the lives of those to whom he may and probably will transmit the disease. Who of us having daughters do not look with apprehension as to their future health and safety in the relation of wives and mothers? If "whatsoever a man soweth, that shall he also reap," were harvested by himself only, the baneful results were evil enough, but when he sows pathogenic seed to germinate in the organisms of innocent, unsuspecting, unprotected mothers and babes the calamity is ten fold, for the perils of death, of invalidism, of sightless eyes, are

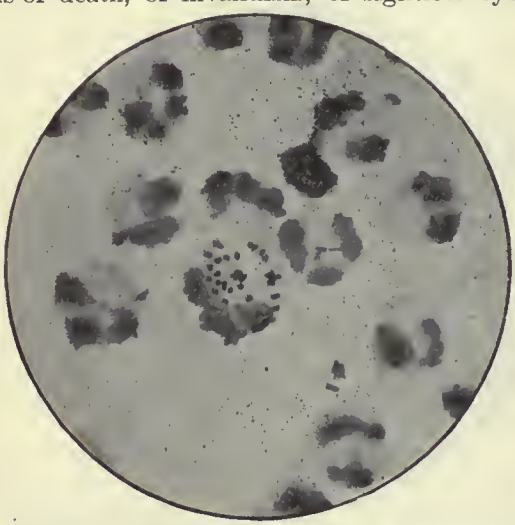


Plate 4; Case VI.—Gonococci from cervical secretions, twelve days after confinement. Acute metritis and pelvic cellulitis.

far beyond the dangers he willingly hazards to gratify his sinful lusts.

To what extent these things prevail can not be fully known, but every physician who is not stupidly ignorant or wilfully blind to the fact, knows that they are of very frequent occurrence. When we consider that the majority of males (Ricord estimates 80 per cent. for France; Noeggerath believed the same ratio held good for New York City) have been affected at some period of life with a gonorrheal experience more or less persistent, how can it be otherwise, under the present sociologic conditions, that a large number of prospective mothers in or out of wedlock, innocent victims or *particeps criminis*, become the unfortunate hostesses of pathogenic germs that place them in dire perils at childbirth, perils which are all the more deplorable because unnecessary and preventable.

Noeggerath believed that "90 per cent. of males affected with gonorrhea remain uncured, and of every hundred women who had married men formerly affected by gonorrhea hardly ten remain well." These may seem like extreme views, but even liberally discounted the figures would still show a lamentable state of affairs.

Prince reported that 60 per cent. of the blind in the asylum in Jacksonville, Ill., were the victims of ophthalmia neonatorum.

Noeggerath gave us the warning that gonorrhea was the most fruitful cause of woman's pelvic woes long before Neisser discovered the specific diplococcus, so beautifully demonstrated in the photo-micrographs exhibited with this paper.

Man is so constituted as to remain indifferent to many evils by reason of their frequent and long-accustomed occurrence. He is also averse to any measures that curtail the indulgence of his animal instincts, regardless of consequences to others, but the day will come in that higher evolution of preventive medicine when an enlightened public will demand protection by quarantine, by restrictive legislation and by penal enactments against individuals infected with this loathsome and dangerous disease.

It will be a righteous advance when the State shall afford some protection to the innocent by placing legal barriers to the marriage of all individuals who, by competent medical inspection, can not present certificates of freedom from all contagious and hereditary diseases. Nor should the line be drawn on the male sex only. The advanced medical woman could confer no greater boon upon her sex and humanity than the accomplishment of reforms along these lines.

2036 Indiana Avenue.

DISCUSSION ON PAPERS OF DRS. MONTGOMERY, KIME AND BURR.

DR. E. E. MONTGOMERY, Philadelphia—In regard to the treatment suggested by Dr. Kime, I must agree with him as to the inadvisability of using the curette in cases of puerperal sepsis. I do not believe it has any special advantage, because the streptococci are buried in the tissues to such a degree that they are not removed by an instrument, and an increased irritation is produced by the curette which furnishes a more favorable soil for the development of the trouble. I believe that the future treatment of puerperal diseases will be in the use of serumtherapy. It is believed that an individual can be rendered immune to further ravages of germ products, and that the first thing to be done in the treatment of such cases, after a diagnosis of sepsis or sapremia has been made, should be the administration of antitoxin in such doses as will render the patient immune to further ravages. The local manifestations should be treated without fear of further development.

DR. RANDELL, Baltimore—I had quite an extensive experience in the management of severe cases of puerperal sepsis. A large number occur in the practice of every general practitioner that are simply mild infections due to putrefactive organisms; a number of cases occurring after abortion are of this variety, and the only thing necessary is to thoroughly clean out the uterus, making some antiseptic application to the endometrium. Under the various methods that are used the cases recover after one local treatment. But we have a large number of cases in which there is either a mixed infection or in which the streptococcus plays usually a very important part in the uterus of women after confinement, and these cases have to be attacked most energetically or they will die. If any practitioner will keep actively at work in treating them, he will cure a large proportion. A great many cases of puerperal sepsis which have come under my observation and care have been severe ones. My treatment has been similar to that which has been advanced in the paper, with some slight modifications. Some of these patients can be saved by washing out the uterus with an antiseptic solution every six hours, if the infection has not advanced too far. In some of the cases you may have a superficial gangrene at the placental site, due to streptococcus infection, and you should use the curette in

order to remove the gangrenous material, then apply inside the uterus a 15 per cent. solution of carbolic acid and 10 per cent. of iodin.

Dr. Joseph Eastman, Indianapolis—I believe that many cases of puerperal infection are largely due to the filthy poisonous syringes that are used by midwives. I recall an instance where I jokingly asked if they had a good syringe that I could use. Yes, was the reply. It was one that had been used by the neighbors for three or four years. Taking syringes and dipping them in bichlorid of mercury solutions is useless. The nozzles of such syringes should be sterilized by boiling before they are used. But far better than that is the idea to raise the patient sufficiently in bed to empty the uterus by vital force. Drainage by packing with gauze and curetting are carried to extremes. Savage, in his work on the "Anatomy of the Female Pelvic Organs," long ago taught an important physiologic principle. It is this: If there is a foreign substance in the cavity of the uterus, the cervix contracts tightly to hold it in. If there is a foreign body in the cervix, the fundus forcibly contracts to expel it. With the fundus continually contracting, the hyperplastic tissue is reduced and the absorption of septic material is interfered with.

I protest against scraping the cavity of the uterus with a sharp curette. I would not think of using anything sharper than a dull wire curette in the puerperal uterus.

The gentleman who read the last paper made an important point; one we can not mention without some feeling of concern. It almost makes one shudder to think of the number of young men who are not permanently cured of gonorrhea. There may be a granular patch in the urethra, or a stricture above it, and the poison is conveyed to the virgin wife after marriage.

Dr. J. T. Priestley, Iowa—I desire to say a few words from the standpoint of a general practitioner. I practiced the obstetric art before the introduction of the antiseptic practice of midwifery, and I have practiced it since with very much better results than before. I thank Dr. Montgomery for the suggestion of serum therapy. I think it a good one, and if carried out will be of benefit in many cases.

I prepare myself for attendance upon an obstetric case the same as I do for an abdominal operation. I think the same cleanliness of hands and other things brought into contact with the patient should be carried out. I do not use any intrauterine antepartum douche. I insist that when the douche is given the point of the nozzle of the syringe should be boiled. I do not hesitate to go from a case of scarlet fever or any contagious case, and attend a case of midwifery, if I have time to prepare myself.

My practice covers a territory in which women are largely attended by midwives during confinement, and I see many cases in which there is elevation of temperature after delivery. I do not wait to find out whether it is sapremia or septic infection, but take a Mundé curette, which is very large, almost the size of the curve of my finger, and use it to curette the uterine cavity. It has no sharp cutting edge, and with it the uterus can be easily scraped. At the same time I flush it with sterilized hot water. I formerly put in guaze packing. I did not realize at first that there was a difference between tamponing and draining by the use of gauze. Where tampons are used we simply do much harm. If a piece of wicking is used we can establish drainage and do good, in many of my cases I drain with ordinary iodoform wicking, after cleansing the uterine cavity with a dull curette. I think I have benefited a great many of my patients by this procedure.

Dr. Henry P. Newman, Chicago—In regard to the uterus in the puerperal condition it is usually large and flabby and will fall with the turning of the patient to either side, or if the patient is lying on the back it is very apt to be more or less retroverted. Here is where I object to the use of the tube, excellent as it is alone, it does not drain. In other words, you do not drain with a tube up-hill. If you supplement your drainage with iodoform wicking, you will find that it is more efficient and you will accomplish much more than by means of a tube. It is my practice to use wicking rather firmly in the upper part of the uterus. I do this not for drainage alone, but to stimulate uterine contractions in the lower half as it approaches the internal os. It is placed simply for drainage and not for the purpose of a tampon in any sense. It is applied loosely and a single strand projects from the surface. Under these circumstances drainage is efficient either with or without the rubber tube.

With reference to the use of the curette I am not partial to a sharp one, although a dull one or the finger may be used to remove débris in puerperal cases. However, in a patient after abortion I resort to curettage and use it in conjunction with mopping out the uterus the same as in a non-puerperal uterus, and I rely more upon swabbing than irrigation. If the microorganisms are beyond the reach of the curette, they are assuredly beyond the reach of the ordinary antiseptic wash. But with stronger solutions than those mentioned, namely, phenol or iodized phenol, which is practically 50 per cent. each of iodin and carbolic acid, I swab out the entire uterine cavity, and follow this with washing by sterilized water. These cases are not disturbed if the temperature does not rise, or symptoms of a grave order do not again manifest themselves. Irrigation, if it is done at all, I believe, is necessary in gonorrheal infection.

Dr. R. R. Kime, Atlanta—I would call attention to and emphasize the fact that drainage can not in all cases be attained by gauze, and in some instances it is necessary that the gauze be supplemented with a drainage tube. If you have a large flabby, retroverted uterus, you may introduce a strip of gauze and you will not drain the hemorrhage. If you put in a strip of gauze by the side of the tube, you may carry off the liquid and solid materials. We should remove the septic condition.

Dr. A. H. Burr, Chicago—The object of my paper was to call attention to a matter which seems to have been neglected, and which is an important factor in puerperal complications. Perhaps all of the infection that occurs to innocent women is the result of ignorance on the part of the husband, or he who later becomes the husband. There are thousands of young men who never would become the subjects of gonorrheal infection if they were properly enlightened, and if perhance they contracted this disease, certainly would not infect the innocent. I do not think it right that we should dismiss this subject in a trivial manner, by any means. I do not suppose we can wipe out this matter of gonorrheal infection by legislation any more than we can wipe out original sin by legislative enactment. But we can educate the young men as to the dangers of gonorrheal infection. I believe I am within bounds when I make the assertion, that if it were not for gonorrhea and its sequelæ, the gynecologists would lose half their patronage.

DEGENERATIVE CHANGES THAT OCCUR IN UTERINE FIBRO-MYOMATOUS GROWTHS.

Read in the Section on Obstetrics and Diseases of Women, at the Forty-seventh Annual Meeting of the American Medical Association held at Atlanta, Ga., May 5-8, 1896.

BY AUGUSTUS P. CLARKE, A.M., M.D.
CAMBRIDGE, MASS.

The presence of uterine fibroid growths has for the past few years given rise to much discussion among gynecologists; the consideration of the surgical treatment they have demanded has received much attention, and measures of procedure, in some instances apparently opposite, have sometimes been adopted.

The success attending the removal of fibroid growths either by partial or total hysterectomy has brought the subject of such neoplasms more prominently before the profession and has stimulated to such an extent inquiry into the necessity of adopting the more radical, surgical expedients that only the most careful clinical experience and pathologic investigation will be found capable of furnishing the data for determining the proper solution of the question.

It was formerly believed that when a fibro-myomatous growth underwent a retrograde process from electrolysis, or from other measures of treatment, or from spontaneous action, the conditions thus induced were always favorable; later experiences have shown the fallacy of such inferences, for certain pediculated subserous fibroids in taking on such phases become harder and more unyielding from the presence of the excess of the fibrous over the muscular element and from the consequent calcareous deposits occurring in the interstices. The pressure of such a mass on one or both ureters may cause contracting kidney and lead to a fatal result. Such growths, when not entirely pediculated or wholly subserous, may cause partial occlusion of the ureters, that may result in renal complication. Cases with the history of such sequelæ have occurred in my own practice; notes of autopsies made in my earlier practice clearly show that measures of relief could have been effected by merely resorting to abdominal incision and ligation of the pedicle or enucleation of a partially subserous mass.

The single as well as the multiple interstitial variety of fibroid growths may, besides giving rise to exhausting hemorrhage, be productive of baneful results of pressure upon important vessels and structures. Suppuration is another sequel that may appear; contraction and the consequent cutting off of the arterial supply may lead to suppurative changes and liquefaction of the mass, as occurred in a case in which I resorted to total hysterectomy for relief. The patient had for a long time suffered from repeated chills, febrile reaction, sweating and other constitutional symptoms as the result of the morbid changes that had gradually taken place in the growth.

In another case the patient, a married woman aged 47 years, had suffered for a considerable period. At the time I was called, the constitutional symptoms were unusually marked; the fibro-myomata were interstitial and had evidently undergone such serious alteration as to preclude the possibility of adopting operative measures for relief. A resort to surgical procedure for the removal of the growth in an earlier stage would undoubtedly have been attended with success.

In another case there was a history of gradual development of the growth which had been productive of uterine hemorrhage. The growth proved to be a large submucous fibroid in a state of advanced gangrene and had given rise to a marked septicemic condition of the organism. After some difficulty I succeeded in effecting the removal of the sloughing mass and in overcoming the constitutional disturbances that had supervened. These cases differ materially from those of the submucous variety, in which a mere dilatation of the lower segment of the uterus may be effected and in which the removal of the growth by morcellation with the curette and scissors suffices for a cure.

Fibroids, though liable to increase from excitation of the menstrual periods and during pregnancy, especially those of the submucous variety and those akin to the myxomatous class, may, nevertheless, undergo marked diminution after parturition, and may apparently disappear, from contraction of the uterine tissue during its normal involution stages. I doubt, however, whether such growths when once firmly established in the uterine tissue ever wholly disappear, unless their extrusion takes place through the medium of the various channels by hyper-physiologic constriction set up in the muscular element enclosing the neoplasm; they may for indefinite periods remain unaffected, but they are liable to become the foci of malignant or semi-malignant degeneration. Clinical observation and suspicions aroused from circumstantial evidences that fibroids may assume after the lapse of time a malignant degenerative change, have opened new fields for investigation. The teachings of the older pathologists were for the most part to the effect that fibroids were benign growths.

The advance made in pelvic and abdominal surgery have led to most careful scrutiny of the pathologic and histologic elements presented by the various stages of these growths; they have strengthened the view that had for some time been entertained that these neoplasms are subject to malignant change. The results obtained in the majority of instances can not be satisfactorily explained by regarding such growths as being benign in character but having nevertheless their development complicated more or less with that of malignant formations. The record of cases coming in my own practice shows unmistakably that the malignant degenerative changes to which these growths are prone are not of rare occurrence. The history of uterine morbid processes is often helpful in reaching just conclusions respecting the genesis of the disease. The favorite haunt of uterine cancer is in the cervix uteri; it often shows its development in the fissures of the lacerated portion. This may occur trom long continued and repeated irritation to which the parts have been exposed. From this center the morbid process may radiate and extend to the upper segments of that organ. The characteristic symptoms of the disease with the cachexia of malignant invasion are early accompaniments. In malignant degeneration of fibro-myomata the morbid processes leading to the development present other aspects. The early appearances of fibroids may not be attended with any definite constitutional peculiarities. There will be no facies of a distinctive type; except for the results that may be attendant on metrorrhagia or menorrhagia, the occurrence of the irregular outline of the growth and the consequent pressure or other annoyances experienced the patient may have the appearance of being in almost perfect health. In the unmarried or in those who have not suffered from cervical laceration the lower section of the uterus may be entirely free from the morbid invasion. The same freedom in this part of the uterus may continue after a uterine fibroid has assumed malignant phases until the development has extended downward. Martin of Berlin has reported cases of uterine fibroids that had undergone cancerous as well as sarcomatous degeneration. Boetticher reported cases of this character as early as 1884 and Schroeder also collected cases which have been reported. In some instances there had been a proliferation of the adenomatous mucosa to the deeper parts of the growth which gave rise to adenoid cancerous change. Emmet, prior to the dates above mentioned, reported instances under observa-

tion in which the tissue of a single fibroid wholly underwent the metamorphosis into sarcoma. He mentions also cases in which cancerous development had taken place; he refers to Klebs, who had made mention of fibro-myomata of the uterus, in which the myxomatous and sarcomatous development had occurred. Klebs, according to Emmet, had held to the view that genuine cancer can only "proceed out of fibromyomata in those cases in which the formation of the tumor extends to the surface of the mucous membrane." Emmet refers to the possibility of an aneurysmal development upon a uterine fibroid by the dilatation of some of the principal vessels. Some two years since there came into my own practice the case of a woman in whom a sarcomatous growth, as a secondary development, had occurred in the omentum. At times I could make out marked pulsations and a purring thrill; an abdominal section made a little later did not, however, reveal an aneurysmal sac. The conclusion reached was that the pulsation must have been imparted by the deeper vessels.

Fatty degeneration is another change which fibroids may undergo. This alteration may occur under the influences of pregnancy, which may take place, notwithstanding the existence of a large myomatous growth. A seemingly practical disappearance of the growth may partly result while the patient is in the pregnant state; in such an event the alteration may be hastened along with the occurrence of the involution of the adventitious uterine tissue. Such transformation is more likely to take place in cases in which the growths have been of myomatous formation. In my own practice I have met with a few such cases. I have always entertained, however, the conviction that they were remnants of the retrograded neoplasms which might become the source of further morbid change. In some cases the liquefied contents of the growth may be absorbed while the more solid constituents may remain and become walled off by the development of indurated tissue.

In other cases in which the growth continues, there will be beside myomatous tissue much fibrous element; the fluid portion may in part be absorbed leaving cavities of varying size within the growth. Neoplasms in this condition, though often termed fibro-cystic, do not belong to the classification of cystic developments since the cavities thus formed are destitute of a lining of epithelium.

Another form which has a practical significance to the abdominal surgeon is that resulting from the occurrence of enormously enlarged vessels or capillaries; these vascular elements may develop at the expense of the connective and muscular tissues of the tumor. The occurrence of these teleangiectatic myomata may be a fruitful source of hemorrhage and thus threaten or destroy the life of the patient. Early surgical interference offers the best opportunities for relief. The growth with excessive development of lymphatic vessels and dilated lymph spaces, termed myoma lymphangiectodes, is not, so far as I am aware, of common occurrence. The extensive edema accompanying such cases necessitates at times prompt surgical treatment.

Inflammation in the tissue of a fibroid may extend to the arterial coats (producing arteritis) and lead to the obliteration of the lumen of those vessels (endarteritis obliterans) and consequent deprivation of nutrition of the growths; this may cause them to slough and to become gangrenous. Sloughing or gangrene may occur in large interstitial fibroids by their being subject either spontaneously or otherwise to excessive intraparietal contraction. Rupture of its connection by the direct expulsion of the mass may lead to the same condition. Colloid degeneration may take place in the deeper portion and may give rise to conditions similar to those in which the tumor becomes liquefied.

Sudden hemorrhage, or an apoplexy (as the rapid extravasation of the sanguineous fluid is sometimes termed) may produce cavernous spaces that become occupied by coagula or serum; this sometimes leads to a disorganized condition. The contents may in part be absorbed; the residue remains quiescent for an indefinite period or becomes the focus of suppuration or of other advanced secondary changes. The amount of blood with which fibromyomata are supplied varies to a considerable extent. In most tumors of this character the vascular element is not plentiful, The capillaries in some of the forms are prominent while in others special artificial injections that are made show that but few vessels permeate the mass. The irritation and hyperemia with which the adjacent mucosa may be subjected are undoubtedly the cause of the hemorrhagic tendency; this condition may induce ulceration and sloughing. When fibroids are present in cases of pregnancy they may offer an impediment to the normal development of the uterine tissue and so lead to profuse hemorrhage and abortion. Beside the occurrence of the degenerative changes as above mentioned there have occurred the formation of melanotic deposits that have shown a close relation with the development of malignant disease.

Calcification of fibromyomatous growths as already stated is an occasional sequel; so also is the production of tissue resembling cartilage, which as a secondary result has occurred in the mass. One of the most frequent transformations, which without doubt fibromyomata may undergo, is their contraction and atrophy after the cessation of their normal development. Myxomatous changes and submucous alteration tend to the destruction of the growths. The intraparietal contractions to which they are subject serve to hasten the production of polypi and the commencement of extrusion from their normal sites. All these several kinds of secondary transformations occurring in fibromyomata are productive of further expulsive processes that often require only timely surgical interference as measures supplementary to the effecting of their complete removal.

DISCUSSION.

Dr. W. G. Macdonald, Albany—The most important point connected with this paper is in relation to the matter of development of malignancy as associated with tumors of the uterus, ordinarily said to be fibromatous in character, that condition with which our literature is full, a condition developing from the mucous membrane of the body of the uterus, a malignant endometritis, or adenoma, which is to a certain extent confusing. There is no tumor of the uterus, fibrous or fibrocystic, which is malignant. If a tumor presents clinically all of these conditions, macroscopically and under the microscope, which we ordinarily term a fibroid tumor, if after its removal there develops from the pedicle a subsequent tumor, the tumor was not a fibroid. It was a sarcoma. It may not have been primarily so, but it was subsequently, or at the time of removal. We can make this matter of malignancy always very simple as associated with the uterus and with all other bodies of the organism when we say that malignancy in tumors only

manifests itself in the two conditions of sarcoma and carcinoma. When a fibroid tumor at the menopause is quiescent for a few months, then within a period of three or four months shows a disposition to increase, we may reasonably conclude that it is a malignant tumor, and the probability is that there is grafted upon it an irritation in the uterus, a condition of sarcoma. These tumors, under the peculiar malignancy which occurs, take upon themselves the condition of sarcoma, and in six months they increase more than they have in sixteen years. When you have a supposed fibroid tumor of the uterus which has shown little growth under your observation for a period of three or four years, and then begins to increase in size, you can not too soon remove it. It is an important consideration in relation to these changes that they occur in fibroid tumors.

DR. CHARLES P. NOBLE, Philadelphia—It has been my experience to have operated on a large number of cases of fibroid tumors, and many of the women did not know they had them until after the menopause. They probably existed, but were small and gave rise to no symptoms until after the menopause, so that my own experience amply supports one point in Dr. Clarke's paper, that fibroid tumors which have given no symptoms before the menopause very frequently take on rapid growth after it, give pressure symptoms or cause hemorrhage after the menopause.

I distinctly recall three cases of tumors which became sarcomatous after having been operated on. Two of the patients died from recurrence. Another case has a recurrence at this time, so that of the three cases of sarcoma two are dead, and in the other death will follow sooner or later. These cases at the time of operation were designated by a pathologist as myxomatous, but subsequent development showed that the tumors were sarcomatous. The second case was one of spindle-cell sarcoma, and in the last case the tumor was necrotic and sarcomatous. We find carcinomatous changes after fibroids, but I have not seen a carcinomatous change in the tumor itself. I believe that is extremely rare. I have seen a number of cases of carcinoma of the cervix as a complication of fibroid of the uterus. We are all familiar with the necrotic changes in fibroids. We have to operate on sloughing fibroids. This change is most common in the submucous variety and the sloughing is due to efforts on the part of the uterus to throw off the tumor, so that traction takes place on the capsule and shuts off the blood supply. I have operated on necrotic fibroids that were not submucous. No doubt, this change occurs before as well as after the menopause. We can not dwell too strongly upon these facts in the history of fibroids, and can not condemn too emphatically the old teaching, that after the menopause uterine fibroids will disappear.

DR. CLARKE—I do not know that there is much more for me to say on this subject. I recognize the fact that the changes which I have dwelt upon in my paper are the more important parts of what I intended to bring out. I have met with cases and followed them up for many years. Some of the cases of fibroid tumors were treated by electricity and other methods, and it was said that the tumors would undergo contraction and diminish in size, but subsequently would become larger and larger, causing death of the patient. I collected a number of these cases in my earlier experience. I have been very much interested in this question for years and am satisfied that fibroid tumors do take on a malignant change, and it is not owing to the original disease mentioned. A woman with a cancerous uterus is not likely to survive for ten or fifteen years. We know for the most part, that when it occurs in the uterus, two or three years are about the limit of cancer, and that it goes on from bad to worse, unless operation is resorted to. Sarcoma rarely lasts for five or six years, and these cases can not be regarded as sarcomatous or cancerous all this length of time. When a woman, seemingly in good health and of good florid complexion, with no cachexia, no cancerous or malignant appearance, has a tumor which suddenly takes on malignant changes, we can not remove it too soon if we would prolong the patient's life.

SOME SUGGESTIONS IN THE PROPHYLAXIS AND MANAGEMENT OF PUERPERAL ECLAMPSIA.

Read in the Section on Obstetrics and Diseases of Women at the Forty-seventh Annual Meeting of the American Medical Association at Atlanta, Ga., May 5-8, 1896.

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My experience in the prophylaxis, treatment and management of puerperal eclampsia has been confined in recent years entirely to private practice, yet it has been within my province to observe a sufficient number of cases to form some deductions and conclusions. However, I shall lay no actual claim to originality in inception. My suggestions are gathered from applications largely original with others.

The pathology and etiology of puerperal eclampsia is still an unsettled question—theories are numerous as well as contradictory; the text-books, and chairs in medical schools are brimming over with them, but nothing as yet has been positively proven, settled, or definitely accepted by the profession as a whole. As practitioners at the present time we necessarily occupy the position of clinicians awaiting instruction. Until pathologists are able to present to us true indisputable pathologic facts we must fall back upon our own clinic experiences. But to properly apply and employ even these we must have some definite ideas of our own relative to the etiology and pathology of puerperal eclampsia. The probabilities are that not every case of puerperal eclampsia is the result of the same pathologic cause. We find ardent advocates who maintain that nephritis and its resulting uremia, either apparent or disguised, is alone the offending cause, still closely agreeing with Lever, who, in 1842 supposed albuminuria to be the *casus belli*. Others maintain with Lusk that albuminuria may be a physiologic, even a diagnostic feature of pregnancy and that puerperal eclampsia is the result of renal insufficiency and albuminuria and uremia have nothing whatever to do with the matter. Again, others take the position instigated by Cohen of Hamburg, that there exists a cerebral eclampsia, organic cerebral lesions; while opponents to this belief declare these lesions to be the result of congestion and other causes, and at best are but secondary. A plausible theory has recently been advanced by Poe (Transactions Louisville Academy of Medicine) that puerperal eclampsia is the result of obstruction to the portal circulation due to hepatic cirrhosis causing peptonemia and producing either uremia or anemia. That there is an undue portal pressure during the period of gestation he claims to be proven because of hemorrhoidal enlargments during this stage and that all circumstances that increase tension, increase liability to eclampsia, as instanced by its frequent occurrence in primipara, and the older the primipara the greater the liability. With others he also recognizes that peripheral nerve irritation alone may be the sole cause of convulsions. King and others advocate as the cause of eclampsia pressure of the gravid uterus upon the inferior vena cava, the iliac veins, and upon the kidneys, thus producing passive congestion. While Halbertsma in 1883 introduced a theory which perhaps at the present time is received with as much favor as any other, that puerperal eclampsia results from pressure of the gravid uterus upon the ureters, thus to a great extent occluding the caliber, seriously interfering with their function and producing urinary

stasis. But to review or discuss the various theories of the causation of puerperal eclampsia is not within the scope or purpose of this paper. As already intimated puerperal eclampsia is not to be attributed to one identical cause in every case, so it is possible that each of the advanced explanations and theories may have more or less ground for truth when applied to certain individualized cases. For the pupose of this discussion let us broadly assume that puerperal eclampsia arises, 1, from the retention and absorption of toxins, no matter from what pathologic source, but due to the pregnant state; 2, from the result of peripheral nerve irritation; 3, from hysteric causes.

Unsatisfactory and uncertain as the pathology of this affection is, by far the larger number of cases are the result of the first cause, and to this group, principally, we will confine our attention, for to this class prophylaxis is the more important. It should be the rule of practitioners to educate their clientele to the importance of placing themselves under medical observation in the early stages of pregnancy, for it is the duty of the physician systematically and frequently to maintain a close observance of these patients during the period of gestation. Eclampsia seldom comes unheralded—the cases are indeed rare that do not show some prodromic indications if looked for by a careful observer. Frequent urinary analysis, chemic and microscopic, should be resorted to. The presence or absence of albuminuria or casts and other abnormal conditions should not only be determined, but the quantitative analysis as to urea and other urinary elements be made to establish the presence or absence of renal insufficiency, and the daily quantity of urinary excretion carefully observed. When we find urinary abnormalities during the stage of gestation it is sufficient to place us on our guard, but when this is coupled as it often is with edema, functional cardiac disturbance, impairment in vision, headache, or other well recognized prodromic symptoms there can be no mistaking the probabilities and dangers, and the advisability of prophylaxis is unquestioned. My habit is to have these patients placed upon an exclusive milk diet, urge them to drink large quantities of sterilized water, stimulate the excretory function of the skin by steam and hot vapor baths, and see that the bowels are kept abnormally active; a most successful method to accomplish the latter result is a daily enema of a saturated sulphate of magnesia solution. By this management, briefly outlined, I have seen the prodromic indications greatly modified, and in some instances entirely disappear and the patient tided through to full term and a normal delivery. If we have reason to believe that the prodromic condition of the patient is the result of pressure of the gravid uterus upon the ureters, thus occluding their caliber and producing renal stasis, upon theoretical grounds it would seem that a daily catheterization of the ureters according to the Howard Kelly method, as practiced by him for other renal affections, would be applicable here as a prophylactic measure. I confess I have never yet employed this means, but it is my purpose to do so when a suitable opportunity presents. But when despite all ordinary prophylaxis, the prodromic condition of the patient does not improve, when we have every reason to believe that if allowed to go to full term the patient must face the horrors and dangers of eclampsia, then the advisability of inducing premature labor as a prophylactic agent is to be seriously considered. Doubtless like other members of this section it has been my lot upon various occasions, having watched the prodromic symptoms as the period of gestation advanced, grow more and more apparent, to feel with misgivings that just so soon as the pains of labor advanced, at full term, just so sure would it be necessary to meet the responsibilities and emergencies of eclampsia. Though taken by surprise at the unexpected appearance of convulsions when prodromic symptoms were not expected or recognized, seldom have I been mistaken in my anticipations when the symptoms have been previously present. It is in such cases as these, when we are convinced that if allowed to go to full term the patient will be subjected to the ordeal of convulsions, I hold to the opinion that when we are satisfied of the viability of the child, we are not only justified but it is our duty to bring about premature labor: 1, for the ground of safety and comfort of the mother; 2, for the welfare and safety of the child.

A case coming under my own observation will illustrate: Primipara, aged 26; history of fatal nephritis in both father and mother; at fifth month of pregnancy exhibited prodromic symptoms, which steadily increased to full term, albuminuria, casts, scanty urine, excessive edema, headache, weak, rapid heart, disturbed vision. At the beginning of second stage of labor was attacked with violent convulsions; rapid delivery by forceps was accomplished, convulsions continued after the delivery of a dead child, and chloroform, chloral and veratrum viride barely saved her life. Convalescence was slow and tedious, complicated with phlegmatia dolens extending over six months, and traces of albuminuria could be detected for three months longer. Two years later patient became pregnant again; the same prodromic indications of equal severity presented at the same stage as in first pregnancy, and despite ordinary prophylaxis, increased steadily; patient was tided along until the middle of the seventh month when in view of previous history induction of labor was decided upon. This was accomplished under strict asepsis; while under anesthesia one slight convulsion occurred at time of dilitation of os, but patient was delivered of a live child and recovery was uninterrupted and complete.

When the viability of the child is unquestioned and the procedure is accomplished under strict aseptic conditions I am of the opinion that this is an important prophylactic method too often neglected. Why should a woman be subjected to six or eight weeks' unnecessary sepsis, accumulation and absorption of toxins? Is it not reasonable to infer that the safer course is induction of labor, prevent accumulative toxemia, and remove the exciting cause. The same arguments can be advanced in regard to the child. It is very well established that there is a relation existing in puerperal nephritis bearing upon the nutrition of the fetus. While the arterioles in the maternal kidneys are undergoing occlusion by products of disease, a similar occlusion and change is taking place in the placental vessels, thus jeopardizing and interfering with the blood supply to the fetus. This is one factor that accounts for infant mortality in eclampsia, and it is a reasonable conclusion that the same toxemia that threatens the mother also threatens the child. Dr. Barnes (British Med. Asso. 1888) claims maternal albuminuria to be the cause of intra-uterine

death—whatever the cause, a viable child's chances are better extra utero than when exposed to intra utero toxic influence, accumulative degenerative changes in its source of nutrition, the jeopardy of violent maternal convulsions and delay in delivery at full term. My experience has necessarily been limited to a few cases where this prophylactic method has been adopted, but I have had no cause to regret its employment, and in properly selected cases believe it to be a valid and useful prophylactic measure. The fact that cocain applied to the os, as treatment for eclampsia, suggests its use as a prophylactic when convulsions are anticipated, the rationale based upon the fact that pressure upon and dilatation of the os act, in at least some cases of eclampsia, as an exciting cause. We are led to believe from clinical experience that this is an important factor in certain cases. We doubtless can all recall instances where we have excited the convulsions simply by a digital examination, passing a finger through and perhaps dilating the os. Theoretically, at least, cocain may have its place as a prophylactic. My experience in its use has been limited to normal labor. When in some cases I have used it with apparent good effect just prior to the full dilatation of the cervix to alleviate the so-called agonizing stage of labor, I have had no reason to presume that it acted as a prophylactic, as in none of them was eclampsia anticipated. Under the head of reflex causes for eclampsia the bladder may play an important part. An instance is cited in the American System of Obstetrics (Vol. II. page 79), taken from La Motte's observations, where violent and threateningly fatal convulsions were instantly controlled by relieving pressure of the fetal head upon the bladder and drawing off a large accumulation of retained urine. An instance came under my observation, a case of placenta previa in a multipara, age 28 years; labor was terminated by podalic version and resulted in loss of child, but the mother in fair condition, save some necessary exsanguination. Case was left in charge of inexperienced hands. According to reports there had been difficulty in urination following delivery, and on the sixth day convulsions appeared. When I saw the patient she was in deep coma with rapid and thready pulse. The unusual size of her abdomen attracted my attention, and urine had been passed continuously, drop by drop. The catheter relieved the bladder of an immense amount of urine, but the patient was so exhausted from combined influences of placenta previa, distended bladder and convulsions she did not rally, and died in a few hours. Whether death was due to peripheral nerve irritation from distended bladder or uremia, was not determined, but the case suggested to my mind a practical prophylactic measure, to be assured in all cases of pregnancy and during the puerperal state that the bladder is emptied at proper intervals. So much prophylaxis authorities and experience teach, that eclampsia is most frequent during labor and less frequent after, but the relation is not definitely determined for the reason that labor often comes on as a direct result of the convulsions and many attacks that rightfully belong to the period of gestation are recorded as occurring during labor. The management of puerperal eclampsia depends upon the period in which the convulsions occur. If prior to fetal viability we must remember our duty to the child as well as to the mother, and so far as we can, in justice to the latter, adopt expectant methods, endeavoring by all means at our command to tide the crisis on to months of viability, but under no circumstances must the mother's life be jeopardized by fatal delay, or allowing continuance of frequent convulsions. The statistics of Lantos and Lohlein demonstrate that convulsions cease after the emptying of the uterus in 69 to 80 per cent. of cases, and Duhrssen, the powerful advocate for the active method of immediate delivery, establishes the fact that even the severest operations, Cæsarean section included, properly performed under asepsis and complete anesthesia, does not render the prognosis less favorable. Therefore, in cases where convulsions persist, and we are convinced that toxemia or some condition due to pregnancy is endangering maternal life, no time should be lost in emptying the uterus, and the child sacrificed for the welfare of the mother. When months of fetal viability have been reached, at the first suggestion of eclampsia it seems to me there should be no diversity of opinion as to the advisability of at once securing evacuation of the uterine cavity.

A recent contribution of Zweifel (*Centralblatt für Gynekologie*, Nos. 46-47-48, 1895) demonstrates the superiority of this active treatment, advocated by Duhrssen, as contrasted with the expectant method. Of 129 cases of eclampsia treated in the Leipsig clinic, 49 were treated by the latter (expectant) method, with a resulting mortality of 16, or 32.6 per cent., and 80 cases by the active method, with a mortality of 12, or 15 per cent. Objections have been urged against the active management on the grounds, 1, that even when the uterus is emptied there is no guarantee that convulsions will cease, and 2, that the manipulation and difficulty in securing evacuation aggravates the condition and further endangers and complicates the case. The fact that approximately 80 per cent. actually do cease when the uterus is emptied is a sufficient reply to the first objection, and the second objection is more apparent and anticipatory than real. I have not as yet encountered any serious difficulty in promptly evacuating the uterus of its contents. I have never had to resort to even slight incisions of the cervix; I would not hesitate to do so if necessary. I have never failed to secure dilatation of the cervix by the Barnes dilator attached to the Allen surgical pump or some of its modifications. On several occasions, under anesthesia, full cervical dilatation and delivery by forceps were both accomplished in less than an hour, when there was no evidence of uterine contractions, or any sign whatever of beginning of labor. I begin with this instrument familiar to you all, then follow by this modification of a Barnes dilator, and so on until in a short time the cervix will admit the hand for version or forceps for cephalic delivery. In primipara I found more time consumed in delivery by the forceps than in dilating the cervix. A case taken from my record will serve as a type of several others. Mrs. V., aged 16, primipara, unusually small and girlish form, suddenly attacked with eclampsia middle of seventh month of pregnancy; had one convulsion after another before seen. Catheterization of the bladder resulted in withdrawal of scanty and high-colored urine, loaded with albumin. No uterine contraction, and os closed. Chloroform was administered, the surgical pump and Barnes dilators employed; dilatation was accomplished without incisions, the forceps applied, and within forty minutes from beginning of operation a live child was delivered. Coma continued several hours,

but no more convulsions; the catheter had to be employed for several days, but patient made rapid and complete recovery. In antepartum convulsions, where child is viable, time is precious; I no longer waste it temporizing with venesection, veratrum viride, pilocarpin, chloral or any other means, but proceed with all possible haste to the evacuation of the uterus and in a great majority of cases nature assumes her eliminatory functions and little if any further therapeutics are required. In those cases where eclampsia continues after delivery, or when the onset is post partum, the indications for management vary, depending upon the condition or type of the patient. If the plethoric, with full bounding pulse, and other symptoms, all pointing to congestion, we have no remedy that can compare in its potency to venesection. We have no time to wait for the action even hypodermically of veratrum or pilocarpin, for at this time they are but poor substitutes for venesection, though they may be utilized as adjuncts. In this type venesection, thorough and sufficient, is the remedy par excellence, and other eliminatory means, such as hydragogue, catharsis, diaphoresis, etc., are not to be neglected. On the other hand, when the type is anemic, pulse weak, rapid and thready, we should hesitate to employ venesection. Here veratrum in 20 or 25 minim doses hypodermically administered is applicable; pilocarpin, while highly recommended, has failed to inspire the confidence we have in veratrum. The intravenous injection of one-half to one quart of normal saline solution, strongly advocated by Dr. Emory Lamphear of St. Louis, has in my hands yielded satisfactory results, though experience with it has been limited.

Since the advent of asepsis in obstetrics and gynecology, we are emboldened to adopt more active and effective measures in the treatment of eclampsia than formerly. The results have been good, and we have grounds to hope that the march of progress in the future will still lessen eclampsic mortality, and render this complication less to be feared by the obstetrician.

DISCUSSION.

Dr. Augustus P. Clarke, Cambridge, Mass.—With regard to albumin in the urine in these cases, I think it can be reasonably said that it is not as important a factor as some physicians would have us believe. In some cases in which no albumin is found the kidneys may be in a state of advanced disease. Such a case came under my observation some time ago. The patient had been examined for disease of the kidney. The urine was examined by several experts and pronounced free from albumin, and the kidneys were considered to be in good condition. In a little while the woman died, and postmortem examination showed advanced cystic degeneration in one kidney. The other was healthy. The lesson this case teaches is that we must not rely too much upon albumin in the urine, or upon the microscope, but must judge by the symptoms, and if we find edema or symptoms pointing to kidney trouble we can infer where the site of the difficulty lies, and if the prophylaxis is properly carried out there will be perhaps no need of further treatment.

Dr. John M. Duff, Pittsburg—If I understand the essayist properly, he suggests that as a prophylactic against puerperal eclampsia, where we have the premonitory symptoms, he would produce premature labor as soon as the child was viable. In a very large number of cases of albuminuria during pregnancy, and where the premonitory symptoms of eclampsia exist, the woman goes on to term and is easily delivered without eclampsia. Only last week I had a case of this kind. Two physicians brought the patient to me last fall and begged me bring on abortion. They again brought her back when she was seven months advanced in pregnancy, and I said to them, wait until she has a convulsion, and I will bring on labor. I attended her last Tuesday night, and I have never had a nicer case of labor in my life. I think it is bad teaching to have our young men go out and practice medicine with the idea that whenever a woman has the premonitory symptoms of puerperal eclampsia premature labor should be produced. You will find a great many cases in which it is not necessary. I could give quite a number of cases illustrating and emphasizing this point.

Dr. J. W. Bovee, Washington, D.C.—There are a great many cases of puerperal eclampsia in which there is never found a trace of albuminuria, while there are others in which traces of albumin are found in the urine, but the albumin does not come from the kidneys. It is true there are a great many cases in which the albumin comes from the kidneys. If we find traces of albumin in the urine we should be at least suspicious; if we find renal casts we should be still more suspicious, but we should not be very much alarmed until we find a diminution of the solids in the urine. If you have a small amount of urine, or a normal amount in twenty-four hours, with a diminished amount of solids, and this will be indicated approximately first by the specific gravity then we have reason for alarm. Methods should be put in vogue for an increase of excretions. The method of giving sterilized water and milk is very good, hydragogue cathartics are used for this purpose with hot baths, and anything which will produce an increased exudation of solids by compensation, because we may not get the kidneys to do their full duty. I would say in cases where Bright's disease exists before pregnancy and it becomes worse during labor we will have edema of different parts, probably, and some effects, such as headache, retained solid matter, urea and urates and others, then the idea of bringing on labor is more important in that class of cases. During pregnancy, while the patient is doing fairly well we should not bring on premature labor until puerperal convulsions have appeared; and even in these cases by using the hot pack, jaborandi and bleeding, with transfusion of normal salt solution at the same time, coupled with hot baths and hydragogue cathartics, we can stop the puerperal convulsions and the case will often go on to the full term of delivery. This is practiced in the hospital with which I am connected very successfully and we do not think of bringing on labor unless the convulsions are severe.

Dr. J. R. Rathmell, Chattanooga—To take such a broad position as to bring on labor in all of these cases is not, in my opinion sound teaching. In many of them there is a chance of saving the fetus and the mother. *Apropos* of this discussion I recall a case which came under my care wherein it was not necessary to bring on premature labor. I believe we would be justified in dealing with these cases in the manner that has been outlined if pregnancy is near its close. It is comparatively safe to interfere within two weeks of the time of full term, but if it is longer than that, five weeks, as it was in this case, it seemed in the judgment of the consultants wise to let the patient alone when she was under the influence of the remedies that have been mentioned and was free from convulsions within twenty-four hours, during which time she had five, and in four weeks from that time she gave birth to a living healthy child under the most favorable circumstances.

Dr. W. G. Bogart, Chattanooga—I want to protest against the idea of producing abortion or premature labor in all of the cases where convulsions present themselves. Just before I left home I saw a case in consultation. The lady had been suffering for some weeks. On examining the urine I found it heavily loaded with albumin. I expected convulsions in this case. The patient was then within a week of her confinement. She had a very difficult confinement. When she gave birth to her first child, she passed through two and a half or three hours of hard labor without any convulsions. The second child was a shoulder-

and hand presentation and became impacted. The patient was in labor from 8 to 11 P.M., and finally the labor was so difficult that we had to deliver the child. She passed through labor without a single convulsion or even a symptom of one. I left the patient in a rather critical condition three or four days after confinement. I present the case simply to show that the urine was heavily loaded with albumin and yet no convulsions occurred. This case is not the only one that I recall.

DR. FISH, Milwaukee, said it was his custom, as soon as his services were engaged, to make an examination of the urine of the pregnant woman in order to determine the presence or absence of albumin. Cases were cited to show that the presence of albumin was not always a safe criterion alone for bringing on premature labor. In the treatment he never uses pilocarpin, as recommended, for the reason that it is liable to produce edema of the lungs, and on this account he considers it a dangerous remedy. In one case of puerperal eclampsia, the woman had a pulse of 140, but under the continued use of veratrum viride and morphia it dropped to 70. He believes that if the pulse is reduced to that point and kept there convulsions will not return.

DR. GILLESPIE, Tennessee—I use a little chloroform until I get the woman well under the influence of veratrum. I have used Norwood's tincture, commencing with 15 minims hypodermatically, which is repeated in three to five minim doses, and sometimes it requires four or six doses, but very often the second dose is sufficient to stop the convulsions. After the patient is under the influence of the veratrum I stop the administration of chloroform.

As to prophylaxis, I think most cases can be prevented by keeping the bowels well open, attending to the diet, prescribing the proper amount of exercise, and giving the patient something to act on the kidneys. If there is one remedy that I use more than any other it is the hyposulphite of soda in dram doses every three or four hours until it acts on the bowels. When it does not act freely I give a dose of salts. It not only acts on the bowels, but kidneys, and prevents auto-intoxication.

DR. B. M. HYPES, St. Louis, Mo.—In my opinion, the weak point of our practice as general physicians is that we are constantly allowing our patients to go into the hands of surgeons and consultants by not properly caring for them during pregnancy, and I hope that all physicians will take their patients in their own hands the moment they are pregnant, watch them, and not permit a month or even two weeks to go by, after they are six months advanced in pregnancy, without making a thorough examination of the urine in order to ascertain whether the kidneys are acting normally or not. The urine of the pregnant woman should be frequently examined and the quantity passed in twenty-four hours measured. The solid constituents of the urine should be measured also, in order to determine whether the urates are properly eliminated, and when you use proper remedies and apply them in time you prevent puerperal eclampsia.

Physicians do not always make a proper distinction between the character of different forms of puerperal eclampsia. We have hystero-puerperal eclampsia, and epileptiform eclampsia. Furthermore, we have eclampsia during pregnancy from cerebral disease, but it is my belief that 99 cases out of 100 of eclampsia during pregnancy and the puerperal state arise from insufficient action of the kidneys in eliminating the poisons or the toxins in the blood of pregnant women. The different kinds of convulsions must be separated in order to be properly treated. No one would think of giving veratrum viride in a case of hysterical convulsion; neither would the author of the paper attempt to induce premature labor without properly separating and classifying his cases. Much will depend upon the severity of the symptoms or convulsions. Premature labor is produced with the idea of saving the mother first, or both the mother and child if possible.

DR. THOMASON—I desire to thank the members for the free discussion of my paper. I think I have been partially misunderstood. I do not wish the members of the Section to entertain the idea for a moment that because albuminuria is present in the case of a pregnant woman it is a sufficient cause for the induction of premature labor. I do not regard albumin as a pathognomonic symptom of approaching eclampsia. But we all feel safer if the urine does not show albumin in these cases. Its presence is suspicious. I should want other evidence than the presence of albumin in order to bring on premature labor. In the paper I have presented to you I have merely given my own experience, and I must say that I have better results if I bring on premature labor, particularly when the prodromic indications are sufficiently severe to warrant it.

FIBROID TUMORS OF THE UTERUS, WHEN AND HOW TO OPERATE.

Read in the Section on Obstetrics and Diseases of Women at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5–8, 1896.

BY ALBERT H. TUTTLE, M.D., S.B.
CAMBRIDGE, MASS.

It is but a short time ago an opinion was more or less universally maintained that fibroid tumors of the uterus were benign growths. The fact that hysterectomy had such a high mortality at that period made the "cure worse than the disease," and probably did much to place these tumors in this relatively false position.

With improvements in technique and correspondingly excellent results in the removal of the uterus, it is no longer necessary or wise to wait until life is in immediate danger before recourse to the radical treatment of fibroids by surgical measures, but before the health of the patient is reduced by hemorrhage, inflammation, chronic suppuration and pain, to a delicate condition, and the dangers of the operation are further increased, as well as the difficulties by the complications of inflammation—pus and adhesions—to say nothing of the degenerative changes, the increase in the size of the tumor, and the effects of pressure on the ureters, there must be a time when certain indications exist for the truly conservative removal of these growths.

That this period for active surgical interference varies greatly in the opinion of various operators from the radical view of Jacobs, who considers that the presence of a fibroid tumor is itself sufficient reason for the removal of the uterus, to the conservative extremes of the electro-therapeutists, needs only to be mentioned, and it is this fact that has prompted me to express the conclusions derived from my personal experience in the treatment of these growths.

Small sub-serous tumors, when they give rise to pain and tenderness, interfere with motion and locomotion, produce reflex and nervous disturbances, or directly by pressure make more or less troublesome the functions of menstruation, defecation and micturition, should be removed. They are best extracted through the abdominal route, by enucleation. The peritoneal flaps are sewed together with fine animal sutures and the uterus dropped into place.

Whenever an interstitial fibroid has reached any considerable development, or a number of small ones have increased the size of the uterus above that of the fist, the uterus and fibroids should be removed en masse, to prevent changes which sooner or later will surely result from the constant pressure exerted upon

the uterus. Baer's supra-vaginal amputation of the uterus is the simplest operation.

Whenever the fibroid condition is complicated by inflammatory changes, either in the growth itself, the pelvic cellular tissue, uterus, tubes or ovaries, a total extirpation should be performed. I know of no better method for the complete removal of the uterus than the vagino-abdominal method, which I have devised and already described. Unless the symptoms are urgent I would recommend a long period of rest and local treatment as a preliminary to surgical treatment (six weeks to two months), as by this means much of the infiltration and subsequent danger of auto-infection will be avoided.

Whenever the common complications of a fibroid tumor, pain, hemorrhage and serous discharges are uncontrolable, the uterus should be removed. Unless there are extra-uterine complications, Baer's supra-vaginal amputation should be preferred.

When a fibroid uterus is complicated with pregnancy, and one or more nodules rapidly increase in size, early interference is demanded. Often the fibroids can be removed without disturbing the contents of the uterus; but an early removal may necessitate killing of the fetus, in which case operators will become divided in their course of procedure; some, to give the mother the best chance for life, will remove uterus and fibroids early, or the contents of the uterus, others will wait until near term and do a Cæsarean or Porro's operation, while a few will do nothing until labor sets in, when they will attempt to raise the tumor out of the pelvis so as to admit the passage of the child. Each case demands special consideration; a multi-nodular fibroid uterus is less likely to be disabled to the extent of complete incapacity for performing the function of expulsion of a fetus, and at most make the condition of delivery simply one of inertia uteri; a single fibroid is apt to increase to dimensions sufficiently great for the mechanical obstruction of delivery, and at term will nearly always be found in the pelvis or the lower segment of the uterus, a point it has reached from the force of gravity, no matter where the place of origin.

One or more growths of hen's egg size may not seriously interfere with full term delivery, but a growth of this dimension in the early months of pregnancy is more than likely to attain dangerous proportions before the time has arrived for the natural expulsion of the child. If the growths alone are removed a subsequent ventral hernia will usually more or less rapidly follow the final delivery at the site of the abdominal incision, and must be considered among the indications for the removal of the fetus.

The danger of sepsis from auto-infection is increased in the abortion of a fibroid uterus.

When a fibroid uterus is complicated with pregnancy, the problem to be solved is not one of comfort or health, but the serious condition of life or death, therefore surgical interference should not take place until a study of the condition of the patient and the relations of the tumor and uterus show clearly to the operator that there are greater chances of life with operation than without.

When failure in health occurs in a woman having a fibroid uterus, and no cause for the same can be found, unless it be the condition of the uterus, for which the tonic and medicinal methods of treatment are unsuccessful, hysterectomy, a supra-vaginal amputation, should be performed as *dernier ressort*.

CONSTIPATION; SOME OF ITS EFFECTS AND ITS NON-MEDICINAL TREATMENT.

Read in the Section on Practice of Medicine, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5–8, 1896.

BY E. S. PETTYJOHN, M.D.

ALMA, MICH.

The large number of people suffering from constipation and its effects, and the clinical difficulty met in obtaining relief therefrom, leads to the conclusion that the full signification of this affliction and its deleterious influence are not comprehended either by the people or the profession.

In its reciprocal influence this condition sustains both a causative and a resultant relation. Constipation as a functional disorder may be defined as an abnormal condition of the great colon and the entire intestinal tract, manifested by the unusual retention of excrementitious material, both as to *quantity* and *time* of evacuation. It may be owing either to diminished action of the muscular coat, to the diminished secretion from the mucous membrane, or both, to defective innervation, to habits and occupation, climate or diet, in addition to which there seems to be an infinite variety of causes.

A study of the history of 300 cases shows that about 60 per cent. of patients are suffering from this ailment, and that the number is proportionately larger among women than among men.

Congenital constipation may occur dependent upon the anatomy of the colon, the water being absorbed by a reduplication of the colon itself, especially the descending part, as that part is longer in infants in proportion as compared with the ascending and transverse, and hence liable, by being crowded down into the pelvis, to flexures and reduplications that favor impaction.

In adults the transverse colon is most liable to variation in length and position, and being smaller in diameter than the ascending, aside from congenital malformation, may be bent downward almost to the pubes by long continued distension, forming a sharp bend at the sustentaculum hepatis and at the splenic flexure, as has been found in two cases under the writer's observation.

In considering this condition, we regard individual habit and idiosyncrasy and compare with the rule, as persons do become constipated without notable or sensible inconvenience to themselves, without manifesting any of the local symptoms, and while having regular and apparently sufficient evacuations.

We come to the consideration of constipation more on account of its relation to other ailments and the entire system, than because of the mere inconvenience induced. The intestines and colon and the rectum are considered as digestive, eliminating and secreting organs, and also as organs of absorption.

With their great extent of retiform tissue enclosing a multitude of blood vessels and nerve ramifications, with their mucus follicles and valves of retardation, with their glands, lacteals, arteries and veins, the powers of retention and absorption belonging to this tripod are beyond compare. The wonder is that all the contents which enter are not taken into the circulation.

While the colon and rectum have not the digestive office we have long supposed, their absorptive power is greater than has been thought, and the quantity

absorbed is in proportion to the time of contact and concentration of the substance. While these organs seem in a certain sense endowed with the power of selection they do absorb digested aliment, medicines and deleterious material with about the same avidity.

The intestinal nervous system is noticeably complex. Filaments are received from the pneumogastric, the sympathetic and from the lumbar cord. After having been distributed to the plexus of Meissner under the submucous coat and the plexus of Auerbach between the muscular planes, branches thence supply the glands, muscles and blood vessels. Some preside over the absorbents and secretions, others over the peristaltic muscular movements, others over the intestinal circulation. Not only do these medullary and ganglionic systems direct the functions of the intestines, but through them the nerve centers of the brain have a direct influence over the entire apparatus. Since all functional action in the system is reciprocal, it follows that the functional activity of the chylopoietic system must effect the nutrition of the brain and entire nervous system.

We acknowledge that human life is a constant processional activity of elimination and repair, metabolism occurring everywhere. Observation is demonstrating the part taken by bacteria and microbes in this process in the mouth, stomach and intestines. In the chemic, fermentative and putrefactive changes thus occurring, ptomaines are being constantly produced which, when absorbed as toxic and excrementitious substances, produce retrograde changes in the quality of the blood, diminution of the red blood corpuscles, and by supplying an infected or imperfect nutriment to the brain, become a prominent factor in the production of cerebral anemia and nervous debility only limited in its effect by the shortening of the microbal longevity from the effects of its own secretions. If this deficiency of nutrition or the supply of toxic material be continued, the increased nervous irritability is followed by a decrease, and withdrawal of nourishment is followed by brain exhaustion.

From the normal intestine Babes isolated five species of bacteria, whilst an enormous number of microorganisms were found in the large intestine and feces. Bouchard says: "The conditions favorable for the maintenance of putrefaction are so numerous that we ask whether digestion can ever go on normally?" While the hydrochloric acid of the stomach neutralizes the infections agents, they are passed into the intestines in a state of latent activity, when fermentation again begins. While the bile arrests fermentation, it is also capable of putrefaction, which is no doubt one of the causes of the offensive breath in constipation. We thus find the small intestine, and especially the large intestine, in a condition to pass products of putrefaction and toxic substances into the blood current. Since our most inoffensive and most valuable foods (meats) produce toxic substances; since the bile contains poison and the putrefactions of undigested residue produce poison, and the fecal matter is toxic, with all of these shut up in the intestines and colon, how can the guilty (those who do not believe in defecation), or even the innocent, escape destruction? If the kidneys are acting well, some of the toxics escape through the urine, and if the skin is eliminating, it furnishes relief, but these are rather remote sources of exit for so large a quantity of excrement when the way to the outside world is so close at hand.

Hypochondria, nervous depression, nervous headaches, functional neurasthenia, migraine, vertigo, disorders of nerve sensibility, noises in the ears, dyspepsia and depression incidental thereto, with a long train of psychic, nervous and nutritional troubles, are directly or indirectly the result of constipation. Even when many functional difficulties seem to be the primary disease, they only form an arc of a vicious circle begun with the nucleus of constipation.

The mechanical pressure against mesenteric blood vessels by over-distended bowels, especially if long continued, causes increased flow of blood to the brain and a temporary hyperemia with its concomitant symptoms, like an Esmarch bandage about a limb, or a sudden cooling of the surface of the body which in winter is the cause of more frequent cerebral hemorrhages than at other seasons, or like the sudden suppression of the menses or of an hemorrhoidal discharge, or even the straining at stool, all of which are to be avoided in apoplexy and cerebral congestion, on account of the increased pressure of blood in the brain which they produce.

The nervous system, as the master tissue of the body, needs the highest nutrition, and hence is most easily disturbed. It is fed in its truest sense by the overflow of nutriment after its refinement and elaboration in other tissues. Whether the nerves are nourished by the plasma reaching the axis cylinder at the nodes of Ranvier or not, we believe with Waller that the nutritional activtiy of nerve fiber is in the direction of its normal physiologic activity. Any inhibition of this function will lower the nerve excitability. A long period of repose not only lowers the excitability but, if continued beyond a certain limit, atrophy and degeneration occur in the nerve substance itself.

Continued unusual pressure produces excessive activity of the nerve supplying the part, excitability is finally abolished and exhaustion of the nerve occurs locally (as in over-distension of the bladder), or it may even produce a neuritis. A constantly overloaded condition of the bowels may produce either of these local results on the nerve filaments themselves. The effect of this travels backward to the controlling ganglia in the lumbar cord and defecation, to some degree a reflex act, when its directing center is not sensitive to the controlling impulse of the brain, does not occur promptly, and the constipation thus reacts upon the whole system.

In patients who complain of symptoms referable to the spinal region, and where there is entire absence of anatomic affections of the cord, and often when these manifestations are united with cerebral symptoms and there is general disturbance of the entire nervous system with a neurotic heredity, it is very frequently a functional trouble. Such a case recently came under my care (from the country), a Miss M., aged 32. She had previously been afflicted with convulsions, supposed to be epileptic, at and since puberty, but had had none for two years previous to my seeing her. She complained of attacks of severe occipital pain when she would become nauseated and dizzy. At the same time she would have a convulsive-like attack with irregular tremors and a peculiar nodding and swaying movement of the head, which she said she was unable to control. She also had pain in the cervical and lumbar region, deep-seated. These attacks occurred irregularly from one to twelve weeks apart. She was an invalid each time from five to fifteen days.

She had been treated for several years and informed by her physicians that she had epilepsy and disease of the spine. Thorough examination revealed absolutely no signs of spinal disease nor anatomic disturbance of the cord. After three months of treatment she fully recovered, beside having gained eighteen pounds in weight. The late Dr. Jewell believed and taught that the effect of constipation might produce a condition of the brain akin to, or that could be classified as, transient mania.

The first elements in curative treatment, I consider good food and good digestion. The diet should consist of coarser foods such as would leave a residue and aid in increasing the bulk of fecal accumulations. Broths, fish with the skin, fresh meats not too tender, whole-wheat and graham bread, mush, hominy, corn bread and all green and watery vegetables, baked potatoes with skins, and cereals containing hulls and fine seeds, prunes, figs, apples with the peeling and all fruits generally. Rest in the recumbent posture for a half hour or more both before and after eating is of value.

Massage on anatomic principles I place first in the mechanical treatment. The manipulations should not be used until two hours after a meal. The thighs should be flexed and the abdominal walls relaxed. The treatment should be given dry, stimulating first the skin, then the walls of the stomach, the different sections of the colon and the intestines. Pétrissage given so as to impart an oscillating and vibratory movement, combined with the varieties of tapotement, are the best forms of treatment. Cases of obesity and atony of the muscular coats and chronic intestinal and gastro-intestinal catarrh are relieved in two to four months. The intestinal secretions or increased obstruction of the bile duct is relieved, the peristaltic action is stimulated, and the contents of the sigmoid flexure and entire colon are pressed toward the rectum. If there are biliary calculi no pressure should be made on the adjacent parts, although usually pressure should be made over the fundus of the gall bladder, to assist the bile toward the intestine. The stimulation of the skin, which is here supplied by the last seven dorsal nerves the same origin as the splanchnics, as well as the plexus of Auerbach, and the mechanical effect of moving pressure do bring favorable results.

In the use of the cannon ball three or four pounds in weight the patient or operator should be thorough and systematic. The ball should be rolled over the entire abdomen, being used for five or ten minutes morning and evening, the treatment ending by the patient balancing the ball for a few minutes on the navel.

In gymnastics all movements that use and strengthen the abdominal muscles, such as lying on the back and raising the limbs perpendicularly, the flexion at the hips, twenty or thirty times each morning and evening.

Rowing, horseback riding and cycling are helpful if used regularly. While it is best to have a definite hour, that is not essential, but when a time is fixed, if the preceding half hour is devoted to the voluntary contraction of the anal sphincter muscles, the reflex effect is to aid in stimulating the peristaltic action. Time should be given, and one should go for relief on the first prompting.

The faradic current of sufficient strength to produce contraction of the different portions of the intestines and colon is helpful. The galvanic current; the cathode in the rectum, large anode over abdomen, repeated daily at the same hour is effectual.

Hydro-therapeutics have proven successful remedies in the author's practice. Drinking large quantities of cold water on arising and an hour before meals, and two or three hours after food, taking during the day 70 to 80 ounces, beside that with the meals, is of exceedingly great value. This remedy, with regulation of habit, has cured many cases.

Fomentations to the bowels, stomach and liver daily and a cold pack to the bowels at bedtime, have been successful. Alternation of hot and cold to the spine and the cool bath have shown results.

The difficulty I find in the use of any, or a combination of these measures, is to induce the patient to be systematic and persistent in following directions. But I am thoroughly convinced that by these means producing constitutional and local effects, more satisfactory results are obtained than with medicines, and when the patient recovers, he stays well.

That constipation has a psychic and a moral effect the laity recognizes, and we will all agree with the author who says: "Those persons whose bowels are freed by an easy, regular movement every morning, so soon as they have breakfasted, are meek, affable, gracious, kind, and 'no' from their mouth comes with more grace than 'yes' from the mouth of one who is constipated."

THE SURGICAL TREATMENT OF RETRODEVIATIONS OF THE UTERUS.

Read before the New York State Medical Society, at Albany, Jan. 28, 1896.

BY AUGUSTIN H. GOELET, M.D.

PROFESSOR OF GYNECOLOGY IN THE NEW YORK SCHOOL OF CLINICAL MEDICINE.

It will be admitted that a cure of retrodeviations of the uterus is seldom, if ever, accomplished by the ordinary methods of treatment and that they demand more careful consideration than is usually accorded them. The routine plan of inserting a pessary and dismissing the case from further attention is an error, unfortunately, too often committed. The pessary can only be regarded as a splint which is serviceable as an aid to other measures in bringing about the desired result, but nothing more and will accomplish very little unaided. It may be true that all such displacements of the uterus do not require surgical intervention for their cure, but when structural changes have taken place in the walls of the organ nothing else will yield a prompt and satisfactory result. A pessary might be worn throughout the lifetime of these patients and even if it maintained the uterus in a correct position a cure would never result and she would never be able to go without it, unless something else is done to overcome the conditions which produce the displacement or are consequent upon it.

These displacements do not necessarily require always a grave surgical operation for their rectification, since frequently a trachelorrhaphy or curettage, or both combined, in conjunction with appropriate after treatment will be sufficient in many cases. It is only where there is fixation from adhesions that it may become necessary to open the abdomen, break them up, bring the uterus forward and suspend it from the anterior abdominal wall.

On account of the difference in the pathologic condition in the uterine wall, retroversion and retroflexion should be dealt with differently. In retroversion one

of two conditions may prevail. The uterus is either soft, being in a state of subinvolution, or it is hard, the condition being one of sclerosis. The latter is believed to be an advanced stage of the former, both being regarded as different stages of metritis. In retroflexion, if it has existed for any length of time the condition of the anterior and posterior walls is quite different. The anterior wall is put upon the stretch and the posterior wall is contracted and shrunken, its structure being dense and hard because of interference with the circulation and nutrition making the displacement permanent.

Associated with this condition of metritis there is always an endometritis, in both retroversion and retroflexion. Therefore in both forms of displacement dilatation with careful curettage is demanded as a preliminary step in their treatment, but in retroversion the uterus should subsequently be carefully packed with gauze to secure depletion and drainage, and to stimulate contraction, and in retroflexions a glass drainage stem should be employed because it will act as a splint and maintain the uterus in a straightened position. With the aid of absorbent iodoform gauze packed in the vagina this is readily accomplished.

TECHNIQUE OF CURETTAGE AND TREATMENT OF RETROVERSION.

The patient is anesthetized after previous preparation which should include shaving the vulva and irrigation of the vagina with a hot solution of bichlorid,



Fig. 1.—Author's Speculum.

1 to 4000, or a 1 per cent. solution of lysol, hot. She is then placed in either the dorsal or lateral (Sims's) posture, as is most convenient for the operator. The speculum represented by the accompanying cut (Fig. 1)[1] will answer equally well for either position. The cervix is seized on the right side with the angular

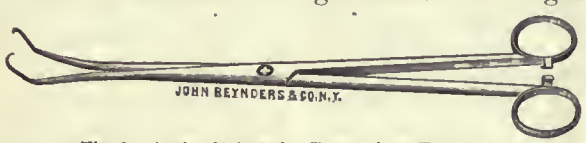


Fig. 2.—Author's Angular Tenaculum Forceps.

tenaculum forceps (Fig. 2),[2] which is held in the left hand, and the dilator (Fig. 3)[3] is introduced up to its shoulder. The necessary degree of dilation should be done slowly and gradually so as to prevent injury to the parts, especial care being taken to prevent the instrument slipping and producing laceration.

[1] The author's speculum possesses many advantages over the Sims's speculum or the bi-valve or tri-valve instruments, on account of the convenience of manipulations afforded and because it is self-retaining in both positions.

[2] The special advantage of the author's angular tenaculum forceps is that the strain is against the curved sides of the points and not directly against the points as is the case with the straight instrument, hence it does not cut out or slip and produce laceration of the tissues seized by it.

[3] The author's dilator is designed to effect slow gradual dilation without injury. The curve is less acute than that of dilators in general use and the ratchet catch attached to the handle holds the dilatation as it is accomplished, but at the same time it can be quickly relaxed at any time by pressure of the little finger upon the spring when the instrument seems to be slipping.

The dilatation accomplished, the double current irrigator (Fig. 4) is inserted to the fundus and the cavity is washed out with a hot 1 per cent. solution of lysol. The next step is the curettage, and it must be done with special care. Every part of the cavity is gone over and all diseased membrane is thoroughly removed. Selecting a medium-sized rigid dull curette the posterior surface is first curetted, commencing at the left (patient's right); then the anterior and lateral surfaces are treated in like manner. Substituting a smaller curette the membrane is removed from each cornu and the fundus. Then with a sharp curette the



Fig. 3.—Author's Uterine Dilator.

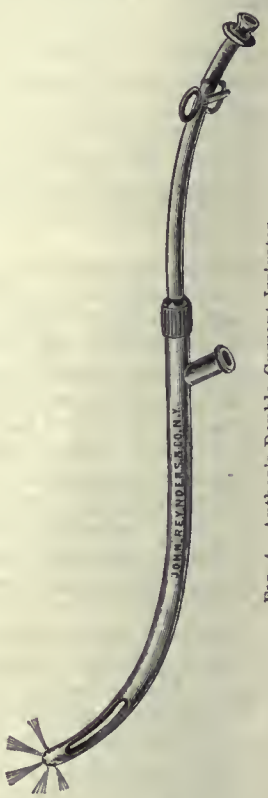


Fig. 4.—Author's Double Current Irrigator.

hypertrophied tissue about the internal os is removed. This being accomplished, the cavity is again thoroughly irrigated with a hot solution of lysol and it is then ready for the insertion of the gauze. This is best accomplished by means of the applicator forceps (Fig. 5). Iodoform gauze (20 per cent.) which has been rendered absolutely sterile is used. A strip an inch wide and a yard long is carefully introduced into

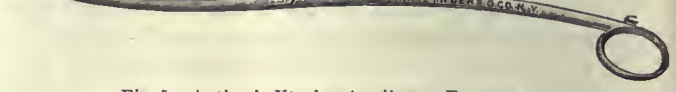


Fig. 5.—Author's Uterine Applicator Forceps.

the uterus leaving an inch or two of the end protruding into the vagina. The vagina is then tamponed with the same gauze (cut into strips two inches wide) in such a manner as to maintain the uterus in a correct position. Since the gauze will cease to act as a drain when it becomes saturated it should be removed and renewed every twenty-four hours. At the same time the uterine cavity should always be thoroughly irrigated with the hot solution to remove all débris and secretions. This after treatment should be continued for a week, during which time the patient is confined to

bed. At the end of this time a vaginal pessary is adjusted so as to maintain the uterus in a correct position, and the case is kept under observation for several weeks, the uterine cavity being washed out once or twice every week as necessity demands. This is to be continued until a healthy condition of the endometrium has been restored, as will be evidenced by the absence of débris or mucus in the washings.

If these details are observed carefully there will be no rise of temperature in these cases and the result of the curettage will be permanent. There is no necessity for the complicated process of preparing the gauze which has been advocated by some writers. It is only necessary to insure its absolute sterility by submitting it to the necessary degree of heat for a sufficient length of time.

After this operation and the subsequent after treatment, the uterus will quite rapidly resume its normal size and condition if it has been maintained in a correct position by the pessary which should be worn for several months.

TECHNIQUE OF THE TREATMENT OF RETROFLEXION.

The dilatation and curettage is done in these cases in the same manner as described for retroversion, but instead of inserting gauze into the uterus a glass drainage stem (Fig. 6) is inserted to serve as a splint and maintain the organ in a straight position until a normal condition of its walls can be restored. This stem is two inches long, is perforated through the center for drainage and its size is No. 12, English scale.



Fig. 6.—Author's Glass Drainage Stem.

After curetting the cavity and irrigating with hot lysol solution, the stem which has previously been rendered sterile is introduced and held in position by a tampon of iodoform gauze packed carefully around the cervix. Additional tampons of the same gauze are inserted in front of the cervix forcing it backward into the posterior cul-de-sac of the vagina, thus throwing the uterus forward into a position of anteversion.

The stem should be removed every day, the cavity of the uterus washed out with lysol solution and after cleansing it the stem is reinserted. At the end of a week, during which time the patient is confined to bed, a pessary is carefully adjusted to take the place of the vaginal tampon and maintain the uterus in a correct position. The stem is retained for a day or two longer with only a loose wad of gauze against it to prevent it slipping out. If it is found that the pessary will sustain the organ in a proper position the stem may be removed and the patient is permitted to get up. The pessary must be worn for several months until it is found that the uterus will retain a normal position without its support.

Almost every case of retro-displacement of the uterus not fixed by adhesion or exudation, is satisfactorily amenable to this method of treatment. When slight or very recent adhesions complicate the case they may sometimes be broken up by careful manipulations through the vagina under anesthesia without opening the abdomen. Then the above operative procedure is to be adopted as in those cases when adhesions have not existed. When the organ is bound down by exudation this should when possible be removed first. When a lacerated cervix complicates the displacement it should be repaired at the same time, but in these cases the gauze packing will have to be dispensed with because it might interfere with proper union.

In dealing with retroflexion if it is necessary at the same time to do a trachelorrhaphy, the drainage stem can be used without danger of interfering with union of the freshly united surfaces if the operator is careful in making the denudation to leave ample room for the new cervical canal, and not draw the sutures too tightly. When the adhesions are firm and numerous they should be broken up by the finger inserted into the abdominal cavity through a small incision and the uterus should be brought forward and suspended from the anterior abdominal wall after the manner described by Howard Kelly.

TECHNIQUE OF SUSPENSIO UTERI.

After proper preparation of the patient she is anesthetized, the bladder is emptied and an incision about two and a half to three and a half inches long is made through the abdominal wall just above the pubis opening into the peritoneal cavity. Two fingers of the left hand are inserted and the uterus is loosened from its attachments and the fundus is brought forward and up into view. The edge of the peritoneum on each flap of the abdominal wound is next seized with pressure forceps and drawn out. A curved needle carrying a medium-sized silk ligature is inserted through the peritoneum and subperitoneal fascia on the left near the lower angle of the wound and is next inserted upon the posterior face of the fundus and then through the peritoneum and subperitoneal fascia on the right flap of the abdominal wall, at a point opposite its insertion on the left. When this ligature is tightened it brings the posterior face of the fundus snugly up against the anterior abdominal wall. A second suture is inserted near the other on the abdominal wall and just below the other on the posterior face of the uterus. When this suture is tightened it throws the uterus forward still more into a position of anteflexion. These sutures are tied carefully so as to maintain an equal strain on each, bringing the uterus up snugly against the abdominal wall, and the abdominal wound is closed in the usual manner.

One advantage claimed for this operation over that of ventrofixation is that the uterus is not permanently fixed in an abnormal position, but it eventually recedes somewhat and remains suspended by two firm fibrous cords in an easy position of moderate anteflexion and is fairly movable.

The patient is confined to bed for two or three weeks and is directed to wear an abdominal support at first upon rising. No pessary or additional support will be needed after this operation, but injuries to the pelvic floor should be repaired at the same time in all cases. When done in properly selected cases this operation should be uniformly successful and the mortality is *nil*.

Alexander's operation, which is only applicable when the uterus is movable, is unnecessary, its chief disadvantage being the prolonged convalescence it entails. The operation described above for movable displacements is preferable because it can be done quickly and necessitates only a week's confinement in bed. It is a rational procedure because it aims at a cure of the coexisting metritis and endometritis which is the maintaining cause of the displacement.

It has been suggested to apply Alexander's operation to fixed retrodisplacements after first incising the posterior cul-de-sac and breaking up the adhesions. This may be easy when the adhesions are not very extensive, but the difficulty of securing thorough asepsis by this route is certainly an objection as well as the time which this and the added Alexander's operation involves. All things considered, suspensio uteri is to be preferred when the organ is adherent.

Of the other operations recently suggested for overcoming these displacements, that of incising the posterior cul-de-sac of the vagina and bracing the uterus up by means of gauze crowded into the peritoneal cavity behind it, does not appear to be either wise or justifiable. A retroversion may be thus overcome but I fail to see how it can maintain a retroflexion even temporarily in a correct position. The chief objection to this procedure, apart from its faulty principle, is that it substitutes an exudation for the utero-sacral ligaments which are destroyed, and the cervix remains fixed to the rectum, an abnormal condition for many reasons objectionable.

Vaginal fixation does not appeal to me as either rational or justifiable since it substitutes a fixed anteflexion for a movable displacement. The recent unfavorable reports of protracted and complicated labor when it follows this operation certainly constitutes a very serious objection to it. Its originator, Mackinrodt, has abandoned it.

Upon the whole the operations described above for movable displacements and suspensio uteri, when the uterus is adherent or when disease of the adnexæ complicates, are I believe the most satisfactory and the results, so far as my observation goes, bear me out in this conclusion.

351 West 57th Street.

PREVENTION OF TUBERCULOSIS.

Read at the Pennsylvania State Medical Society, Harrisburg, Pa., May 19, 1896.

BY E. B. BORLAND, M.D.

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PITTSBURG, PA.

Under the light of recent investigations, the old theory of inherited tuberculosis is at best questionable. Congenital tuberculosis is comparatively infrequent. The so-called hereditary predisposition is now known to be general debility, which may arise from many causes. Any weakling has this predisposition, no difference what degree of health his parents enjoyed. All weak persons, especially the young, are liable to contract tuberculosis, if the three essential factors of infection are present, viz., debility, abrasions and bacilli.

The three essential factors of infection.—In the convalescence of typhoid fever, for example, we have two out of the three essential factors of infection. The same factors are present in the convalescence of measles and whooping cough, viz., debility and abrasions of the mucous membranes. The third essential factor of infection is easily supplied by the millions of tubercle bacilli which can be found in almost every public building, hospital ward, railway and, especially, the modern chariots of Juggernaut and centers of infection—the electric and cable cars, the floors of which are regular cuspidors.

That the bacillus discovered by Koch in 1881 is the specific cause of tuberculosis is not questioned by the medical profession at the present day. The principal routes of infection are the respiratory tract, mainly in adults, and the alimentary tract in children.

Two principal sources of infection.—That raw milk, and the air containing dried sputum, are the two important sources of tubercular infection is selfevident to any painstaking observer. The former may be held responsible for nearly one-fourth, and the latter more than one-half of all cases of infection. The large number of cases of abdominal tuberculosis in small children fed on raw cow's milk, is evidence of the importance of this source of infection. Marfan demonstrates the great danger of infection from sputum, in the following observation: Twenty-two previously healthy factory employes worked for many years together in one room. In the year 1878, two men suffering from ulcerative pulmonary lesions were added to their number, and these two latter expectorated freely on the floor. Between the years 1884-89, thirteen of the original twenty-two died of tuberculosis. Was this an accident or the plain result of the violation of a sanitary law?

Transmission of infection.—It is quite probable that infection is often carried from its original source to susceptible individuals by the common drinking cup, the common communion cup, cigar makers, careless barbers, money, handkerchiefs, kissing, the long skirts often worn by women, instruments, especially dental instruments, which often do not get even a rinsing with water until they have been used in several persons' mouths.

Vitality of the tubercle bacillus.—It will withstand freezing and dessication for weeks and months, and has been found alive after being buried two years. Koch produced tuberculosis by cultures nearly two years old. It should be borne in mind that the germs in fresh sputum or secretions are more virulent, that is to say, more likely to infect and harder to destroy, than after exposure to air and sunshine for several weeks. Nuttell found not only millions but billions of tubercle bacilli in the sputum of one patient in twenty-four hours.

Measures to prevent infection.—It has been estimated that about fifteen per cent. of milch cows are tubercular. The question arises, how is this source of infection to be controlled? The answer is, by destroying all infected animals as soon as a diagnosis can be made, and always sterilizing or boiling milk before using.

The physician is the guardian of health in the home, and it is his positive duty to teach his patrons preventative medicine. If he is grounded in the faith to a degree warranted by the facts, he can soon be the means of molding public opinion so that it would be decidedly unpleasant for any respectable person to be seen expectorating on any floor or sidewalk. Church-going people get along without expectorating on the floors of their places of worship, and this is evidence that all respectable people can do the same. Legislation, making expectoration on floors and sidewalks a misdemeanor, would control the vicious class.

A step in the right direction has recently been taken by the New York Board of Health. It directs the removal of carpets and mattings from the floors of cars and boats, and the placing of cuspidors containing suitable disinfectants where needed.

The rule should be absolute, forbidding any or all persons from expectorating on any floor or sidewalk.

Patients with ulcerative pulmonary lesions should not be allowed to expectorate in any place, either out or in doors, except in vessels containing suitable disinfectants.

Heat, solution of corrosive sublimate, 1 in 500 (acidulated with tartaric acid to prevent the coagulation of albumin), or carbolic acid, 1 in 10, will promptly destroy the tubercle bacillus.

Large, well-glazed cuspidors with perpendicular sides should be used (surrounded, if necessary, by screens) and cleaned daily, would protect public buildings and homes. Public conveyances to be protected by suitable vessels filled with sawdust, dampened with a 1 in 250 bichlorid solution. Patients with ulcerative pulmonary lesions should carry a small, wide-necked, glass-stoppered bottle containing a small quantity of the bichlorid solution for a pocket cuspidor, to be used only when out of reach of floor cuspidors. Handkerchiefs costing not over one-eighth of a cent apiece could be carried, in an emergency, and burned after using.

Patients should be instructed to rinse out their mouths frequently with warm water containing a little essence of wintergreen. This precaution to be attended to before eating, for the protection of the patient, and after expectorating, for the protection of others as well. Kissing should always be prohibited. It has been estimated that a patient in the ulcerative stage of pulmonary tuberculosis lives about two years. During this period he is a constant source of danger to his family and a menace to society. At a cost of not exceeding $50 and a little trouble, his sputum could be destroyed and his family largely protected from infection. Latent tuberculosis needs no precautions.

For the poor, hospitals especially designed for consumptives, and for their exclusive use, should be provided by the State as a matter of humanity, economy, and protection to the public health. The watchword should be, isolation for the patient who can not or will not be governed by the necessary sanitary regulations.

The disinfection of rooms and houses in which patients with ulcerative lesions live, or have lived, within two years, is a matter of vital concern. For this reason alone, tuberculosis should be classed by law with the infectious diseases, and be placed under the supervision of bureaus of health.

The Assembly of this Commonwealth now provides for the supervision by health officials of ten contagious and infectious diseases, viz., smallpox, diphtheria, scarlatina, typhoid fever, typhus fever, yellow fever, cerebro-spinal fever, Asiatic cholera, relapsing fever and leprosy.

The last two diseases in this list are so rare as to be almost a medical curiosity, yet were added to the list only last year; and an infectious and contagious disease which is the direct and primary cause of more deaths (14 per cent.) than all of the above ten, with measles and pertussis included, was omitted.

Ventilation is a much neglected measure of prevention. It has been estimated that each adult individual requires 3,000 cubic feet of fresh air per hour. In a room containing 1,000 cubic feet the air should be changed three times an hour to prevent the carbonic acid gas from rising above six parts in ten thousand.

Probably not one room in ten will meet this requirement. While only a fraction of a cubic foot of carbonic acid gas is thrown off by respiration, an ordinary small illuminating gas burner will throw off six cubic feet an hour. A natural gas stove, without chimney outlet, is one of the most pernicious air poisoners ever invented. It renders the air in an ordinary sized room unfit to breathe in a few minutes. The most efficient means of ventilation we have in the average home to-day is the old-fashioned fireplace. Provisions for the entrance of fresh and escape of foul air should be made near the floors and ceilings of every living room, in such a way as to avoid draughts. Permits for the erection of all buildings should specify that ample means be provided for ventilation, and official inspectors should see that the specifications are carried out. Electricity is to be the light and possibly the source of artificial heat in the near future.

The knowledge that we now possess of the pathology, the three essential factors of infection, the common sources of infection, the common routes of infection, the means at our command to prevent infection, ought and can stamp out, if acted on intelligently and promptly, more than one-half of the cases of tuberculosis in the next twenty-five years, and 90 per cent. of all cases in the coming century.

Sentiment in intelligent, sensible, respectable people can be aroused and cultivated. With the ignorant and vicious nothing succeeds like an absolute fiat.

H. H. HOLMES.

BY EUGENE S. TALBOT, M.D., D.D.S.
FELLOW OF THE CHICAGO ACADEMY OF MEDICINE.

That Herman Webster Mudgett, better known as H. H. Holmes, was a criminal *par excellence* is beyond doubt, but how far and in what respects he was a degenerate, in the accepted sense of the term, is worthy of serious consideration.

Few criminals have received more public attention, but despite this, many essential details of his history are wanting. Very little has been stated as to his heredity. He claims to have come from a respectable New England stock and to have been religiously and carefully brought up. As a boy he does not appear to have been a scapegrace, and no criminal charge is there on record against him. He married at 18 or 20 and commenced the study of medicine at Burlington, Vt. From there he went to the University of Michigan, where he claims to have graduated in medicine in 1884.

According to his own account, after graduating he taught school and practiced medicine in New Jersey for about a year, but it would appear that before this he had already, with a confederate, conspired to defraud life insurance companies, an industry he never entirely abandoned and which finally brought him to the gallows.

Just when he assumed the name of H. H. Holmes is not certain, but probably not long after this. He himself says it was done when he went before the Illinois Pharmacy Board in 1886. From that time he has been known by that name and under it started in business as a druggist in the outskirts of Chicago, where he went into rather extensive and complicated transactions, chiefly of a crooked character. He managed, however, to keep in fair standing with his neighbors, and at one time was actively interested in church and religious matters.

During this time he had abandoned his New Hamp-

shire wife and child, and without divorce, married in 1887 a Miss Belknap. Some years later in the same way he married a Miss Yoke in Denver under the name of Henry Mansfield Howard. He is supposed also to have contracted another bigamous marriage with Minnie Williams (one of his supposed victims). Beside these he had irregular relations with other women. In 1894, shortly before his final arrest for the murder of Pitzel, he revisited his old home and lived as husband for a few days with his first wife, to whom he told a romantic fiction anent his absence.

Between 1886 and 1894 there is no full account of his doings. They included an extensive series of swindles and forgeries. His transactions covered many parts of the country. He ranged from Canada to Texas and Colorado, often in trouble but generally managing in some way to escape the most serious consequences of his crimes. These were in their way often remarkable for their boldness and impudence. He negotiated for the sale to a gas company of a gas-



H. H. HOLMES.

making machine which was actually running on gas stolen from the company's own mains. He admits "deals of a somewhat similar nature."

While his confessions, generally, have been unreliable, it is probable that the above is safely inside the truth. He was emphatically a man of affairs, but his business transactions were so shady in their nature that the obscurity that enveloped them has been dispersed as yet only to give a glimpse such as the above.

It was during this period that he built his celebrated castle, with its secret chambers and passages, dark rooms, trapdoors, etc. Here he employed the female type-writers and other employes whose mysterious disappearance has done so much to make his popular reputation as a murderer. As far as this crime is concerned it must be admitted that the evidence against him is altogether circumstantial, his confessions and statements being notoriously and boastfully mendacious, in the main. Out of the twenty-seven murders he admitted in his latest confession shortly before his execution, the majority of the victims are still living. Even his dying admission that he had been responsible for the sacrifice of two lives from criminal operations can not be accepted as perfectly reliable, considering his character for untruthfulness. He seems to have had little or no regard for human life, and as a dealer in "stiffs" and a defrauder of life insurance companies his operations were often enough suggestive of murders, even if these were not often committed.

The history of the Pitzel case, where it appears he made away with his confederate and then later with three of his children, and seemed to be planning the deaths of the widow and remaining family, distributing the deaths about the country in such a way as to avoid suspicion, must be fresh in the mind of the reader.

Holmes in his personal appearance, like Wainwright (whom he much resembled in his criminal career), presented nothing specially repulsive in his appearance. He was quiet, mild in manner and voice, fairly well educated, neat in dress and could pass anywhere for a respectable business or professional man. During his long criminal career he appears to have had no particular ambition, except to succeed in his crooked operations and to ingratiate himself with women, for whom he seems to have had a more than normal inclination.

Mentally, there was no lack of acuteness. The fact that he managed to escape justice so long is an evidence of this. When he was finally arrested his behavior was peculiar and shifty. He told contradictory stories, and when his case came to trial he dismissed his lawyers and insisted on managing his own defense. Though he showed some aptness in examining witnesses, he was finally obliged to recall his counsel and give the case into his hands. The jury found him guilty almost without leaving the box. Perhaps the one witness whose testimony was most convicting was his latest bigamous wife.

Holmes made numerous statements and confessions to detectives and others and published a book while awaiting trial which purports to give an account of his life.

The most remarkable of these confessions, however, was that published in the Philadelphia *Inquirer* of April 12, three or four weeks prior to his execution. In this he reports the details of twenty-seven murders and claims that he was a case of acquired moral idiocy; that he presented numerous facial stigmata of degeneracy that had grown upon him, during his criminal career. Eighteen of the twenty-seven victims in this confession are living. Its author acknowledged its falsity within a day or two of its appearance.

It was not merely criminal vanity that prompted it, for he received for it a very substantial compensation of several thousand dollars. Throughout his imprisonment, his acquisitiveness was shown in this and other publications for which he received money, and in propositions of blackmail for persons he contemplated involving in these confessions.

While in Philadelphia, Jan. 30, 1896, I had the opportunity of making a careful physical examination of H. H. Holmes, with the following results:

The subject was a 35 year old American, 5 feet 7½ inches in height, weighing 150 pounds. The occiput was asymmetrical and prominent, the bregma sunken and the left side of the forehead was more prominent than the right which was sloping. The hair was brown, and on body and face excessive. The face was

arrested in development. The zygoma was arrested and hollowed on the right side.

The pictures of Holmes published in the daily papers and in his book, do not, to my mind, portray the features of the man as I saw him in his cell. Figure 1, comes the nearest as he appeared when I saw him. His face was cleanly shaven, except moustache, very thin and much emaciated, presenting the appearance of being in a decline, due perhaps to confinement and a tendency to consumption. He had a cough, and the chances are if he had been allowed to remain in confinement he would have succumbed to tuberculosis.

Figures 2 and 3 show the antero-posterior and lateral shape of head. The right ear was lower than the left. The nose was long and very thin; stenosis of nasal bone very marked. The septum deflected to left, nose to the right. The thyroid gland was arrested. Strabismus in left eye, inherited. The left higher than the right. Slight protruding of the upper jaw; arrest of lower. The mouth on the left side drops lower than on the right. The width, outside of first molars was 2. Width outside first bicuspids 1.62. Height of vault, 63.

Figures 4 and 5 upper and lower jaw. The alveolar process was normal with the exception of the process about the second molar on right side which was hypertrophied. The teeth were normal in size and shape, the third molar undeveloped.

Marked pigeon breast, left side more prominent



FIGURE 2.

than right. Chest arrested with tendency to tuberculosis.

Arms: Right normal. Left one and one-half inches longer. He was right handed. His legs were long and thin. The tibia flattened. The feet medium in size but markedly deformed. Depression on left side of skull at bregma, said to be due to fall of brick at age of 30. Sexual organs unusually small.

The jaws were unusually long as compared with the width, with a semi-saddle arch on the left side of the upper jaw. The molars of the lower jaw and left upper had been extracted in early life. The hypertrophy of the alveolar process, the want of development of the third molars and the general abnormal development certainly display a very unstable nervous system in his early life.

In twenty years' experience, I have never observed a more degenerate being from a physical standpoint. Holmes in his confession published, stated that ten years ago he was examined by four men of marked ability and by them pronounced mentally and physically normal and healthy. "To-day, I have every attribute of a degenerate a moral idiot." Is it possible that the crimes, instead of being the result of these abnormal conditions, are, in themselves, the occasion of degeneracy? . . . within the past few months these defects have increased with startling rapidity; as is made known to me by each succeeding examination," etc.

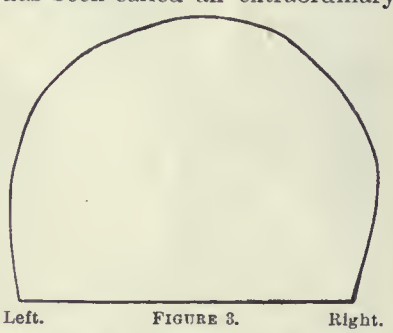
Holmes was examined ten years ago, not to ascertain stigmata but for life insurance, and the Bertillon system was not used at all since only criminals are thus examined, for identification. When these examinations are made, only one arm, finger and part of the body are measured, and not both sides for comparison.

While I was making my examination, I called his attention to a number of deformities which he was not aware he possessed.

Being a medically educated man, he certainly should have been better acquainted with these malformations, but he had evidently given this subject little attention since he was quite ignorant of the cause of two most marked deformities: The too deep depressions in the left frontal and occipital region of the head. These he claimed were due to a brick falling upon him at the age of 30. The marked deformity of the chest walls he claimed to be due to pneumonia.

Both deformities were stigmata of degeneracy. Holmes, since his confinement, had no doubt lost flesh, which made these deformities appear more prominent. That they had developed as a result of his criminal tendencies is perfectly absurd. They must have developed with the osseous system, which would be complete by the 26th year; nor will acromegaly account for them.

Holmes has been called an extraordinary criminal,



Left. FIGURE 3. Right.

but he certainly was no more of a criminal than Wainwright,[1] who was well known in his time as an essayist and better as a forger and murderer. From the standpoint of literary and artistic culture Wainwright stood higher than Holmes. Like Holmes, he attempted to defraud insurance companies and there is no doubt he poisoned a girl for this purpose. Holmes' habitual criminality was modified by his education and antecedents. He had sufficient ability and self-control to successfully pass for a respectable citizen and to keep his criminal transactions so distributed as to territory and covered that only the self-interested perseverence of a life insurance company prompted by a hint from an ex-prison acquaintance could reveal them. His mental defects, so far as they existed, seem to have been confined to his moral sensibilities. He apparently had none of that sense of moral dictation which is a part of the constitution of every normal individual. He acted entirely as an egotist, perfectly capable of appreciating the possible immediate consequences of his acts and more than ordinarily expert in managing in one way or another in avoiding them, but utterly lacking in even the utilitarianism commonly expressed in the old adage that honesty is the best policy. While the murders have mainly created his popular reputation, they were but incidents in his consistent criminal career. He had

[1] See Havelock Ellis' "The Criminal." p. 13.

no regard for others' rights or lives. Doing away with a mistress or a confederate when she or he become inconvenient was an easy matter to him. His education, his dissecting-room training and subsequent specialty helped to remove original superstitious fears that might restrain the average criminal. He seems to have been utterly lacking in any lasting or sincere affection or attachment. A man who could deliberately desert successively two wives with their children would be capable of abandoning others whose relations were less intimate.

Havelock Ellis remarks[2] that whatever refinement or tenderness of feeling criminals attain to reveals itself in what we should call sentiment or sentimentality. One of the characteristics of Wainwright's essays is their sentimentality. Himself, when in prison, he described as the possessor of "a soul whose nutriment is love, its offspring art, music, divine song and still holier philosophy." This sentimentality cropped up in Holmes in the letters to his first wife whose pathetic nature so impressed his counsel. It was also shown in his successes with women.

Holmes was certainly a degenerate physically, as the numerous stigmata he bore proved, but he was not more of one than many moral men and good citizens. There was, with the defects, undoubtedly a certain defectiveness and want of balance of the nervous system, but it can not be said that this necessitated the career he chose. If he were a "born criminal" it was not evident till after he had passed his minority and his moral imbecility did not apparently reveal itself to any very striking extent during his boyhood. He followed the course of many young men, who, on leaving the associations and restraints of home fall into evil courses, only he went farther and under pressure, it may be of want and misfortune, adopted to the fullest extent the anti-social and aberrant career of a criminal. There was, possibly, always a certain defect in his moral constitution which was checked in its effects by the restraints and training of his earlier years and might have been overcome entirely had his will been directed into proper paths. His case seems to be largely, if not altogether one of acquired moral obtuseness, not of complete congenital moral insanity.



FIGURE 4.—Lower.

FIGURE 5.—Upper.

His crimes were apparently all deliberate and cold-blooded. In his arrangement of his building, "The Castle," he made provisions for various kinds of crooked work. Only in this way can be reasonably explained this seemingly crazy piece of architecture. There is no evidence in his record that Holmes was insane in any way except it be morally.

In his apparent disregard for human life he was less peculiar than would at first sight seem. When a man has an object in view, which to him is a supreme motive, nothing will stand in his way. Holmes had no regard for the law if he could avoid its punishments, no conscientious scruples to govern his conduct. The taking of life was no more to him than to the Sultan of Turkey, a hanging judge or a military commander, who will sacrifice a forlorn hope to gain an advantage. It is not so improbable, therefore, that he may have been a more or less wholesale murderer, if he found people in his way. He may have disposed of his victims and regarded it only as an inconvenient necessity. There is nothing in his character to make this intrinsically improbable.

[2] The Criminal, p. 152.

How far he was handicapped morally by his constitution, is a question that can not be decided absolutely, but probably not more than the average criminal, who is generally of a more or less degenerate type.

It has been assumed that his vanity and egotism were excessive and evidence of his abnormal mental constitution. First, however. it ought to be proven that these existed to any such extent as is inferred. This can not well be done from his history. He was not obtrusive in his manner and his very choice of life made it impolitic, to say the least, to such publicity, and in his way he was very politic. He had ample confidence in himself, as was shown by his attempting his own defense. This may be taken as evidence of egotism, but he can hardly be said to have been obtrusively egotistic. His numerous statements in regard to himself were apparently not so much prompted by vanity as by a desire to make a profit from them. This was especially true of his last noted confession, which was one of the best remunerated productions of fiction based on fact that has been brought out in the country.

There was certainly one striking psychologic peculiarity about the man; lying seemed to come naturally to him. He did it sometimes apparently without object. In this, however, he was not altogether unique, but there are marked examples, never in their acts passing over the line of legality.

Summing up the character of Holmes, we would say that he was, first of all, a swindler, a *chevalier d'industrie* and a *roue*. Money and women seemed to be his objects in life, especially the former, and he was perfectly unscrupulous in his methods of gratifying his ruling passions. His professional and general education, which he seems never after the first failure to have attempted to utilize properly, only served to make him the more dangerous and probably aided to make him a murderer as well as a seducer, bigamist, forger and thief. He may have had some congenital deficiency in his moral make-up, but the absolute lack of moral dictation of his later life, was due to or greatly aggravated by his self-chosen environments.

TUBERCULOSIS OF THE MALE GENITAL ORGANS.

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(*Concluded from page 187.*)

Tuberculosis of the testicle and epididymis.—Except in cases of acute diffuse miliary tuberculosis the essential organ of generation in man is seldom the seat of primary tuberculosis. On the other hand, primary localization of the tubercle bacillus not infrequently takes place in the epididymis, when the infection often extends from here to the testicle. There must be vascular conditions or other local predisposing causes which are concerned in determining hematogenous infection of a tubercular nature in the epididymis which are absent or present to a lesser degree in the testicle. The epididymis is more often the seat of acute infective processes which prepare the soil for the bacillus of tuberculosis than the testicles which, to a certain extent, may explain the greater frequency with which primary tuberculosis occurs in the former than the latter. It must also be remembered that in descending tuberculosis from the upper portion of the urinary tract, the epididymis is exposed first to infection, and the patients often succumb to the primary disease and its complications before a sufficient time has elapsed for the testicle to become involved. There still prevails the greatest diversity of opinion among pathologists and surgeons in regard to the epididymis being most frequently affected in cases of urogenital tuberculosis.

Councilman (System of Surgery, Dennis, Vol. i, p. 246) believes that in such cases the most common seat of the primary disease is the epididymis. He says: "It may be confined to this or the testicle may be affected by continuity. The epididymis is converted into a more or less firm, caseous mass. From this the disease extends along the vas deferens, which becomes enlarged, and on section the interior is found to be lined with a whitish caseous tissue. In both the vas deferens and epididymis, the seat of the disease is primarily in the epithelium, and later takes the form of a tubercular inflammation. Seminal vesicles on the same side become affected in most cases, or they may be passed by and the disease appear in the prostate or bladder. Up to this point it is easy to see how the infection has taken place. The extension has been in the direction of the secretion, and the bacilli could be carried along with the secretion. From the bladder the extension is in a direction opposite to the flow of the secretion; with or without any involvement of the ureter, infection of the pelvis of the kidney and of the adjoining kidney tissue takes place. It is probable that the bacilli find suitable conditions for growth in the ureter and grow along the walls, just as on the surface of a solid medium, until the pelvis of the kidney is reached. There is no other way for infection to take place from the bladder to the kidney than along the ureter. There is no lymphatic or vascular connection. The proof that this is the usual route of infection in genito-urinary tuberculosis is shown by the certainty with which the disease can be traced step by step, and the extreme rarity of the disease in females as compared with males. In some cases the disease appears to be primary in the kidney and the infection may take place in an opposite direction."

My clinical experience corresponds with the views of Councilman that in more than 50 per cent. of urogenital tuberculosis the disease has its primary starting point in the epididymis.

We shall see in considering the etiology of this disease that there are many authorities who take the opposite ground and affirm that urogenital tuberculosis most frequently has its origin in the upper portion of the urinary tract.

Etiology.—Aievoli (Eriberto sur la tuberculosi di testiculo ed epididimo. Morgagni, p. 657, p. 728, 1891) made experiments on guinea pigs by injecting into the testicle and epididymis tubercular material and pure cultures of the tubercle bacillus. Only in one case did he find tubercle bacilli in the lumen of the seminal ducts, but in all instances there was produced an inter-canalicular proliferation, so that the walls of the canals were perforated and large masses with caseous centers were found in which pseudo giant cells could be demonstrated. In some places an attempt at cure by sclerosis could be found at the same time, also tubercle production in the vicinity of blood vessels and the interstitial tissue. He believes that such an inter-canalicular tuberculosis is possible without direct inoculation, as the bacilli may reach the interstitial tissue through the lymph stream. The results of these experimental reseaches are closely allied with the observations of pathologists concerning the gross pathologic anatomy of testicular tuberculosis. The disease in the epididymis is caused frequently by a descending infection from the prostate and seminal vesicles, but it may originate in the epididymis primarily, as tubercle bacilli have been found on several occasions in the seminal ducts in healthy testicles in phthisical subjects. The process begins in most cases in the epididymis in the form of conglomerate tubercles which are conspicuous for the number and size of the giant cells. The tubercle elements are derived mostly from the interstitial connective tissue, but part of the product may be furnished by the epithelial cells and other tissues of the seminal ducts. Infection may extend along the urogenital canal from the kidney to the testicle; as a rule, however, tuberculosis of the testicle begins in the epididymis. Sometimes the testicle and epididymis are affected simultaneously in cases of general miliary tuberculosis. "The fact that the spermatic

artery divides when it reaches the epididymis may account for the localization of the disease in the latter organ; the slowing of the blood current always favors bacterial growth. Infection may also occur through the vas deferens. The conditions for localization of the microbes after their entrance into the urethra on their way to the vas deferens, are not so favorable as in the latter organ." (White.)

The predisposing causes are: Inherited soil, antecedent or coexisting disease of the testicle and trauma. The disease begins more frequently in the globus major than the opposite end of the organ. Later the testicle and its envelopes are invaded by direct extension of the infective process from the epididymis to those organs. Age appears to have a positive determining influence in the production of tuberculosis of the epididymis and testicle. Salleron ascertained the age in 47 cases of tuberculosis of the testicle with the following result: 20 to 30 years, 36; 30 to 40 years, 6; 40 to 50 years, 4; 50 to 60 years, 1; total 47.

It appears that tuberculosis of the testicle is most prevalent during the most active period of sexual function, that is, in patients from 20 to 30 years of age. Kocher remarks that the disease frequently occurs in young men soon after marriage. This corresponds with my own personal observations.

Julien (De la tuberculose testiculaire. Arch. Gén. 1890) reports 17 cases of tuberculosis of the testicle in children in the service of Lannelongue. Of these six were less than two years of age; the remaining patients were from two to thirteen years old. Heredity could be traced in four of ten cases. The diseases often appears in the acute form or at least with symptoms of a subacute orchitis. In twelve of these cases the spermatic cord was affected. In four cases the affection was complicated by hydrocele of the tunica vaginalis, and in one case the prostate and vesiculæ seminales were implicated. In children there is little, if any, tendency to the extension of the disease to other organs. The affected organ is generally destroyed either by ulceration or absorption, a complete *restitutio ad integrum* being rare. In spontaneous cases the organ atrophies and is usually covered by a pale, adherent scar. Hutinel and Deschamps (Etude sur la tuberculose des testicules des enfants. Arch. Gén., p. 257, 1891) maintain that tuberculosis of the testicle in children is by no means infrequent. In children the disease occurs most frequently in the form of an acute infiltration. It is seldom a primary affection, but forms a part of a general diffuse tubercular process. The peritoneum especially is frequently involved. The chronic form is often overlooked because it occurs as a chronic, painless induration. Otherwise the disease resembles the same affection in the adults, resulting in caseation and abscess formation. It is only in such cases that the authors favor an operation. The results of castration in children are not encouraging. These authors are more inclined to conservative treatment by local applications and internal medication.

Rintelen (Ueber Hodentuberculose mit Berücksichtigung des Doppelseitigen Auftretens derselben. Inaugural Dissertation, Würzburg, 1881) collected twenty-five cases of double tuberculosis of testicle beside six cases which he saw in Rosenberger's clinic. In fifteen of these sufficiently accurate data could be obtained in reference to the course of the disease. The right testicle was affected first ten times; in the remaining cases the disease commenced in the left testicle. In only one of these cases was the patient less than ten years of age. Three of the patients were from 20 to 30 years old, six from 30 to 40, and fourteen more than 40. Of the last number most of the patients were between 50 and 60 years of age.

Reclus (Du tuberculose du testicule et de l'orchite tuberculeuse. Thèse. Paris, 1876) is of the opinion that tuberculosis of the testicle can exist as a local affection without any tendency to dissemination, local or general. Clinical observation has shown that in about one-half of all cases of testicular tuberculosis pulmonary phthisis is absent, while autopsies show that the lungs are not implicated in about one-third of all the cases. In about 50 per cent. of all the cases the disease is met with in persons before the age of puberty, while it is found in about 2.5 per cent. of all patients suffering from pulmonary tuberculosis in persons over 15 years of age.

As exciting causes most authors enumerate traumatism and chronic gonorrheal inflammation in the posterior portion of the urethra and the epididymis. Cryptorchism is mentioned by Nepveau and Kocher as one of the most potent of the exciting causes. Gonorrheal epididymitis is mentioned frequently as a precursor and often imparts to the tubercular process a very malignant type. Such a case is reported by Birch-Hirschfeld. (Archiv f. Heilkunde, 1871, H. 6.) A soldier, 24 years of age, who was in perfect health, contracted gonorrhea, which led to acute epididymitis. In the course of eight days he died of miliary tuberculosis. Miliary tuberculosis is found in the peritoneum, especially well marked at the internal inguinal ring on the side of the affected testicle; miliary tuberculosis of the pleuræ, lungs, meninges, liver, spleen and kidneys. The epididymis was found transformed into a cheesy mass. In the testicle itself numerous intercanalicular miliary tubercles were found and a few cheesy nodules the size of a pin. According to Salleron (Arch. Gén. de Méd., July and Aug., 1869), of fifty-one cases of tuberculosis of the testicle, four times the testicle was affected, thirty-seven times one epididymis, ten times both epididymes. With the exception of tuberculosis of the remaining genito-urinary organs, he saw tuberculosis of other organs only in one case. Only in two cases did the disease prove fatal. Of forty-seven cases, thirty-six were from 20 to 30 years of age. It will be seen from the statistics that have been quoted that while no age is entirely immune to tuberculosis of the epididymis and testicle, the disease occurs most frequently in men from 20 to 30 years of age, at a time when the sexual organs are in a state of highest physiologic activity. As exciting causes figure most prominently gonorrheal epididymitis and traumatism.

Sir Astley Cooper in his classical work (Observations on the Structure and Diseases of the Testis, London, 1841, p. 162) gives the following pathologic description of what he called scrofulous inflammation of the testis: "Upon examining the epididymis and testis, when affected with this disease, I have found a yellow spot in the former, surrounded with a zone of inflammation. When the spot ulcerates in the center, the matter which it contains is not pure pus, but it is composed of fibrin and serum, with a slight yellow tinge. I have seen such spots in the globus minor, but more frequently seated in the globus major of the epididymis. In the testis there are generally several similar spots, accompanied by the same inflammatory zone; and yellow streaks are also found amidst the

tubuli. Scrofulous abscesses in the testis are sometimes accompanied by a granular swelling, like that which exists in the simple chronic diseases."

That the tubercular nature of the majority of cases of chronic inflammation of the testis has been admitted only for a comparatively short time is evident from a paper written in 1870 by B. Beck (Zur Käsigen Infiltration und multiplen Abscessbildung des Hodens. *Deutsche Klinik*, No. 1 u. 2, 1870). He insisted that it would become necessary to separate from what had formerly been included under the head of scrofulous affections of the testicle some cases which were of a tubercular nature. The tubercular form of orchitis he claimed seldom, if ever, existed as an isolated affection; the complicating tubercular affections in other organs he regarded as an important diagnostic aid in differentiating between the tubercular and scrofulous forms of inflammation of the testicle. Miliary nodules of the testicle he saw only once in the case of a child who died of miliary tuberculosis.

Pathology.—The naked eye morbid appearances of tubercular epididymitis and orchitis are fairly well understood by the mass of the profession. We find there as elsewhere the same retrograde metamorphoses of the tubercular product, coagulation-necrosis, caseation, and in the majority of cases liquefaction of the caseous material, only exceptionally arrest of the disease and calcification of the degenerated products of the tubercular inflammation. Some doubt still remains in reference to the primary starting point of the inflammatory process and the histologic structure of the tubercle tissue and the manner of local dissemination of the disease. Reclus (Du Tubercle du Testicule et de l'Orchite Tuberbuleuse. Thèse, Paris, 1876) makes a sharp distinction between tuberculosis of the testicle and the epididymis. According to this author tuberculosis of the latter nearly always occurs in the caseous form. Occasionally it presents itself in a reticulated form, composed of the sections of the dilated convoluted tubules of the epididymis, the caseous contents of which has fallen out. Very often the vas deferens is affected, but according to Reclus never farther than 5 to 6 ctm. from the epididymis, an observation which does not correspond with the author's experience, who has repeatedly found the entire cord involved from the epididymis to the seminal vesicles.

Reclus recognizes the independent localization of the tubercular process in different parts of the genital tract and places little weight on the descending or ascending theory of the infective process, as he has repeatedly found tubercular nodules of the same age and size in the epididymis and prostate. In 79 cases he examind *in vivo*, he found the disease unilateral in 21, while the seminal vesicles were invariably affected on both sides. That this observation is not entirely reliable becomes very evident from Fenger's case related above. It is generally conceded that the epididymis is much more frequently affected than the testicle because reliance was mainly placed upon the results of clinical examinations. In thirty-four autopsies Reclus found the epididymis affected singly in only seven instances, twenty-seven times simultaneously with the testicle. Tuberculosis of the testicle without a similar affection of the epididymis is an exception, as he found only three such cases in literature. In the testicle the tubercular process is met with either in the form of caseous foci, miliary infiltration, or both forms are combined. The arrangement of the tubercles is usually symmetrical, corresponding to the division of the seminal tubules. The nodules are generally found in the periphery of the organ, while the caseous foci are centrally located. Fibrous tubercles which pursue a chronic course are also found in the testicle. Microscopic examinations have satisfied Reclus that the miliary form can not be separated so easily from the caseous variety as taught by Virchow. With Malassez, he locates the primary nodules in the walls of the seminal tubules, and not as was done by Tizzoni, Gaule and Steiner, in the inter-canalicular connective tissue. He was able to remove the nodules when he resected portions of the seminal ducts showing their connection with the ducts. He believes that the process begins in the endothelial envelope which surrounds the tubules, which according to Ranvier, constitutes a continuous sheath of all tubules, and maintains that the interior of the lumen is affected secondarily. During the progress of the disease "granulations composées" are found which can only be isolated with portions of several tubuli seminiferi. While this histologic process is regarded by the author as characteristic of testicular tuberculosis, in the epididymis the process begins in the subepithelial elements of the tubules. The microscopic appearances of tubercle tissue in the parenchyma of the testicle is the same whether the disease occurs as a primary affection, or in consequence of extension from the epididymis. In the primary form the foci are few and large, varying in size from a hazelnut to that of a walnut. During the early stages of the disease the nodules are much firmer than the surrounding normal parenchyma of the organ. The mass is surrounded by a vascular zone. Central caseation, softening, abscess formation and perforation often follow in quite rapid succession. If the disease of the testicle is secondary to tuberculosis of the epididymis the nodules are more numerous and the disease presents more the appearance of an infiltration. The tubercles are found between the seminal tubules which are separated from each other by the tubercular product. The interstitial connective tissue as well as the adventitia are infiltrated with small round cells. The vascularity of the affected part is at first increased, but as the nodules increase in size the vessels disappear in the center and with them the tubules. According to Rindfleisch, only the adventitia disappears, while the propria becomes edematous, but remains and can be identified in the cheesy product for a long time.

Curling (On Diseases of the Testis, Philadelphia, 1878, p. 335) in the later addition of his work has expressed the opinion that the disease is originally developed within the tubules of the testicle, and the result of microscopic examinations have induced him to adopt this view. He continues and says, "Anatomic considerations indeed support the opinion that abnormal nutrition in the cellular contents of the tubes induces the formation of miliary tubercles in their walls without at all negativing the development of tubercle in the intertubular tissue as seen by Virchow, or in the adventitia of the blood vessels as observed by Nepveau. Indeed, the discrepant views upon the matter may be explained by assuming that different observers have regarded what has been found in particular cases as the result of some general law. With reference to this the suggestion of Klebs is valuable. Admitting that in acute miliary tuberculosis where

the dissemination of the virus is effected by the vascular system, the blood vessels and their surroundings are the seat of the tubercles, he has seen preparations by Langhans where the tubercles were in the interior of the tubule, and Klebs adds that "It would be very desirable to ascertain whether this was uniformly the case in the so frequent extension of tuberculosis from the older nodules in the epididymis to the body of the testis."

Salleron (Mémoire sur l'affection tuberculeuse des organes génitaux de l'homme. Archiv Gén. de Méd., July and August, 1869) as early as 1869 observed in his military practice fifty-one cases of tuberculosis of the testicle. The testicle itself was affected only four times, the epididymis on one side thirty-seven times, on both sides nineteen times. Only in one case was he able to ascertain *intra vitam* the existence of pulmonary tuberculosis, a fact which is in opposition to the experience of Curling and Louis, but which he supported by nine accurately reported cases and two autopsies. With the exception of the vas deferens and the seminal vesicles, he found the remaining portion of the urogenital tract free from tuberculosis.

Years ago Friendländer found miliary tubercles in the testicle in cases in which no other organ was found affected. (Sammlung Klinischer Vorträge, 1873). Nepveau (Contribution à l'étude les tumeurs du testicule, Paris, 1872) found miliary tubercles upon the walls of blood vessels in diseased testicles complicating secondary renal and primary pulmonary tuberculosis.

Rindfleisch calls attention to the unusual size of tubercles in tuberculosis of the testicles which, according to his observation, vary from the size of a pin's head to that of a walnut. In the testicle the first infiltration usually shows itself as fibroid tubercle, as a light yellow or grayish white hard and tough nodule in the parenchyma of the organ. In miliary granulations the tubercle appears under the microscope as described by Langhans, in the center a giant cell, around this epitheloid cells, and in the periphery a small round celled infiltration, the cellular elements imbedded in a reticulum of connective tissue. Kocher (Krankheiten des Hodens, Nebenhodens und Samenstranges. Pitha u. Billroth, Bd. III, p. 3, B. p. 273) is also of the opinion that the primary starting point of the disease in the epididymis is in the intertubular connective tissue. The contents of the tubules are increased by proliferation of the preëxisting tissues of their walls. The infection begins most frequently in the globus major and extends from here to the remaining parts until the entire organ is transformed into a hard nodular mass. Cheesy degeneration of the contents of the tubules results in destruction of their walls and coalescence with the intertubular products, when a tubercular abscess forms which frequently ruptures spontaneously.

Gaule (Anatomische Untersuchungen über Hoden tuberculose. *Virchow's Archiv*, Bd. lxix, pp. 64 and 213, 1887) regards tuberculosis of the testicle as a catarrhal inflammation of the epithelial lining of the seminal tubules which leads to stagnation of the secretions and caseous degeneration of the inflammatory product which, owing to the thinness of their walls, are prone to undergo ulceration. According to this author the process begins in the epididymis and later extends to the testicle, where it assumes another character, as the intertubular connective tissue soon takes part in the process of tissue proliferation. In the epididymis the process is apt to remain circumscribed and favorable to the development of a fibrous nodule limited to the interior of a single tubule. While the contents of the nodule may undergo caseation, the existing irritation extends to the adjacent intertubular tissue and gives rise here to fibrous products frequently in the vicinity of the septa. Later adjacent tubules are included in the process and undergo similar changes, constituting the condition described by Reclus as "granulations composées." The local and general dissemination of tuberculosis of the testicle and epididymis are well shown by the observations of Guyon. (Clinique des maladies des voies urinaires à Necker. La Castration pour Sarcocele; Ann. des mal. des org. gén. urin. p. 445, 1891.) He found in twenty-eight postmortems on persons the subject of tubercular disease of the testicle that the lungs were affected in only eleven. In 222 clinical observations on patients suffering from urogenital tuberculosis which he examined during a period of twenty-five years, forty were cases of isolated genital tuberculosis, seventy-four of the urinary organs, and only 108 of combined urogenital tuberculosis. Of forty-two additional postmortems, one was a case of isolated genital tuberculosis, fourteen cases of combined tuberculosis of the urinary organs, and twenty-seven of combined urogenital tuberculosis. Seldom is the testicle or epididymis the only part affected. He believes with Lanceraux that the tubercular process begins very frequently in the vesiculæ seminales. In thirteen cases all of the genital organs were affected. In 127 clinical cases in persons before the age of puberty, suffering from urogenital tuberculosis, the prostate was affected fifty-six times, prostate and seminal vesicles eleven times, the epididymis alone two times, all of the genital organs fifty-eight times. Among these there were two cases in which it could not be positively ascertained that the prostate was involved and the same uncertainty existed in reference to the seminal vesicles in six cases. According to these statistics the course of the disease in men is therefore more in the direction from within outward than from without inward, a fact which Guyon advances as a warning against the too frequent performance of castration. Not infrequently the tubercular affection extends from the epididymis or testicle to the tunica vaginalis.

Simmonds (Ueber Tuberculose der Scheidenhaut des Hodens. *Deutsche Zeitschrift f. Chir.* Bd. xviii, p. 157) made a careful examination of eight tubercular testicles obtained from six patients operated upon in the clinic at Kiel, and postmortem specimens obtained from the hospitals at Hamburg, in all twelve testicles. In eight of these specimens tubercles were found in the tunica vaginalis, in one case the testicle was atrophied, while in three specimens the tubercular process was not far advanced. These cases appear to prove the incorrectness of the statement made by Klebs that the tunica vaginalis is never affected, at the same time they call the attention of the surgeon to the necessity of examining the tunica vaginalis carefully and subject it to operative treatment, if the disease has extended to it in cases of tuberculosis of the testicle treated by castration.

Symptoms and Diagnosis.—Tuberculosis of the testicle and epididymis is a very insidious disease. It is often overlooked by the patient for a long time and frequently erroneously diagnosticated by the physician. In the absence of tuberculosis of other por-

tions of the genital organs and the urinary tract, the disease usually begins in the globus major of the epididymis, much less frequently in the body or opposite pole of the organ, as a hard, almost painless, swelling. During the progress of the disease additional nodules form and very frequently the patient's attention is attracted by a more rapidly increasing swelling, a complicating hydrocele. The absence of any well marked symptoms during the incipiency of the disease is the reason why such cases come so rarely under the care of a surgeon at this time. From the globus major the disease spreads to the body and globus minor and then extends along the vas deferens.

After an elaborate description of the signs and symptoms of scrofula, Sir Astley Cooper (Op. cit. p. 160) gives a very vivid clinical picture of what was then considered as scrofula of the testicle in the following language: "One of the testicles, even in very young children, sometimes becomes enlarged and very hard, but without pain or any other inconvenience, and the disease is accidentally discovered by the parents or servant. In this state of indolent increase it remains for many weeks, months or years, and then, under improvement of the general health, the enlargement subsides and the gland resumes its former state. More frequently it enlarges at the age of puberty, and from that period to twenty years, and not infrequently this disease appears in both testes, marked by the same hardness, and such absence of suffering, that the person does not for a length of time seek any medical aid respecting it. The part is free from pain as well as tenderness. The scrotum is unaffected; its veins are not enlarged; and, but from its bulk, the patient suffers no inconvenience, but even in children, although more frequently at puberty, the inflammation sometimes proceeds to suppuration; this generally occurs within the globus major of the epididymis, but I have known abscesses form in the cauda or small extremity of that organ. The body of the testicle but rarely suppurates, until after the epididymis has ulcerated, when the testis becomes affected and the scrotum puts on a livid hue. Ulceration next ensues, indicating the presence of an abscess, which discharges ill-formed pus and some semen; if after the age, the opening under these circumstances is extremely difficult to heal, continuing for months and even for years before it closes. In some persons one abscess after another forms and discharges, and when one testis has suppurated, if the other has been hard, it is liable to put on the same action, discharges itself and continues equally obstinate, resisting all the means of treatment for a greater length of time. Ultimately the testes diminish, secrete but a small quantity of semen, and they continue to waste until but little of them remains and their function almost entirely ceases." Astley Cooper and his contemporaries had no correct idea of the intrinsic tendencies of tubercular inflammation of the testicle to extend to the remaining organs of the genital tract and the urinary apparatus. The essential clinical features of this disease have been elaborated since their time.

Reclus (Op. cit.) is of the opinion that chronic orchitis and epididymitis are often confounded with tuberculosis. The abundance of interstitial connective tissue produced in the course of these affections leads constantly to progressive atrophy. These conditions are often characterized by a nodular condition of the swelling which resembles so closely tuberculosis. They occur either in the course of an acute, or begin as a chronic process. Usually, however, the swelling is much more marked than in tuberculosis. If the testicle alone is affected it finally is reduced in size to that of a bean behind the normal epididymis. Kocher regards as the most characteristic symptoms of tuberculosis of the testicle and epididymis rapid development of swelling and early softening of the inflammatory product and the absence of acute subjective symptoms. According to this writer the maximum swelling is often reached in eight days, or at least in a few weeks which soon softens and perforates, resulting in the formation of a fistula which may continue for years, the swelling remaining stationary. Kocher's observations in regard to the acuity of the local development do not correspond with the result of my own experience. Such a course is an exceptional one.

Barling (Double Acute Tubercular Disease of the Testis, London *Lancet*, April 9, 1892) describes a case of double galloping tuberculosis of the testicle, an affection to which Duplay called the attention of the profession as early as 1876. The patient was 30 years of age, who five hours after a severe external injury noticed quite a large swelling of one of the testicles. One of the interesting features in this case was the fact that the epididymis was free, the disease being limited to the testicle. In a short time the opposite organ became similarly affected. Examination of the testicles after castration showed in each of them cheesy cavities, a large one in the right and a number of small ones in the left. The immediate vicinity of the cavities was occupied by a dense and greatly increased connective tissue. In one place in a cavity tubercular bacilli were found, but the most patient search did not result in finding giant cells. The whole process was characterized by an infiltration with granulation and epithelioid cells combined with catarrh of the seminal tubules, followed by caseation. I can readily understand that in the event tuberculosis develops in a testicle or epididymis the seat of an injury or antecedent inflammatory disease, that it might in rare cases pursue such an acute course, but in the majority of cases it is noted for its insidiousness and chronicity. The patient's attention is usually first attracted by slight pain or discomfort and tenderness in some part of the gland, generally the epididymis, which on examination is found to be somewhat enlarged, prominent, nodular and indurated. The state of the testicle is often marked by circumscribed effusions of fluid in the tunica vaginalis, the surfaces of this membrane being partially adherent. The disease often remains stationary for months, a year or more. During the course of the disease one of the prominences begins to increase, so as to be observed externally, and to feel more painful and tender; the skin over it becomes adherent, changes to a livid color and ulcerates, when the softened cheesy material is evacuated. The abscess formation is generally followed by a fistula which communicates with the primary tubercular focus. Similar changes may take place in other parts of the testicle, resulting in two or more sinuses leading into the interior of the gland. If all of the tubercular material is eliminated in this manner, the sinuses after a long time may heal, leaving the testicle usually in an atrophied condition. The disease may remain limited to one testicle, or after months or years make its appearance in the opposite organ. As a rule, the vas deferens is early

affected, the infection often extending its entire length in a short time. In primary tuberculosis of both testicles both vasa deferentia may remain intact. The tunica vaginalis is usually implicated in the form of an adhesive periorchitis. As this affection is not attended by any well-marked clinical symptoms, its existence can be surmised by the appearance of hydrocele. The hydrocele, usually of a serous type, may attain a considerable size, but more frequently it is circumscribed. In rare cases the vaginalitis is of a suppurative type, and then makes its appearance under the clinical picture of an acute abscess. Tubercular affections of other organs precede or occur simultaneously with the tubercular orchitis. Next to the vas deferens the disease extends most frequently to the seminal vesicles, next the lateral lobes of the prostate are most frequently implicated. From here the disease is prone to involve the urinary organs, first the bladder, next the ureter, and finally the kidney.

In the differential diagnosis must be considered acute and chronic inflammations of another type and syphilitic affections. In tuberculosis the swelling in the epididymis is usually larger than in other forms of inflammation. Tenderness and pain are conspicuous symptoms in gonorrheal epididymitis, absent or slight in tuberculosis. If any doubt exists in the diagnosis between gumma and tuberculosis the patient should be given the benefit of the doubt, and should be subjected for a sufficient length of time to an active antisyphilitic treatment. The tubercular inflammation is clinically characterized by periodic exacerbations. Examination of the remaining genito-urinary organs for tuberculosis, as well as the more distant organs in which this disease is liable to appear, is absolutely necessary and will often clear up a doubtful diagnosis. In tuberculosis the indurated vas deferens is not tender to pressure and is usually nodular, while funiculitis caused by other forms of infection is attended by pain and tenderness.

Treatment.—The rational treatment of tuberculosis of the testicle and epididymis must necessarily depend on the location, stage and extent of the disease, and the existence or absence of complications. In miliary tuberculosis involving the organs on both sides, the treatment must be supporting and expectant, as in such cases a speedy fatal termination is inevitable from the primary pulmonary affection or diffuse miliary tuberculosis. In tuberculosis involving other parts of the urogenital organs the treatment must be directed accordingly. Tuberculosis implicating the organs on both sides simultaneously, or in succession, is almost positive proof of the existence of an older tubercular process in some other organ, or the extension of the tubercular process along the genital tract beyond the reach of successful surgical treatment. The cases best adapted for successful local treatment are those in which the disease appears as a chronic affection and is limited to the organs on one side, with limited or no extension along the vas deferens. Tuberculosis of the epididymis leads to impotence if both organs are affected. If the disease is limited to one side, function may remain unimpaired. Castration must therefore be regarded as the normal procedure in cases of uncomplicated, unilateral tubercular epididymitis. This statement becomes more apparent and forcible when we consider that reinfection can always occur if the diseased organ is permitted to remain. As positive contraindications to castration must be considered the following:

1. Extension of the tubercular process to parts not within reach of a radical operation.
2. Tuberculosis of both testicles, as the second organ is usually involved by extension of the infection from one to the other through the vasa deferentia.
3. Tuberculosis of important adjacent or distant organs.

Castration may become necessary as a palliative operation for the relief of symptoms in cases where the disease has resulted in the formation of tubercular abscesses and suppurating sinuses. A great diversity of opinion still prevails among surgeons regarding the value of castration in the treatment of tuberculosis of the testicle and epididymis. The results following this operation appear to have been quite at variance in the hands of different operators.

Terillon (Essai Critique sur la traitement de la tuberculisation du testicule. *Bull. Gén. Thérap.*, p. 140, 1882) favors castration, and advises that the operation should be performed before abscesses have formed, as by removing the source of suppuration the general condition of the patient is improved. He regards pulmonary tuberculosis as an absolute contraindication to castration. Simultaneous tuberculosis of the prostate and seminal vesicles may or may not be regarded in the same light, according to circumstances. Richet is nearly of the same opinion in reference to the indications for castration, only he opposes the operation more decidedly when extension of the disease to other parts of the genital tract has occurred.

Stenger (Inaugural Dissertation, Berlin, 1889) gives the result of thirteen cases of castration for tuberculosis of the testicle which occurred in the Royal Clinic at Berlin from 1883 to 1889. Seven of the patients remained free from local recurrence or evidences of infection of any other organ at the time the report was made. In three of the cases tuberculosis of other organs existed at the time the operation was performed, and in the last three cases the final result could not be ascertained. In seven other cases the tubercular product was removed by vigorous use of the sharp spoon, in five with a satisfactory result, and in two pulmonary infiltration existed at the time the operation was performed, which progressed uninfluenced by the operation. From a study of these cases he came to the conclusion that the timely removal of the diseased organ, or a thorough local operation, is instrumental in preventing general infection.

Finkh (Ueber die Endresultate der Castration bei Hodentuberculose. *Beiträge zur Chirurgie*, Bd. ii, p. 407) has ascertained the ultimate results in twenty-nine cases of tuberculosis of the testicle treated in Bruns' clinic at Tübingen by castration. Of these cases the right testicle was affected twelve times, the left eight times, and nine times both testicles were diseased. At the time the report was made in 1886, fourteen were living and free from relapse or tubercular disease of any other organ. Among these were nine in which one testicle was removed and five double castrations. Of those that died, eight succumbed to non-tubercular affections. Of these five were single and three double castrations, the former with a period of immunity varying between three-fourths to twenty-two years, the latter with from five to thirty years. To these must be added a case of double castration in which death occurred twelve days after operation from exhaustion. Six died of tuberculosis, all single castrations, and of these only in one case did the dis-

case extend to other parts of the genital tract. In one case life was prolonged for four years, and against the six who died of tuberculosis stood thirteen who remained well after five years and more. The infected pelvic portion of the cord furnishes, according to this author, no contraindication to an operation, as in seven cases in which this condition was found the result of the operation proved satisfactory. These results are certainly more favorable than those which are obtained by the average surgeon. In my own cases I have frequently observed relapse in unilateral castration, and in two cases of double castration the disease, after a year or two, attacked the seminal vessels, prostate and bladder, and finally death resulted from tubercular pyelonephritis.

It seems to me that the cases are exceptional in which double castration is justifiable. Castration appears to have yielded satisfactory results in cases in which the disease was unilateral and the testicle was removed before the disease had extended to other parts of the genital organs. The reports of a number of cases in which the disease was unilateral and complicated by tubercular vesiculitis, treated by castration and excision of the seminal vesicles and even a portion of the prostate, resulted favorably. In the removal of a tubercular testicle it should be taken for granted that the vas deferens is infected, and as much of this structure as possible should be excised.

Conservative operations of different kinds have been made for a long time in the treatment of the so-called scrofulous testicle. Malgaigne excised caseous nodules with the bistoury; Delpech, Boyer, Velpeau, Bonnet and Bouisson gave preference to chemical caustics, such as chlorid of zinc, caustic potassa and Vienna paste. Later Verneuil recommended the actual cautery which was replaced later by the Paquelin cautery. The use of the thermo-cautery is strongly recommended by Forgue and Reclus (Traité de Thérapeutique Chirurgicale T. ii, p. 912) in cases in which the cheesy deposits are few or single. The same authors are in favor of iodoform-ether injections 10:90 when the affection is more diffuse. A few drops of this solution are injected into each nodule and the little punctures sealed with iodoform collodium. In cases not amenable to conservative treatment they recommend without hesitation castration. I have used for some time parenchymatous injections of iodoform glycerin emulsion during the early stages of tubercular epididymitis with the most satisfactory results. With a small trocar the epididymis is penetrated from end to end and the injection made slowly as the canula is withdrawn. Under moderate pressure from one drachm to a drachm and a half of the emulsion can be injected, thus permeating the affected tissues with the anti-bacillary agent. The injection should be repeated every week or two. If the disease is complicated by hydrocele the fluid should be evacuated and a small quantity of emulsion injected. The pain following this treatment only lasts for a short time. For a few days the swelling increases and tenderness is more marked. The increased tissue proliferation which is excited by the action of the iodoform is a potent element in arresting the extension of the disease and in preventing further degenerative changes in the tubercular tissue.

Terillon (De l'intervention chirurgicale dans la tuberculose testiculaire. *Progrès Méd.*, No. 3, 1886) has given evidement and iodoform gauze tamponnade a fair trial in the treatment of tuberculosis of the epididymis advanced to the stage of abscess and fistula formation, but on the whole he gives castration the preference as he believes evidement, cauterization and drainage as a rule yield only temporary beneficial results.

Keyes (*Annual of the Universal Medical Sciences*, 1892, Vol. III, page 3.) removed by means of the curette the whole tubercular epididymis, a section of the spermatic cord being then found to be extensively ulcerated; an inch and a quarter of that was removed. The function of the testicle had been already destroyed by cheesy foci along its course, and the patient knew he was practically castrated before the operation was undertaken, but he was much more pleased with the result than if the testicle had been removed. The wound healed rapidly by first intention, the relief of the patient being complete.

Villeneuve (*Marseille Médicale*, July 30, 1889) prefers thorough cauterization with the Paquelin cautery to castration in the treatment of tuberculosis of the testicle. He cites cases and defends his position by what appears to be plausible reasoning. Kocher uses the sharp spoon, followed by the application of a solution of chlorid of zinc 1: 4, or repeated applications of the strong tincture of iodin when the disease has advanced to the formation of abscesses and fistulæ.

Lannelongue speaks highly of a solution of a chlorid of zinc as a parenchymatous injection before suppuration has occurred. The injection is made around and not into the tubercular infiltration.

Ozenne (*Gazette des Hôpitaux*, Feb. 23, Aug. 9, 1893) reports success in one case of tubercular epididymitis and favorable progress in a few others, from injections of 10 per cent. solution of chlorid of zinc, after the method of Lannelongue. In the successful case he injected at four sittings in seven different places of the diseased area, 2 drops at each puncture. Moderate, temporary reaction followed. Some months later, one little tubercular nodule remaining, a single injection was given. After the last treatment all active signs of the disease disappeared. From what has been said on the treatment tuberculosis of the testicle it is evident that this subject remains an open chapter. In recent cases of primary tuberculosis parenchymatous injections of iodiform glycerin emulsion or chlorid of zinc deserve a trial. If this treatment does not prove satisfactory after a fair trial, castration should be performed before the disease extends to additional organs. In limited abscess formation the use of the sharp spoon and iodoform gauze tampon may prove efficient, but if the disease resists these measures castration is absolutely indicated. If the disease is bilateral palliative treatment should take the place of a radical operation in the majority of cases. Castration is positively contraindicated when the tubercular affection of the testicle is complicated by tuberculosis of any important internal organ. Simultaneous tuberculosis of the prostate and seminal vesicles does not necessarily contraindicate castration.

Cascarin as a Substitute for Cascara Sagrada.—Cascarin is the active principle of the bark of the rhamus purshiana, and is analogous to, if not identical with, the frangulin contained in the bark of the frangula. Schoenlaub recommends it as a substitute for cascara sagrada in habitual constipation, one to four pills at night, each 0.1 gram. It produces a sure and certain effect, while it never gripes.—*Nouveauv Remèdes*, June 8, from *Swiss Woch. f. Chem. and Pharm.*, No. 12.

MALARIA.

BY ELLSWORTH D. WHITING, A.B.
AURORA, ILL.

(The L. P. C. Freer Prize Essay, Rush Medical College, 1896.)

(*Continued from page 210.*)

In describing the quartan parasite the writer will use as a clinical illustration a patient who came under his personal observation.

Jan. 15, 1896, there appeared before Prof. H. M. Lyman's medical clinic a case of malaria. Judging the case of more than ordinary interest the writer made special investigations, obtained a full history, made as many blood preparations as possible and through the courtesy of Prof. James B. Herrick obtained a thorough physical examination.

Peter A., age 34 years; born in Germany. Came to America fifteen years ago. Lived in Pittsburg five years. Since then has lived continually in Chicago with the exception of short visits to Jamaica, W. I., and Memphis. Single; locomotive fireman by occupation.

Family history—Father and mother dead. Cause unknown. Brother and sister died from a lingering disease. Personal history—regular in habits of eating and sleeping. Drinks whisky, tea and coffee moderately. Previous illness—when twelve years of age had typhoid fever. Twelve years ago had severe cold and spit some blood with great quantity of slimy mucus. Seven years ago while in Memphis had malaria, which easily succumbed to quinin. Two years ago had gonorrhea with swollen testicle. Fourteen months ago had hard chancre followed by adenopathy. No eruption or falling out of hair. Had rheumatism to slight extent.

Present illness: July 4, 1895, while working on a railroad tunnel in Jamaica, was stricken down with severe chill, which lasted one and one-half hours. This chill was followed by a burning fever, profuse perspiration and great prostration. Patient was confined to the bed for one week and had a chill every fourth day during July and August. During September and October about once a week chill would occur every other day. These chills increased in frequency until when he presented himself before the clinic he was suffering from quotidian paroxysms. During the paroxysms patient complains of frontal headaches, dizziness, ringing in the ears, spots before his eyes and pain in the back and limbs. He is weak and complains of dyspnea on exertion. Has taken some quinin, which has had no effect upon the disease.

Physical examination: Jan. 17, 1895, 4 P.M. 1. Height 6 feet. 2. Weight 165 pounds. 3. Body well nourished, very muscular, large boned and well developed. 4. Mind clear. 5. Skin—face, arms, neck and back tanned; says back is tanned from bathing. 6. Eyes, pupil moderately dilated. react to light; movements and retina normal; sclera slightly yellow (examination of the eye was made by Dr. Hinde). 7. Tongue moist and slightly coated, mucous membrane red. 8. Ears normal. 9. Thorax—heart, relative dullness begins at third rib, apex beat one inch inside nipple line in fifth intercostal space. Pulse, regular, strong, full; 60 beats per minute. Very slight systolic murmur over mitral area and pulmonic area. No accentuation of aortic or pulmonic tones. 10. Abdomen—liver slightly enlarged. Relative dullness begins in right border sternum at fifth rib. Flatness begins in mammary line in fifth interspace. In full inspiration these limits are lowered one and one-half inches. In mammary line there is flatness to costal arch. On deep inspiration sharp edge of liver can be felt. In paracostal line flatness extends two fingers below costal arch. 11. Spleen—readily palpable. Dullness begins at seventh interspace. 12. Legs—on right shin is large pigmented scar said to have been produced by a red hot iron. Three pale parchment-like scars higher up upon same leg. On outer aspect of same leg is a linear non-pigmented scar caused by a scythe. 13. Genitals—a nodule the size of a hazelnut is found in left epididymis. 14. Reflexes—normal, no ankle clonos. 15. Sensation normal. 16. Temperature 98.8° F.

Upon microscopic examination of the blood of this patient a very interesting phenomenon was disclosed. Although in small numbers, quartan parasites were present, associated with many tertian forms. This condition illustrates and corroborates the experiments made by Di Mattei, who substituted one type of malaria for another. There is probably little doubt, as this patient was an intelligent man whose word may be relied upon, but that this fever was primarily quartan and that subsequent to the first a second infection was incurred with a group of tertian organisms. The latter parasites upon development, caused the gradual extinction of the quartan forms producing paroxysms peculiar to their type. In the case cited by Di Mattei the extinction of the original type was accomplished in a much shorter time than in this instance. (Plate xv.)

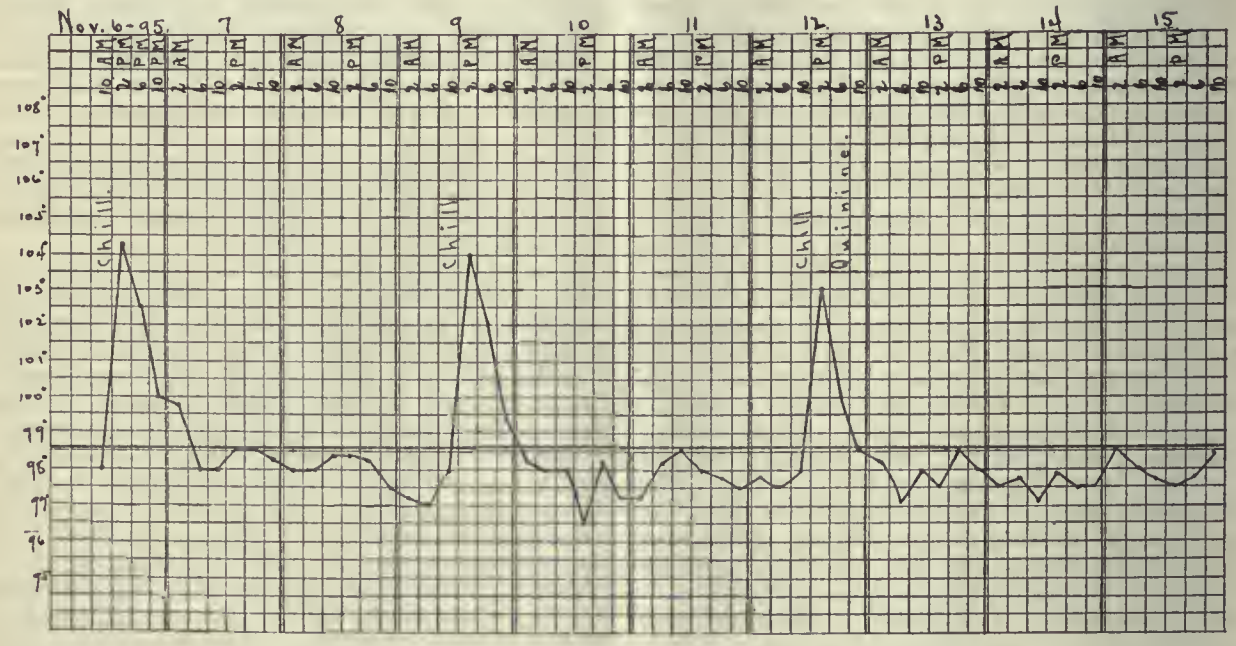


Plate XV.—INTERMITTENT QUARTAN FEVER. TEMPERATURE CHART.

These two types of the parasite, in some cases lying side by side, furnished excellent opportunity for studying their points of difference.

As the tertian organism has been previously described, a description of the quartan will be given by comparing and contrasting the latter with the former.

In the hyalin forms these types can not be differ-

entiated, though the quartan is more refractive and more sluggish in its movements. These appear during and after the paroxysm, as in the tertian. (Plate x, Figs. 1 and 2.)

As the organism grows and pigment develops, the organism as a whole, is much slower than that of the tertian parasite as shown by the length of time required in changing its shape. (Plate x, Figs. 6 and 7.)

As the parasite continues to grow the conditions of

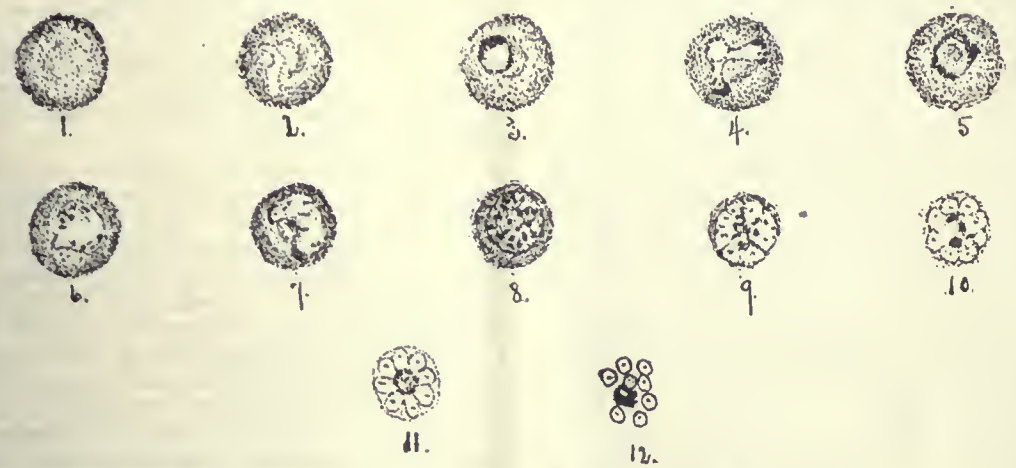


Plate X. The Parasite of Quartan Fever.—1, 2, Hyalin Bodies; 3, 4, 5, 6, 7, Pigmented Bodies; 8, Full grown Organism; 9, 10, 11, Segmenting Forms; 12, Spores. Magnification—Zeiss Obj. 1-12 oil, Oc. 5.



Plate XII. The Parasite of Aestivo-Autumnal Fever; Later Cycle.—1, 5, Free Crescents; 2, Ovoid Body in Corpuscle; 3, 8, Free Ovoid Bodies; 4, 6, 7, Crescents in Red Corpuscles; 9, Spherical Body in Red Corpuscle; 10, Free Spherical Body.

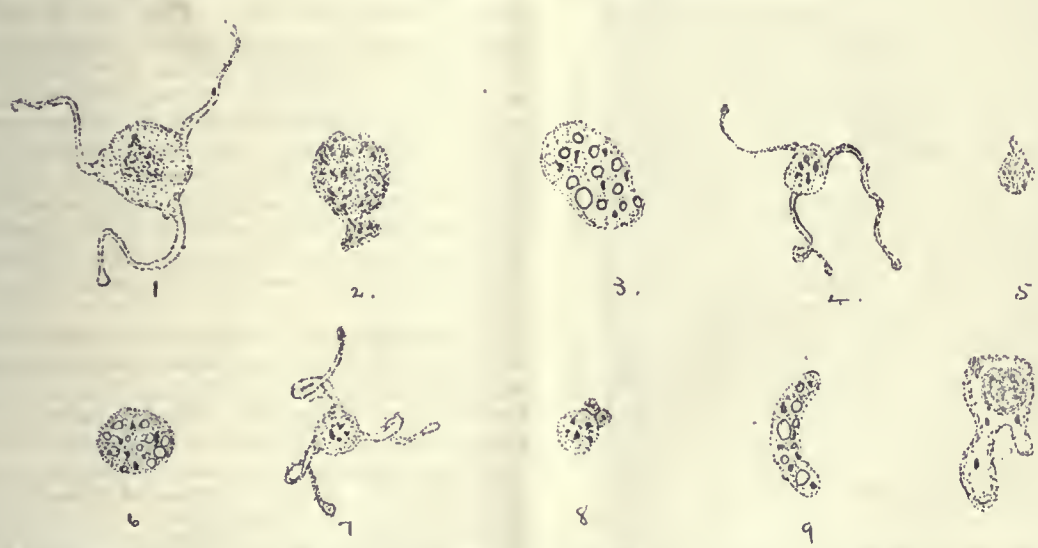


Plate XII. Degenerate Forms (?)—1, Flagellate Body, Tertian; 2, Segmenting Body, Tertian; 3, Vacuolization, Tertian; 4, Flagellate Body, Quartan; 5, Segmenting Body, Quartan; 6, Vacuolization, Quartan; 7, Flagellate Body, Aestivo-Autumnal; 8, Segmenting Body, Aestivo-Autumnal; 9, Vacuolization in Crescent; 10, Phagocyte. Magnification—Zeiss. Obj. 1-12 oil, Oc. 5.

marked differences are seen. In the quartan the pigment granules are exceedingly large and few in number. They are of a brown, almost black, color and possessed of a slow motion. In fact, the movement of the enclosing corpuscle differs greatly from that seen in the case of the tertian organism. Instead of becoming swollen the corpuscle either remains of a normal size or slightly shrinks and instead of becoming

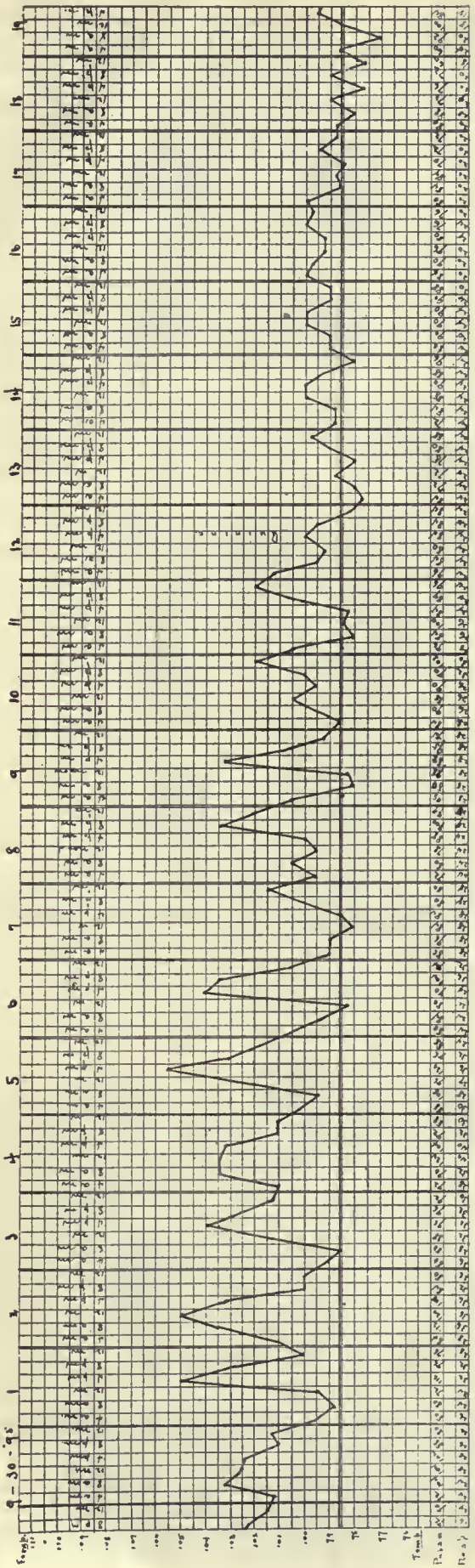


Plate XVII. Remittent Estivo-Autumnal Fever. Temperature Chart.—Chas. F., Cook County Hospital, Ward 4. See also Plate XII.

decolorized takes on, in some instances, a deeper color or a greenish yellow or brassy hue. The difference in degree of refractive power, is more noticeable as the organism increases in size.

The quartan parasite reaches its full development in about sixty-four hours or eight hours before segmentation. It is then round, slightly smaller than the corpuscle, and contains a few granules of pigment, arranged in the periphery of the organism. There is but a thin layer of the body of the corpuscle apparent, which may be overlooked on a casual examination. (Plate x, Fig. 8.)

A short time after the organism has attained the adult form, the pigment becomes motionless and signs of segmentation appear. The manner of segmentation may be similar to that described in the case of the tertian organism. In the segmentation of the quartan organism the rosette forms of Golgi are more often observed. The pigment granules form in a block-like mass in the center of the organism while radiating fibrils of differentiated protoplasm run from the center to the periphery, dividing the parasite into from eight to twelve segments. The segments acquire nuclei and constitute the spores. (Plate x, Figs. 8–12.)

In the case in question many extra-corpuscular forms were present. These were probably degenerate bodies. They were granular, at times crystallin, exceedingly irregular in shape, and contained blocks of pigment, and were often filled with vacuoles.

The flagellate forms found in quartan fever show similar characteristics as those in the tertian and estivo-autumnal types with the exception of greater sluggishness of movement. (Plate xii. Degenerate forms.)

Fragmentation was observed in this case. A pseudopodium was observed to be thrust out from the parasite, filled with slowly rotating pigment. Gradually this portion of the organism was cut away when it assumed a spherical form, the pigment continuing its motion and seeking the periphery. (Plate xii.)

In quartan ague the length of the life cycle is seventy-two hours, and the paroxysms generally appear every fourth day. This rule is not without exceptions as the paroxysms may be caused by different groups of parasites having the same abode, but segmenting at different times. When two groups segment on successive days there is produced paroxysms for two successive days with one day of apyrexia. This is termed double quartan fever. When three groups segment on successive days, a quotidian invasion results which is called "triple" quartan fever. This may be easily mistaken for the ordinary quotidian type when viewed purely from a clinical standpoint.

In his study of the organism of estivo-autumnal fever the writer has been fortunate in procuring specimens from a patient suffering from this disease in Cook County Hospital. The following history was obtained from the records of the hospital:

Charlie F., aged 15 years, born in Chicago, where he has lived all his life. School boy, admitted Sept. 30, 1895. Family history negative. Personal history—does not drink, smokes many cigarettes. Previous history—malaria, no venereal disease. Present history—has been sick three days. Had a chill, headache and diarrhea with anorexia and pain in abdomen.

Physical examination—1. Body—well developed. 2. Skin—face flushed. 3. Eyes and ears—normal. 4. Tongue—dry and coated. 5. Thorax—lungs, resonance imperfect over right lung posteriorly; no râles. Heart—rapid, second beat accentuated, no murmurs. 5. Abdomen—walls rigid, very slight tympany; pain in left iliac region and both hypochondriacal zones; is

covered with brawny, macular eruption; no rose spots. Spleen—not palpable. Liver—normal. 6. Limbs negative. 7. Reflexes—normal. 8. Glands—axillary enlarged. 9. Genitalia—negative. 10. Urine—negative.

Estivo-autumnal ague is exceedingly rare in this portion of the United States, there having been but a few cases in Cook County Hospital in many years. (Plate xvii.)

In this case under observation but few of the hyalin forms could be demonstrated. These forms (Plate xi, Figs. 1–5), however, are more refractive and smaller than those found in the tertiary and quartan forms. They possess ameboid movements, and assume at times a peculiar characteristic ring-like shape. This appearance is probably caused by the thinning out of the central portion of the organism, the corpuscle showing through. Then again, the parasites appear to have contracted into spheres. The shading disappears from the center, appearing at the periphery. In other respects they closely resemble the tertian and quartan types, except that they are not as active as the tertian, but more so than the quartan.

As the organisms increase in size (Plate xi, Figs. 6–9) minute granules of pigment appear in the periphery. These granules are few in number and sluggish in movement. In some instances pigment does not appear during the course of the development of the organism. This type is characterized by its small size, even in the adult stage. In this stage it rarely is more than one-half the size of the containing red corpuscle, which remains normal in size and often changes to the brassy hue observed in quartan fever. The corpuscle eventually becomes crenated and ruptures, setting free the organism. Segmentation may consist in an irregular breaking up of the organism into from ten to twenty segments, similar to that described as taking place in the tertian organism, or the pigment may collect in the center, the process occurring after the formation of the marguerite forms of Golgi. Segmentation takes place most freely in the internal organs, but it may be observed in the circulating blood. (Plate xi, Figs. 10–12.)

The writer was also able to observe in this specimen larger spherical forms with pigment granules collected in a block-like mass in the center. The bodies of these organisms stained faintly with methylene blue. Thayer and Hewetson state that they have often found these organisms from two to four hours before paroxsyms, and have denominated them "pre-segmenting forms."

Later in the course of the disease larger, spherical, ovoid and crescentic bodies appear in the red corpuscles and free in the blood. These forms were especially abundant in this specimen. They were as large or even larger than red corpuscles, the spherical forms completely filling the corpuscle, while the ovoid and crescentic expanded one side of the corpuscle, the remnant projecting as a small segment of a circle from the concavity of the organisms (Plate xii, Figs. 1–10 A). In many cases ovoid and crescentic forms are identical. This may be proven by rolling the corpuscles upon the slide, when the ovoid bodies may be seen to assume a crescentic form. In the colored specimens the corpuscle stained faintly with eosin, the body of the parasite faintly with methylene blue, while the periphery showed a deeper color, thus giving evidence of a double contour. In many instances the periphery of the corpuscle was entirely decolorized, while that portion next the organism still retained some coloring matter. The pigment was generally collected in the form of a wreath in the center of the organism, encircling a light clear space and surrounded by a yellow or golden halo. The granules were very coarse and at times rod-like. These forms have decided ameboid movements. They have been seen to send out pseudopodia which are often cut off and separated from the organism. (Plate xii.)

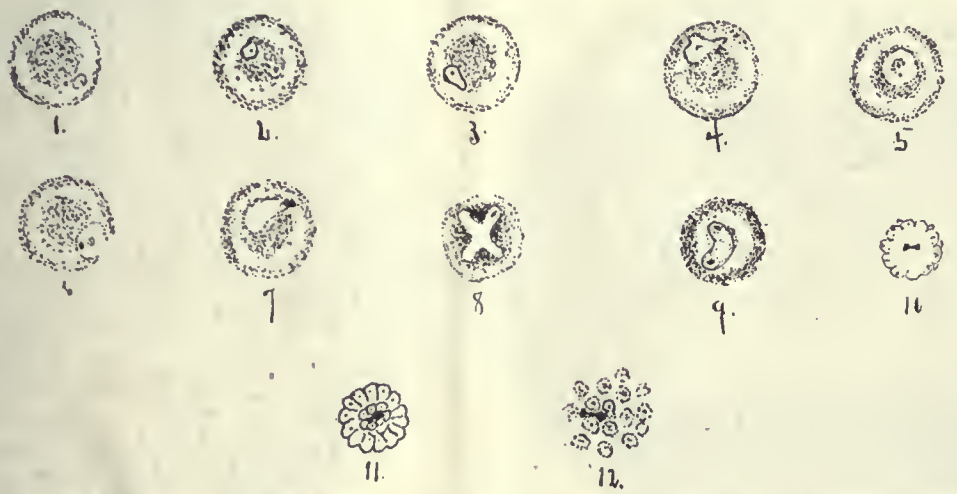


Plate XI. The Parasite of Estivo-Autumnal Fever, First Cycle.—1, 2, 3, 4, Hyalin Bodies; 5, 6, Ring-like and Spherical Bodies; 7, 8, 9, Adult Pigmented Bodies; 10, 11, Segmenting Bodies; 12, Spores and Free Pigment. Magnification—Zeiss Obj. 1-12 oil, Oc. 5.

Owing to the fact that the ordinary forms of malaria are not fatal, postmortem changes in these cases are rarely reported. In fact, the pathologic findings in the mild forms consist in the described blood changes, and an enlargement of the spleen which, in most cases, is plainly palpable. In the pernicious and continuous forms, there is higher mortality, and consequently a greater knowledge as to pathology. Constant changes are present in many internal organs.

On gross examination the spleen is generally increased in weight and size. It may in pernicious cases be reduced in size and weight. This latter condition is explained by the presence of interstitial changes. The capsule is either thick and opaque, or thin and presenting evidence of hemorrhage. The organ is soft in consistency and of a dark brown or reddish black color. It is with difficulty that the Malpighian bodies can be distinguished. (Plates i and ii.)

On microscopic examination, the blood vessels of the spleen appear to be distended, with at times evidence of rupture into the pulp. Thrombi are present, composed of fibrin, red corpuscles, parasites, phagocytes and leucocytes of all types, ranging from the lymphocyte to the giant cell with its budding nuclei. The endothelial cells of the vessels are phagocytic in function, containing all foreign matter found in the macrophages. These macrophages are most abundant in the deeply pigmented pulp and contain degenerated red corpuscles, free pigment, parasites, fragments of hemosiderin, leucocytes and other phagocytes. Thus the peculiar appearance of cell within cell may be observed, and the enclosed cell may, in fact, contain a third.

Macrophages may contain as many as fifty red corpuscles. The pulp cells present a hyalin appearance. They are also phagocytic in function, containing leucocytes, parasites and pigment. In these the pigment granules often assume a very peculiar arrangement. They form dotted lines which, interweaving back and forth in the cell, completely hide the nucleus and at

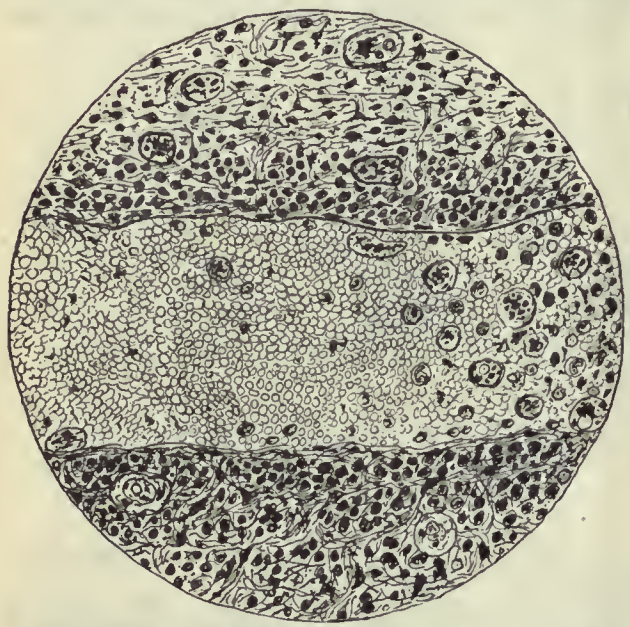


Plate I. SPLEEN.—Figure shows blood vessel containing red and white corpuscles, macrophages, pigment granules and leucocytes. Perivascular tissue shows increase of connective tissue and infiltration with round cells and pigment granules. Zeiss Obj. DD, Oc. 3. Tube length 160 mm.

times even pierce the cell wall. In these mitosis and nuclear pigmentation is often observed. The Malpighian bodies are swollen, and show evidence of lymphoid proliferation. They are, as a rule, comparatively free from pigmentation, but when this does occur the pigment is found in the large cells, surrounding the arterioles. The cells of the pulp cord are often the seat of necrosis, showing evidence of thrombosis. In these necrotic areas, degenerate, vacuolate and fragmenting cells are present.

On gross examination, the liver may be found to be either larger or smaller than normal. It is generally of a slate-gray color and normal as to consistency and weight. The surface is smooth, and the capsule thickened and opaque or thin and translucent, showing beautifully the lymphatic network. On section the color is a bronze or brown. The outlines of the lobules are, as a rule, indistinct, with deep pigmentation about the portal vessels. The small capillaries and bile ducts are often distended.

On microscopic examination under low powers often no pathologic changes are apparent. However, marked dilatation of the inter- and intra-lobular veins and capillaries leading thereto is present. Pigment is generally present. It is commonly found in the periphery of the lobules. It may surround the hepatic vein and swollen capillaries, or be evenly distributed throughout the entire lobule. (Plate vii.)

On examination with higher powers the pigmentation is observed to be most abundant in the hepatic cells and vessels. These cells generally appear granular and swollen. In some areas they are atrophied. When this condition exists it may be accounted for by the presence of dilated capillaries causing pressure. The liver capillaries are engorged and are filled with leucocytes, parasites and pigment granules. The leucocytes contain organisms in all stages. Macrophages are very numerous, varying in size from the large mononuclear leucocytes to cells five times as large. They possess either one or more oval, vesicular nuclei, which stain feebly with nuclear stains. The nucleus is placed eccentrically, as a rule, and although usu-

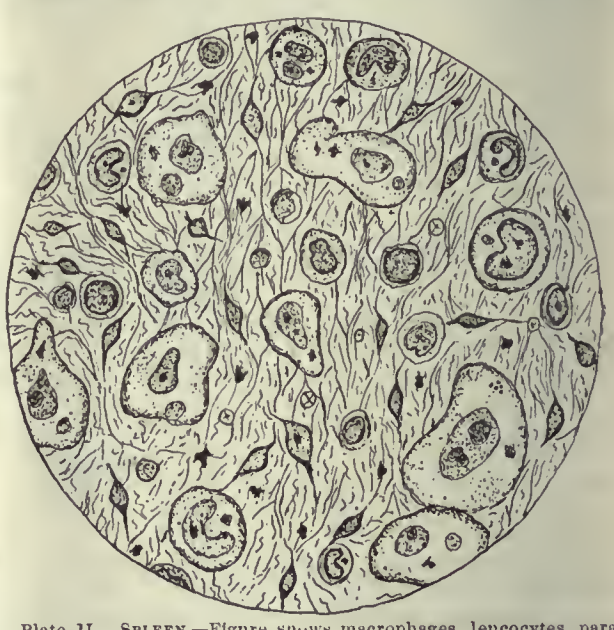


Plate II. SPLEEN.—Figure shows macrophages, leucocytes, parasites, pigment granules and increase of connective tissue. Zeiss Obj. 1-12 oil, Oc. 3. Tube length 160 mm.

ally oval in form, may assume any shape. This is especially true when foreign matter is present in the cell. In some instances the nucleus is entirely absent. The macrophages may contain all of the substances found in the blood stream, and appear more active and capacious than those found in the spleen. The red corpuscles may be normal or degenerate in appearance, and contain simple pigment or the parasite intact. The degenerate forms present the peculiar "globulare rossi attonati" coloration of Golgi, but do not, as a rule, give the reaction for iron. When degeneration has not gone too far, the blue color may be produced with ferrocyanid. Leucocytes found in the macrophages present a degenerate appearance. They are glassy and swollen and show signs of fragmentation and vacuolation, and take but faintly the nuclear stains. (Plate viii.)

The endothelial cells lining the capillaries here, as in the spleen, show marked phagocytic powers. Under the microscope they appear greatly swollen; in fact, at times entirely occluding the lumen of the vessel.

The cells of Kupfer, placed between the capillaries and the hepatic cells, manifest great phagocytic powers, containing great quantities of pigment and presenting a glassy, swollen appearance.

The spaces surrounding the capillaries show marked round cell infiltration.

The parasite, wherever found in the liver after death, appears somewhat shrunken. The arrangement of the pigment is beautifully shown in specimens hardened in alcohol and stained in hematoxylin and eosin.

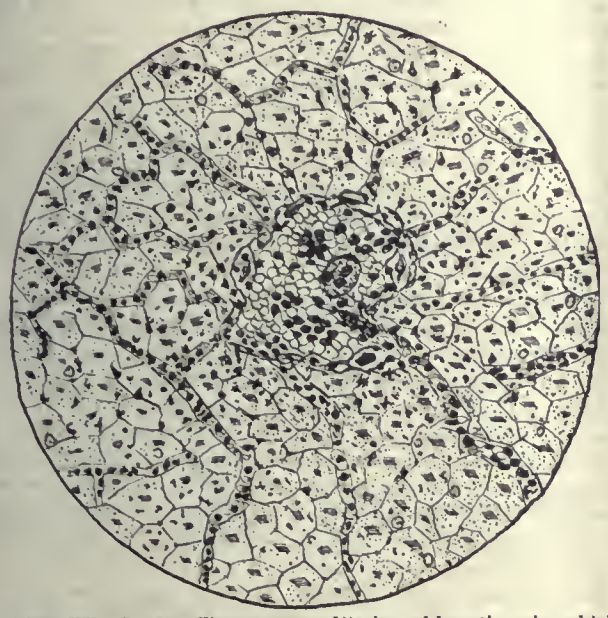


Plate VII. LIVER.—Figure shows dilation of hepatic vein, which contains red and white corpuscles and macrophages. Parasites are seen in and between hepatic cells and in capillaries, where are also many pigment granules. Capillaries are distended and contain many leucocytes. Zeiss Obj. DD, Oc. 3. Tube length 160 mm.

Necrotic areas are common, and are associated with increase of interstitial tissue and proliferation of bile ducts. These changes may be the result of the necrosis, the presence of segmenting parasites or degenerating corpuscles, all of which produce toxic or irritating products.

(To be continued.)

PRACTICAL NOTES.

Sterilization of Syringes.—Hofmeister has found that leather, like catgut, can be effectively sterilized without the slightest injury, by soaking it in a 2 to 4 per cent. solution of formalin and then boiling it. Syringes that screw together instead of being glued or cemented, are better adapted to this method. The water in which they are placed to boil must not be hot enough to crack the glass.—*Cbl. f. Chir.*, July 4.

Experience with Salicylic Medication through the Skin.—Combemale reports nine cases of subacute articular rheumatism, temperature 38 to 38.5 degrees C., successfully treated with salicylic medication through the skin, as described in the JOURNAL, April 25, page 847. The pains were relieved at once; the fever subsided after the first day, and no cardiac complications appeared.—*Bulletin Médical*, July 1.

Nephrectomy with Clamp Forceps Instead of Ligatures.—Bobroff of Moscow recommends compressing the hilum with clamp forceps, instead of ligating it, in extra-peritoneal nephrectomy, which materially shortens the operation. They must be curved and grooved and left twenty-four hours, no longer. The *Cbl. f. Chir.* of June 27, describes the cases and the numerous experiments on animals from which Bobroff and Fedoroff formulated these conclusions.

Intravenous Injections of Water and Strong Salt Solutions.—Bosc and Vedel announce that distilled water is fatal in intravenous injections, either in large doses or small, while ordinary water has no such effect unless over 120 c.c. per kilogram (dog) and 80 c.c. (rabbit) is administered. Instead of diminishing the number of mictions, like distilled water, it increases them and without hematuria. It also raises the temperature from a tenth to one degree above normal. Experiments with 7 per cent. solutions of salt introduced into the vein produced, in large doses, an intoxication like that from strychnin or chloral, with hemorrhages from all the parenchymas and intestines, especially from the meninges.—*Semaine Médicale*, June 24.

Cause of Suppuration with Catgut.—A new theory is advanced to explain the suppuration that sometimes follows the use of apparently sterilized catgut; that it is a chemic instead of a bacteriologic process. The chemic substance that causes it is probably due to decomposition, and therefore only fresh catgut should be prepared in the factory and demanded by purchasers, and further search for efficient antiseptics for this purpose abandoned, as well-made ordinary sublimate catgut has been proved beyond question to be absolutely sterile—*Cbl. f. Chir.* June 27.

Skiagraphy of the Emperor.—It is reported that the left arm of the German Emperor has been "skiagraphed" by the Roentgen rays. The experiment revealed the nature of the malformation, and the result has been submitted to eminent surgeons who believe, it is stated, that a simple operation may give partial, if not complete, use of the hand and arm.

Physiologic Albuminuria.—Serum albumin may appear in urine without any apparent structural change of the renal tissue. It occurs in healthy persons when there is an excess of blood plasma and after too free use of albuminous food. It is produced by conditions altering the blood pressure in the renal vessels; as after taking a cold bath or drinking copiously of cold water. The withdrawal of salt from the food will produce albuminuria, which will disappear when the salt is again given. Proteid metabolism depends on the amount of proteids ingested, for the greater portion becomes changed into circulating albumin. When large quantities of proteid matter have been ingested, what is not appropriated to the sustenance of the system becomes waste material and is thrown off through the excretory channels. It would seem then that albuminuria does not represent a pathologic condition except when it is associated with other and more reliable symptoms.—Dr. L. P. Walbridge in *Med. Mirror*, June.

Effects of Complete Hysterectomy on the Vagina.—Dr. S. C. Gordon says: One of the objections urged to complete hysterectomy is that it has a tendency to shorten and deform the vagina and that it also destroys the arch by removing the cervix which acts as a keystone. By the technique which he employs in hysterectomy, the broad ligaments are constantly drawn up (as soon as cut) by the over and over continuous suture. When the operation is completed by this method, the vagina is elevated above the normal position and closed by the same suture continued from the broad ligament. By this simple operation the vagina is actually lengthened by so much as it is drawn up by the suture. That this condition really obtains he has demonstrated by examinations immediately after the operation. During the past two years he has examined all cases possible that he had previously operated on and found no case of shortening or other deformity; but in two or three cases where the cervix was not removed he found a marked atrophy of the vagina. So far as he has been able to learn from others, their observations agree with his. He believes that the objection is one of theory rather than of actual demonstration.—*Jour. Med. and Science*, July.

Lannelongue's New Treatment of Inguinal Hernia.—Lannelongue presented four boys at the Académie de Médecine recently whom he has been treating with injections of a few drops of a one-tenth solution of chlorid of zinc for eighteen days. The scrotum and inguinal canal are swollen and hard, forming a natural truss to retain the hernia. Even when the boys cough there is no shock in the region. The probabilities are that the vas deferens will remain intact, which time alone will show. The ultimate results of this treatment are awaited with interest.

Formal in Urinary Therapeutics.—The *British Medical Journal* on the above subject quotes Lamarque (Assoc. Franc. pour l'Avancement des Sciences) who states that he has used formal in 1 per cent. solution for washing out the bladder and urethra, and in 5 per cent. solution for instillation in these localities. In acute gonorrhea and in gonorrheal cystitis the results have not been very encouraging; in the chronic gonorrhea they have been better. It is particularly in cases of tuberculous cystitis that the treatment has been successful. The only disadvantage is the pain caused by the drug; this, however, though intense at first, quickly ceases. Daily washings with formal solutions have been effectual in stopping hematuria, relieving pain, and lessening frequency of micturition in cases where every other treatment had failed.

Operation for Eversion of the Lower Eyelid.—Dr. W. N. Thompson describes an operation for eversion, caused by a cicatrix resulting from removal of a tumor from the lid. "I made an incision a little longer than the eversion to be corrected and parallel to the eye just above the cicatrix, and dissected up the integument on either side of the incision, making a dissection much farther under the edges near its ends than at the center, so as to get full benefit of the sliding and elastic properties of the integument near the extremities of the incision. The ends of the incision were then brought together, and its edges held in this new position by sutures, thus changing the original transverse incision to a vertical one, and the distance between the cicatrix and margin of the lid being increased to the length of that of the incision, eversion was corrected and the lid in its proper position."—*Ind. Med. Jour.*, July.

Urobilin and Indican in the Urine.—Urobilin exists in normal urine in small amounts; in acute fevers it is increased four or five times. Typhoid and septic fevers, where there is rapid destruction of blood corpuscles, increase the amount. It is also increased in cerebral hemorrhages, hemorrhagic infarction, retro-uterine hematocele and extra-uterine pregnancy. It is diminished in convalescence from acute diseases, hysteria and nervous diseases. Indican is found in excess in exclusive meat diet, Addison's disease, cholera, carcinoma of the liver, chronic phthisis, central nervous diseases, typhoid fever, dysentery and obstruction of the small intestines.—Dr. M. D. Hoge, Jr., in *Va. Med. Semi-Monthly*, July.

Increasing Uses of Massage.—Our Russian exchanges are advocating the application of massage to the most varied troubles, from chronic heart disease to the ambulatory treatment of diseases of the female genital organs, with which Rubinstein has relieved or cured ninety cases of metritis, oöphoritis and abnormal positions of the uterus. (*Eshenedelnik*, Nos. 44-46.) Dr. Hoadley of Chicago recommends the use of the cannon ball for self-massage in cases of habitual constipation, as suggested by Sahli in 1887. Before rising in the morning and at night, the iron ball (covered with several layers of woolen cloth, the first glued to the ball) is slowly rolled around on the abdomen, following the course of the colon. In many cases this treatment has effected a permanent cure. Any foundry will cast an iron ball for a few cents if a croquet ball or something of the kind is supplied for a pattern, although an improvement upon this is described in the *Deutsch. Med. Wochenschrift* for June 25, the addition of a wooden handle to the ball, which revolves freely in the stirrup fitted to the handle. According to the inventor, Oetker of Oeynhausen, this renders it much easier to manipulate.

Codein and Swabbing the Larynx as Adjuvants to O'Dwyer's Tube in Membranous Croup.—Variot has found the tube effective in conquering the glottic spasm in certain kinds of diphtheritic laryngitis, removing the tube in three or four minutes, and assisting the nervous system to control the tendency to spasm by administering syrup of codein. Bayeux has also found swabbing or scraping the larynx with the tube an effective method of treating very membranous diphtheria. As the tube is introduced the membranes dislodged fill it, and the child chokes, when the tube should be withdrawn. The efforts to cough will then expel the loosened membrane. Some children have recovered after one operation; others have required another to complete the expulsion of the membrane or to conquer the glottic spasm. Out of the twenty-three children treated, nine recovered, three required tracheotomy, and in nine the tube had to be left permanently. There were eight deaths, a mortality of 34.78 per cent. in the twenty-three cases. —*Semaine Méd.*, July 8.

Treatment of Cholera Infantum with Subcutaneous Injections of Serum.—According to Reinach, the treatment of cholera infantum should aim to keep the blood from growing thick and rest the intestines, while supplying strength to the organism. He claims that all these conditions are combined in injections of serum from a horse, as he administered it to fifteen infants, in a dose of ten to twenty cubic centimeters. The effect was remarkable: The collapse passed away, the cyanosis was replaced by the natural color of the skin, the extremities grew warm again, the pulse became stronger, and the temperature rose. This improvement took place in six to seven hours and the child was cured; although in some cases a second dose was necessary. No other medication was given except rice water. The serum produces a fluidity of the blood, while it is at the same time food for the child, as Reinach states that twenty cubic centimeters of the serum contain one gram and a half of assimilable albuminoid substances, equivalent to fifty grams of cow's milk, or 150 grams of mother's milk.—*Rev. Int. de M. et de C.*, June 25 from *Münch. Med. Woch.*

Rheumatic Iritis.—"Rheumatic iritis," says Dr. Crittenden Joyes, "is more serous than plastic, hence we are not so apt to have adhesions as in other forms. The objective symptoms are, pink circum-corneal injection, hazy, aqueous and change in color of iris. The subjective symptoms are impairment of vision, photophobia and pain in the orbital and malar regions, forehead and top of head. The pupil is frequently dilated, but is sluggish in action. The pain is sometimes greater than in other forms of iritis. The prognosis as to vision is better than in other forms; but the duration is apt to be long. Treatment consists of hot water and atropin, together with salol, salicylates, iodid of potash or some other remedy for the rheumatic diathesis."—*American Practitioner and News*, July.

Instrument for Removing Anastomotic Buttons Through the Mouth.—Hagopoff has invented a flexible sound terminating in a bulb, through which is passed a double silver thread ending in a loop at the end of the bulb. It is for the purpose of drawing out through the mouth a thread fastened to the button in gastro-enterostomy. Later when the button is liberated, the sound is reintroduced through the mouth and guided by the thread can be pushed down to the button, and then withdrawn with the thread and the button, as the bulb opens a pathway for the latter. Chaput queries whether the introduction of the sound during the operation will not produce vomiting which might force alimentary matters into the peritoneum. Hagopoff has also invented an anastomotic button similar to Chaput's button, but as yet it has only been tested on cadavers.—*Semaine Médicale*, July 8.

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SATURDAY, AUGUST 1, 1896.

CLIMATE AND HEALTH.

Since the earliest ages it has been a favorite theory that diseases come upon mankind through the medium of the atmosphere; and even at the present day there are to be found some, who assume with SYDENHAM an epidemic constitution of the atmosphere to account for the occurrence of certain wide spread diseases. An enormous amount of work has been done by doctors and others in observing and recording the weather, but very little has been accomplished in the way of collating these observations. It is so easy to observe and place on record, but it requires much time and labor and qualities of a different and higher order to compare and generalize. SAMUEL FORRY of the United States Army collated in 1840 the meteorologic observations made during the preceding twenty years by the medical officers at the various military posts of this country, but since then not much has been added to our knowledge of medical climatology. Accuracy has indeed been given to climatologic data, but their application to concurrent conditions of morbidity has been made only in special instances. Of late years the bacteriologist has stepped in and relieved the medical climatologist of many of his subjects of study. Many of the causative agencies of epidemic diseases have been trailed to their haunts, and although some, such as typhus, yellow and scarlet fevers, smallpox and measles, continue in their old time obscurity the indications are that atmospheric or climatic conditions exercise only an indirect influence, powerful in some instances as in the disappearance of yellow fever on the advent of frost, but at the same time only indirect.

Although the tendency of modern research has thus been to restrict the field of climatologic study the factors of climate continue to have an importance as factors of disease. The influence of heat, cold, moisture and air movement in determining the occurrence of disease is so great that the diseases thus occasioned are known as climatic diseases. A knowledge of these is of the highest importance; and much good was anticipated when the Weather Bureau of the Agricultural Department announced that it had made arrangements for tabulating along with its meteorologic observations the morbidity and mortality statistics obtained from health officers and registrars. *Climate and Health*, the monthly journal issued by the Department was intended to be a repertory of statistic and other information appertaining to climate and its relations to hygiene, from which persons interested in the subject of the influence of the climate and weather upon health might obtain data for making comparisons to determine the relative therapeutic and hygienic merits of different climates. Thus said its prospectus; and from the very energy of the Bureau, which led it to step outside of questions of mere wind and weather, we hoped that a sections of the work, which in a country like the United States of America should be done by a special Department, would be begun by the Weather Bereau and continued by it until Congress should breathe the breath of life into a Department of Public Health with ample powers to carry on its proper functions. *Climate and Health* was begun and carried out successfully. The work met with the earnest coöperation of medical men and health officers. But its last issue has been made (No. 3 of Vol. II for the four weeks ended March 28, 1896, issued June 22, 1896). A doubt as to whether its publication was authorized by the act making appropriation for the Department of Agriculture for the fiscal year ending June 30, 1897 was the cause of its discontinuance. Credit must be given to Professors HARRINGTON and MOORE, who originated and carried out the idea and to DR. W. F. R. PHILLIPS, who has so ably edited the successive issues of the publication. They recognized the needs of the situation and their own possible ability to aid in sanitary work. But this country in matters relating to the health of the people should be independent of volunteer aid of this or any kind. It should have all such work done by men specially assigned to the duty under the direction of a Department of Public Health.

Let us have a Department of Public Health!

THE POISONS OF ALCOHOLIC DRINKS.

It is a very commonly accepted opinion that the injurious effects from the use of alcoholic beverages are due to the adulterations. Many temperance advocates make this a strong reason for not using spirits.

Recently a prominent physician condemned with great severity the use of spirits to which various poisons had been added. He enumerated several of these poisons and seemed positive that here was a source of danger overlooked before. Dealers in spirits have found this an excellent theory from which to prove the purity of their products and the risk of buying others from a rival dealer. A number of enthusiastic reformers have made exhausting chemic analyses to discover these dangerous adulterants, but without any results. One man spent two thousand dollars in procuring samples and analyzing them in New York City, but failed to find anything more than water and some cheap coloring matters. The Massachusetts Health Board examined this theory years ago and gave it up, contenting themselves with the examination of bitters and proprietary drugs and the amount of spirits which they contained.

Notwithstanding the failure to find any of the so-called adulterants, the idea has been kept alive and repeated, as if it was a fixed fact. Recently the profession has been treated with circulars, containing certificates of a chemist who writes M.D. after his name, in which he announces that from a most exhaustive search he has been unable to find any poisons in a certain brand of spirits. Then he volunteers that this was unusual and rarely occurs in the most reputable forms of spirits. A few weeks ago this subject came up before the Royal Commission an Licensing Laws in session in London. This government commission composed of eminent statesmen, physicians and business men, have been taking testimony on all phases of the drink question, with reference to license, from which they will report to parliament the changes advisable and necessary in new laws. DR. BANNISTER, the deputy principal of the government laboratory, was called on to give testimony concerning the causes of drunkenness affirmed to be due to the adulterations of spirits. He stated very positively that in the examination of thousands of samples of spirits, the only adulteration was water. That adulteration of spirits by any other substance was practically unknown. Also that age rendered spirits more harmless was a delusion. The supposed maturing of spirits by which the fusel oil was driven off was untrue. He asserted that there was no difference in the physiologic effects of spirits made ten years ago and to-day. Certain alcohols were the same irrespective of age; also it was a mere question of quantity, not of quality. The alcohols of commerce used in beverages, were nearly all the same and had the same physiologic action. One of the commission was a distiller, and a rigid examination followed, concerning beer and various mixed beverages, which brought out the fact that alcohol was the only poisonous substance in any of these mixtures. Other very curious facts were stated relating to beverages said to be free from alcohol and contain nutrient and medicinal properties which in nearly all cases were fortified with spirits concealed in some form. Physicians who discuss the alcoholic problem and believe in danger from adulterations, will have to abandon this delusion or make some original analysis to prove their statements. Manufacturers and dealers who claim prominence and purity, must do so by showing a small per cent. of water.

Evidently there are many truths to learn in this field.

SANITARY AND INSANITARY PLUMBING.

The *Lancet* (London, Eng.) has just published, July 4, 1896, the results of an elaborate piece of work conducted under its auspices, which will do much to disseminate among laymen as well as among the medical profession a knowledge of the system of pipes usually found in English dwellings for the inflow and distribution of water and its outflow contaminated with all the wastes of the household. Its enterprising management instituted a Commission, which investigated the faulty and dangerous conditions that are most commonly found in city houses and suburban cottages. In its report the Commission has grouped these conditions in a description of three houses, two four-story city dwellings and one suburban villa, with a ground plan of each floor, illustrations of many of the defects and a special discussion in each instance not only of the defect but of the remedial measures recommended. Although faults in plumbing were found to be exceedingly common in city houses, it is not to be supposed that all those represented in either of the two houses given in illustration were discovered in any one particular house. The insanitary conditions found in many houses are grouped under one roof merely for convenience of presentation and discussion. Three reasons are given for the existence of so many insanitary houses. First, the prevailing indifference and consequent ignorance of all classes as to the various sanitary appliances by which they are surrounded. This is being slowly corrected by the gradual education of the public through the greater interest taken in the subject by the medical profession; and this very report of the Commission will be a powerful factor to this end, as it is not intended to confine its publication to the columns of the *Lancet*. It reaches the profession in this way, but it will hereafter be published in book form to permit it to reach householders, architects, contractors and plumbers. The

second reason given for the insanitary conditions discovered is the bad work and cheap materials put into houses by unqualified or unscrupulous men encouraged by the dangerous practice of putting such work up for the competition of all who may choose to tender for it. In the anxiety of contractors to obtain work it is undertaken at prices which would yield no profit if efficiently executed; and when a work is entered upon under such conditions the natural tendency is to seek relief by scamping it in some form. It is positively stated that since the general adoption of the contract system houses are not as a rule substantially finished and the work is not of a satisfactory character. The third reason given is the cost of rectifying insanitary work. Under this heading the profit and loss of the plumber is discussed at considerable length showing how a modest profit can not ordinarily be made legitimately on small contracts. Appended to each of the illustrative examples is a detailed estimate for the alterations recommended, that those who are interested in cost may have a standard of comparison.

Prior to the publication of this report it was submitted to the Worshipful Company of Plumbers, who appointed a committee to consider it. In transmitting the criticism of this committee the company desired that it be not held responsible for the work of its specially appointed committee as the company in its corporate capacity does not take any part in what may be regarded as trade matters, but directs its attention solely to those connected with the training and registration of plumbers. This special Committee considered the reasons given by the Commission for the frequency of bad, defective and insanitary work to be generally correct. It gave approval to the recommendations for new and altered work in the illustrative cases as being consistent with the requirements of modern sanitation and fairly representing the sound plumbing practice of the present day. Finally it characterized the report as "a unique work on the subject of the efficiency and cost of plumbing work, calculated if studied attentively to assist members of the medical profession, sanitary authorities and others in arriving at a more correct judgment than commonly prevails as to the chief causes of the defective and insanitary plumber's work frequently met with and to afford them some useful information as to the cost of plumbing work which is sound in construction and sanitary in character."

The report of the *Lancet's* Commission will be studied with as much interest on this side of the Atlantic as on the other, for many of the defects and faulty arrangements described may be found in our city houses; and the recommendations submitted are in accordance with the views held by our best sanitarians. It is to be observed that while the English soil pipe is of lead and runs along the exterior of the wall of the house the American pipe is generally of iron and is retained inside the wall (on account of our severe winters) until it makes its exit as the house drain. It is to be observed also that the English have an elaborate disconnecting chamber on the drain in place of our fresh air inlet on the house side of the trap. Our English contemporary is deserving of credit for this inquiry and report.

CONSANGUINEOUS MARRIAGES.

One of the questions of medical deontology that still remains in dispute is that of the opinion that should be given in regard to marriages between persons closely related by blood. It is true, physicians are not often consulted on this subject, but their expressed or published opinions carry weight, and are therefore of sufficient importance to deserve some consideration. As it is they are to be had on both sides of the question, both orally given, published in medical treatises, as well as exemplified in actual practice. It may be said to be still an open question, as far as medical authority goes, whether a man should marry his first cousin or not. As regards closer relationship, such as those of uncle and niece, or nephew and aunt, though not a legal barrier in some countries, they would, it may be assumed, be very generally or unanimously considered objectionable in the United States, or at least the greater majority of them.

At the present time the laws of many of the States forbid the marrying of first cousins, but as long as this rule is not universal it really amounts to very little. The question may therefore be put before us practically in any section of the country.

As a recent French writer on the subject, M. Paul Perrin, states, there are three views extant at the present time: 1. That consanguineous marriages are not generally harmful, but may, on the other hand, be actually beneficial to the offspring and the race. 2. That they are always dangerous to both, and should be prohibited by law. 3. That they are dangerous in any case with a family taint, but otherwise unobjectionable. As regards the first of these, M. Perrin decides that it is altogether too extreme a view, and should be rejected at once. The experience indeed of mankind is against it, the statistics of idiocy, insanity, deaf-mutism and epilepsy, to say nothing of those of the inheritance of other diseases and defects, speak strongly enough in its condemnation. Even the intermarriage of persons more distantly related seems to have its perils, and a striking example of them can be found in studying the history of the royal families of Europe, which have nearly all been for centuries intermarrying more or less closely, and which show a record of degeneracy far surpassing that of any equal number of families of the average population. With all due consideration for their numerous estimable and able members at the present

time, there is hardly a single royal family into which it would be good medical advice to counsel an honest citizen of good heredity to marry.

The second view is also too extreme in its statements at least, since there is no question but that there have been many unions between near relations without bad results, and it needs no further consideration.

The third view is after all the only one that is of practical importance, as it involves the forming of an opinion in every individual case. We can admit possibilities in either direction, but in advising for future conduct, one has to weigh probabilities rather than to consider chances more or less remote. If human stirpiculture was on the same practical basis as artificial breeding of the domestic animals, it is easy to see how certain qualities might be cultivated by inbreeding, but even were this possible experience with the lower animals has shown that it impairs the vitality and that as in the vegetable kingdom frequent changes of soil and seed are essential to produce the best results. With the artificial modes of life of civilized mankind we have a still greater probability of the production of degeneracy. The lack of knowledge of hereditary taint is no absolute proof of its non-existence in any case and there are few individuals who are aware of all the degenerative possibilities in their own family histories. When the question arises therefore, as to the advisability of intermarriage in a case where the heredity seems to be good on both sides, an absolutely noncommittal position, as advised by M. Perrin, is a prudent one, and, as in most instances advice against marriage would be at least useless, is probably the only practicable one for the family physician. Where any taint exists, whatever legitimate influence can be used against the marriage should be exerted.

On the whole it would probably be well could the restrictions in force in some of the States against intermarriage of near relations be extended over the whole country.

THE NEW NURSE.

The English journal, *The Practitioner*, has within the past few months devoted considerable of its editorial space to a consideration and criticism of certain aspects or phases of the modern trained nurse. It appears from its statements that in England there has developed a very decided inclination amongst nurses to magnify their office unduly and that the present system of training tends then to produce "not so much nurses, in the proper sense of the word, as a lower order of medical practitioners who may be useful or who may be dangerous, but who in any case are superfluous." The editor pleads for a return to common sense in the training of nurses, and asks what use it is for them to have vague notions of anatomy or physiology in the practice of their legitimate work. The old nurse, he says, was not a thing of beauty altogether, and very imperfectly realized the ideal of a ministering angel, but the new nurse is often too good in her own estimation to confine herself to the humble but useful subordination to the physician that the situation actually demands. The latest editorial, while a continuation of the others, seem to be especially called out by the fact that the first volume of the "System of Medicine," edited by DR. CLIFFORD ALBUTT, contains a contribution on nursing, written by a nurse who thus reverses the professional situation by assuming to instruct physicians.

While in this country the condition of affairs, at least so far as anything is in evidence, does not seem to quite correspond with that in Great Britain in badness, there is yet enough to suggest a little reflection on the part of the medical profession. Human nature is fallible and a nurse's training does not eradicate or counteract all the tendencies to undue self-assertion and overstepping proper limits that a little dangerous semi-medical information would be likely to bring out in many if not in all individuals. With the multiplication of training schools (so-called) for nurses in almost every hospital, sending out diploma'd graduates every year, and the growing appreciation of their services amongst the laity, it is easy to see how the less wise among the nurses might come to have a very decided overvaluation of themselves that might lead to all the grievances of which the British editor complains. Add to this the influence of women's clubs and other female organizations, the unequal inability of doctors to impress themselves on the average female nurse and we have still further possibilities of an American experience of the present trouble of our British medical brethren. Perhaps our salvation will be found in the much greater facility of medical education for women in this country and the consequent abundance of regularly educated female physicians who would naturally resent the more quickly the assumption of what *The Practitioner* calls "doubtful demi semi doctors" of their own sex. The conceited and injudicious nurse is much more likely to be quickly snubbed by the physicians of her own sex who would naturally, under the circumstances, be more jealous of their professional dignity and would lack the masculine consideration that a male doctor might feel toward one of the opposite sex. If this notion is correct we have reason, in view of the English developments, to be thankful for the female physician.

It would be well for us, however, in the active competition of hospital training schools, to give a little thought as to the value of any very elementary instruction in such subjects as anatomy and physiology to the trained nurse, and the possible inconveniences of a little dangerous knowledge that are pointed out by

the English editor. The trained nurse is, as he says, a parasite, in the scientific sense of the word, and can have no legitimate existence apart from the medical profession to which she is subordinate. Any insubordination or assumption of special and independent functions is contrary to her purpose and dangerous to her usefulness.

CORRESPONDENCE.

Typhoid Fever Treatment.

POLAND, OHIO, June 15, 1896.

To the Editor:—I am always glad to have an opportunity to say a word for the Woodbridge typhoid fever treatment. . . I am surpised and amazed at its success. The unusually dry summer of last year in this locality caused our wells to go dry, or nearly so, the average wells not having more than from six to eight inches of water in them, the users exhausting the supply nearly every day. This condition of affairs continued for some time and the few slight rains that we had in the early autumn washed the filth and garbage which had been decaying during the hot summer from the surface of the ground into the wells, and as a result the germs of typhoid infected the water and an epidemic of the fever prevailed in our town of about 600 inhabitants. There were in all about twenty cases. All occurred in families that I treated regularly and it fell to my lot to care for them. I had Mr. Wilson McKeown of Youngstown make an examination of the water these patients had been drinking and he pronounced it to be chemically impure. The cases were nearly all in one street and the wells were undoubtedly fed from one stream as they were of about one depth, eighteen feet. The attacks were of unusual severity from the very onset, temperature rising rapidly and soon ranging from 103 to 103½ in the morning and from 104 to 105 at 6 P.M.

In the twenty cases, all except four had a temperature of 104 to 105 for days together. Delirium manifested itself early in the course of the disease in six of the cases and continued during the height of the fever. Rose-spots were apparent from the seventh to the tenth day of the disease in twelve, in eight this symptom was absent. Cephalalgia was present in all the worst cases and continued from three to five days. Hemorrhage from the bowels occurred in six cases; one had seven hemorrhages; some others from one to four.

Owing to the severity of the epidemic, I did not succeed in aborting the disease in all cases. One had an evening temperature of 105 for eighteen consecutive days, and for three days it did not vary from 105; this was the case that had the seven hemorrhages. For two weeks I did not expect this patient would recover; she was a naturally strong girl of 18 years. During the height of the disease and throughout its long continuance she was able to take a liberal amount of nourishment, which aided materially in tiding over the crisis. The long continued high temperature produced such exhaustion and emaciation that it was six months before she had recovered sufficiently to leave the house and after she was well enough to sit up it was two months before she could walk.

I followed faithfully and carefully the Woodbridge treatment from beginning to end in all of the cases; none died and all are well to-day and following their usual vocations, light of heart and buoyant in spirits, no dregs left behind as in the old method of treatment. I think that had I treated these patients by "the old method" I would certainly have lost five because the disease was of such severity from the onset. I have treated many cases of typhoid fever by this same old method in times past and upon making a careful comparison and taking into consideration the gravity of this epidemic I do not think I have made an over-estimate of what the death rate would have been had I not used the Woodbridge treatment.

My experience during the past two years with this treatment teaches me that to be successful, all directions given by Dr. Woodbridge must be carefully followed. When the clouds are dark, do not allow yourself to be tempted to change methods, but continue the antiseptic abortive treatment to the end, and you will be rewarded by seeing your patients recover rapidly.

I have now treated forty-eight cases by this method and have been successful in every instance. Average duration of illness was eighteen days; average duration of treatment thirteen days. Most respectfully yours,

C. R. JUSTICE, M.D.

Typhoid Fever.

WAVERLY, N. Y., July 20, 1896.

To the Editor:—Although much has been written upon the subject of typhoid fever of late, it seems important that the antiseptic treatment should be fully and extensively discussed. If the results obtained by many observers be verified and sustained by extensive experience, then indeed we have made wonderful strides in the management of this formidable disease.

My experience with typhoid fever during the past thirty-five years has convinced me that it is a self-limited condition or disease, and it seems self-evident that many people are immune to its toxic elements or the condition styled auto-infection, and also the so-called "mixed infection," recovery taking place after the gravest symptoms and without treatment. Many persons seem to be immune against typhoid fever, leading some observers to conclude that the disease is not infectious or contagious. Now does it not follow, if this be true, that some help in the way of rendering the system immune will diminish the ratio of mortality? Dr. Quine says no one should condemn measures claimed to produce this result, and I hold similar views. In surgical practice we realize the importance of internal asepsis in preventing auto-infection, well knowing by experience that ptomains may be developed under conditions of shock, which destroy the patient when the traumatism in itself is not serious. Now, typhoid fever is usually accompanied with symptoms of nervous shock or depression; then does it not naturally follow that some principle of intestinal asepsis will prevent the fermentation, putrefaction or septic conditions which result?

Twenty-five years ago I adopted this view and at once discarded nearly all the usual remedies. I might say all, with the exception of calomel in small and oft-repeated doses during the first few days of the fever, and aconite in small doses to produce diaphoresis when indicated. I discontinued the use of quinin, veratrum, digitalis, iron, stimulants, etc., unless indicated by extreme exhaustion. My treatment thereafter was Merk's lactic acid, usually combined with the syr. lactophos. calcis, of the former two drams and of the latter six ounces; dose, a teaspoonful four times in the twenty-four hours; tinct. aconite in small and oft-repeated doses, when the skin was dry; no other remedies were used as a rule. I seldom saw much tympany or the dry brown tongue, seldom any sordes; why? simply because lactic acid is one of the best antiferments in the world; it prevented putrefactive changes, promoted assimilation, and the results were exemplified by recovery in 95 per cent. of all cases treated during twelve years—more than sixty cases. During the past twelve years I have treated seventy-two cases without any fatality, and in justice to Dr. Woodbridge, I should add that I have, during the past year, combined the carbonate of guaiacol, as recommended by him, with the treatment heretofore mentioned, in twenty cases, with most excellent results; in nine of the latter the disease being checked from the fourteenth to the

seventeenth day from the initial chill. In many of these cases the symptoms for a few days were severe, indicating a grave type of the disease, but almost invariably a lower plane of fever, and a marked amelioration of all the symptoms was established, the tongue and skin becoming moist, delirium diminished or abolished, tympany disappearing and patient sleeping and resting better. Occasional sponging seems to assist materially in restoring the nervous equlibrium; it has not, however, been employed with the object of reducing fever.

I have given the carbonate of guaiacol in 1-6 gr. tablets every hour through the day and three or four times during the night if the patient is often awake, for several days, and every two hours during the day thereafter while the fever continues.

I have observed the usual proportion of hemorrhage and relapses; the antiseptic treatment probably does not prevent either, but I do think it establishes the fact that relapse is not due to reinfection, but rather that the typhoid element is held in abeyance in some of the glands or adjacent lymphatics, manifesting itself after the subsidence of the first attack in a similar manner as zymotic diseases are held in abeyance during the latter period of pregnancy.

The etiology of typhoid seems to be a moot question. Perhaps a majority do not consider it contagious, but the most eminent authorities now, I believe, so consider it, and farther claim that the bacilli are carried in the dust of the atmosphere as well as in water; this I believe to be true, and am equally certain that they are given off in the exhalations from the lungs, but perhaps not to the same extent as by the feces. Now, has it ever been demonstrated that the typhoid bacilli pass safelv through the stomach and enter by absorption the glands, which, by a wise provision of nature, are intended only for expulsion or secretion; is it not a more reasonable theory that they enter some of the unprotected organs and are conveyed through the lymphatics to those glands; does not the mysterious fact that they are found in remote organs tend to establish such a theory? No observer has yet accounted for their presence in such remote organs except by that route. It has always seemed a strange phantasy that the stomach, with its powerful secretion, should not be able to destroy any living organism. It certainly does in the lower animals. Is it not a more reasonable theory that the bacilli which prove virile adhere to the mucous surface of the nose, throat or bronchi, and find their way through the sewers or lymphatics to the intestinal glands and other organs?

I do not claim priority in the antiseptic treatment of typhoid fever, and while Dr. Woodbridge may not have originated such treatment, he certainly deserves a monument for his indefatigable efforts to convince the medical profession of its efficacy and importance. R. SAYRE HARNDEN, M. D.

A Reply to Dr. Donald Maclean's "Open Letter to the Members and Friends of the Medical Professlon (Regular) in Michigan."

DETROIT, MICH., JULY 27, 1896.

To the Editor:—The Michigan Medical Legislation League is the outcome of a series of *public* meetings called (through the newspapers) by the Wayne County Medical Society (regular) for the purpose of enlisting the coöperation of all registered practitioners of medicine in this State, in an effort to secure from the next legislature a law to establish an adequate standard of qualification for all persons who may desire to practice medicine in Michigan in the future. These meetings were composed of all sorts of medical practitioners, many of whom were "Regulars" *good* and *true*. The sentiments expressed in Dr. Maclean's open letter are good; but his sweeping censure of the organization in question, would seem *mal apropos*, because "The League" is merely a *political body*, with no object or purpose except the one set forth, viz: that of *promoting legislation* for the protection of the people from future unqualified practitioners of medicine. The League is *not strictly speaking* a *medical* organization. There is no question of medical ethics involved in the issue before us, and no creed to be assailed or defended. It is no more an "unholy alliance" than a combination of Catholics, Lutherans and Presbyterians would be, when made for the attainment of some secular object. Now, then, as any *person* in Michigan, in possession of any sort of medical diploma, can become a *legalized practitioner of medicine* upon the payment of seventy-five cents; therefore each and every one who has thus registered at the County Clerk's office is upon the *same legal plane!* Thus "before the law" as it now exists, the educated and the ignoramus; the Christian and the Charlatan; the gentleman and the drunkard are each on an equality; and Legislatures, as well as courts, do and always will recognize such vested rights! Our (the regular profession) efforts at convincing the people, and the politicians, of the wisdom of adopting measures which we *alone* promulgate have repeatedly failed, as the history of medical legislation, not only in this State, but in every other State of the Union attests. It is therefore practically useless to attempt the achievement of any medical legislation unless the majority of all practitioners, of all sorts, acquiesce in the movement. Obviously then, it would seem to be the *patriotic duty* of every regular practitioner in Michigan to throw aside Phariseeism and heartily aid this organization in its efforts to promote legislation for the protection of humanity and the elevation of the quality of medical practitioners in general.

The Doctor is in error when he states that there are but *two* regular practitioners on the Executive Committee of the League. On the contrary, there are *five* regulars, three "homeopaths" and one "eclectic."

E. L. SHURLY, M.D.

Legislation League.

DETROIT, MICH., July 25, 1896.

To the Editor:—I was pained to see, in to-day's JOURNAL, a communication from Dr. Donald Maclean opposing the efforts of the Medical Legislative League.

Some of his points are very good. We all admit them; but what shall we do? Dr. Maclean has been at the head of the Legislative Committee of the regular State Medical Society for twenty years, and has never accomplished anything. The number of incompetent and irregular practitioners has steadily increased. Illinois, Canada, Indiana and Ohio, in fact, all the surrounding States, have passed laws to regulate the practice of medicine, and the result is that Michigan has been the dumping ground from the surrounding territory. Shall we continue, or make some effort to limit this?

In the present state of the public mind we can not pass a law favoring regular practice. We must be liberal and take in all those now practicing medicine. By doing that, we can pass a law which will be a great improvement; it will not be perfect, but if we have a start we can easily improve and amend the law, but it is very difficult to get a new law; hence, we have joined hands with everybody calling themselves doctors to get a law passed preventing any ignorant and incompetent physicians coming into the State hereafter. That will be a great improvement. It will give the young men a chance by preventing the intense competition.

It makes no difference to Dr. Maclean or myself how many or how few quacks there are in the State, but it does make a vast difference to the new beginner; hence, I can not see why any reputable, regular physician should oppose this movement, and I am happy to say that it is the overwhelming sentiment of all regular practitioners, of all so-called "homeopaths" and of all the quacks of this State, that the further influx of charlatans and quacks should be checked.

Respectfully yours, J. H. CARSTENS, M.D.

A New Hemoglobinometer.

CHICAGO, July 23, 1896.

To the Editor:—In a paper read by me before the Chicago Academy of Medicine last January (and published in *Medicine* March, 1896) on "Color Measurement and its Application in Medicine and the Arts," I ventured the assertion that the hemometers and hemoglobinometers now in use were decidedly defective, for the reasons then and there set forth. I further expressed my belief that a modification of Lovibond's "tintometer" would be found more accurate and more easy of appliction than any of the instruments (Fleischel's, Gower's, etc.) then in use.

I was at that time conducting some experiments with the tintometer as a measurer of blood tints and promised to relate my experiences with it when those were completed. I subsequently found that Dr. George Oliver had anticipated me in this matter and had, like myself, visited Mr. Lovibond's Color Laboratories at Salisbury, England, for the purpose of investigating certain questions in chromometry.

The result of these investigations has been incorporated in the Croonian Lectures for 1896, "A Contribution to the Study of the Blood and the Circulation," delivered last month by Dr. Oliver. The purpose of the tintometer and especially its value in hemometry are fully described in Dr. Oliver's third lecture, published in the London *Lancet* of June 20 last, and I take the liberty of drawing the attention of the profession to that particular issue.

For the further information of those who are interested in chromometry generally or in that division of it which includes the determination of the chemic constituents of the blood by variations in its color I would say that the agent for the tintometer in the United States is E. B. Meyrowitz, Optician, 104 East 23rd Street, New York. CASEY A. WOOD, M.D.

Albumin Testing.

GREELEY, COLO., July 22, 1896.

To the Editor:—In our JOURNAL of April 11, 1896, p. 732, Dr. J. W. O'Neill describes a new apparatus for the cold nitric acid test for albumin. A more available way, giving a large surface of contact for the urine and acid, with very little mixing of the fluids, is to put the urine to the depth of about half an inch into a beaker of suitable size, *e. g.*, two inches in diameter. Take up about ♏ xlv of the acid with a pipette. Put the point of the pipette down through the urine to the bottom of the beaker and let the acid escape slowly, especially at first. One way to be sure that the acid escapes slowly is to watch the top of the column of acid in the pipette. If this goes down slowly one may be pretty sure that the stream of escaping acid is a gentle one. Close the pipette tight again before taking it out to keep the small amount of acid remaining in the pipette from mingling with the urine.

A little calculation will show that in a two-inch beaker the surface of contact is ten times the size of that in a five-eighths inch test tube, which is the size in the O'Neill apparatus. I think Prof. E. S. Wood of Boston, was the first to point out the advantage of a large surface of contact.

One incidental point about the apparatus here described is that it is cheap and of use for more than this one test.

C. D. NELSON, M.D.

Railroad Rates.

DUNKIRK, IND., July 20, 1896.

To the Editor:—Is it not about time we were agitating the matter of railroad rates to the association. I have been thinking for some time that as a society or association we have been practically ignored by the railroad companies. It is true we have had the very liberal rate of *one and one-third fare*. A party of ten going a hunting or fishing can get such a rate at any time and on any road. Then look at the rates given other society meetings, such as the Christian Endeavor, the B. Y. P. U., etc. Also the great political conventions of the day. Within a few days of our meeting at Atlanta, the rate from Cincinnati was one fare. When we consider that the railroads get so much service from physicians and the only conpensation rendered is an insignificant *pass* over a few miles of road we think it is about time to raise a howl about the rates given to our annual meeting.

And now as our next convention will be held at Philadelphia which is a great railroad center, let us investigate the matter and see if we can not get better rates. Let us hear from others on this subject. Yours very truly,

J. B. GARBER, M. D.

PUBLIC HEALTH.

Poisoned with Belladonna Greens.—A family were poisoned recently in a suburb of Paris by a dish of greens gathered in their own garden and served for dinner. Seeds of the belladonna had been sold to them by mistake for spinach seeds.

Brooklyn Health Report.—During the week ended June 18, there were reported 674 deaths. The death rate was 31.3 per thousand, in an estimated population of 1,125,000. Of the total deaths reported 418 or 62.0 per cent. were of children under 5 years of age, and 333 or 49.4 per cent. were of children under 1.

Compulsory Rest for Working Women after Childbirth.—The *Progrès Méd.* of July 4 states that the laws of Germany, Switzerland, Austria, Belgium and England compel working women to a four weeks' respite from the factory, etc., after childbirth. The Society of Public Medicine and Professional Hygiene is advocating the introduction of a similar law into France, with an allowance from the public funds during the time of compulsory rest.

Germany Officially Investigates Colorado Climate.—Dr. Engel Reimers, chief physician to the public hospital in Hamburg, Germany, has been sent to the United States, and Colorado particularly, to investigate the influence of the climate upon tubercular patients. The doctor believes that the experiments made with lymph and other alleged cures are as naught compared with the outdoor treatment, and that the dry climate of Colorado is ideal for that purpose.—*Col. Med. Jour.*, July.

Water Supply of Allegheny and Pittsburg, Pa.—The report of the bacteriologic examination of the water shows that the three Allegheny samples contained from 1,600 to 6,250 bacteria to the cubic centimeter, while the Pittsburg sample contained 656. The water of Allegheny is much worse than that of Pittsburg, but both are far beyond the limit of safety. These results fully explain the high typhoid fever rate of the two cities.

Boric Acid in Milk.—While the addition of boric acid to milk does not make it poisonous, it produces certain deleterious effects, which should cause its use to be prohibited. Chemically, the presence of borax not only tends to neutralize the development of acids, which takes place during the presence of fermentation, but it precipitates and renders insoluble certain salts contained in the milk which gives to it a portion of its value as an article of food. Beside this, its neutralizing action upon the juices of the stomach tends to retard digestion. Bicarbonate of sodium, so frequently used by mothers and nurses to keep milk sweet, has a similar action.—*Pac. Med. Jour.*, July.

Decision Relative to Local Quarantine.—Judge Albright, Pennsylvania, declares that a municipality may rightly and properly be held responsible for the maintenance of families quarantined by boards of health, because of contagious diseases. In making this declaration the court applies precisely the principle of law which is currently acted upon in all cases

where persons are deprived of their liberty through any legal process. The decision will be most helpful, as well as a wise and prudent determination of a pertinent question. It is sound public policy, and its effects must ultimately tend to secure more complete and valuable quarantine than could otherwise have been attained.

Decision Relative to Rear Tenements in New York City.—Justice Lawrence, in the supreme court, July 20, handed down a decision denying the application of the board of health for the appointment of appraisers to fix the value in condemnation proceedings of certain rear tenements which were ordered vacated by the board. It was asserted in the four cases on which argument was heard several weeks ago that the court could not name the appraisers, as the act under which they were to be appointed was unconstitutional, as it limited the powers of the appraisers within certain lines as to the value they could put on the condemned properties. The decision, while delaying the appointment of the commissioners, is really a victory for the board of health in that the act is practically declared to be constitutional. At the time of the hearing it was admitted by the attorney for the board that certain legal provisions had not been complied with in the petition, and an effort was made to allow the board to amend and let the question go to the court on its constitutionality alone.

Chicago Water Must Be Boiled.—The recent storms in the vicinity of Chicago have caused a dangerous contamination of the water supply of Lake Michigan, by driving the city sewage to every intake crib, from whence it is carried through the mains and used for domestic purposes. An analysis made July 27 of the water shows the following conditions:

Samples from	Free Ammonia.	Albumoid Ammonia.	Nitrates and Nitrites.
Fourteenth St. Station	.001	.012	None
Chicago Ave. Station	001	.008	None
Hyde Park Station	Trace	.010	None
Lake View Station	Trsce	.004	None
Laboratory tap	Trace	.012	None

Samples from	Chlorids.	Oxygen Consumed.	Sanitary Quality.
Fourteenth St. Station	.65	.180	Bad
Chicago Ave. Station	.65	.190	Bad
Hyde Park Station	.65	.230	Very bad
Lake View Station	.65	.190	Bad
Laboratory tap	.65	.170	Bad

Owing to the inadequacy of the pumping facilities at Bridgeport this contamination has existed for over four months, but not to the alarming extent which has been developed during the past week. Under these circumstances it is absolutely dangerous to use the water for drinking purposes without boiling. The Assistant Commissioner of Health Dr. Frank W. Reilly has given an interview setting forth the foregoing facts in the *Tribune* of July 28.

"Spitting" in Indiana.—The Indiana State Board of Health has issued a circular letter to all railroad officials asking them to have ejected from their trains every man who persists in spitting on the floor of the cars or stations after he has been warned not to do so. In the circular the board explains that the sputum contains the germs of la grippe, nasal catarrh, and various other diseases. It also declares that "spitting is a nasty and unnecessary habit," and explains that the Board of Health will pass a rule against spitting which will have all the force of law if the railroads will post it up and endeavor to enforce it. The circular adds: "When the rule is first published and posted up in public places this board will, of course, be loudly abused as foolish, impracticable and idiotic. Attention thus being gained, we will publish in every county reason for the action." Such a reform as the Indiana health officers have undertaken is needed in every part of the United States.

Identity of Croup and Diphtheria Officially Recognized in Quebec.—The following is a portion of an official circular over the signature of Dr. Elzéar Pelletier, the Secretary of the Board of Health of the Province of Quebec. It shows that formal action has been taken by that board placing croup under the same sanitary regulations as diphtheria. "Being informed that a great number of cases of croup escape the control of sanitary authorities, and that it is mostly due to the public being generally under the impression that croup is not a contagious disease, the Board of Health of the Province of Quebec authorizes the publication of the following definitions: Croup is nothing else than diphtheria, attacking more especially the respiratory tract (larynx). The expression laryngeal diphtheria designates better than the term croup the nature of the disease and should be preferably employed. Distinction should always be made between croup or laryngeal diphtheria, which is contagious, and false croup or laryngismus stridulus, which is not contagious. There are no membranes in laryngismus stridulus or false croup. The cough of croupal form which characterizes this disease is due only to a nervous element."

Mortality by Casualty from an Insurance Standpoint.—The *Medical Examiner* reviews the recent publication by the Mutual Life Insurance Company of New York on the above subject. The author, Dr. E. J. Marsh, is the statistical medical director of that company. It says: "The record is very interesting, but, after all, there is no broad principle to be deduced. So many died from railroad accidents, so many murdered, so many suicided," etc. We can hardly agree with the broad statement of the author that "no examination can give any protection from chance of accidental death." In all application blanks questions are asked regarding occupation, environment and physical defects, which, if rigidly and correctly answered, will give protection from chances of accidental death in some cases. That is one reason why they are inserted. The answers to the questions alone will cause the company to decline, provided the answer is such as to show an element of danger. Often an applicant is presented who is perfectly acceptable in all respects, save the possible element of danger from occupation and environments. No company, for instance, would accept a powder or dynamite maker, be he ever so healthy, knowing that any moment he may be blown to atoms, and yet no one but the medical examiner may have conveyed the information to the company. The examination revealed this fact, and, therefore, is a refutation of the unqualified statement of the Doctor in his essay. We fail to discover anything regarding the apparent fact, if it is a fact, that accidents run in families, so to speak. All underwriters have noticed that certain families seem to be destined to die from accidents; it may be one particular kind of accident, or it may be simply from violence. Why is it? Is it because there is a careless trait in the family, or is it due to physical defects in hearing or seeing? Or is it the old doctrine of fatality? Whatever it is, certainly accidents do occur again and again in a family. When this is the case it is best to investigate the applicant presenting the family peculiarly on general principles. The pamphlet is the result of the experience of the company represented and may not be the experience of another. Each company presents its own experience in this respect, and is governed by its own figures.

On Baths for Public School Children.—The *Boston Medical and Surgical Journal*, July 16, advocates the above named innovation, and argues in favor of the School Committee of Boston following German example, by the experimental introduction of shower baths into a school about to be built in the most squalid and congested section of the North End. The writer believes that, even where municipal baths are most numerous and well devised in Europe, the policy of providing special bathing facilities in schoolhouses for the children who resort to them for instruction has developed rapidly in the last decade and is now highly approved. The initial impulse to the wide-spread and admirable system of municipal baths now so common in Great Britain and on the continent is ascribed by the *Boston Herald* to the success which attended

the establishment of Liverpool's first public bath and wash house in 1842. That the Boston School Committee should be forced to consider the question of school baths before even the site of the first of Boston's municipal bath-houses has been determined bespeaks an enhanced and diversified interest in school hygiene in the community. Fortunately the advocates of school shower baths can point to the result of ten years' experiment by school boards in Germany and Switzerland. It would appear from the evidence cited from European experience that school shower baths have proven popular, cheap and efficacious wherever they have been given a fair trial. They are admitted to be very much cheaper, both in respect to original cost and cost of maintenance, than any other form of bath. Being self-cleansing, school shower baths have commended themselves to sanitarians and hygienists as superior to tub baths. If, as is claimed by Dr. Hartwell, bathing and dressing-room appliances adequate for bathing 2,000 children weekly during school hours can be placed in the Paul Revere School at a cost of less than $3,000, we are inclined to think that the School Board will do well to test the matter practically. It is admitted by the education authorities that schoolhouse air in Boston is bad. It is probably as bad in the North End as anywhere in the city. We have little doubt that the comfort, health and efficacy of teachers and pupils in the new school would be greatly enhanced, as a result of the purer air which would be had if the bodies of the pupils who come from "unplumbed" houses were occasionally subjected to a warm shower of water during the winter months.

Health Report.—The following health reports have been received in the office of the Supervising Surgeon-General, Marine-Hospital Service:

SMALLPOX—UNITED STATES.

New Orleans, La., July 11 to 18, 3 cases.
Pensacola, July 11 to 18, 1 case.

SMALLPOX—FOREIGN.

Callao, June 14 to 28, 61 deaths.
Genoa, Italy, June 5 to 12, 1 case.
Gibraltar, June 28 to July 8, 1 case.
Guayaquil, July 3 to 10, 2 deaths.
Hamburg, July 4 to 11, 1 case.
Licata, June 27 to July 4, 3 deaths.
Madrid, June 30 to July 7, 22 deaths.
Matanzas, July 3 to 10, 1 case, 1 death.
Montevideo, June 12 to 19, 1 case.
Odessa, Russia, June 27 to July 4, 11 cases, 4 deaths.
Osaka and Hiogo, June 20 to 27, 49 cases, 20 deaths.
Prague, June 27 to July 4, 2 cases.

CHOLERA.

Yokohama, June 12 to 19, 1 case, 1 death.

YELLOW FEVER.

Matanzas, July 3 to 10, 100 cases, 46 deaths.
Sagua la Grande, July 4 to 11, 59 cases, 7 deaths.
St. Petersburg, June 27 to July 4, 14 cases, 7 deaths.
Warsaw, June 13 to July 4, 7 deaths.
San Juan, Porto Rico, May 1 to 31, 14 cases, 4 deaths; June 1 to 30, 17 cases, 2 deaths.

NECROLOGY.

VINCENT LOMBARD HURLBUT, M.D., died July 24, at his home, 2342 Prairie Avenue, Chicago, Ill., of Bright's disease. Though most of his busy life had been spent in Chicago, Dr. Hurlbut was a native of New York State, where he was born in the town of West Mendon on June 28, 1829. His father was Dr. Horatio N. Hurlbut, a descendant of the Puritans. As a child he moved with his parents, first to the town of Sparin, Crawford County, Pa., and later to Jefferson, Ashtabula County, Ohio. Graduating from the Jefferson Academy, he studied medicine, first under his father at home, and later in a medical college at Cleveland. In 1851 he came to Chicago and entered Rush Medical College, from which he graduated the next year. During the same year he began the practice of his profession and followed it with unflagging application. He soon gained prominence in his profession, and for a generation had been one of the leading physicians of the city. In 1873 he was appointed surgeon of the Woman's Hospital for the State of Illinois, and long held that position. He was a member of the AMERICAN MEDICAL ASSOCIATION, of the State Medical Society, was Vice-President of the Cook County Medical Society. Dr. Hurlbut was a thirty-third degree Mason and one of the oldest and most widely known members of that order in the West. He entered the Blue Lodge in 1860 and took the various degrees until he reached the highest, receiving the thirty-third in Boston in 1864. From 1863–5 he was commander of Apollo Commandery and in 1867 he was made Grand Commander of Illinois. In 1871 he was elected Generalissimo of the order, and in 1877 was chosen Grand Commander of the order at the triennial conclave at Cleveland, Ohio. Notwithstanding his success and honors he was very unostentatious in his manner and his acts of charity were innumerable, ever ready to alleviate suffering and unhappiness. Our genial colleague will also be greatly missed by former habitues of the old Grand Pacific Hotel, to which hostelry he was house physician for over twenty years.

PAUL P. PRENDERGAST, M.D., of Brooklyn died July 10, in the twenty-fourth year of his age, in consequence of an attack of pulmonary tuberculosis that made its onset about one year ago. He was a native of Brooklyn and a graduate in 1894 of the College of Physicians and Surgeons, New York. He was a nephew of Dr. J. J. Prendergast and the late Peter Paul Mahoney, M.C. He had been ailing for about eighteen months from pulmonary symptoms, which are supposed to date back to the time when he was in the hospital. He was very fond of his profession and for six months after the symptoms of his disease were discovered he continued to study in the class of surgeons to which he was attached at St. Mary's Hospital. He was for a time at Seney Hospital. He was also for a time an assistant at the Sloane Maternity in New York. Before his his illness Dr. Prendergast was in good health. He was six feet tall and weighed nearly two hundred pounds. But his health failed to such a degree that it was considered expedient that he should leave the city. He went to Saranac Lake in the Adirondacks, where he spent about a year. He returned home early in the present year and later took a trip to California. While in the mountains of the Pacific coast he contracted what is known as the mountain fever. His health gradually grew worse. He realized his condition and came home to die, a victim to hospital tuberculosis, hastened and fostered by an over-zealous attention to clinical study.

THERON Z. GIBBS, M.D., of Fort Ann, N. Y., was killed early in July, by being struck by a train while he was crossing the track near his home. He was born at Shoreham, Vt., in 1826. He was graduated from the Castleton Medical School in 1853. He practiced in New York State until the breaking out of the war, when he entered the volunteer service as an assistant surgeon of the Fifteenth New York Engineers, becoming full surgeon in 1863; his regiment was then with the Army of the Potomac. He was ex-President of the Washington County Medical Society and had been the health officer of Fort Ann from 1888 to 1890, in which town he had practiced fully thirty years. He was a member of the State Medical and other societies. He had been twice married and is survived by his widow and three children.

WILLIAM A. PIPER, M.D., of Philadelphia died July 6, aged 77 years. He was a graduate from Jefferson Medical College, in 1844.

JAMES THOMAS PETTUS, JR., M.D., of New York City died on July 13, at Reading, Pa., He was a graduate from the College of Physicians and Surgeons, New York, of the class of 1844.

S. H. BOTTOMLEY, M.D., of Chicago July 26, from a complication of kidney troubles. Dr. Bottomley was born in Birmingham, England, fifty-one years ago, and came to Chicago in 1866. He was a graduate of Lind University, and during the Civil War served as a surgeon.

SOCIETY NEWS.

The Central Texas Medical Association.—This association was in session at Waco July 14 and 15. Among the papers read and discussed were "Medical Legislation," by Dr. J. D. Law, and "Hypnotism in Disease," by Dr. R. W. Park.

Chautauqua County (N.Y.) Medical Society.—The annual session was held at Chautauqua July 14 with a large attendance. The following officers were elected for the ensuing year: President, E. S. Rich; vice-president, Morris N. Bemus; secretary, C. A. Ellis.

Medical Society of the County of Clinton, N. Y.—This society held its semi-annual meeting at Plattsburg, July 14. Dr. Henry C. Fisher, U. S. Army, was elected an honorary member of the society. An interesting paper, entitled "Purpura," was read by Dr. Taylor, who also presented a clinical case in illustration.

The Lexington and Fayette County (Ky.) Medical Society meeting was held at Lexington, Ky., July 13, and the following officers were elected for the ensuing year: President, R. L. Willis; first vice-president, J. C. Carrick; second vice-president, J. Y. Oldham; secretary, R. C. Falconer; treasurer, Ed. Green; librarian, N. L. Bosworth.

Oneida County (N. Y.) Medical Society.—A meeting of the Oneida County Medical Society was held at Utica, N. Y., July 14. Dr. Dye presided. Dr. F. H. Peck read a paper on "Ununited Fractures." Dr. Glass reported two cases in which the Murphy button had been successfully used. Dr. A. I. Simmons gave a sketch of the life of the late Dr. Claude Wilson of Waterville. Dr. Smith Baker also paid tribute to the deceased.

Wyoming County (N. Y.) Medical Society.—The annual meeting was held at Warsaw, N. Y., July 14. The following officers were elected for the ensuing year: F. R. Barross of Attica, president; A. E. Ellinwood, vice-president; A. B. Straight of Perry, secretary. Papers were read by Prof. Floyd S. Crego of Buffalo, "Value of Animal Extracts in the treatment of Nervous and Mental Diseases;" James E. Walker of Hornellsville, "Renal Auto-intoxication;" Cordelia E. Greene, "Leprosy on the Hawaiian Islands." The next meeting will be held in Castile the first Tuesday in October.

The XIVth Congress of Internal Medicine in Germany.—A feature of this congress which has been much commended, was the presentation of each address in two parts, one by a physician and the other by a surgeon, who regarded the subject from such different points of view. It was held at Wiesbaden in April. Nothing of an epoch-making character was presented, although Ewald used that term to express his appreciation of Baumann's discovery of the presence of an organic compound of iodin in the thyroid gland, "which gave us our first real insight into its essential elements, and cast in a new mold the application of the thyroid preparations to therapeutics, without contradicting our previous knowledge." "In Baumann's thyroiodin we have secured the long-sought exactness in the amount and strength of doses, and as it contains all the essential elements of the gland, it can be substituted for the fresh, the dessicated and the extracts of the gland." Ewald administers it in very small doses at first, gradually increasing, but always keeping within a daily maximum of ten tablets, corresponding to 3 mgr. iodin. The fact was established once more that the fever of infective diseases is now considered a salutatory reaction of the organism in its struggle with the microbes. The revulsion of feeling in regard to the effect of alcohol in fevers was also noticeable, and the rapid fall of temperature in septic and puerperal fevers after the administration of large quantities of alcohol dwelt upon. Rosenfeld announced that urotropin and urea are efficient in the treatment of uric diathesis, and 5 to 20 grams of urea a day produce no inconvenience. The diet must include cascate of sodium, peptone or aleurone, and meat, fat and sugar be excluded. Uric acid diminished 24 to 70 per cent. under this treatment. Noorden stated that lime combined with a phosphate is eliminated rapidly by means of increased intestinal secretions, and is therefore much to be preferred to sodium and potassium in preventing renal concretions of uric acid and keeping the blood in a neutral state. By avoiding intestinal irritation, the use of four grams a day of monophosphate of lime can be kept up quite a long while.

MISCELLANY.

Trained Masseurs for the French Army.—The war department of France has established three schools where massage is taught as a science to a corps appointed for the purpose. One is at Paris, another at Lyons and the other in Algeria. The course requires six weeks.

Training School for Nurses Wanted in Rio Janeiro.—*O Brazil-Medico* is urging the establishment of a training school for nurses of both sexes at Rio Janeiro, where the articles in the press on the abuses in the National Insane Asylum are now quite in vogue. Buenos Ayres already has a model establishment of the kind.

Rape in Virginia.—Section 3,680 of the code of Virginia defining rape, was amended in March, 1896, substituting fourteen for twelve, as the age of the female affected thereby; extending its application to any female who is an inmate of a deaf, dumb or blind institution who is a pupil therein, and reducing the minimum penalty of confinement in the penitentiary from ten to five years.

Two New French Hospitals.—The one at Clichy was erected through the generosity of Jules Gouin, at an expense of $240,000. It occupies a large square, one side of which is devoted to a model apartment house for working men. The other hospital is at Auteuil, and is chiefly designed for the training of army nurses. There are twenty-five beds, a large garden and an open space in the rear that could be filled with tents in time of war so as to extend the capacity of the hospital indefinitely. It is the work of the Association des Dames Francaises.

The "Laryngoscope."—We have received No. 1, Vol 1, of the *Laryngoscope*, a journal devoted entirely to the consideration of diseases of the nose, throat and ear. The journal intends to fill the niche between the strictly special and the general journals, with that class of physicians who confine themselves entirely to the treatment of the diseases mentioned or who pay especial attention to these troubles while maintaining a general practice. We extend the hand of fellowship to the new journal.

Virulence of Klebs-Loeffler Bacillus Slightly Attenuated by the Action of Roentgen Rays.—The *Prov. Med.* of June 27 (Lyons) reports some experiments with cultures and diphtheria toxins exposed for seven hours to the Roentgen ray. Cultures made and animals inoculated afterward with them showed in each case a slight diminution in the virulence. The bacilli did not develop so rapidly in cultures, and the animals survived four to nine hours longer than those inoculated with toxins that had not been exposed to the ray. It adds that Lortet considers the action of the ray beneficial in augmenting the resisting powers of the animal exposed to it, rather than in impairing the virulence of the microbe.

Our Mexican Exchanges.—The monthly bulletin of the Health Department of Mexico is not the usual dry record of statistics, but a handsome, blue-covered, 32-page pamphlet containing several popularly written and instructive articles on hygiene and the prophylaxis of various diseases, printed with large,

clear type. The statistics are also compiled in a manner that will render great services to science in time. The publications of the Academia Nacional de Medicina are also conducted with great enterprise, and according to modern methods. A special scientific study of the plants of Mexico is now under way, which is already an important contribution to science. Another journal is conducting a special and comprehensive study of the manifestations of tuberculosis in Mexico.

Thrombus of the Labium.—Dr. S. A. Goodwin reports a case occurring after a natural and easy confinement. He says: The mass increased until it had acquired the size of a new-born child's head, exceedingly painful, and extending to the perineum. The labium was everted so that it appeared to be covered externally by the mucous membrane. We applied cloths wrung out of hot water and solution of acetate of lead, and succeeded in keeping it from rupturing. The tumor became dark in color, almost black, and very hard. In three days the tumor was ruptured and contents removed, which was a dark coagulation of blood. The wound healed rapidly, and in five weeks all that remained to indicate any abnormality was the cicatrix.—*Ind. Med. Jour.*, July.

Injured Person's Duty.—In the personal injury case entitled West Chicago Street Railway Co. v. Stephens, the appellate court of Illinois, held, July 1, 1896, certain instructions erroneous which required the plaintiff to show what part of his injuries were attributable to the original cause as separated from those due to the lack of care by him in getting cured of them, as not stating the rule of law in regard to the duty of one who receives an injury is under to take reasonable care that his injuries shall not, by undue neglect, become aggravated, also because such instructions failed to include the element that the plaintiff had knowledge, or reasonable cause for knowing, that he needed better care and attention in getting cured than he gave or caused to be given to himself, and that such increased care and attention were within his means and power.

Experimental Tuberculosis Attenuated by the Roentgen Ray.—Lortet and Genoud report a series of successful experiments with guinea pigs inoculated with tuberculosis in the inguinal region. Three selected at random out of the eight inoculated, were tied to a board on their backs, and the inoculated region exposed to the Roentgen ray for one hour each day, from April 25 to June 18. Ganglionary abscesses developed in the control animals, which discharged spontaneously a whitish suppuration; the inguinal ganglia grew soft and could not be distinguished from the surrounding tissue. The animals also showed great emaciation. On the other hand, the three animals exposed to the Roentgen ray gained in weight; they had no abscesses, and their inguinal ganglia remained hard and distinct, with no tendency to suppuration. These results prove that the Roentgen ray materially modified the acute development of the tuberculous infection, and justify its application to human beings, especially children, with superficial tuberculosis, limited to the pleura, or with tuberculous ganglia in the mesentery.—*Bulletin Médical*, July 1.

New Application of the Roentgen Ray. Fluorescent Screen.—An important advance in the application of the Roentgen ray to medicine is described in the *Semaine Méd.* for July 1. Instead of taking photographs, it is now possible to look directly into the body and see the skeleton with our own eyes. This is accomplished by means of a screen made by gluing a piece of cardboard ½mm. thick, on a pane of glass. A square piece is then cut out of the center, 10x25 cm. and the space thus left on the glass is filled with the finely pulverized chemicals, which we know become fluorescent under the Roentgen ray; double cyanid of potassium and platinum, or double cyanid of barium and platinum. This is covered with another piece of cardboard the same size as the first, enclosing the chemicals. If this screen is held at the cathode end of a Crookes' tube concealed in a pasteboard box or covered with a cloth, the part of the frame that holds the chemicals is instantly illuminated, and a hand interposed between the illuminated frame and the invisible Crooke's tube, becomes transparent, so that nothing but the bones can be seen. Promising results have already been secured by Buka, Roentgen, Salvioli, Lewy, Grunmarch, du Bois-Reymond, etc., who have distinguished the skeleton and organs throughout the body, and diagnosed several cases of arterio-sclerosis, etc., with amazing accuracy. Becher of Berlin adds the suggestion that lime water injected into the stomach or intestines or the introduction of air prevents the passage of the Roentgen ray.—*Deutsche Med. Woch.*, July 2.

Bicycle Riding among Those Having Unsound Legs.—Mr. E. B. Turner, the author of a series of special reports in the *British Medical Journal* on "Cycling in Health and Disease," has not found that this form of exercise is injurious in cases of impaired venous circulation. He says ordinary varix of the lower limbs, however produced is very frequently much benefited by regular cycling, but if the enlarged veins be of considerable size, a stocking should be worn. Out of a very large number of such cases the writer has never seen the slightest increase which could be put down to riding, not even in men who raced long distances on the road and path, while in many cases of infiltration of the skin and varicose eczema, a perfect cure has resulted. A suspender should always be used if the rider has a varicocele, as a protection from injury by the saddle, when the roads are rough and lumpy. Piles diminish and cease from bleeding in a wonderful fashion by the time a few hundred miles have been judiciously covered, and though external masses must remain, they do not as a rule increase.

Complications and Sequelæ of Diphtheria.—The complications are those of extension to or ulceration of the respiratory tract and involvement of other regions from toxin poisoning. Locally there is hemorrhage, due to ulceration, from the nose, throat and bronchi; occasionally petechial hemorrhages under the skin and other skin rashes, especially erythema, appear. By extension of the process or by inhalation of particles of membrane, acute bronchitis, more especially capillary bronchitis, or broncho-pneumonia with atelectasis or gangrene, may develop. Kidney symptoms are common, albuminuria is present in severe attacks; occasionally suppression of urine is present, and rarely, dropsy develops later. Heart failure or fatal syncope may occur at any time during the attack or after convalescence has commenced. Of the sequelæ, paralyses are the most important. They appear usually during the second or third week of convalescence, in from 10 to 15 per cent. of cases. One of the most common is that of the velum palati. Sometimes the eye is involved and strabismus, ptosis or loss of accommodation may result. Facial paralysis sometimes occurs. One of the limbs may be involved. Occasionally multiple neuritis develops.—Dr. Howard Van Rensselaer in *Albany Med. Annals*, July.

Subcutaneous Injections of Artificial Serum in Anemia and Septicemia.—The meeting of the Académie de Médecine, June 30, was chiefly devoted to a discussion of this subject. Péan closed the discussion by remarking that all were evidently unanimous in regarding subcutaneous injections as marvelously effective in hemorrhages and acute anemia, and as a possibly useful adjuvant in septicemia. But as to intravenous injections the few remarkable successes announced here and there are isolated cases, and he believes it is better to return to the subcutaneous method. Pozzi mentioned a case of "veritable resurrection" from death in post-operative septicemia. He strongly advocates subcutaneous injections as effective, harmless and easily administered. Pinard stated that in the Baudelocque clinic they lost every woman in acute anemia from hemorrhages, from 1882 to 1893. Since 1893 he has been treat-

ing these cases with subcutaneous injections of artificial serum and has not lost one of the seventeen presented. He has never had occasion to inject more than 1400 grams in the twenty-four hours. Tarnier has also seen four women revive when they were practically dead from excessive hemorrhages. He has never used the artificial serum in septicemia. Champonnière deprecates the use of enormous injections, and has never found the serum beneficial in septicemia. Porak has used the subcutaneous injections to advantage in eclampsia.—*Bulletin Médical*, July 1.

Patent Medicine Scandal at Bellevue Hospital.— The Boston *Medical and Surgical Journal* for July 2 reports that motives other than scientific have brought to pass a scandal of magnitude, concerning which the medical staff of the hospital concerned has shown a quiescence, if not acquiescence, that apparently merits its condemnation by the profession and the public. It may have been the "fault of Mayor Strong," as has been said, but the staff is not obliged to continue on duty if an outrage is committed against its most sacred principles. The *Journal* says: "Considerable comment has been caused of late by the setting apart of the Commissioners of Public Charities, in spite of the protest of the medical board of the hospital, of one of the alcoholic wards of Bellevue Hospital for the use of a certain physician of New York, but not connected with the institution, who is to treat patients by means of a secret remedy which he claims to have discovered. This physician is Dr. Isaac Oppenheimer, and the curious part of the matter is that up to the present time he has been a regular physician in good standing, being a graduate of the College of Physicians and Surgeons (in the year 1876), a Fellow of the Academy of Medicine and a member of the Medical Society of the County of New York. In the only case that has thus far been made public of which Dr. Oppenheimer had charge the patient, who had been transferred to the Bellevue from the Harlem Hospital, died a few hours after his admission to the ward. In this case, however, the Doctor asserts that the man was suffering from an advanced stage of Bright's disease, and that he made no attempt to treat him with his new "cure."

A Medico-legal Case Affecting a Young German Practitioner.—The *Medical Press and Circular* makes comment on a recent medico-legal case in Germany. The central figure of this case was a young medical practitioner of Spandau, who became qualified in 1893; he was accused of causing bodily injury through negligence. About a year ago a young woman, recently married, presented symptoms of threatened abortion. She consulted two medical men who agreed as to her condition. She then placed herself under the care of the accused, who declared that a harmless operation was necessary. This she consented to, and the operation was performed, with the result that the patient died of hemorrhage two and a half hours afterward. What the operation was is not clear, but it appears to have been a curettement of the uterus, in the course of which perforation of the walls of the uterus took place. As a result of the postmortem examination the young practitioner was accused of culpable negligence. The two principal medical witnesses were the Kreisphysikus, Dr. Reinicke and Prof. Landau. Whilst Dr. Reinicke laid the whole of the blame on the accused, Prof. Landau laid it on "the present state of scientific knowledge and the defective clinical training of students. Operations such as the one in question were not taught practically to young practitioners, and they had to gain their experience from their patients. Moreover, science followed the fashions, and there was a widely-spread school that had given up the plan of observation and waiting, and taught a method of treatment that the witness must characterize as brutal, and must, therefore, lead to brutal consequences. The accused appeared to belong to this modern school; the woman was, therefore, not the victim of his negligence, but the victim of the modern tendency of medicine. The court then requested a written opinion on the matter from Dr. Landau, and at the same time a control opinion, or Obergudachten, from the Royal Medizinal Collegium. It is well to bear in mind that Prof. Landau is not an ordinary professor of gynecology in charge in either of the teaching clinics, but a professor extraordinary with a privilege of private teaching."

American Tenacity.—M. Patenôtre, the French Ambassador, went crabbing the other day at Cape May. He soon caught a crab, and not being familiar with the creature he grasped it with his left hand. Then the crab promptly caught him. The ambassador was evidently both pained and surprised. He instinctively grasped it with his right hand, and the crab in turn seized his right hand. Thereupon the captain of the yacht went to the rescue of M. Patenôtre, who remarked: "Ze tenacity of ze creature is so very much Americaine!"

Oregon Opium Law Constitutional.—In 1887 the legislature of Oregon passed "An act to regulate the sale and gift of opium, morphin, eng-she or cooked opium, hydrate of chloral or cocain." It provides that no person shall have in his or her possession or offer for sale any of the drugs enumerated, who has not previously obtained a license therefor, unless, as it clearly implies, it be obtained on the prescription of some duly qualified physician or pharmacist for medicinal purposes. The license is to be issued only to regularly qualified physicians who keep a stock of drugs and medicines for their own use in prescription, and regularly qualified druggists. This law the supreme court of Oregon holds constitutional, in the case of Luck v. Sears, decided April 27, 1896. Speaking only of opium, it says that it is an active poison, and has no legitimate use except for medicinal purposes, though it is frequently used to produce a kind of intoxication by smoking or eating, a loathsome, disgusting and degrading practice, which results not only in pauperism and crime, but also in the serious impairment of the mental and physical condition of those who indulge in it. The sale and disposition of such a drug, it therefore thinks, may unquestionably be regulated and controlled by law, and whether its nature and character is such that, for the protection of the public, its possession by unauthorized persons should be prohibited, is a question of fact and public policy, which belongs to the legislative department to determine. The discretion of the legislature in the employment of means which are reasonably calculated to protect the health, morals, or safety of the public is very great, and so long, as it does not infringe upon the inherent rights of life, liberty and property, either directly or through some limitations upon the means of living or some material right essential to the enjoyment of life, its determination is conclusive upon the courts. And, while the State can not assume to be the guardian of morals, it has the undoubted power to enact measures calculated for the suppression of such form of vice as threaten its welfare by generating disease, pauperism and crime. No right secured by the fundamental law is interfered with or impaired by this legislation relating to opium, because the possession and use of the drug are not restrained thereby, so as to destroy its value as a remedial agent, its only recognized legitimate use. The principle maintained by some courts that the legislature can not make it a crime to have in one's possession intoxicating liquors, although it may regulate, or even prohibit, the sale and disposition thereof, the court declares has no application here.

Drill Regulations for the Hospital Corps, U. S. Army.—The new drill regulations will probably be issued before this paragraph is in print. The board of officers to whom the revision was entrusted consised of Majors Hoff and Havard and Captain Cabell. The booklet is of the same size and style as the last edition. There is practically no change in the methods of falling

in the detachment, or of marching and maneuvering it without litters: but it is to be noted that officers will not hereafter wear swords at drill, and hospital stewards and acting stewards will wear the belt but no equipment of any kind unless specially ordered. In paragraph 48, which describes the recently adopted hand litter, is the first notable change from the old regulations; and paragraph 49 which formerly read: "One pair of regulation slings is permanently attached to each litter" now reads: "One regulation sling is issued to each private as part of his equipment." On this change is based the material changes in the new drill regulations. With the slings fixed on the handles of the litters the bearers at every command to lower litter had to become unhitched from them and at every lift litter they had to get into harness again and have it adjusted, while in many of the movements the bight of the sling when not on the shoulders of the bearer had to be looked after specially to prevent its getting in the way. With the present individual slings the bearers have merely to slip the loops of the sling on or off the handles when they want to lift or lower the litter, and as the bight is always on their shoulders it is never in the way. This simplifies the drill greatly, and it is in fact a return to the method of the Leavenworth board, published in 1890, the fixed sling now discarded having been introduced in 1893. The illustrations, with the exception of the diagrams for the marchings, are all new. The slings on the men, the new style of army cap and the absence of the large sword bayonet-like knife give the members of the hospital corps an unfamiliar appearance.

Diaphragmatic Hernia.—S. M. Fortier, M.D., reports a case in *N. O. Med. and Surg. Jour.*, July: Patient, a colored male, aged 41 years, states that until two weeks prior to his admission in hospital, he has never been sick. At above mentioned time he was stricken with severe abdominal pain, which necessitated his abandoning work. His condition grew steadily worse, pain more acute, constipation, distension of the abdomen supervening, and exacerbations of vomiting were noted. Examination at the hospital: Conscious and answering questions rationally, but intensely collapsed; abdomen much distended, especially in left hypogastric region. Percussion revealed a tympanitic sound, extending to the lower border of the fourth rib on the left side. Auscultation showed an absence of the vesicular murmur. Auscultation of the opposite lung revealed a supplementary puerile respiration. Heart sounds normal, although rapid and tumultuous; apex beat displaced slightly toward the right. Patient complained of a dull pain in the umbilical region, followed at times by lancinating pains. Dyspnea marked, not persistent and progressive, but coming on in paroxysms. Hiccough, a permanent and distressing symptom, was accompanied, at times, by vomiting. Deglutition, although easy, was followed by immediate vomiting. Any movement on the patient's part would aggravate the symptoms. An enema of soap and water was administered, high up, through the rectal tube, but with no results. The diagnosis of intestinal obstruction was made and the patient transferred to the operating room. His condition was so alarming that it was deemed inexpedient to interfere surgically. Pulse 150; respiration 45; temperature subnormal. The patient was surrounded with cans of hot water and stimulants given. He rallied under this treatment, but died the next day. Autopsy: Great distension of the transverse and ascending colon and cecum was observed. Descending colon collapsed. The obstruction was found to be due to the passage of the colon through the diaphragm, to the left of the median line and behind the central tendon. It was impossible to remove, by traction, the intestines from the thorax, as a previous inflammation, following gangrene of a portion of the strangulated gut, had firmly agglutinated the adjacent structures. The left lung was collapsed, the pleura forming a part of the hernial sac; adhesions were firm, especially in the fifth interspace, and pointing of the sloughing gut was observed to have taken place in this region. This report shows the difficulty of the diagnosis of diaphragmatic hernia.

Kroenlein's Surgical Experience with Carcinoma of the Stomach.—In sixty-seven cases (patients from 27 to 66 years of age), twenty-six were inoperable; in twenty-two cases he performed exploratory laparotomy; in four gastroenterostomy, and in fifteen resectio pylori. In one of the latter 13 cm. of the small and 22 cm. of the large curvature were resected. The patient is now, a year and a half after the operation, pursuing his usual occupations in good health. Of the rest, four died and ten recovered. Five still survive without a relapse; two died from intercurrent diseases, and four had relapses after an average of 597 days (one after 794 days). The immediate deaths were due to collapse in two cases, in one to inflammation of the lungs, and in another to gangrene of the lungs and peritonitis following necrosis in the region of the suture. He recommends morphium ether for the necrosis, and the strictest asepsis. The preliminaries, emptying the stomach and bowels, are to be as limited as possible. He remains loyal to the Billroth-Wölfler method as superior to all others, and asserts that Kocher's success in his operations is due to his fine technique rather than to his method. He gives a little milk and tea the day after the operation and abandons rectal feeding the fourth day. In only one of the four cases of gastroenterostomy was the result satisfactory; the vomiting and distress passed away for three months, when death ensued. He urges a more accurate knowledge of the indications of this operation. Six of the cases of carcinoma that seemed operable but were not operated upon, survived an average of 209 days, the inoperable 77 days, and after exploratory laparotomy 139 days. The article in the *Beiträge zur klin. Chir.*, Vol. XV, No. 2, is completed with photographs of the preparations made of the cases.—*Centralbl. f. Chirurgie.*

Injections of Carbolic Acid in Serocysts.—Dr. Victor H. Coffman advocates its use in preference to the knife or irritating injections of iodin, on account of simplicity of application, efficiency and freedom from danger. His method of treatment for hydrocele is as follows: By the use of the hypodermic syringe, one dram of 95 per cent. solution of pure carbolic acid, inserted into the superior part of the tumor, guarding the superficial veins of scrotum, is injected forcibly into the sac without previous evacuation of the fluid. Should the tumor be excessively large, two drams will be necessary for the first treatment; withdraw the syringe slowly after two minutes, preventing escape of fluid, apply a little vaselin to the surface, or mop the parts with alcohol if any of the acid has escaped, put on a dressing of gauze to protect from oozing, and the patient is permitted to go about his occupation, no risk incurred or pain endured. Within twenty-four hours a slight reaction follows, which lasts from two to five days, and the size of the tumor diminishes gradually. Should it not recede, then repeat the injection, and within one month all traces of enlargement disappear. For bursa of the patellar tendon, a dram of acid is injected, and a second injection of one-half dram, five days thereafter, is necessary in about one-third of the cases.—*Western Med. Review*, July.

The Mauser Rifle in the Cuban Revolution.—The *London Lancet* quotes an article in the *Revista de Ciencias Medicas* of Havana, written by Surgeon Enrique Pedraza of the Spanish Army, on the effects of the Mauser projectile as seen by him in the present war. He points out the great difference which exists between this and the older forms of projectile, as the Remington and Freire Brul. These latter being much larger and having a smaller initial velocity cause large openings and carry septic materials into the wounds they make which are therefore very difficult to render aseptic on the field and consequently when

they come under proper treatment in a hospital are in a condition which is very difficult to manage, especially when, as is frequently the case, the hemorrhage has necessitated the use of perchlorid of iron which increases the size of the wound, or when a bone has been hit, and, as usually happens, even at a distance af 100 or 150 yards, is shattered. The Mauser projectile as issued in the Spanish army is 3 centimeters in length and 7 millimeters in diameter, and consists of a hard nucleus of lead and antimony coated with steel, outside of which is a coating of nickel and copper alloy, the whole weighing 13.7 grams and having an initial velocity of 632 meters per second, which enables it to pierce a Krupp steel plate 10.5 millimeters in thickness at a distance of 50 meters. Such a projectile ought, it might be thought, to produce a clean and minute wound with little hemorrhage, easy to close on the field and therefore likely to heal rapidly in the hospital, more especially as the bones would be bored rather than shattered and as there would be little chance of foreign matter being introduced into the wound by the projectile itself. These expectations are, however, by no means always realized, and the first few cases of primary wounds from a Mauser projectile which Dr. Pedraza saw at Manzanillo very greatly surprised and disappointed him. With longer experience, however, he learned that the benign results he had expected to see do occur, but only when the enemy is 150 yards or more distant. When the patient is shot at from ten to seventy yards the destruction of the tissues is very great, and it is this that has given rise to the suspicion that explosive bullets were being used, especially as the orifices of entrance and outlet are sometimes so small that they can scarcely be seen. The explanation suggested is that the shock which the enormous velocity of the projectile produces on entering the soft parts causes them to behave as a fluid or semi-fluid does when enclosed in a box and "shot through," the hydraulic pressure bursting the sides, or if an opening be left, driving a column of the fluid through it. As to how far any destruction of the projectile itself may be a contributing factor he has no direct evidence, but from specimens he has seen of the Wagner and Männlicher projectiles after experiments made by Dr. Cardenal, which he showed at a lecture before the Cataluna Academy of Medicine, he thinks it probable that the projectiles do become more or less disintegrated when they hit at short distances. In striking contrast to such wounds are those produced at 150 yards or more by the Mauser rifle. Here the entrance and outlet are very small and there is but little evidence of internal destruction, even bones being tunneled through without fracture, and as aseptic treatment is possible from the first a rapid recovery may usually be anticipated. Thus, in one case where the projectile entered the abdomen in the eighth intercostal space on the right side, passing through the stomach and coming out three fingers' breadth on the left of the sternum, though the ninth rib was fractured and the patient suffered from vomiting, hematemesis and fever, he very soon improved and recovered completely. In another case the projectile entered the left frontal eminence passing out by the right parotid region. The patient suffered from concussion of the brain, with some difficulty of vision of right eye, but recovered in twenty-six days. If, therefore, it could be arranged that fighting should never occur at less than 200 yards distance the Mauser would, Dr. Pedraza thinks, be a most humane weapon.

Hospitals.

THE GERMAN HOSPITAL, SAN FRANCISCO, CAL.—At the regular July meeting of the board of directors the following staff of physicians was elected for the German Hospital: Visiting physicians, J. F. Morse, H. Kreutzmann, G. Dresel, R. Baum; consulting physicians, Beverly MacMonagle, W. A. Martin, D. W. Montgomery, L. Newmark, M. Regensburger, Paoli de Vecchi, A. Wilhelm. Max Saloman retains the position held by him for the past two years as city physician of the society.

CITY HOSPITAL, MARQUETTE, MICH.—The new city hospital threw open its doors to the sick of the city July 13. The following named physicians compose the staff: Geo. J. Northrup, A. Desjardins, O. G. Youngquist, F. McD. Harkin, A. A. Foster, J. H. Dawson, E. B. Patterson, C. G. Dick, H. J. Hornbogen.

Louisville.

ANTHRAX.—An epidemic of anthrax has been found raging in the herd of milk cows owned by a dairyman in the western portion of the city, a number of deaths having occurred among them. The health authorities have taken the matter in hand and have isolated the herd, burned the carcasses and are boiling and burying the milk from the rest of the herd. Thus far the trouble has been limited to this one herd and no serious spread is anticipated, owing to the prompt action of the city and State officials.

THE PUBLIC SERVICES.

Army Changes. Official List of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from July 18 to July 24, 1896.

Capt. Paul Clendenin, Asst. Surgeon (Ft. Warren, Mass.), is hereby granted leave of absence for one month.

Capt. Edgar A. Mearns, Asst. Surgeon (Ft. Myer, Va.), is granted leave of absence for three months, to take effect on or about Aug. 3, 1896.

Capt. Geo. E. Bushnell, Asst. Surgeon, extension of leave of absence granted is further extended one month.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending July 25, 1896.

Asst. Surgeon L. Morris, detached from Indian Head proving ground, ordered home and granted one month's leave.

Asst. Surgeon F. C. Cook, detached from treatment at the New York hospital and ordered to proceed home.

Medical Director G. H. Cook, detached from special duty at Philadelphia and ordered to take charge of hospital there.

Medical Director D. Kindleberger, detached from duty in charge of hospital at Philadelphia, ordered home and await orders.

Medical Inspector W. G. Farwell, ordered to special duty at Philadelphia attending officers.

Change of Address.

Armstrong, C. L., from La Due to Webster Grove, Mo.

Bertling, A. E., from 360 Blue Island Av. to 612 Ashland Boul., Chicago, Ill.

Burns, R. J., from Rockford to 101 Galena St., Freeport, Ill.

Bishop, L. F., from Morristown, N. J., to 30 W. 36th St., New York, N. Y.

Habermaas, A., from 3151 Shenandoah Av. to 3317 S. 18th St., St. Louis, Mo.

Luebbers. A., from Dallas, Texas, to 2432 Larimer St., Denver, Colo.

Makeun, G. H., from Philadelphia to Cresson, Pa. (until September 15).

Prentiss, D. W., from Aix la Chapelle, Germany, to Zurich, Switzerland.

Rockey, A. E., from The Marquam to 671 Glisan St., Portland, Ore.

Rohé, Geo. H., from Catonsville to Sykesville, Md.

LETTERS RECEIVED.

Allison, H. E., Fishkill Landing, N. Y.; Alma Sanitarium Co., Alma, Mich., (2)

Burr. C. B., Flint, Mich.; Bittman, Chas. W., St. Louis, Mo.; Bartlett, Edward P., Springfield, Ill.; Boehringer, C. F. & Soehne. New York, N. Y.; Butin, Mary Ryerson, Madera, Cal.; Bower, J. L., Reading, Pa.; Brodrick, J. P., Boston, Mass.

Colvin, D., Clyde, N. Y.; Cook, G. F., Oxford, Ohio, (2).

Dooley, A. J., Marion, Ind.; Douglass, J. C., Franklin, Ky.; De Courcy, J. O., St. Libory, Ill.; Dale, J. Y., Lemont, Pa.; Dorman, Wm. J., Philadelphia, Pa.

Elkhart Carriage and Harness Mfg. Co., Elkhart, Ind.; Ellis, Griffith, Dayton, Ohio.

Farber & McCasay (Drr.), Dayton, Ohio; Fairchild, Bros. & Foster, New York, N. Y.; Farrington, J. M., Binghamton, N. Y.

Gihon, A. L., New York, N. Y.

Haven, O. D., Youngstown, Ohio; Herdman, W. J., Ann Arbor, Mich.; Hummel, A. L., Adv. Agency, New York, N. Y., (2); Hewitt, C. N., St. Paul, Minn.; Harnden, R. S., Waverly, N. Y.; Holmes, Bayard, Chicago, Ill.; Hussey, E. J. & Co., New York, N. Y.; Holt, E. E., Portland, Me.; Haldenstein, J., New York, N. Y.

Kenyon, Paul, Minneota, Minn.; Kress & Owen Co., New York, N. Y.; Kyle, De Braden, Philadelphia, Pa., (2).

Lee, Elmer, Chicago, Ill., (2); Lichty, D., Rockford, Ill., (2); Lockwood, E. K., Virden, Ill.; Love, I. N., St. Louis, Mo.

Maclean, Donald, Detroit, Mich.; Mulford, H. K. & Co., Philadelphia, Pa.; Mackie, L. V. G., Attleboro, Mass.

O'Gorman, James, Baltimore, Md.; Osmun, L. C., Washington, D. C.

Paquin, Paul, St. Louis, Mo., (2); Press Clipping Bureau, The, Boston, Mass.; Peterson, Reuben, Grand Rapids, Mich.; Pearse, W. M., Mt. Vernon, Ind.

Ross. A. A., Hochheimer, Texas.

Sutherland, J. Luc, Grand Island, Neb.; Storer, H. R., Newport, R. I.; Shurly, E. L., Detroit, Mich.; Stevens, B. F., London, England; Stockwell, Miss M. H., New York, N. Y.; Strueh, Carl, Chicago, Ill.; Slagle, Jacob, Portsmouth, Ohio.

Taylor, P. R., Louisville, Ky.; Truax, Charles, Chicago, Ill.; Tussey, A. Edgar, Philadelphia, Pa.

Vogeler. Julius, St. Louis, Mo.; Von Koerber, P. E., Loup City, Neb.

Wilbur, C. L., Lansing, Mich., (2); Wyman, Hal. C., Detroit, Mich.; Woody, S. E., Louisville, Ky.; Williams, H. L., Philadelphia, Pa.

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ADDRESS.

CHAIRMAN'S ADDRESS.

Delivered in the Section on State Medicine, at the Forty-Seventh Annual Meeting of the American Medical Association at Atlanta, Ga., May 5–8, 1896.

BY CHARLES H. SHEPARD, M.D.

BROOKLYN, N. Y.

Fellow Members:—It was both with diffidence and reluctance that I accepted the honor and obligations of the chairmanship of this Section, a place which has been held by some of the most distinguished and gifted members of the AMERICAN MEDICAL ASSOCIATION, and for the time being I rely upon your patience and generosity.

The amount of useful information that has been diffused from this Section since it was first organized, has been possible only by the indomitable energy and self-sacrificing work of those who have labored in its field. They have plowed and sowed, and while we gather the fruit of their labors, it is also incumbent upon us to do our share in the promotion of the work.

Unfortunately, outside of the medical profession, but comparatively few minds are possessed of a practical knowledge of sanitary matters. Hence the necessity of continually reiterating and disseminating what many of us consider the most commonplace truths, until their full acceptance shall render our land a sanitary Eden.

The healing of disease is a most noble work and worthy of all praise, but he who teaches how to prevent disease is engaged in a higher and holier cause. It is not a question of how far it is well to go in destroying one's own business, for the lover of his race realizes that his own higher interests are bound up with the welfare of the people. We are now in the kindergarten state of knowledge regarding many of the most important sciences that bear upon the prevention of disease. Far reaching as recent developments appear to be, the glory of those yet to come will undoubtedly cast them into the shade in the not distant future. It is a matter for which to be thankful that one is able to devote a life to the advancement of ideas that may prove of incalculable benefit to mankind.

The ideal physician would be the State physician, whose position and income assured, would enable him to devote his entire time and best powers in seeking the highest interests of the community in the prevention of disease.

For ages men have sought for a panacea. New remedies become candidates for public favor with surprising rapidity, and are popular for a time, only to be displaced by a new candidate. Strive as we may, we are convinced that never will a remedy be found to obviate the penalty sure to be exacted by violated law. Preventive medicine will teach people how to live, and then ignorance and panaceas will die a natural death. This is worthy of the earnest attention of the ablest minds, and will produce most important results. The loss of time on mere effects, instead of the original causes of disease, is like giving attention to the branches, instead of striking at the root of the deadly upas tree.

The first work on preventive medicine was furnished us by Moses, the great lawgiver, nor has it yet been surpassed by any modern discoveries. Granting all that is claimed for antitoxins of various kinds, and for vaccination as a preventive of smallpox, these are but so many milestones in the progress of preventive medicine, which shall yet lead to the cause of the original disturbance. Diphtheria, scarlet fever, etc., are filth diseases, and smallpox belongs preëminently to this class. Preventive medicine, with the aid of personal hygiene, will yet enable us to avoid all filth diseases of whatever kind.

As Rome carried civilization with her conquests, so shall preventive medicine, and this Section, as its representative in the AMERICAN MEDICAL ASSOCIATION, continue to diffuse a saving knowledge of human live in its all-conquering march.

It is well to look back occasionally, in order to measure our progress. Among the subjects which have been advocated by this Section were soil drainage and improved systems of sewerage, the better housing of the poor in our cities, the registration of vital statistics, civic cleanliness, quarantine reform and, more recently, improved pavements and public baths.

History tells us that sanitary measures, methodically carried out, are invariably followed by improved public health and a decreased death rate. But for the important sanitary measures carried out by the rulers of Rome, the eternal city would never have become the mistress of the world. Had it not been thoroughly drained, a large part of it would have been uninhabitable. The sanitary works of Rome, introduced when she was at the acme of her glory, have been a model for ages past, and will so continue for ages to come. Her enormous aqueducts, particularly those built by Agrippa, were virtual rivers brought into the city to flush the streets and sewers, and to supply all public and private requirements.

Before the streets of London were paved the inhabitants were as great sufferers from periodic fevers as are those of the most unhealthful rural districts in our own country. It has been computed by an eminent authority, Sir Lyon Playfair, that in one county alone in England, the pecuniary burden borne by the community in the support of removable disease and death, amounted to the annual sum of twenty-five millions of dollars.

After the paving of Dijon, the ancient capital of Burgundy, in the middle of the fourteenth century, dysentery, spotted fever and other diseases, became of less frequent occurrence in that city.

The evils of a certain form of modern architecture in our cities is a growing one that should be thoughtfully considered. The crowding together of tall buildings, necessarily depriving the lower floors of proper sunlight and ventilation, is one of the modern aggressions that is not of unmixed benefit, even in a business sense, involving the health of the occupants of all such buildings. The deficiency of sunlight and insufficient ventilation common to these structures, seriously affects the eyesight of multitudes, and the depressing effect of confinement and labor in the vitiated atmosphere, under such circumstances, render the occupants fit subjects of temptation in the shape of tobacco and other narcotics to satisfy the craving for the absence of the healthful stimuli of fresh air and light and thus render them liable to disease in every shape. The height of buildings should be in proportion to the width of the street. As a prominent and conscientious architect, Ernest Flagg, has well said in the May number of the Cosmopolitan: "It is best in this matter to place a curb upon private greed for the public good."

The disposal of the sewage of cities is a subject that is demanding more and more attention, for what now goes to waste, to the pollution of rivers and obstruction of harbors is a menace to health, besides being a pecuniary loss to the community. Sewage should instead be so disposed of as to be devoid of danger, and a profit to the city.

From its noiselessness, cleanliness and consequent comfort, the improvement of street pavements by the use of asphalt is intimately related to the health of the community, and this was strongly urged by Dr. Bell, in the *Sanitarian*, over thirteen years ago. It is now rapidly growing in favor, and making way for the horseless carriage which is to banish to the country districts the horse and his insanitary surroundings.

It is proper here to refer to the *Sanitarian*, the first journal in this country devoted to sanitary subjects, as the source from which I have been able to glean many facts on the progress and present status of preventive medicine in the United States, and also to the editor who projected that periodical in the same year that this Section was organized, and of which he was the first chairman twenty-three ago. This publication presents essays by the most distinguished sanitary authorities on a great variety of subjects, and the gist of sanitary medicine in all its phases.

Dr. Bell's activity as a sanitary reformer prevented the yellow fever from reaching the city of Brooklyn from Bay Ridge and Fort Hamilton in 1856. He fought against the quarantine system as it then obtained, and succeeded in reforming it on the basis of the regulations which he devised and reported to the National Sanitary Convention in Boston, in 1860. He devised measures in detail relating to departure, as the primary means of preventing the conveyance of infectious diseases from one place to another, and their introduction into new places. Moreover he instituted and successfully practiced, under the auspices of the National Board of Health, measures which prevented the yellow fever from being conveyed to other places from New Orleans, in 1879, without restricting commerce, and with the result of raising all the quarantines against that city within six weeks.

In a contribution to the Report of the New York Board of Charities for the year 1876, on the "Relation of Insanitary Conditions to Pauperism, Vice and Crime in New York," Dr. Bell suggested a mandatory law requiring assessment, seizure and destruction, at public expense, of a stated few of the worst tenement houses in the city and the conversion of their sites into grass plots, annually, as an efficient means of reform; means that would not only weed out the worst from year to year, but continually promote the improvement of the remainder, whose proprietors would not allow them to be destroyed, and the legislature has recently conferred the power of so doing, in a modified form, on the health authorities.

Municipal sanitation in New York and Brooklyn on a scientific basis, began thirty years ago, under the auspices of the Metropolitan Board of Health. The average death rate in New York, per 1,000 of the population, for the ten years preceding that date was 33.39; for the first ten years following it was 29.70; for the ten years ending December 31, 1894, it was 25.48. The death rate for 1895, according to the last report from the State Board of Health, was 18.25. per 1,000. Surely it would be difficult to find more significant results of practical sanitation equivalent to saving of about eight lives per 1,000 of the population, annually, and amounting in the aggregate, measured by the present population and death rate, to 14,464 lives annually.

One of the most imperative necessities for preserving the public health is an ample supply of pure water, and it is to be hoped that some better medium than lead pipe will soon be found for conveying drinking water through our houses. The more pure the water the more it acts on the lead to absorb the poison, and therefore it becomes the more dangerous. Possibly aluminum may come in to supply this pressing need.

The character of the public water supply is the first and chief concern of every intelligent sanitarian, for in that lurks the means of transmission of all the most virulent and fatal of the infectious diseases. As population increases the sources of contamination multiply and it becomes more and more difficult to secure an abundant supply of pure water. Rain water falling upon the earth's surface becomes more or less contaminated from the soil, with mineral matters, which it holds in solution, and should be used with caution. The home of the most deadly of the microscopic enemies of man is water. Many of the epidemics that have desolated different countries have been caused by the use of impure water. Cholera, typhoid fever and dysentery are fostered and disseminated almost exclusively through the medium of drinking water.

While the use of water ranks high as a remedy for many diseases, its greatest value is in the prevention of disease. Never was the true theory of disease understood until it was put forth by the advocates of the hygienic system of treatment, otherwise called water cure, which was very popular about the middle of this century. While not now conspicuously prominent as a separate system it has had a powerful influence in modifying the practice of all the other schools. Disease was known only by its phenomena and medicines by their effects. The true definition of disease is remedial effort, an action to cast out impurities. It wastes vital power, as a man would expend his strength to eject a thief from his premises. When people understand that disease is a vital struggle in self defense they will cease to fear it. They will fear only

its causes and instead of trying to suppress the symptoms will endeavor to remove the causes. Disease and the *vis medicatrix naturæ* are one and the same thing. When in the progress of knowledge it comes to be understood that in all relations between living and dead matter, the dead is passive and the living active, then the application of this truth to foods, remedies and poisons will settle many vexed questions and place mankind on the high road to perfect health.

It would be a profitable investment for any city which is suffering by reason of a polluted water supply to expend all the money that may be required for the substitution of a wholesome supply, either by going to new sources or by purifying the supply on hand. This can be demonstrated easily by figures that men of ordinary intelligence would be obliged to accept. The loss to several cities throughout our land from typhoid fever during the past year which has been traced to the water supply has emphasized this fact. A few of the cities have taken up the work of purifying their water by filtration, and in every case the decrease in the death rate has been most satisfactory and warranted all the outlay. This is a work that should be carried out by the cities in their corporate capacity rather than left to private enterprise. Where all are to be benefited all should be interested.

It is but trite to say that the Section on State Medicine has a most comprehensive work on hand, including as it does, preventive medicine, public hygiene, public baths, street paving, together with cleanliness of the streets, disposal of the garbage, factory inspection, cattle inspection, milk inspection, employment of child labor, cremation, etc. I will trespass on your time only to refer to a few facts in preventive medicine.

The camera and the bicycle, by calling people out into the open air, and giving them pleasant occupation and mental stimulus, is doing more to prevent disease than all the doctors in the land. We may be very thankful for the sudden popularity of the bicycle, in that it has given a wonderful impetus to the question of good roads.

The blessings of sunlight and fresh air should be more appreciated. The sun is the godfather of us all. The source of all light, heat, electricity, and energy, what wonder that it was once worshipped as the Creator. The future will recognize it not only as the best disinfectant, an all powerful preventive of disease, but also as a wonderful healer of disease. The more people can be taught to live in pure air out of doors, and bask in the rays of the sun, the less of disease there will be to prevent.

The Women's Health Protective Association of Brooklyn, N. Y., is doing a most useful work by preventing litter in the streets, by burning of garbage, and more and above all by endeavoring to abate the nuisance of expectoration in the public streets and conveyances. When that is accomplished there will be less of disease floating in the air ready to be inhaled at every breath.

The study of the microscope is gaining new impetus every year and giving us more and better information in regard to the minutiæ of life. The knowledge of microbic life is so intensely attractive as to absorb the whole time of many students of eminent degree, and the wonderful results developed have many times astounded the world, and will in many ways help to prevent disease, by teaching us what to do in emergencies, and yet what is now known may be considered as but the forerunner of what is to come. New facts have been so rapidly developed as to dazzle the imagination with their possibilities.

Already have the X rays, lately discovered by Roentgen, produced a profound impression upon the public mind. The correct view of this new radiant energy will undoubtedly soon be formed, when new experimental data appear. In the meantime we can rest assurred that a new entrance to the region of the ether phenomena has been opened, and the importance of this fact can hardly be overestimated. It may be that the rays will be proved identical in kind with vibrations of light, heat, or electricity, already well known. It may be on the other hand, a new form of energy. It is easily possible that the new photography, when fully developed, may reveal to us secrets of cellular growth, glandular activity, and the like, that have hitherto proved inscrutable. The power of looking through a man, as reported by Mr. Edison, may yet lead to still greater discoveries in the prevention of disease.

No more desirable work has been done by any board of health than in looking after the adulteration of food, as in Ohio for instance. Of all the liars in existence, none are worse than those who advertise to furnish food or medicine and really deal out that which is bound to cause disease and leave ruin in its path. If there was a soul above filthy lucre in the patent medicine vender there would be none of this. To protect the ignorant public is the god-like mission of State medicine. But when we get pure food, much of it needs cooking, and cooking schools are immensely useful as a preventive of disease, not alone to prevent the waste of valuable portions, but also to be able to derive therefrom sound tissue for the building up of the entire man into his most vigorous condition.

The bad work that people make in dosing themselves with patent medicines, without a physician's prescription, is not unfrequently punctuated with a sudden death from overdosing with antipyrin, sulphonal, or some other coal-tar preparation. Children should not play with edge tools. The teachings of preventive medicine will do away with such work.

Another thing in which it is most desirable that the public should be enlightened, is the imperative need of rest, instead of what is called stimulation; that what are called tonics or stimulants are used only at a ruinous expense to the vitality, and if people would take time for recreation and recuperation, they would obviate the necessity for their use and prevent more disease than ever was cured.

If ever our people are to be redeemed from the thraldom and unmitigated and unlimited curse of tobacco using, it must come from the teachings of preventive medicine.

There is an immense amount of ignorance abroad in the community on the subject of health and the proper way of living to secure the best physical condition, and there is a corresponding need for instruction in such matters. That is why the charlatan has such free play in this country. One of the most important of all studies for old and young is that of personal hygiene. This it is that protects from personal contagion. This do and thou shalt live! That do and thy body shall become a fertile breeding ground for all manner of disease! The earlier in life this is recognized the more surely will success crown man's daily pursuits.

In fact, the very best preventive of all disease is a condition of well nourished physical purity, combined with a mental and bodily alertness that leads to the enjoyment of all good work. Such a one can walk through pestilence unharmed, will live out all his days, and, barring accidents, be gathered in when his full time shall have come, like a shock of corn fully ripened.

The delights of mental pursuits, in calling its devotee out of himself to the attainment of certain truths or facts and the vantage ground gained by every such conquest, giving broader field and more expansive view with intensified joys, place mental pursuits among the more desirable means for preventing disease and prolonging life.

The multiplication of intellectual entertainments and resources, that give the people something to think about and occupy their minds to the exclusion of things of a lower grade, is to be welcomed by all who place a higher faith in prevention than in cure. We very well know that if we can fill the minds of the young with the good, there will be no room for the bad.

Laugh as we may at the vagaries of the teacher of what is called mental science, there is a germ of truth at the foundation of it all. The mind reacts upon the body as well as the body upon the mind. We can magnify or minify our troubles; therefore if weak and delicate invalids can be made to believe that they are to get well, they are thereby in a better condition to become well. So also with one who girds himself up to face disease and disaster. He is by so much less liable to the disease or disaster, and should it overtake him he is better fitted to cope with the emergency.

The little that has been accomplished is but the forerunner of what is to come. The time is not far distant when the people will demand that all these desiderata shall be taken up in a manner commensurate with their importance, and then public baths will be made as free to the people as the postoffice and the public school. Good roads will be uniformly extended throughout our country, and kept in proper condition. Dwelling houses, and business houses as well, will receive their full modicum of sunlight and ventilation, pure water will abound, and excreta, along with garbage, will be disposed of with advantage to the community. Our public schools will be well lighted and ventilated, the children will be taught the evils of the indiscriminate use of narcotics of all kinds, and the pupils will not be overworked by a too cumbersome curriculum.

It will be a happier day for all when the people in their representative capacity shall take charge of all vagrancy, see that all who can labor shall have the opportunity, and those who are disabled properly cared for. This also is preventive medicine, and is but coöperation, wherein the people shall demand reforms to be carried out by the government, which is, or should be, but the expression of the will of the people. Thus will state medicine fulfill its highest duties. By some this might be called socialism, but the whole world is traveling that road. Our AMERICAN MEDICAL ASSOCIATION is but a step in coöperation by liberal minded men, lifting us for the time being out of the slough of competition, and our Section on State Medicine is preëminently socialistic in that it seeks the benefit of the mass through the power derived from the people in their collective capacity.

If ever legislation regarding public questions shall be elevated above the plane of practical politics or personal gain, we may obtain some results that will help to promote the best interests of the community, instead of, as at present, being made the foot-ball of conflicting parties.

Let us bear in mind that we are responsible for this condition of things, that it is every physician's duty to take an active and intelligent part in all political matters, and not leave them to the ignorant and vicious. When this is thoroughly carried out, and direct legislation comes in, a new era will be inaugurated.

A bill has been introduced in the Senate, creating a new cabinet officer who shall be known as Secretary of Manufactures and Commerce, and certainly this is of great importance to all of our industries, but of still greater importance would be a Secretary of Public Health, for if the health of the community is not assured, the industries are of small account.

While State medicine has saved the world from an immense amount of charlatanism and superstition regarding avoidable disease, there are larger fields and higher ground waiting for occupancy by the interested students who are to bless the community by their new discoveries. The range is too vast for any one department, but all will combine in this, that their work shall bless and lengthen the days of man, for all the achievements of the true physician are the common heritage of mankind, and thus is he to become one of the most potent of all the civilizing agencies of the future. This forward march is to go on, and blessed are we who are permitted to take part in the work, insignificant though that part may be.

During the past year the harvest of death has been very great in the ranks of medical men, particularly among the younger members, leaving gaps that will be hard to fill. The demands of modern society are too exacting, and the results of the pace that kills are sometimes realized too late. From out of our own ranks have gone Dr. Joseph Jones of New Orleans, Dr. James E. Reeve of Chattanooga, Tenn., and Dr. C. G. Comegys of Cincinnati, Ohio. They rest from their labors, and we shall see them no more, but the bright example of their noble work will remain to bless all the land.

Gentlemen, I am proud that you have thought me worthy to assist in your deliberations, and shall enter upon the duties of our session with an earnest desire to forward the good work.

Hopefully then, do I commit to your hands the pleasant task of spreading over this vast country the ennobling light of your wisdom and experience.

Excessive Doses of Bicarbonate of Sodium in Hyperacidity of the Stomach.—Tournier relates a couple of cases of intense gastric pain caused by hyperacidity, relieved by large doses of bicarbonate of sodium, with no accompanying inconveniences. The amount prescribed was 20 to 30 grams a day, which the patients increased to 60 and 65 grams, before obtaining permanent relief. The male patient continued these large doses for two to three years, securing a permanent cure, with no return of the gastralgia in the four years since. The other case was a young woman, who took at last 60 to 65 grams for a month, with the result of much improved gastric conditions and a gain of three kilograms in weight. She took the soda in a powder every half hour, followed each time with a little milk, of which she carried a small bottle with her when she left home. The elimination of chlorid of sodium in the urine amounted to 36 grams per liter, testifying to the actual transformation of the sodium in the organism.—*Province Médicale*, June 27.

ORIGINAL ARTICLES.

INTESTINAL OBSTRUCTION AFTER LAPAROTOMY.

Read in the Section on Obstetrics and Diseases of Women at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5–8, 1896.

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The internal hernia, so-called by the early authors, possesses an entirely new and increased interest, since intestinal obstruction occurs more frequently than formerly, as a sequel to the surgical invasion of the abdominal cavity. I believe also that this is a far more common cause of death than usually supposed, since the success attending the surgery of the abdomen has emboldened many surgeons to undertake a great variety of operations, considered unwarranted a decade ago.

Before entering into any general discussion of the subject, it has seemed instructive to give a brief report of all the cases of intestinal obstruction following laparotomy, which have come under my observation.

Case 1.—Mrs. C., aged 31, married, has three children. April 14, 1890, I removed a dermoid cyst of the left ovary weighing eight pounds. Right ovary size of an egg, capsule thick and friable. Peritoneum covering pedicle parted easily under constriction of the suture. Marked nausea after etherization. The stump was touched with liquid carbolic acid and covered with iodoform. The uncovered peritoneum was scarcely larger than a split pea. Convalescence comfortable, with primary union of the abdominal wound, which was closed without drainage. Bowels moved the third day; kept open by saline laxatives. On the seventeenth day symptoms of intestinal obstruction supervened, with nausea and vomiting, slowly becoming more pronounced. On the twenty-second day it was evident that grave danger was imminent, every effort to evacuate the bowels having proved futile. Assisted by the late Dr. Trenholme of Montreal, I reopened the abdomen and found two loops of the lower portion of the small intestine firmly adherent to the stump of the right ovary. The adhesions were separated with difficulty. The intestines were not very much exposed, and yet the shock was very pronounced and for some hours danger of death seemed imminent. Convalescence was slow but satisfactory. The patient remains well up to the present, entirely free from abdominal pain.

Case 2.—Mrs. L., aged 35, married, has borne children. General health fair. On July 13, 1892, I performed vaginal hysterectomy for cancer. Operation less difficult than usual. The broad ligaments were constricted by clamps which were removed the second day. The third day nausea and vomiting supervened, rapid elevation of temperature and death occurred on the fifth day from intestinal obstruction, not clearly recognized until autopsy, since it was believed that septic peritonitis was in process of development. On examination it was found that a loop of the lower portion of the small intestine was adherent to the stump of the right broad ligament, but the lymph adhesion was easily separated. The intestine above was filled with a large quantity of dark-colored fetid fluid, and it is believed that the symptoms of septic poisoning came from the absorption of the products of decomposition of this fluid. There was no peritonitis and the pelvic wound was uninfected. The adhesions could have been easily freed by an abdominal section.

Case 3.—Mrs. C., aged 42. General health fairly good, although she had suffered long from pelvic troubles. Two years previous I had removed the right ovary, which was cystic, resulting in an adherent tumor cocoanut size. Recovery was rapid and uneventful. For six months prior to the second operation a cystic tumor of the left ovary had developed until it reached a point above the navel. Operation Nov. 28, 1892, Dr. James R. Chadwick present. The omentum was found somewhat adherent on the line of the old cicatrix. The tumor was removed with difficulty, owing to its being bound down by adhesions. Recovery from the operation was not satisfactory, shock pronounced and nausea persistent from the first. All the symptoms became slowly more aggravated, until at the end of the third day it was apparent that intestinal obstruction was threatening the life of the patient. Upon re-opening the abdomen a loop of small intentine was found constricted by an old omental band of adhesions upon the left side, just above the brim of the pelvis. It is very probable that the intestine became entangled at the time of operation. It was easily freed and the operation was completed in a short time, but the shock following was very pronounced, the patient never rallying from it, and death supervened in a few hours.

Case 4.—Mrs. G., aged 52. General health good. She had suffered severely from a rather rapidly growing multiple uterine myoma, which was impacted in the pelvic cavity and extended to the umbilicus. Operation Oct. 24, 1895, assisted by Drs. H. D. Didama, Syracuse, and D. T. Nelson, Chicago. The operation was not difficult, the most noteworthy feature being that a small firm lobe of the tumor was so fixed to the right lower vaginal cul-de-sac that upon removal the adjacent peritoneum, although not bleeding, was dotted with minute red points. At the time of operation it was remarked that such a condition of the pelvic peritoneum would favor intestinal adhesions. The tumor was dissected to the cervical neck, resected and the arteries separately ligated and the peritoneum intra-folded by a running continuous buried tendon suture which left no abraded peritoneum other than the portion already described. It was deemed unwise to drain the depressed portion through the vaginal canal and for better protection it was covered freely with sterilized aristol. There was considerable shock following the operation, but the patient rallied well and for forty-eight hours gave every promise of easy recovery. Nausea and vomiting then ensued with elevation of temperature and abdominal distension. Intestinal obstruction was recognized, but the danger was not thought sufficiently imminent to warrant surgical interference, until suddenly the condition became too grave to render the procedure, even as a folorn hope, advisable. Death occurred about seventy-five hours after the operation. Nausea and vomiting persisted to the end. Six hours before death the temperature began to rise from about 101 degrees until at death it had reached 107 degrees. Autopsy showed adhesion of the lower part of the small intestine to the punctated portion of the peritoneum. It was readily separated. The intestine about the point of adhesion was greatly distended by a large quantity of dark-colored fluid, evidently having undergone decomposition prior to death. The line of union of the intra-folded peritoneum was perfect. There had been no pelvic serous exudation and no septic infection.

Case 5.—Miss S., aged 44. Operation performed Nov. 30, 1895, for removal of a large adherent uterine myoma, assisted by Dr. Nelson of Chicago, Dr. Cilley of Boston, and Dr. Berrymore of St. Johns, N. B. The operation was long and tedious, followed by pronounced shock. Rallied well and on the second day the conditions seemed favorable for recovery. Nausea and vomiting commenced about thirty-six hours after the operation. Not very pronounced until twelve hours later, when it was evident that intestinal obstruction had supervened. I reopened the abdomen and found a loop of the lower part of the small intestine involved in adhesion of the omentum, situated in the right iliac region. The small intestines were greatly distended by gas and fluid, and were manipulated with some difficulty. At the time of the operation temperature was 101; immediately following the operation there was a large fluid dejection. Within an hour it was noted that she was in profound shock, from which she never rallied, death occurring some hours later. The most noteworthy feature was the elevation of temperature, which rose steadily about a degree an hour, reaching 107 degrees before death. I twice used an intravenous injection of saline solution, each time introducing nearly a pint. The flagging heart immediately responded, giving a comparatively slow, full, compressible pulse. The effect, however, soon subsided, notwithstanding the use of digitalis, strychnin and nitro-glycerin, used freely hypodermically.

Case 6.—Mrs. K., aged 34, never pregnant, married eight years, advanced cancer of the cervix from which she had suffered seevrely in her general health. Vaginal hysterectomy Dec. 7, 1895, assisted by Dr. C. E. Miles of Boston. Operation difficult, owing to a long narrow vagina and the extent of the disease. I sutured the broad ligaments and introduced gauze drainage. Convalescence seemed well established the tenth day, when symptoms of intestinal obstruction supervened. Upon opening the abdomen a loop of the lower portion of the small intestine was found incarcerated by an old band of adhesions which crossed the pelvis in the region of the right ovary. This was easily divided and the intestine freed. The abdominal wound was closed without drainage. Fecal evacuations soon followed with speedy relief. The shock following the operation was pronounced, but the convalescence was uneventful. The patient is well at the time of writing.

Case 7.—Mrs. D., aged 42. Very nervous organization, but in fair general vigor, although a severe sufferer for some years

from a retroverted, adherent, enlarged uterus, cystic ovaries and diseased tubes. The bowel had been freely evacuated, only fluid food in small quantities often repeated given for some days before the operation, with as large quantities of water as could be easily taken. Operation March 18, 1896. It was difficult, owing to the imbedding of the diseased adnexa in the pelvic cavity. After the removal of the diseased structures, the enlarged, retroverted uterus was brought forward and sutured upon each side to the abdominal wall. The pelvic peritoneum was reformed by lines of buried tendon sutures, leaving only a small portion of the fundus of the uterus uncovered, which was partially denuded of its peritoneum, owing to old adhesions. The small intestines were covered by the omentum with great care, the fundus of the uterus dusted with sterilized aristol and a vaginal drain of iodoform gauze carried through the posterior cul-de-sac into the vagina. Patient rallied well from ether. The night following the operation was comfortable. Nausea and vomiting ensued on the morning of the 19th, with a singular weakening of the heart's action, followed by rapid elevation of temperature, reaching before death 107 degrees. The skin was mottled with dusky patches some hours prior to death. These conditions were believed to be due to intestinal obstruction. The gauze drain was withdrawn and an effort made to examine the pelvis through the opening, but without avail. The general condition forbade reopening the abdomen. Regardless of every effort the patient died about forty hours after the operation. The autopsy showed a loop of the lower part of the small intestine attached to the fundus of the uterus, which was separated with the greatest ease. The intestine above was filled with several pints of a very fetid, dark-colored fluid believed to have undergone decomposition prior to death.

The cases reported were all operated on under the most favorable of hospital appointments and with the very best of attendant care.

I purpose to confine myself to the salient points offered in a review of the cases just reported.

Anatomic Relationship.—It will be noted that the portion of the intestine involved in the obstruction in each case was the lower part of the ileum, and that the obstruction was caused either by an adhesion of the intestine to an abraded peritoneal surface, or by a constriction.

Owing to the erroneous teaching of a leading English authority, it has been too generally accepted that, in the normal condition, the small intestines do not descend sufficiently to enter the pelvic basin. Since it was found that more commonly the portion of the intestines strangulated in inguinal hernia was a loop of the small intestine, this author ingeniously advanced the theory that the hernia itself was due to the elongation of the mesentery, causing the dislocation of the intestinal loops, rather than to a previous weakness of the abdominal wall. The measurements made by this distinguished anatomist seemed to show that the distance from the root of the mesentery to the intestinal loops was so short that only by dragging upon them could they be pulled down sufficiently to enter the pelvic basin. I do not doubt the correctness of his observations, but it must be remembered that the postmortem rigidity and fixation of the parts furnish conditions quite different from those found during life. My studies of hernia early led me to a consideration of this subject, and my observations, based upon the examinations made in about a thousand laparotomies furnish abundant proof that the small intestines, the ileum especially, in its normal range of motion includes a juxtaposition of the pelvic structures and organs.

Here the intestines are less protected by the omentum which intervenes between them and the abdominal wall, where the omentum is interposed, and it is a question by no means settled satisfactorily, if normally the omentum lies between the basic folds of the small intestine and the pelvic structures. It probably does not and so gives easy explanation why portions of abraded pelvic peritoneum are especially liable to offer points of attachments to the superincumbent intestinal folds.

A study of the large intestines shows ample reason why obstruction does not usually occur in this portion of the intestinal tract. That part within the pelvis, and which may be more or less involved by surgical manipulation, is within easy range of digital and instrumental examination, and the solution of any complications is easily determined. Ascending above the pelvis, the remaining portion of the large intestine, because of its position, construction and relationship, only very rarely can become involved in intestinal obstruction, and as a consequence may usually be excluded in the differential diagnosis.

The mooring of the cecum is generally sufficiently fixed to preserve its relationship unimpaired, but pathologic conditions arising from the appendix are much more common causes of intestinal obstruction than was earlier supposed. Adhesive bands frequently extend to the surrounding parts, which may become causes of intestinal obstruction by producing constriction of an incarcerated loop. In one instance of intestinal obstruction, I found an abnormally long appendix encircling the small intestine near its junction, and fixed by inflammatory adhesions. This had caused a slowly developing intestinal obstruction, which had been complete for some days ending in fecal vomiting before operation. Elsewhere the intestinal canal was normal.

In three of the cases here reported, two fatal, it will be observed that intestinal obstruction occurred from incarceration of the lower portion of the small intestine, caused by adhesive bands of old formation. In the two fatal cases a laparotomy had been performed some years previous and, although both were nonsuppurative cases, adhesions had formed, probably caused by undue pressure of opposing peritoneal surfaces, owing to pathologic conditions. When, as in these cases, the omentum becomes the offending structure, I know of no anatomic guides that will lead us to the part involved. Hence, the surgeon must examine carefully a wide area, without special direction except the guidance taught by the individual history.

Diagnosis.—The foregoing histories teach a wide difference in the severity of symptoms from that of intestinal obstruction as usually observed in volvulus, or strangulation resulting from hernia. Here, even in volvulus, in umbilical and femoral hernia, where the symptoms are the most acute, a considerable longer period ensues before the patient is *in extremis*. In the last case reported, death occurred before it seemed possible for a fatal issue to follow from an arrest of the intestinal fluids, where also the greatest care had been exercised in emptying the intestinal tract, and preventing fermentation by use of salol, etc.

In none of the fatal cases reported, was the integrity of the intestine endangered, and it is not to this we look for the cause of death, as has usually been considered the greater danger in cases of constriction of the bowel in hernia.

To what then are we to attribute the cause of death? May it not be, in the first instance, the operation which has so lowered the vital processes, which hold their sway over the living structures, as to admit changes to ensue which otherwise would not occur?

These vitiating processes are rapidly augmented by the fermentative changes which occur in the superincumbent intestinal contents. These fluids are not extraneous, that is to say, only in very small part consisting of the ingesta, but are made up largely of the albuminoid secretions, vitiated products of the glands, together with the fluids poured out by the obstructed blood circulation. The chemic products resulting from this decomposition are crystallin and in solution easily reënter the blood current, producing a septic infection of the most virulent character.

Changes in the hepatic structures occur early and the devitalization of the tissues, at first pronounced, go on *pari passu* in geometric ratio until the individual is destroyed by acute blood poisoning, rendered far more rapid from its initiation having commenced under such unfavorable circumstances. Peristalsis of the intestine lessens at an early period because of a reflex paralysis of the local inhibitory nerve centers and, as a consequence the opposing peritoneal surfaces remain more nearly at rest, and at the point of injury the effused lymph rapidly becomes organized. Nausea, vomiting, diminution and arrest of peristalsis, abdominal distention, accompanied by general constitutional depression, with increasing thirst dependent upon lack of absorption are among the earlier symptoms. Possibly local pain, which however, in my cases has been absent, may point to the site of adhesion. A marked elevation of temperature is relatively not an early symptom. The nervous centers are disturbed by an indefinite anxious foreboding, the pulse becomes accelerated, respiration often shallow and rapid. The latter is probably due to an interference with the action of the diaphragm. These symptoms may be complicated by a general peritonitis, and have without doubt often been mistaken for it. However, a careful analysis of symptoms will generally enable the observer to make an accurate, differential diagnosis.

Prevention.—Although in not more than one per cent. of laparotomies, does intestinal obstruction occur, and in my own experience the percentage is about one-half less than this, when it does take place the complication is so severe, and the fatality so great that the fear of intestinal obstruction may well be considered the nightmare of the abdominal surgeon. Therefore it is of the utmost importance that every precaution possible should be taken to prevent its occurrence. Believing that its causation depends in a large degree on the abrasion of the peritoneal surfaces about the site of the operative field, one of the first queries that arise is, how may this be lessened or avoided? It was for this very purpose, that years ago I introduced to the profession various methods of plastic surgery of the intra-abdominal and pelvic structures. These I constantly practice and enthusiastically advocate in order to restore all injuries of the peritoneum.

In the removal of tumors I cover with the greatest care, the healthy peritoneum over their pedunculated attachments. Where, for any reason, it is necessary to remove the uterus, for a long period I have divided the tissues in such a way that the cervical stump can be carefully closed over by the double intra-folding of its peritoneal investment. This I do by the use of the parallel running suture, the stitches taken in such a way that when drawn upon, the suture itself is completely buried, and the peritoneum lies in easy, accurate approximation without tension. If a ureter is laid bare, the peritoneum is covered over in the same manner.

In the removal of the appendix, the stump is always covered and peritoneal abrasions are intra-folded where the integrity of the same has seemed doubtful. In some instances I have even closed the entire peritoneum across the brim of the pelvis, at its basic attachment, to the floor of the bladder, thus completely obliterating it. By these measures, in this class of difficult cases I have found it possible to attain another very desirable end, that of closing the abdominal wound without drainage.

Here also, for many years, I have taken the precaution to approximate the abdominal peritoneum with the same care, in order to prevent adhesions of the omentum to the line of the wound, and with most excellent results. Since 1892 there has occurred in my experience the three cases above reported where death has taken place from peritoneal adhesions. In the first, a case of vaginal hysterectomy, it was thought wise to use clamps which left uncovered the divided peritoneum of the broad ligament. However, in a majority of vaginal hysterectomies by careful manipulation it is possible to suture across the everted peritoneum. When this can not be effected, the raw surfaces can usually be protected by gauze. It may however, happen as in Case 5, that pathologic changes have ensued at some previous period, leaving resulting inflammatory bands. I know of no way to provide against such complications, unless it may be in doubtful cases to open the abdomen from above also, in order to deal intelligently with existing conditions.

In Cases 4 and 7, at the time of operation, doubts were entertained as to the method to be selected. In Case 4, where the pelvic peritoneum seemed scarcely abraded, the results show that it would have been wiser to have adopted one of two alternatives. A vaginal opening might have been made and the parts protected by iodoform gauze, or the depressed portion of the peritoneum have been sutured across at its upper part. It is probable this would have been the better of the measures to have adopted, since it would have added very little to the traumatism and taken less time than the opening of the vagina and the introduction of the vaginal drain. It was, however, covered with a thick layer of aristol, which I can not doubt would prove ample protection in the majority of instances.

In Case 7, the uterus should have been removed. The organ had long been bound down by adhesions which were separated with difficulty. The protection, however, seemed ample, by the free introduction of iodoform gauze which was so packed about as to cover the denuded peritoneum. The point of adhesion was very near the fundus of the uterus where the gauze had become displaced. I can not question the wisdom of removing the uterus in many cases where, until a very recent period, such a procedure would have been considered unsurgical. It adds comparatively little to the difficulties or severity of the operation and permits the covering in of the pelvic peritoneum in an even fold, from side to side, entirely across the pelvis.

The omentum.—Where for any reason the omentum has been involved in the pathologic changes, it becomes very important to examine it carefully, and if rents have occurred to close them. This is best effected with a continuous tendon suture. It should then be replaced with the greatest care, and if any

points of abrasion appear they should be well dusted with aristol.

Cases 3 and 6 are instructive; Case 3 where it seems very probable that a more careful observation should have been made and the attachment of the omentum to the anterior abdominal wall, resulting from a former operation, should have been separated. In Case 6, it seems as if every precaution had been taken to prevent such an occurrence. The omentum which had been carried up to the region of the liver by the large myoma was somewhat changed in its structure. The parietal peritoneum had long remained in direct contact with the myoma and by friction was also changed in structure. The omentum was spread out evenly over the intestines and brought well down to the brim of the pelvis. There was no bleeding from the separated points of attachment, and the pelvic organs were carefully cared for by the plastic repair of the peritoneum. This had been lacerated in various directions, and the left ureter was exposed for several inches. No points of attachment to the pelvis were found, the effused lymph leaving them smooth and unadherent. The abdominal peritoneum was also intact. The constriction was well down on the right side at the brim of the pelvis and was easily freed.

It is not supposed that any better measures for the prevention of intestinal obstruction could have been instituted and the resulting adhesion of the omentum to the side forming the band was probably the more easily induced, owing to the changed conditions resulting from the long pressure of the tumor.

Treatment.—The object of this paper and the analysis of this series of cases is a practical deduction as to what may be done when this most grave of all complications in abdominal surgery occurs. This is the more important, since authors are singularly at variance and apparently without definite reasons as to the selection of the means to be employed. Unfortunately, medicines, in the hands of all, fail to be of much value, except so far as hypodermic medication may control pain and perhaps materially aid the great motor nerve system.

It is evident that the entire alimentary tract above the point of constriction becomes early paralyzed and incapacitated to do more than permit the absorption of crystallin substances in solution.

It may be doubtful if our efforts to stimulate peristalsis, even if successful, do not hasten the fatal issue, unless they are equal to the forcible separation of the intestine at its point of occlusion. If this supervene a happy issue will be attained and prompt relief afforded. This is often seen in the unfolding of a displaced intestine with the disappearance of all untoward symptoms.

One of the most extraordinary of the conditions which supervene in intestinal obstruction is the rapid accumulation of fluid above the occluded part, and, although the thirst is usually excessive. the absorption even of water from the stomach does not take place, and it is probably a positive detriment to add to the rapidly accumulating fluid by even the administration of water. Vomiting certainly does harm unless by the forcible strain the adherent parts may be separated. This rarely happens, and in case a loop of intestine is incarcerated must add to the mechanical impedimenta.

If then we are deprived of the administration of medicines by the stomach, and if thus given, they are to the detriment of the patient, what remains at our command as a means of relief? Since fecal evacuation is the desired end to be accomplished, experience in other conditions would teach that injections and medicamenta, applied to the lower bowel, might be of service. The foregoing discussion of the anatomic construction of the large bowel teaches us why we would not expect the constriction to occur in this part of the alimentary canal, unless, indeed, in rare instances the pelvic portion of the canal is involved as the result of our surgical interference. If this has happened, rectal examination will determine the fact and probably enable us to deal easily with the occlusion. Other than this, the benefit to be derived from large injections, even if they penetrated to the transverse colon, is exceedingly doubtful. The still further distension of the abdominal cavity is certainly to be deprecated, the pain and discomfort of the patient tend to weakness, and the reflexive stimulation of the peristalsis of the small intestine thus aroused induces nausea and vomiting, which is an injury unless it may, in itself, be sufficient to free the obstruction.

If, as happens in a majority of cases, the portion of the alimentary tract involved is the lower part of the small intestine, then we may determine why our efforts, applied to the large intestine are so utterly futile and the result only a loss of time and exhaustion of the patient.

It is the more important to consider these probabilities, since one of the primary rules laid down for the treatment of intestinal obstruction is the use of large enemata, variously medicated. That sufficiently careful consideration has not been given to this phase of the subject, that the obstruction does not lie in the large intestine except by the rarest of accidents, I cite the recent experience of a prominent English authority who, after using enemata freely without relief, made an artificial anus above the sigmoid flexure only to permit an easy escape of the injected fluid. It is needless to remark the patient died unrelieved of the obstruction.

If summoned to the relief of the sufferer in such desperate cases, what shall be advised? Certainly not to do harm if we can do no good. Assuming that, prior to the operation, we know that the alimentary canal had been properly emptied so that, at the time of operation, the bowel was in the best possible condition to bear its necessary manipulation, then it is clearly our duty to keep the stomach empty. It seems to be equally important to desist from the common practice of fretting and exhausting the patient by large, repeated rectal enemata. It is true that a certain amount of water may be absorbed which the system very much needs, but that can be accomplished by much less violent measures. Hypodermic medication of morphia is of value, but this is better given in small doses, often repeated. More recently this valuable remedy has been decried under the belief that it caused an interference of peristalsis, even to the producing of intestinal paralysis. It is indeed strange if opium which has been relied upon for generations as the remedy of greatest value in nearly all the intestinal diseases can now be considered by any as the cause of obstruction and its administration criminal. Its use should be minimized to the moderate relief of pain.

Strychnia, digitalis, nitroglycerin are remedies, to be used hypodermically, of much value in holding in conservation the rapidly ebbing vital force. Nature's own powers are not to be held in too light esteem,

since in the most desperate of conditions she triumphs occasionally. Of this we were never so fully aware as at the present, since the laparotomist is often called upon to examine the battle ground of previous victories, as he studies the results, where intestines have been banded to each other and the neighboring parts, and yet, within limitations, able to perform their functions for an indefinite period.

Although, as in the operation for appendicitis, it may be in the minority of cases that the aid of the surgeon is justly called to attempt to restore the damages incident upon his previous work, a considerable class of these cases doubtless exist, and when to reoperate is a question that may never be settled. When the weight of evidence points clearly not alone to obstruction as the impending danger, but that nature is powerless to remedy it, there can be but one rule, as in strangulated hernia, operate at the earliest possible moment for the relief of the incarcerated organ. A reopening of the abdomen within two or three days after the primal operation must ever be considered a formidable surgical measure, not alone in that the patient is necessarily in a serious condition from the previous operation, but that these conditions have become greatly intensified owing to the constriction in the alimentary canal. It is important to first wash out the stomach by means of the stomach tube. Often a large quantity of fluid will pour out with much advantage in the subsequent result. This I have done at times for years. Our previous knowledge of the intra-abdominal conditions is of the greatest value. We must keep in mind the portion of the intestine probably involved, and the location where we are likely to find it. This usually is the small intestine, generally the ileum, and the location the site of the surgical operation. Since this is more commonly the pelvic basin it is the first location to be explored. The second is in the neighborhood of the appendix. These having failed to furnish results, we are to examine carefully the omentum and its relation to the small intestine. A careful observation of these factors in the order proposed is of the utmost value. Nothing is more to be deprecated than the aimless searching in the abdominal cavity, and the evisceration of the patient by the rolling out of the distended intestine, as is often practiced in the blind search for the constriction.

The inflated intestines are ever protruding, but as far as possible are to be avoided, since the inflation itself teaches that this can not be the part involved. On the contrary, a portion of the intestine that is empty and flat is likely to lead almost at once to the constricted part. Here as elsewhere intimate anatomic knowledge of the abdominal cavity and its contents is of the utmost practical importance.

Etherization should be minimized. My experience with oxygen gas leads me to think favorably of it as an adjunct to chloroform. The operation should be undertaken under as favorable circumstances as possible, conducted with coolness, deliberation and dispatch, since the resources of the surgeon are rarely more severely taxed than in this dilemma.

Owing to the severe shock incident to an operation as above described, it has been recommended and practiced to make a small opening in the abdomen and through this withdraw the first inflated fold of small intestine that presents, suture it to the peritoneum and open. This gives temporary relief, permitting the escape of the pent-up toxic elements and affords time for the patient to rally from the extreme depression incident to the obstruction. As soon after as the general condition will permit, a third operation is undertaken for the relief of the constriction, at which time operative measures for the cure of the artificial anus are also instituted. In a dilemma of severe complications there may be conditions that would cause such a temporary operation to be favorably considered, and it is well for the surgeon to keep in mind the possibility of its advantage.

In review, I am constrained to add emphasis to the practical importance of the preparation of all patients for laparotomy. The condition of the nervous system is important. The lowering of the nervous tension is a very great gain. The substitution of hope for fear, and confidence in the outcome is of much more value than I earlier believed; and why should not this be true, since the best definition of life itself is the equilibrium of the vital processes in their sway over the organic matter which they hold in control?

The intestinal canal should be carefully emptied and peristalsis kept active at the time of operation. It is better to employ only fluid food for some days prior, and antiseptics, such as small doses of calomel and salol, I believe to be of value. Time is an important factor in the operation, but this is no excuse for undue haste or inaccuracy of work.

Intraperitoneal surgery must ever be of the highest order, and accuracy and completeness of detail must go hand in hand in every process to prevent infection. When these great surgical laws have been complied with recovery is in direct ratio with the minimizing of the devitalization of the patient. These are the almost ideal results which modern surgery has attained and upon their practical application depends the marvelous success of the surgeon of to-day.

DISCUSSION.

Dr. A. H. Cordier, Kansas City, Mo.—In the majority of instances we will find the obstruction near the junction of the small with the large bowel. It is impossible to locate this dangerous condition when we are operating through the vagina. The argument which Dr. Marcy has presented is in favor of doing these operations through the abdominal wall. The work then is complete. It is not the specimen alone for which the surgeon should seek in doing abdominal operation. He should seek to liberate adhesion and relieve the patient of all likelihood of intestinal obstruction following the work. At the time of operation we will find the bowel flaccid—comparatively speaking, empty, with adhesions. These adhesions may not have given trouble prior to operation, but with the amount of handling which of necessity must be done in operating, either through the vagina or abdomen, if the adhesions are not separated, we have following the operation great distension of the intestines, and following that a semi-paresis. We have the difficulty of a paralyzed bowel to contend with and inability to force the contents of the bowel beyond the seat of obstruction. We must separate the adhesions and liberate the bowel. I am satisfied that many cases, reported as dying from some form of sepsis or peritonitis, would, if a careful postmortem was made, be found to have died from intestinal obstruction, the sepsis and peritonitis being secondary, because the gaseous distension can not relieve itself.

Dr. E. E. Montgomery, Philadelphia—Too much stress can not be placed upon the early treatment of cases of intestinal obstruction. The distension which takes place in the upper part of the stomach may be relieved temporarily by introducing a stomach tube, washing out the stomach, allowing a large quantity of gas to escape, removing the contents of the stom-

ach. This takes away the pressure against the diaphragm, relieves respiration and facilitates the heart's action. This should be tried once or twice, and if the patient continues to suffer from intestinal obstruction the proper plan would be to reopen the abdomen. I must take exception to the remarks of the last speaker, that in these cases it indicates the necessity of opening through the abdomen in cases of pelvic disease. Cases operated upon through the vagina are not more subject to intestinal obstruction than are those operated through the abdomen. I have not seen a single case of removal of the uterus through the vagina for inflammatory conditions in which the subsequent convalescence of the patient was disturbed by symptoms of obstruction.

DR. RUFUS B. HALL, Cincinnati—It is a difficult matter in any given case of intestinal obstruction to make a positive diagnosis until the patient is practically dead, and that is why a reopening of the abdomen in such cases gives such a high mortality. The differentiation of intestinal obstruction is difficult. Many times I have been on the point of giving the patient an anesthetic to reopen the abdomen, and in half an hour afterward my patient was convalescing and recovered without trouble. If we only knew that the patient had obstruction we could probably save them all.

DR. HENRY P. NEWMAN, Chicago—The fact that we have these cases of intestinal obstruction following laparotomy should stimulate us to better, more thorough and complete work. True, the obstruction usually occurs in desperate cases, but if the patients are handled with care and with the utmost thoroughness, they will frequently escape this accident, particularly if we exercise caution in covering abraded surfaces with pertioneum and the vaginal tract with omentum. As to the protection of abraded surfaces after laparotomy that can not be covered with peritoneum, they may be kept apart by the proper application of gauze or wicking.

It was my misfortune to lose a case of vaginal hysterectomy recently from intestinal obstruction, which probably could have been avoided if someone had been at hand to watch the case. Unfortunately, I was called out of the city at the time. Presumably a portion of the intestine had become adherent and was drawn into the fold of the vagina, causing obstruction and death.

In regard to the proper application of gauze after vaginal hysterectomy, the gauze should not penetrate the abdominal cavity. It should be applied in a manner to guard against hernia and a means of drainage, but should not come in contact with the intestine. Furthermore, it is important to begin the use of mild catharsis to stimulate peristalsis early, and here let me enter a protest against the use of opiates. Morphin is sparingly used at the present time in laparotomies, and I think it ought to be. On the other hand, use laxatives early, beginning twenty-four hours after your operation, particularly where there is an accumulation of gas and perhaps great distress.

DR. J. W. BOVEE, Washington, D. C.—I had the misfortune to lose a case from intestinal obstruction following abdominal section, the woman dying on the fifteenth day after operation. She progressed nicely for five days, and then the bowels did not move for one or two days. They moved again on the seventh day. On the ninth day she was taken with considerable pain in the region of the cecum. I commenced with catharsis, but could not move the bowels, although I used enemata and also croton oil. On the fifteenth day I opened the abdomen and found two or three coils of the small intestine down in the right side of the pelvis attached to the posterior surface of the broad ligament from which I had removed a tubo-ovarian abscess. I separated the adhesion with scissors, closed the abdomen as quickly as possible, and did it with scarcely any anesthesia, realizing that it was a desperate case. I make it a point now to close raw sufaces in the abdomen if the condition of the patient permits and move the bowels as soon as possible. Within twenty-four hours after the operation I commence salines.

DR. GEORGE WM. REYNOLDS, Chicago—One of the fruitful causes of intestinal obstruction is the manner in which the abdominal incision is closed. It is my practice not to include the parietal peritoneum in the deep sutures. Frequently, in tying them, where we penetrate the peritoneum, loops of intestine are caught and obstruction follows. My practice has been to sew the parietal peritoneum separately, including in my deep sutures the muscles, the fascia and the external skin.

DR. JOSEPH TABER JOHNSON, Washington, D. C.—It is altogether possible that by passing the same suture down through both sides of the abdominal incision and up through the other side by the time the operator is ready to close the abdominal wound, tying off one suture after another, a knuckle of intestine or piece of omentum may get in between the stitches and produce adhesions which result in intestinal obstruction. I have known one or two cases due to this cause. There is no doubt but that a great many cases can be prevented by perfect operating, leaving as few raw surfaces as possible, taking great care in separating adhesions that exist about the tumor itself, and by the covering of all raw surfaces in the manner suggested by the paper. The diet question after operation is one of importance. I had the misfortune to lose a patient some time ago when a difficult hysterectomy had been performed. The patient was about ready to go home. She was exceedingly anxious that evening to have some veal cutlets. She partook of them and had an attack of indigestion shortly after which brought on vomiting. She vomited until she died. A postmortem was made and a twist of the small intestine was found. The intestine below the twist not larger than a pencil, while above it was as large as my wrist. If we had been able to diagnose the case when the first symptoms of intestinal obstruction came on, we doubtless could have separated the adhesions caused by the intestinal obstruction and saved our patient.

DR. MARCY—Had I written upon this subject a year ago I probably should have taken a different view of it, but during the last year the cases which I have reported occurred. If you will look carefully over reports of cases you will find that intestinal obstruction following laparotomy is more frequent than we formerly supposed. These cases point out the necessity for more careful, thorough work in order to avoid this accident. It is a question in my mind whether the pelvic structures are protected by the omentum, and that is the reason we are so likely to have intestinal adhesions occur in the pelvic region. The normal range of motion of the small intestine, including the pelvic basin, gives emphasis to that remark.

In reference to the vaginal route, I do not exactly agree with Dr. Montgomery. Blind surgery may be stigmatized as bad surgery. Vaginal surgery is necessarily in large measure blind surgery, in that the eye does not direct the hand. In one case that I lately saved there was an old band of adhesion which had nothing whatever to do with the carcinomatous uterus which I had previously removed. Under this old adhesion was a loop of intestine which had become incarcerated. It was freed and the patient recovered.

In another case, twenty-two days after operation a double loop of the small intestine was found united to the stump from which I had removed an ovarian cystoma. In this case we reopened the abdomen and saved the life of the patient.

HYSTERECTOMY AS AN ACCOMPANIMENT TO BILATERAL REMOVAL OF THE APPENDAGES.

Read in the Section on Obstetrics and Diseases of Women, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5-8, 1896.

BY REUBEN PETERSON, M.D.

GRAND RAPIDS, MICH.

During the past five years decided changes have taken place in the methods of dealing with pelvic inflammatory diseases. Prior to 1890, it was the established custom in America to deal with irreparably diseased appendages by removal solely through an abdominal incision. Deliberate hysterectomy as

an adjunct to ablation of the tubes and ovaries was not practiced. Péan in 1886 removed by the vagina the diseased uterus of a patient whom he had failed to cure by a previous removal of the appendages. From this and similar cases he sought to establish the principle that for certain forms of pelvic inflammatory disease hysterectomy as well as removal of the appendages should be performed. His work along these lines, which was reported before the Paris Academy of Medicine in 1890, seems to have attracted but little attention in this country. Operators of large experience who had carefully followed up the history of these cases, subsequent to the operation of bilateral ablation of the adnexa, were forced to admit that many of their patients were not restored to health. Many still suffered from hemorrhagic and purulent uterine discharges and the reflex symptoms, which had prominently figured among the indications for the operation, persisted to a greater or less degree. In order to do away with these unfavorable sequelæ, portions of the uterus were surgically treated. It was urged that in every case where the appendages were to be removed for chronic inflammatory disease, the uterus first should be thoroughly curetted and drained. Also that the tubes should be dissected out of the uterine cornua in order that no diseased tissue be left behind. Although these procedures were carefully carried out there still remained cases which presented the old train of symptoms. Hence when Polk's paper[1] on "Hysterectomy (supra pubic) for Salpingitis and Ovaritis" appeared in the latter part of 1893 in which hysterectomy was advocaed for every case where both appendages had been removed for serious disease, the idea, coinciding as it did with the clinical observations of many operators,[2] was eagerly seized upon by prominent gynecologists throughout the country and immediately put into practice. Since that time hysterectomies have been done by the score in this class of cases. Is it not well to pause after three years' work in this line and ask ourselves *not* how many uteri have been removed during this period, but how much has been learned from careful microscopic and bacteriologic examinations of these removed organs? In other words, do the pathologic lesions found in the ablated uteri confirm the correctness of the reasoning of those who, mainly upon clinical grounds, advocate hysterectomy in certain inflammatory pelvic diseases. Henrotin[3] at the last meeting of the American Gynecological Society states that "the position of advanced, observant gynecologists who are not hampered by tradition or custom or afraid of their own stubborn dogmatic expressions in the past can be stated as follows: 'In every operation for septic diseases of the female generative organs which demands the removal of the tubes and ovaries, hysterectomy should also be performed unless there are contraindications forbidding it.'" I consider this a fair statement of the present position of surgery upon the subject. The whole question will turn upon the interpretation placed upon the phrase "contraindications forbidding it." The more carefully the removed uteri are studied in connection with the history of the case and the condition of the pelvis found at the time of the operation, the nearer we will be to determining what will constitute a contraindication. If it can be shown that certain pathologic uterine lesions either of the mucosa or of the deeper structures are susceptible of cure without removal of the organ, then considerable advance has been made toward establishing another contraindication. On the other hand microscopic examination of the removed organ may show such decided morbid changes in its structure as to render any curative treatment short of ablation ineffectual. This line of research may not be the easiest or most enticing. One would far rather have a universal rule for guidance, such as is laid down above, but conservative surgery does not advance along these lines. For example, it is much easier to adopt a universal rule to operate for appendicitis in every case as soon as the diagnosis is made. Yet those who advocate and observe this rule are in the vast minority and ever will be, so long as it can be proven that a certain percentage of cases recover by adhering to other modes of procedure. The technique of hysterectomy has been so perfected that in the hands of the skilled operator the mortality is increased but little over that resulting from removal of the tubes and ovaries alone. This fact, however, does not justify one in removing the uterus in every case. While clinical experience has shown me that a certain percentage of my cases were not cured after their pus tubes were removed, on the other hand it has demonstrated that certain cases recovered after this treatment. It seems to me it is plainly the surgeon's duty under these circumstances to endeavor to solve the problem why one set of cases recovered and the other did not. The reason must lie, other things being equal, in the condition of the uterus at the time of the operation. How can these different conditions be studied and definite rules of procedure be established except it be upon both pathologic and clinical grounds. Yet a perusal of the literature emanating from our gynecologists upon hysterectomy for inflammatory affections will show that their conclusions have been arrived at mainly from a clinical consideration of the subject, That this is a dangerous mode of studying any surgical question and one liable to lead to grave errors is demonstrated by the abuse of ovariotomy when it was performed for symptoms and not for demonstrable pathologic lesions. I fail to see the line of reasoning adopted by Polk. He, the advocate, par excellence, of conservative surgery, who would leave in an ovary or part of one with everything else removed, advocates the removal of the uterus in every case of bilateral ablation of the appendages because *some* cases fail of cure without this additional procedure. What right has he or anyone to justify his position by claiming that the "emasculated uterus" is a useless organ and hence should be sacrificed? It should be sacrificed if it is so diseased that no known procedure can effect its cure and that should be the only justifiable ground for its removal. One who claims so much for thorough dilatation and curettage of the uterus, in the way of depletion and drainage, should surely obtain better results than are shown by his advocacy of the proposition to perform hysterectomy in each of these cases.

I am making a plea against the adoption of any universal rule in regard to these cases as if it were finally settled. I claim that the surgeon has no right to remove the uterus after removal of the appendages unless he is convinced that the organ is diseased beyond the hope of cure by less radical methods. Krug[4] in the discussion of Polk's paper, said he had "never found a healthy uterus when there had been such inflammatory disease in the tubes and ovaries as would warrant bilateral salpingo-oöphorectomy." It

is not a question of the uterus always being diseased in these cases. As most inflammatory disease of the adnexa arises from some form of intrauterine affection, it would be remarkable if the uteri were perfectly healthy. The question is how much are they diseased and how can this disease be cured? I would not underrate the work of those who were the first to advocate hysterectomy for inflammatory disease. I consider it a great step in advance and for certain conditions it is the only procedure which should be adopted. But I believe that the prediction of Baldy made two years ago in a paper[5] on this subject, that uteri would be removed which might safely be left, has proven true to a far greater extent than one could have predicted. Even if the uterus be a functionless organ after bilateral salpingo-oöphorectomy, I do not think the most radical operator would urge its removal for this cause alone, if he could determine in which cases it could "safely" be left within.

The investigations of Wertheim[6] have thrown considerable light upon gonorrhea of the uterus. They would tend to show that the deeper uterine structures are affected to a greater degree than was formerly supposed. There is in many cases infiltration of the muscle with hyperplasia of the vessel walls. That the gonococci can penetrate into the muscularis is considered highly probable by Wertheim though he has never bacteriologically demonstrated their existence.[7] That a metritis with sensitiveness and general enlargement occurs in gonorrheal disease of the uterus is a well known clinic fact, but that it is due to the gonococcus has never been proven because the muscular tissues being an unfavorable soil for the germs they either perish or pass on through the uterine wall to the peritoneum. Madlener[8] asserts that he actually demonstrated the gonococci in the muscular tissue in one case where the uterus was removed seven weeks after confinement.

Gonorrheal disease of the uterine deeper structures offers then an explanation of the unsatisfactory results obtained by treatment through the curette and drainage. Removal of the endometrium leaves the deeper structures still diseased and in a short time the old symptoms will again appear. For this reason Werth[9] claims inasmuch as it is impossible clinically to distinguish these forms of endometritis where the deeper tissue is involved, that a thorough cauterization after curettage should always be made. He recommends liquor ferri and shows that after its use a regeneration of the epithelium is delayed.

The conclusions were arrived at from a careful microscopic examination of uteri removed after curettage performed some days previously, and are therefore more valuable than mere theoretic conjectures in the matter. In another article[10] he shows that the endometrium is never entirely removed, patches untouched by the curette remaining. The cornua were most likely to be spared.

Just what percentage of cases of inflammatory disease of the adnexa are due to gonorrhea it is hard to say. Probably 25 per cent. would be a conservative estimate. It is generally conceded that Noeggerath's[11] picture of latent gonorrhea and its frequency was exaggerated. Yet no one can question the important role played by the gonococcus in the production of pyosalpinx. Apparently gonorrhea of the uterus is especially difficult of cure, and this should have weight in deciding whether hysterectomy should follow removal of pus tubes.

Schauta[12] takes a very decided stand in this matter. From the results of his observations he finds that only 59 per cent. of cures result when both appendages are moved and only 23 per cent. where one side is removed. When this lesion is due to gonorrhea, he, like Tait, claims that when one side is removed the other should be also together with the uterus. This recommendation is not based, it seems to me, upon sound scientific principles and is not advocated by the majority of gynecologists. If this dictum be followed then we practically concede that we are powerless in the presence of gonorrheal disease to effect a cure short of hysterectomy. While the investigations referred to have shown us why frequent failures result from our efforts to cure gonorrhea of the uterus, still, I do not believe that every case of gonorrheal endometritis is incurable. A certain proportion of the 25 per cent. will no doubt fall under this category and in time we shall be in a position to recognize these cases and act accordingly. Much will depend upon the wishes of the patient in cases where one side is unaffected[13]. She may demand the most radical operation if there exists a possibility of the other side becoming affected. On the contrary she may be desirous of bearing children and be willing to risk the possibility of a secondary operation from the failure of intrauterine treatment. Schauta makes every effort to establish the diagnosis of gonorrhea prior to operation and during the progress of the latter has the contents of the pyosalpinx examined for the gonococci. If gonorrhea is found to exist both adnexa and uterus are removed on the ground that the gonococci work irreparable change in the uterus while the inflammation of the appendages due to streptococcus and staphylococcus infection is usually one sided, the uterine lesion heals and consequently the uterus can safely be left. As more than 50 per cent. of the cases of inflammatory disease of the adnexa are believed to arise from infection after abortions or the puerperal state, it will readily be seen that if Schauta's claims be true there are many cases where the uterine lesions will either be cured or amenable to treatment after the removal of the adnexa.

More such investigations should be made and by the collections of bacteriologic and clinical data, rules can be formulated which will be of universal value to the surgeon in deciding what should be done in a given case. Whatever may be said to the contrary, hysterectomy is a much more radical procedure than bilateral removal of the adnexa and should never be performed except when demanded for the cure of the patient.

Some advocate hysterectomy on the ground that 12 per cent. of chronically diseased adnexa requiring removal are found to be tubercular upon microscopic examination and that the uterus may be also affected.[14] This position is strengthened by the observation of Cullen,[15] who thinks tubercular disease of the uterus is usually secondary to that in the tubes. But tubercular uterine disease is usually demonstrable by the examination of scrapings and hence it is possible to have a fairly clear idea of the condition of the uterus prior to the operation. Where the uterus is found to be tubercular it should always be removed, because of the difficulty of curing it by intrauterine treatment. Where the microscopic appearances of the adnexa show tubercular deposits, it would seem advisable to remove the uterus because of the serious nature of

the disease, the possibility of the uterus being affected and the difficulty of curing tubercular uterine disease by the curette. If the microscope shows tubercular disease in the appendages unsuspected before, the uterus can be removed by a secondary operation.

At the last meeting of this ASSOCIATION a former chairman of this section, Dr. Eastman, remarked in speaking of hysterectomy for fibroids, that he was not sure of what the after-effects of complete removal of the uterus would prove to be, that he found vaginal prolapse, cystocele and rectocele following some cases, and that he would be obliged to suspend judgment until he had operated on more cases by this method. This was said by a man who has probably performed as many if not more complete hysterectomies than any operator in the country. It would seem that the lesson to be learned from the remarks of such a man, was to be cautious in urging that the uterus be removed. It is generally conceded that when we are obliged to remove an organ, it is a practical acknowledgment of defeat. Starting from this defeat however our efforts involving removal may end in victory as regards the health of the individual.

We must continually keep before our minds the two great classes of cases calling for bilateral removal of the adnexa, and it is only necessary to recall our past cases to find examples of each.

The first is where there is advanced disease, usually chronic, involving both adnexa. The tubes and ovaries, whether filled with or free from pus, are bound down in the posterior cul-de-sac and to the omentum and bowels by dense adhesions. Much labor must be expended in enucleating these masses and much injury may be done the uterus in separating it from the pus sacs. Repeated infections with resulting metritis and endometritis have also greatly impaired its integrity. Here the indications are clearly for removal of uterus. Its peritoneal covering may be so injured that, if left, it will be firmly bound down by dense post-operative adhesions and give rise to great suffering. These are the cases where hysterectomy will give brilliant results as compared with the older methods. But these are not the usual but the severe cases and fortunately the exceptions.

The second class is the one we are considering in this paper. Here the recurrent attacks of pelvic peritonitis have been fewer, hence the adhesions less. The tubes and ovaries may be the seat of purulent collections, or their contents may have become changed to a cheesy material with thickening of the walls. The fimbriated extremities of the tubes are closed and no conservative operative procedure can be entertained. The uterus is enlarged but fairly movable. The masses on either side having been removed without much difficulty, the operator is confronted with the question of whether hysterectomy shall follow. His decision will depend largely upon the condition of the uterus and the possibility of its being cured by treatment directed to its interior, aided by the atrophy resulting from the removal of the appendages. Careful, recorded observations, both pathologic and clinic, will result in rules which will guide the surgeon in his choice of procedure.

602 Pythian Temple.

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15 Cullen: Johns Hopkins Hospital Reports, Vol. 4, Nos. 7–8.

DISCUSSION.

DR. JOSEPH EASTMAN, Indianapolis—I am intensely pleased with Dr. Peterson's paper. The gentlemen who run to extremes, who ride hobbies to the extent that some of those engaged in this work have done, have been severely reprimanded by the President of the AMERICAN MEDICAL ASSOCIATION, as well as the incoming President, during this meeting, and it is encouraging indeed to see a young man come in here and present such a conservative paper, in an aggressive way, that neither the criticism of Dr. Cole nor of Dr. Senn touches him or a word he has uttered. He did not know when he wrote this paper what they were going to say, yet he has disarmed their criticism and has effectually parried their stroke. From that lesson we take warning, and the people, as well as the attending physician, will attach importance to these words and admonish us that the surgical pendulum has swung to the extreme, and that uteri and ovaries have been sacrificed that might have been saved by either medical or conservative surgical treatment. I am pleased with the paper from beginning to end. We see the sparkling diamonds of surgical thought crystallized and matured. We see from beginning to end science, surgery and sense.

DR. EDWIN WALKER, Evansville—The question of diagnosis has been hinted at, but I think our diagnosis should extend outside of the pelvis. Many of these recurrent cases have diseases which have nothing whatever to do with the sexual organs, and until we clearly recognize this and properly treat the cases we will never cure them. We all know there are a class of neurasthenics, who are often anxious to be operated on, and after having been treated surgically are no better than before. Many of the cases reported as incurable are not really pelvic diseases. The number of uteri which give trouble, after the removal of the appendages, it seems to me, must be small. From my own experience, I can recall but two cases, and in both of these there was a persistent purulent discharge. Neither of them has been operated on since. I think in both I recommended extirpation. But because in these rare instances we have such cases that are not cured, it is by no means a just conclusion that all should be treated by total extirpation. The point I wish particularly to make is that before a diagnosis is made our examinations should extend throughout the whole system, and not the pelvis alone.

DR. HENRY P. NEWMAN, Chicago—I regret that these conservative remarks were not injected earlier in our proceedings. Some sweeping statements have been made from time to time regarding radical operations performed for the relief of inflammatory diseases of women, and it is certainly to be deprecated. We are oftentimes in a position to be criticised, as we have been at this meeting by two prominent men. For that reason I am pleased to have heard Dr. Peterson's able and conservative paper. At the same time it is a very aggressive contribution. I like the tone of it and wish to thank the author for it.

DR. J. W. BOVEE, Washington, D. C.—I do not have a dread of the gonorrheal uterus, that the essayist has. It does not seem possible that this condition is beyond our aid. When a uterus is to be removed for the cure of a diseased condition, if the gonococcus travels through the walls, how can we feel any safer in removing the uterus for gonorrhea than in removing it for cancer? It may be, that I have had a unique experience, because it is a revelation to me that there is so much

evil resulting from this class of work, or in following this class of procedures. I have not had bad results following abdominal section.

DR. RUFUS B. HALL, Cincinnati—I endorse the sentiment and views expressed by Dr. Peterson most heartily.

DR. PETERSON—I am very much obliged to the members for their complimentary remarks, but I wish the paper had been more freely discussed and not complimented so much. We are continually meeting with this question which we have to solve at the operating table, and while it is easier perhaps to adopt a universal rule, still it does not seem to me as though along these lines our department of science will progress.

Dr. Bovee spoke about the fear of the gonorrheal uterus. Possibly he misinterpreted some of my quotations from Schauta. I simply said that the investigations of this man and others have shown that where the gonococci penetrate into the muscular tissue, they leave such a damaged condition that it is difficult to cure the cases by curettage. By these investigations we are enabled to compare the ravages produced by the gonococci, the streptococci and the staphylococci. The inflammation is entirely different from cancer.

VAGINAL VERSUS ABDOMINAL SECTION FOR SMALL TUMORS AND PUS IN THE PELVIS.

DISCUSSION.

DR. R. S. SUTTON, Pittsburg—It is especially appropriate that this discussion should take place in the former home of Robert Battey, whom we all revered, and who has passed to his final reward for the noble services which he extended to suffering women. His first conceptions led him to remove the ovaries by the vaginal route, and it is especially gratifying to American surgeons that this route is still held by all as a proper one, and by many as the better one in suitable cases. The question of this route or the upper or abdominal route for the removal of pus tubes is the one first before us. The advantages of the vaginal route are multiple. The removal of the uterus with the suppurating appendages opens the way to perfect drainage. It also disposes of an organ which is pathologic and useless, and which if left may afterward become the seat of other pathologic changes. The rate of mortality for the removal of pus tubes by this route is exceedingly low, probably in good hands not above 3 per cent. The objections to an abdominal wound are removed and the convalescence of the patients is remarkably short and free from febrile features. The point on which many are at variance is the disposition of the uterus. I hold that the whole question hinges upon the pathologic condition of the uterus itself. If the uterus is a focus of infection, loaded with pathologic germs, such as the gonococci or bacillus tuberculosis, streptococci or staphylococci, it should be removed with the appendages, and no portion of it should be left. I hold further that a uterus deprived of the ovaries and tubes is a useless organ. That it may become, if left, a future incubator for cancer cells, gonorrheal or tubercular germs, and is quite as dangerous, or more so, than the appendix vermiformis, which surgeons do not hesitate to remove for prophylactic reasons. We have been told that we might as well remove the penis after male castration as the uterus after removal of the ovaries. The cases are not analogous. The anatomic construction of the uterus and penis are not alike, they are not equally liable to the same diseases, and their position with reference to the bladder is totally different. The uterus lies hidden in the pelvis, behind the bladder. The penis is attached to the bladder in front, and every few hours it is thoroughly washed out by the urine discharged from the bladder. It is impossible that it should harbor and incubate pathologic germs to the extent that the retained uterus may do. It is probable that Jacobs and others are right in fixing the causes of diseased appendages about as follows: 75 per cent. for gonorrheal infection, 10 per cent. for tubercular, and 15 per cent. of extraneous or other causes, including cancer. In addition to the occurrence of pus in the tubes, we may have abscesses form in the pelvic cellular tissue, the infection entering abrasions and being conveyed by the lymphatics. By the vaginal route, then, collections may be reached without disturbing the uterus. I urge that an infected uterus should be taken out with the appendages, and that a uterus deprived of them is of no use and is dangerous; that its removal adds greater safety to the operation.

As to the question of the removal of fibroids by the vaginal route: Large fibroids should be removed by the abdominal route by the method laid down by Crobak, and popularized in this country by Baer. Submucous fibroids may generally be safely enucleated per vaginam. Pediculated fibroids, as a rule, large or small, are better attacked by the abdominal route. But what of the small fibroids affecting the wall of the uterus? I do not believe that we have a right to deliberately destroy a uterus by either route in all such cases. Such tumors may often be shelled out and the woman afterward bear children.

But the President reminds me that my time is up. I will only say that the uterus bearing a small fibroid in its walls may be exposed by anterior colpotomy, and that often the tumor may be incised and shelled out, and the uterus safely returned to the pelvic cavity.

DR. W. E. B. DAVIS, Birmingham, Ala.—The man who has executed much successful work through the vagina will be loathe to change, and *vice versa*. Both operations have a large field, and it is well that we have two routes by which to reach the diseases of these important organs.

Dr. Sutton rightly emphasized the fact that the choice of operation depends largely upon the decision as to the disposition of the uterus in bilateral diseases of the appendages. Undoubtedly the question hinges on this point, and he very properly devoted much of the time allowed him in its discussion. I agree with him that if the uterus is to be removed, when the bilateral operation is necessary, that the vaginal route should be selected in a large proportion of such cases. However, it should be the aim and pride of every surgeon to preserve everything consistent with thorough surgical work, and not to sacrifice important organs because it can be done with only small mortality. He and others tell us that the uterus has no function after the removal of the appendages, but they have not demonstrated this, and on the contrary we know that the sexual life of the woman is very much better preserved by leaving the uterus, and that the mental effect is also much better. A slow convalescence, or even a second operation is preferable to its removal unless very much diseased. It is a reflection on the correctness of the reports of complete recoveries of such a large percentage of cases by many most excellent surgeons, when the uterus was not removed, to accept the argument now being used in favor of hysterectomy in all these cases. I can not agree with Dr. Sutton that pus in the tubes is due to gonorrhea in 75 per cent. of cases. I think that puerperal infection is the cause of more than 50 per cent. Tubercular infection is rarely the cause and is not so important as his discussion would indicate. However, the importance which he attaches to gonorrhea is against his argument for the removal of the uterus, as the infection from this source is not deep, and can be removed with the curette. Because some patients are not completely cured by the removal of the appendages is no argument for hysterectomy in every case where the bilateral operation is required, for nearly all these can be relieved by a thorough curettage. Some large uteri will require in addition to this the ligation of the uterine arteries with a high amputation of the cervix; only a small number of cases will need hysterectomy.

Vaginal incision for the drainage of pus in the pelvis, not confined to the tubes, is a most valuable method of treatment, and has been practiced for a long time with gratifying results. A large percentage of these cases have required no further surgery. More recently large pus tubes and ovarian abscesses have been incised and drained through the vagina with permanent recoveries in a large proportion of cases. These are the very cases where the vaginal operation and hysterectomy have been recommended so highly by the French surgeons. Yet a large percentage can be relieved by vaginal incision and drainage. If not completely relieved, the patient's condition will be made better by getting rid of the pus, and later on an abdominal operation can be done and the patient cured by the removal of the appendages, and perhaps of one side only. The uterus can nearly always be saved by this method of procedure. It is not best to do a radical abdominal operation at first, as recommended by the leader of the discussion. As to the mortality of the two methods it is very low in both and one possesses nothing over the other from that standpoint. The object of the surgeon now should be, not so much toward still further reducing the death rate from the operation, but to relieve these cases and preserve as far as possible organs which have so much to do with the woman's health and happiness. For that reason the abdominal operation is preferable, as the aid of positive sight is given, thus affording an opportunity for conservatism. It affords a wider field of operation and hemorrhage is more easily controlled. After the operation is commenced it can be changed to suit the conditions found, which could not be known before the abdomen is opened. Extensive adhesions can be much more readily dealt with. There is less danger of intestinal, vesical and ureteral fistulæ. There is less labor to the surgeon. More time is required for the patient to be out of bed, but the additional time thus spent is beneficial to these cases whose nervous systems have been greatly impressed by long suffering. It may be urged against the abdominal operation that a small number of cases of ventral hernia would follow. The scar is also an objection. In view of the great advantages furnished by the Trendelenburg position for positive diagnosis and thorough work we must all agree that the abdominal route has a field in pelvic surgery that can not be supplied by the vaginal operation. Very little was said by Dr. Sutton in regard to fibroids. I think if a fibroid is large enough to require removal that it can be better dealt with by the suprapubic operation.

Dr. J. W. Bovee, Washington, said he had been operating by both methods and had found that both are needed in this class of cases. A great many fibroid tumors may be operated on from below, as through the opening made in anterior colpotomy by the incision along the anterior vaginal wall meeting one that parallels the front wall of the cervix a growth having a diameter of four inches may be removed. So that for small fibroids in the anterior wall of the uterus the vaginal route is a very good one. There are also some pus cases in which it is absolutely necessary to take away the pus and yet not prolong the anesthetic and the operation. These demand a vaginal incision. They should not be classed with operations in which organs are removed. For ordinary pus cases, fibroid tumors of some size and nearly all intrapelvic diseases that require entering the peritoneal cavity he prefers the abdominal route because it is much the simpler and the cosmetic objections have no place in the work of good, clean surgeons. He does not believe it necessary to remove the uterus in but few of the cases in which the appendages are removed. His experience in this may have been unique for he had cured nearly all the cases he had operated on. He usually curetted first and then, putting the patient in proper position did the abdominal operation. If the patient is too weak for all this he curettes after recovery from the section. In many women the sexual sensation is greatest in the cervix and many of them do not feel that they are so much different from other women if they can touch the cervix with the finger. We can not completely ignore the ideas they have on these subjects. At the present time he employs drainage very little but may be led to use it more in the future than he has in the past. He believes that tuberculosis of the Fallopian tube is rarely primary and that usually it extends from the peritoneum to the tube and later infects the uterus. So that tubal peritonitis does not necessarily require removal of the uterus as Dr. Sutton would have us think. The very small per cent. of cases in which infection of the cellular tissue to the side of the uterus occurs need not be considered in this connection. To continue the ovarian function he has been in the habit of leaving at least a portion of an ovary whenever it was possible to do so, in all abdominal cases. It at least prevents the sudden onset of the menopause just when the woman is endeavoring to recuperate the powers that were so severely taxed during the progress of the disease for which the operation was necessary.

Dr. L. S. McMurtry, of Louisville—This discussion is limited to a choice between the abdominal and vaginal route in operating for inflammatory diseases of the uterus and its adnexa and for uterine fibro-myomata. We should never lose sight of the principles which should guide all operations here, requiring the greatest preservation of organs and functions consistent with thorough work and permanent cure. It is indeed a crude conception of surgery which would do away with a diseased organ or structure by amputation or complete excision. It is a higher standard of surgical art which, while removing diseased and disintegrated structures, preserves all organs capable of restoration to normal structural integrity. This is not sentiment, but a great principle of surgery which should be generally applied. To remove the uterus for suppurative disease of the uterine appendages, upon the basis that after the ovaries and tubes have become disintegrated the uterus is no longer useful, is a violation of this principle. I have seen uteri exhibited to societies which had been removed under these conditions, and which presented no evidences of positive inflammatory lesions, while the suppurating tubes and ovaries, with adhesions and multiple pus sacs, were left to the chances of gauze drainage. I submit that this is not good surgery, and although the patient may be symptomatically cured, the surgical work is neither thorough nor accurate. This operation in such a case is little more than drainage from below, which as a valuable life-saving temporary operation has been long recognized and applied in pelvic surgery.

The advantages of the supra-pubic incision are numerous and demonstrable. The facilities for a clean operation are greater than by the vagina. The danger of wounding bowel or bladder is much less. The abdominal route furnishes a field for open work where every step may be seen, and every danger and complication may be measured and dealt with intelligently. Ligation of vessels can be done deliberately and securely; adhesions separated, and previously unrecognized complications (such as appendicitis) properly treated. More complete and refined surgery can be done by the abdominal route than is possible by the vaginal approach. A more judicious operative scheme can be carried out and more careful application of conservative principles is possible. Moreover, when the operation is completed by abdominal section, the operator has a clear apprehension of the condition within to guide him throughout the subsequent management of the case. Experience of many operations and many operators, dealing with every phase and variety of disease, has demonstrated the efficacy of the abdominal route. Skilled and experienced operators have perfected operative methods which have stood the test of practical application. The objection urged against abdominal section that a scar is left as a reminder of an operation is trivial. In my own experience I have never known a patient to allude to this. The danger of hernia is not great.

In my observation and experience the shock is not severe in either operation ordinarily, and is about equal in the same grade of cases. The danger of injury to the hollow viscera is much greater by the vaginal route.

All these considerations apply with even greater force to operations for subperitoneal and interstitial uterine fibro-myomata of any size whatever requiring radical operation.

DR. JOSEPH EASTMAN, Indianapolis, thought the question of accurate diagnosis in these cases had been overlooked. It was very important; we must deal with facts and not fancies. He was surprised that Dr. Kelly advocated the partial removal of the uterus in these cases, whether done from above or below. If it is diseased, the whole of it should be removed and nothing left to carry infection. The decision as to the method to be employed must depend on the history of each individual case. He agreed with Dr. Kelly that a diseased appendix is frequently associated with diseased tubes, probably in 10 per cent., and possibly 25 per cent. He was also fully in accord with Dr. McMurtry that everything possible should be left. The vaginal route has advantages to recommend it in individual cases where the uterus is diseased as well as the tubes. He wished to protest against the discharge of patients as soon as the eighth day. He thought there is an analogy between the opening of the pelvis by either route, and much the same precautions should be used. There is no excuse for such extensive packing with gauze in the vaginal method as had been recommended. In many cases the wound could be closed as perfectly as in abdominal section, and that was the plan he had adopted with great success.

DR. I. S. STONE was surprised that attention had not been called to the selection of cases. Where the patient is very ill, suffering from sepsis, and can not endure the shock of an abdominal operation, a simple incision through the vagina as advocated by Dr. Noble was the only thing to do. He thought there was less shock in the vaginal operation. He thought the time would never come when the abdominal operation for fibroids would be discontinued.

DR. RUFUS B. HALL, Cincinnati, Ohio—I am of the opinion that the vaginal route will not be the one of election in fibroid tumors of the uterus, larger than an orange, after the enthusiasm of the operation has had time to abate. I know from practical experience that when the uterus is much enlarged from a fibroid it is difficult if not impossible to get working room and deliver the uterus without morcellement. The difficulties of this procedure contrasted with the ease and success attending the removal of tumors by the abdominal route has induced me to use the latter in all cases where hysterectomy was indicated and the tumor and uterus combined were too large to remove by the vaginal route without morcellement. I believe the vaginal route gives us a new means of operating in septic cases which are in no condition to be subjected to section. It places them in a position to be relieved of their septic condition by opening the abscess into the vagina. We can occasionally save the patient's life by so doing, and if necessary make a second operation later to remove the diseased organs. For many reasons I do not believe it is good practice to attack every case of suppuration in the ovaries and tubes through the vagina in preference to abdominal section. We must not loose sight of the fact that in many of these old pus cases, the bowel and omental adhesions need surgical attention for the relief of the patient. This can not be given as satisfactorily through the vaginal route as it can by the abdominal. How many times have you liberated a coil of ileum or an omental adhesion in approaching these pus cases by the abdominal route which needed the attention of the surgeon fully as much as the pus collection which caused them. It is a well recognized fact now that except in acute cases, very rarely is the pus infectious. Therefore, there is very little risk in chronic cases of infection from that cause and the argument used by the advocates of the vaginal route, that it will avoid infection is not of much moment. In all acute cases where the pus can be readily reached by the vaginal route, I prefer that, and in those desperate cases where we must temporize, as in those narrated by Dr. Noble yesterday, I would incise and drain and make a second operation later if necessary for relief.

DR. A. H. CORDIER, Kansas City, Mo.—The aim of the surgeon in the application of his methods is to obtain the maximum benefit with the minimum sacrifice of structures and the least amount of risk to life, and the saving of time and pain to the patient. These various results are best obtained by one surgeon by the following of a technique to him easy and successful, while another is equally successful in obtaining the same results by a procedure differing wholly or in part. With many surgeons the choice of operative procedure determines his success, while others possess that rare gift of making a success of any or all methods, and are to be congratulated and admired by those of less dexterity. Some never make a success of any method, and are constantly scanning the pages of foreign literature for something new to try. In this way much harm to surgery is wrought, and many lives lost. I would not be misunderstood on this point, as I do not in the least desire to place a depreciative stamp on any good and safe surgery, be it a foreign or home procedure, but I do desire to enter a protest in the matter of hastily accepting the revival of a class of surgical procedures discarded some time ago in this country, lately revived in part of Europe. I refer to the draining and partial removal of the diseased appendages, and the total removal of the uterus in cases of double tubal disease. It is perfect surgery, or as nearly perfect surgery as is possible, that all surgeons desire, but before accepting precepts involving human life or comfort all evidence should be brought to bear on the topic, duly analyzed and weighed for its proper worth. It is from this standpoint that the writer desires to discuss the subject of vaginal hystero-salpingo-oöphorectomy as described and practiced by many of the French and a few of our American gynecologists. Some men in other professions achieve renown by the mastership of their art; for instance, Paderewski, whose dexterous and delicate touch on the ivory keys of his piano has startled and charmed the people of two hemispheres. However, there is but one Paderewski. The limit and character of the pathology should form an indication as to the nature and extent of the surgical procedure. A flaccid and pus-infiltrated uterus, with, possibly, numerous foci, surrounded with pus-laden tubes and ovaries, should be removed, the choice of operative procedure being the one which, in the opinion of the surgeon, offers the most favorable conditions of immediate recovery from the operation, a permanent relief of the constitutional (septic) manifestations and the local symptoms resulting from the presence of these structures and the repair of the damage to surrounding organs wrought by their presence. In an old recurring puriform disease of the uterine adnexa, where the adhesions are well organized and where the intestinal, bladder and omental attachments are firm, the vaginal method would be fraught with more danger than the abdominal. These cases have established in part a peritonitic immunity by a prolonged and gradual process of auto-sero-therapy, consequently the abdominal method is not so liable to inaugurate an acute dangerous peritonitis or septicemia as is often the case in the acute or primary attacks if operated on. Some of the advocates of the vaginal method, only a short time ago, maintained that it was an admission of incomplete operation to use drainage, yet they advance the claim for good drainage by the vagina as an argument in favor of the vaginal route.

It has long been an established and demonstrable fact that in the majority of instances the uterus is capable of taking care of itself, and that it does not give rise to any trouble by its pres-

ence after the diseased appendages have been removed. I do not understand why an organ with a good and free natural drainage should not recover, and yet (as is claimed) an ovarian abscess or parts of diseased tubes with walls as thick and shaggy as a cocoanut recover with only an opening into the vagina.

The vaginal operation is not an easy one, neither is it as quickly performed as the suprapubic. In comparing the relative ease with which the manipulation can be carried on through an abdominal incision and an opening in the vaginal vault, it must be remembered that the bony resistance met with by the impinging of the hand against the pubes is unyielding, differing very much from the pliant muscle of the abdomen under anesthesia.

A small percentage of post-operative hernia is found following in a large series of abdominal incisions, but these are discovered by the patient and not by the surgeon, and are not of such frequent occurrence as to be used as an argument against the suprapubic incision. Time and close investigation of the vaginal cases will reveal an equal or larger amount of vaginal bowel protrusions.

1. The operation of vaginal salpingo-hysterectomy in many instances is incomplete; 2, it takes longer to perform it; 3, there is more danger from hemorrhage; 4, the uterus is removed in many instances where it should be saved.

Dr. E. E. Montgomery, Philadelphia—The object of all surgical procedures should be conservative; that no organ whose function could be maintained should be sacrificed. In dealing with pelvic disease we can not claim that any special procedure should be followed in every case to the exclusion of any other; that both the abdominal and the vaginal routes have their advantages in special cases. The vaginal procedure, however, is a conservative one, inasmuch as it enables us frequently to treat conditions without the sacrifice of the organ. It enables us to evacuate pus collections in the broad ligament on either side, or even in the tube, and after irrigation to pack the cavity, so that it subsequently becomes obliterated and the patient is relieved of the diseased condition without loss of function. In those cases in which both tubes are involved to such a degree as to render them functionally useless and their retention prejudicial to the health or life of the individual, none will question the wisdom of their removal. In such cases the infection has begun in the uterine endometrium and extended from it to the tubes and ovaries. The removal of the tubes does not, consequently, remove the entire diseased tissue. In some cases it will be found that pus extends down to and into the uterine end of the tube, so infected tissue remains after the removal of the tube. In all cases, the inflammation which has existed in the uterus has given rise to plastic exudation and enlargement of the organ, which subsequently produces distress and discomfort after the involution has been completed. The contraction of the walls, compressing the nerve filaments in the uterine structure, produces various hystero-neuroses of a distressing character, so that in every case in which it is desirable to remove both ovaries and tubes it is preferable the uterus should accompany it. Those who do this operation through the abdomen leave the vaginal portion of the cervix, forgetting that this has its own lymphatics, is subject to reinfection and in continued irritation may develop malignant disease. Where the tubes and ovaries alone are removed, we not unfrequently find patients suffering from hemorrhage of a regular or irregular character, purulent discharges, so that the patient may have to undergo a curettement in order to overcome the symptoms.

In the removal of the pelvic organs the vaginal route affords the preferable procedure, for the reason that through it we can thoroughly remove the uterus, ovaries and tubes with less interference with the abdominal viscera, than by the abdominal section. As the opening is made in the most dependent portion the drainage is more effective; no ligatures are used to be subsequently infected and keep up a sinus; convalescence of the patient is less uncomfortable and more rapid; the abdominal wound, cicatrix and sequelæ are avoided. The dangers of injuring the intestines and ureters are about equal in the two procedures. The abdominal method, however, affords the advantage that a better opportunity is given to repair damage.

DRAINAGE VERSUS RADICAL OPERATION IN THE TREATMENT OF LARGE PELVIC ABSCESSES.

Read in the Section on Obstetrics and Diseases of Women, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5–8, 1896.

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It is my purpose in this paper to call attention to the value of drainage in the treatment of large pelvic abscesses, and to contrast the results which can be secured by this method of treatment with those which have been obtained by the more radical operation of abdominal section, together with the removal of the pus sacs—whether of ovarian, tubal or other origin.

It will be well, to avoid misapprehension, to point out that only a specific class of cases is under discussion. It is not my purpose to discuss the treatment of suppuration in the pelvis in women in general. The ordinary case of pyosalpinx or abscess of the ovary, chronic in character, is not considered. We are concerned to-day only with those cases of extensive suppuration in which, in general, in addition to pyosalpinx or abscess of the ovary, there exists an intraperitoneal abscess, and in which the pelvic viscera are matted together by extensive exudate; and very frequently, at the time the patient comes under the observation of the surgeon, active inflammatory or septic processes are going on, which have confined the patient to bed for weeks, so that she is greatly reduced in strength, and unprepared to resist the shock of a serious surgical operation.

Until May 1, 1894, I had never employed drainage without abdominal section in the treatment of this class of cases, but had always operated upon them by abdominal section and the removal of the diseased parts. This radical method of treatment has yielded in my hands, as it has in those of others, many brilliant cures, and others which were eminently satisfactory, although long continued; but, on the other hand, the mortality following this operation has been relatively high. Instead of a mortality of 5 per cent., it has been nearer 25. Every operator of experience, with whose results I am familiar, has had in dealing with this class of cases, similar results; hence, I believe, it is unnecessary to further elaborate the present status of the treatment of this class of cases by radical operation. Had we no other method of treatment the results obtained by this would be eminently satisfactory, as a spontaneous cure is a very rare event. Fortunately simple drainage, intelligently applied, has wrought a revolution in the results which can be obtained in that treatment.

Since May 1, 1894, I have operated by simple drainage, without a death, upon eight patients, each a typical and very marked example of the class of cases under consideration. Seven of these were very critically ill at the time of operation. They had been confined to bed with septic fever from three to eigh-

teen weeks, and I feel certain that if operated upon by abdominal section, at least six of the eight would have died of shock or septic peritonitis. A short history of each case is appended:

Case 1.—Mrs. X., a multipara, was seen in consultation with Dr. Dunn, May 1, 1894. Her last child was born March 27, 1894, and in the meantime she had suffered from a mild but persistent septic infection, which had resulted in the formation of a true pelvic abscess. The pus had burrowed along the inguinal canal, and was making its way to the surface of the groin. The patient was extremely feeble from the long continued sepsis, and in bad condition for a major operation. This case was treated by direct incision into the groin, with evacuation of the abscess. A thoroughly satisfactory but tedious convalescence resulted. Some months later Dr. Dunn informed me that this patient was entirely well.

Case 2.—Mrs. M., aged 23, a nullipara, was seen June 18, 1895, in consultation with Dr. Robinson. About a week before this her uterus had been dilated and curetted because of the existence of an endometritis and catarrhal salpingitis, with resulting sterility. Some days after the operation symptoms of peritonitis manifested themselves. The peritonitis was of moderate intensity, and it seemed not unlikely that the inflammation would undergo resolution. About June 24, it became evident that suppuration had taken place, and that pus was collecting in Douglas' pouch. At this time the patient's condition was very serious, so that a radical operation by abdominal section offered very little prospect of a favorable termination. On June 26, an incision was made into Douglas' pouch, and the abscess evacuated and washed out. A very satisfactory and rapid recovery followed, and since that time there have been no unpleasant pelvic symptoms. An examination, however, shows that the left tube is adherent.

Case 3.—Mrs. B., aged 30, 2 para, was delivered Oct. 24, 1895. The labor was tedious and instrumental. The first labor had been easy and the delivery spontaneous. During the second pregnancy there had been persistent and annoying pain in the right inguinal region. About thirty-six hours after labor, the patient had a chill, with a temperature of 103 or 104 degrees, and in spite of the treatment instituted, the temperature fluctuated between 99 and 100 degrees in the morning, and between 103 and 104 degrees in the afternoon, until November 12, when I saw her in consultation with Dr. Cross. At that time a well marked mass could be made out high up in the false pelvis and in the region of the cecum. The diagnosis lay between an appendicitis with an abscess and an abscess of puerperal origin. The absence of any history of foul smelling discharge from the uterus, and the fact that on examination the uterus and broad ligaments were not found abnormal, and especially that no exudate could be felt even high up in the pelvis, inclined me to accept a diagnosis of appendicitis, which had been arrived at by Dr. Cross. Operation was advised, and on the 13th a direct incision was made into the mass, evacuating a large amount of pus. Unfortunately the ileum was adherent under the point of incision, and was opened for a distance of half an inch, requiring suture. This patient was so weakened, as the result of the septic poisoning which had continued for eighteen days, that it was desirable to avoid a radical operation, as the prospect of recovery from a radical procedure was very unfavorable. A steady improvement followed the operation, but the sinus did not close, and it was evident that either a diseased appendix or uterine appendage must be removed in order to effect a cure. On March 2, Mrs. B. was operated upon by abdominal section, in the Kensington Hospital for Women, and the right uterine appendage was removed. The persistence of the sinus was due to the presence of a small pyosalpinx. She is now rapidly recovering her health and strength.

Case 4.—Mrs. L., aged 22, 2 para, was prematurely delivered November 20, by a midwife, of an eight-months child, which lived only a short time. November 28, she had a chill, and subsequently developed an inflammation in the right inguinal region. She was seen December 7 by Dr. Stoner, who found her much prostrated, complaining of general abdominal pain, most marked in the right iliac region. A small mass was detected upon pressure in the appendix region. Her temperature was 100 degrees, and pulse 112. Under treatment the general condition improved, but the mass in the iliac region increased in size. On December 11, I saw her in consultation with Dr. Stoner, and a very large mass in the appendix region could be made out. On this day the symptoms had become aggravated and an immediate operation was urged. Consent to this was refused, but on the following day she was taken to the Kensington Hospital for Women. In the meantime her condition had become worse, her pulse was above 130, and temperature 103 degrees. The peritonitis was evidently extending, and she was becoming decidedly septic. She was operated upon in the night. A direct incision was made over the mass, but adhesions had not formed between it and the abdominal wall. The general peritoneal cavity was packed off with gauze, the abscess cavity was opened and the pus evacuated. The abscess extended well up behind the cecum. No attempt was made to find the appendix. The abscess was drained with gauze and rubber tube. The patient's condition was no worse than before operation. During the night edema of the lungs developed, and the following day when the first urinary examination was made, it was found that acute nephritis was present, and the casts found indicated that the patient had been recovering from the nephritis of pregnancy before operation. The patient was so ill for ten days, that it was impossible to say whether she would rally, but she finally made a good recovery, and is now quite well.

Case 5.—Mrs. S., age 31, 5 para, was first seen Dec. 20, 1895. She had been in bed since September 21, and had a distinct history of ectopic pregnancy with rupture. She was quite feeble from the long continuance of the pelvic peritonitis, and had lost about fifty pounds in weight. Operation was advised, but for a time not accepted. January 1 she was admitted to the Kensington Hospital for Women, and on examination it was discovered that a sinus was present behind the cervix, through which the femur bone of a fetus was removed. As her condition improved for some days after admission, she was not operated upon until January 14, when the sinus was dilated and the vaginal wall incised, and a pelvic abscess in front and to the left of the rectum was washed out. Most of the fetus and clots had been discharged before the operation. She made an uninterrupted recovery, and at this time is doing full work and feeling well.

Case 6.—Mrs. K., aged 25, 1 para, was seen Jan. 28, 1896. She gave a history of inflammatory attacks extending over several years, and stated that she had been advised to have her ovaries removed. She had been bleeding irregularly since Nov. 8, 1895, and there was reason to believe that she had an early miscarriage at that time. Inflammatory symptoms had manifested themselves some three weeks before my visit, and had been growing steadily worse. She had had rigors, followed by a temperature of 105 degrees, and was decidedly septic. The pelvis was filled up with a large mass, more especially on the right side. Her condition grew steadily worse, and the peritonitis extended from the pelvis to the abdomen. On the 31st the pelvic abscess was incised from the vagina and a large amount of pus evacuated, Her convalescence was very satisfactory. She was out of bed in three weeks and has since steadily improved. The appendages are adherent and the history of the case indicates that it will be necessary to remove them to effect a cure.

Case 7.—Mrs. R., aged 40, 8 para, 2 miscarriages, last one Jan. 4, 1896, at the sixth week of development. The ovum was discharged after one day. She apparently had very little trouble, and was out of bed on the tenth day. About two weeks later she was seen by Dr. Walker. She had severe pain in the hypogastrium, and later in the left groin. At no time did she have much fever, but a persistently rapid pulse. I saw her with Dr. Walker on February 22. Her pulse was 120 and temperature 101 degrees, and a large mass was outlined between the uterus and bladder, extending into the left broad ligament, and in addition there was evidence of pus formation under the skin in the left groin, the exudate extending well up toward the ribs. The following day I made an incision in front of the cervix, pushed off the bladder from the uterus, and introduced my finger into an abscess cavity, which extended from slightly to the right of the cervix well over into the left broad ligament. About four ounces of pus was discharged. A second incision was made into the groin and a large abscess evacuated. The pus in this location had evidently burrowed along the round ligament, and was external to the abdominal muscles. The following day the temperature was 102 degrees, but the patient's condition was much better. She gradually improved, and the temperature and pulse became normal after three weeks. At this date she is entirely well and an examination shows that the left ovary and tube have escaped infection. Her pelvic organs are normal, with the exception of some old lacerations.

Case 8.—Mrs. B., aged 28, was delivered Dec. 18, 1895, at full term, of her first child. Marked hydramnion existed and about two gallons of liquor amnii was discharged. The patient was delivered instrumentally by Dr. Robinson, under full antiseptic precautions. A poorly developed child was delivered alive, who died of convulsions after two days. Forty-five minutes after delivery Mrs. B. was attacked with convulsions, which were very severe and persisted in spite of active treat-

ment, especially with the veratrum viride. The patient improved so far as the convulsions were concerned, but was much dazed mentally, and soon developed decided mania. On the fifth day there was a slight chill, and a decided one on the twelfth day. The lochia was normal throughout. The patient continued to be very ill physically and did not improve mentally. The temperature in the evening ranged from 101 to 104 degrees F. For a long time there was no tenderness or indications of inflammatory processes about the pelvis, but after the sixteenth day the abdomen became tympanitic. On the sixty-third day a mass was recognized behind, above, and to the left of the uterus, but there was no complaint of tenderness. I saw Mrs. B., with Dr. Robinson, on February 21 and advised operation, and on the 26th was able to reach the pus sac by vaginal incision, introducing the fingers well up behind the uterus, and puncturing the sac with scissors. A large amount of very offensive pus was discharged. The sac and pelvis were irrigated and a large gauze drain introduced into the pelvis. Improvement was manifested at once; within a week the mental condition was greatly improved, the insanity disappeared within two weeks; the temperature became normal after five days and remained so. The present condition of the patient is very satisfactory. The nature of the pus sac was not discovered.

A review of what has been accomplished in these cases, by this simple operation, will be of interest:

Case No. 3 has had a secondary operation to remove the pus sac. Her condition was most critical at the time of the drainage operation and the result of saving her life is eminently satisfactory. The other patients are feeling well and at least two of them are permanently cured.

Two of the cases, Nos. 1 and 7, were puerperal in origin, and the abscesses were of the broad ligament. Drainage from the vagina or loin will permanently cure all such cases. Heretofore I have made an exploratory abdominal section to definitely determine the condition of the uterine appendages. Hereafter I shall simply drain the abscesses when this is possible and save the patient the ventral incision.

The prospect for a permanent cure in two other cases is excellent. Case No. 4 may have a recurrence of appendicitis but where the abscess has been large frequently the appendix sloughs away, or is so infiltrated with pus that when resolution takes place it becomes obliterated. Case No. 5 has adherent appendages as the result of an extensive hematocele and exudate, due to the ruptured tubal pregnancy. But this sac has been drained and become obliterated. This patient feels perfectly well.

The remaining three patients feel and consider themselves well, but it is not unlikely that the diseased appendages which they have will give further trouble and require removal.

My own experience in the use of drainage, in the treatment of such cases, has been too limited to make profitable an expression of opinion as to the percentage of permanent cures which can be obtained. My advocacy of the operation is based upon the fact that it is a life-saving procedure, and that in a certain percentage of cases a permanent cure will be effected. By this method of treatment either a cure can be obtained with little or no risk to the patient, or a critical and highly dangerous operation can be avoided. At the very least, establishing drainage permits the patient to recover from sepsis, and to have her strength built up by judicious feeding and medication. If a radical operation be demanded, it can then be done when the patient is in a favorable instead of an unfavorable, or even a desperate condition.

DISCUSSION.

Dr. Joseph Price, Philadelphia—While Dr. Noble has directed special attention to pelvic abscesses and desires the exclusion of pus tubes and ovarian abscesses, at the same time he has introduced and discussed a number of other subjects. The management of abscess in cellular tissue, or in the pelvis, in the palmar or plantar fascia, is precisely the same. There is but one specific or radical treatment, that of incision and drainage. They are not enucleable and never have been. So it seems difficult to reconcile these points with many gynecologists. There seems to be an impression that a certain class of men have but one method of managing so-called pelvic abscesses, and have but one pathology; not so at all, nor has it ever been so. I am sorry that all abscesses are not of tubal and of ovarian nature in all parts of the body. We can not enucleate mammary abscesses in the axilla as we do pus tubes and ovarian abscesses. The removal of abscess is ideal treatment. Abscesses in cellular tissue in any part of the body should be treated by incision and drainage, and about all cases so treated recover. If you have an abscess in the cellular tissue of the pelvis, with matted viscera limiting it, there is but one treatment, and that is to free the matted viscera, and in that much you have done something that will relieve the condition, at the same time the result is death, for even after incision of these abscesses obstruction follows, or the symptoms remain permanent, and death follows from obstruction or advancing peritonitis, particularly in the puerperal cases. It is common in puerperal cases to find a puddle of pus, and in twenty-four hours the parts are covered with lymph, and a simple incision does not always save; but section, freeing the adherent bowel, with a thorough toilet with drainage from above and below, does save. You may find cases with black congested tubes, which should not be interfered with. There is nothing more to be done other than a thorough toilet, followed by drainage. If in those cases you arrest sepsis you save them. If you fail to do that, they all die. It is sepsis pure and simple. Just in that direction copious drainage, or free gauze drainage from above and below, or the so-called open wound treatment has been popularized, and I fear the profession fail to recognize what extensive drainage from above and below by the open treatment does. It simply arrests the progress of sepsis. It is copious drainage, and you find some recently reported cases of that character. I might allude to a case recently reported by Dr. Hare, of Philadelphia. The boy was taken ill on Friday evening. Dr. Hare saw him at half past seven Saturday evening with well-marked trouble about the head of the cecum. He was vomiting, had a pulse of 120 to 160, condition alarming. He was taken hurriedly to the hospital, his abdomen opened, a gangrenous appendix removed, and a toilet made of his whole peritoneal cavity. The patient had all the symptoms of a severe general septic peritonitis. His condition seemed hopeless. After a thorough toilet the symptoms improved, and within thirty-six hours after operation the drainage tube was removed and the abdomen closed. Symptoms again became alarming. Arrest of sepsis had primarily taken place, but it was not continued by drainage. After the removal of the drains again symptoms of sepsis developed and the incision was reopened, drainage reëstablished sepsis arrested, and the boy recovered. None of us surely will question the fact that this was not a case of septic peritonitis. Drs. Keen and Hare are both abundantly capable of determining that fact. I allude to this case in order to emphasize those points that have been brought out, because so many practitioners say that cases of general purulent septic peritonitis are not saved. I can refer them to suppurative forms of general peritonitis where we have saved nearly all of them. We have but little fear of pus in the pelvic cavity. I have many times seen the peritoneal cavity deluged with pus.

Dr. W. E. B. Davis, Birmingham, Ala.—I am sure we all appreciate the paper which has been presented by Dr. Noble, because it emphasizes a surgical procedure that has been adopted and resorted to for a long time. It is life-saving when

further surgery would endanger the life of the patient, for as Dr. Price said on a previous occasion, "It takes but a feather's weight to depress the beam," in such cases. Usually these cases have been confined to bed for weeks and to do anything more than evacuate the pus and relieve the septic condition is dangerous. And while this is an incomplete procedure and should be so explained to the patient, and that a more thorough operation will be required later, still a certain percentage of the patients will be cured. There may be some adhesions left behind, some trouble still in the tube, but they are practically cured. A radical operation in a large number of cases will have to be done later. This should be borne in mind and impressed upon the patient.

As to the adhesions to which Dr. Price refers, in cases of puerperal infection the adhesions to the omentum and intestine, after the pus is evacuated, give way. I have opened the abdomen and found very few adhesions. In one case I opened a large abscess of the right tube which had its origin in puerperal infection. The woman had a pulse of 140 to 150, she came near dying from the evacuation of this pus, but recovered; had no more unpleasant symptoms, and was delivered of a child some three years later.

DR. W. G. MACDONALD, Albany—The cases which have been so clearly reported by Dr. Noble, belong to a class which may be said to be neglected cases of accumulations of pus either in the pelvis or about the head of the cecum. I quite agree with him as to the benefit derived from the operation which he has done, yet at the same time I do not believe it will cure his patients in the majority of cases. Probably in the case of appendicitis, where he has opened and drained these abscesses it will be the last of the appendix, but not always so. I have found it necessary under similar conditions to resort to secondary operations after some months to remove the stump of the appendix. It would astonish many men if they had a large area of induration in the right iliac fossa to find after six months there were very few adhesions.

A number of years ago Dr. Clinton Cushing recommended a procedure which Dr. Noble has described. He presented a dilating trocar and referred to a method of drainage by douching. I have employed for some time that method in suitable cases. I have put drainage tubes between the dilating trocar and kept them in four or five weeks, and have seen cavities evacuated. I then took out the drainage tube, and at the end of three months there was a relapse, and I had to repeat the operation. Finally I have been compelled to remove the uterine appendage on that side by making a clean abdominal section. But I do gain this advantage, in that my patient is in a better general condition. This is not always true. Only a few days since I had occasion to operate on a case of pelvic abscess due to puerperal sepsis. I made an incision through the abdominal wall just parallel with Poupart's ligament. The abscess presented there, so that I did not include very much of the peritoneum. The abscess had several pockets which I evacuated and drained. The difficulties of abdominal section in the removal of the uterine appendages are not great. I have made a considerable number of abdominal sections in those cases, and I have not experienced serious difficulty in removing the damaged appendages.

DR. E. E. MONTGOMERY, Philadelphia—It is true, as has been said, that this procedure does not always result in cure of the cases, that we can not promise as much for it as the more radical procedure, and we must necessarily subject the patient to a more radical operation in order to effect an absolute cure. But this method affords us a means of treating cases which would otherwise be exceedingly dangerous to treat by radical procedure, cases that are so depressed, in which the condition of debility is so marked that we can not hope for a favorable result if we proceed to a radical operation at the time. It also affords an opportunity for curing some cases and preventing a sacrificial operation, where if the abdominal method were resorted to it would be necessary to remove the organs in their entirety. Whether the abscess be in the cellular tissue, broad ligament, or tube, and there is a large accumulation, and the tube is distended at the expense of the broad ligament, so that we can determine pus on one side of the pelvis, and the symptoms indicate that it is inflammatory, we are enabled to evacuate the pus, wash out the cavity, or practically curette or scrape it before thoroughly removing the diseased tissue, then packing it with gauze to bring about contraction of the abscess cavity and subsequent obliteration. A mistake is often made in the treatment of these cases in making too small an opening. For instance, in using a trocar and passing through it a drainage tube. It is preferable to make a free incision across the posterior surface of the vagina, opening into the broad ligament and operating through it, pushing the ureters aside, making a free opening into the sac, subsequently packing it with gauze in order to bring about its obliteration. I have been practicing this method for a number of years and have seen cases recover from the operation where there were large collections of pus, where the operation through the abdominal cavity would have been dangerous, and very little trouble has resulted to the patient during convalescence.

PHARMACEUTIC NOTES.

Read in the Section on Materia Medica and Pharmacy, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

BY EDGAR L. PATCH.

BOSTON, MASS.

Liquid Extract of Malt.—"What value have the liquid extracts of malt of the market that is not possessed by the common beers, ale, lager and porter?" This question has been frequently asked us. We give the results of the examination of several prominent market makes in comparison.

	Extract. Per cent.	Alcohol. Per cent.	Converting power.
No. 1,	10	3.59	none
No. 2,	10.1	5.33	none
No. 3,	14.7	2.34	none
No. 4,	10	6.45	none
No. 5,	10	4.86	none
No. 6,	7	3.47	none
No. 7,	8	3.8	none
Lager,	5 to 9	3.5 to 5	none
Ale,	6 to 10	10. to 14	none
Porter,	5 to 7	6. to 8	none

As these liquid extracts do not possess a particle of diastasic power it is not reasonable to suppose that they are of more value than any beer possessing the same proportion of extract and alcohol.

The thick, non-alcoholic extracts average to contain about 72 per cent. of solid extract and to convert from eight to eleven times their weight of starch. A fluid extract made from select malt by repercolation, using a menstruum of 18 per cent. alcohol by weight will contain about 13 per cent. alcohol, about 30 per cent. of solid extract and convert fifteen times its weight of starch.

Diluted with two parts of water it would be superior to any of the liquid extracts in all qualities but one. It would not be as agreeable in taste as the products prepared by direct fermentation.

Solution of Nuclein.—What shall the pharmacist dispense when this article is called for? No. 1 is an alcoholic solution and is said to be made from thyroid and thymus glands; dose, hypodermically, two to five minims diluted with water, price $5 per ounce. "Indicated to counteract a disorganized state of the blood." Two c.c.—0.001 residue, a little more

than 5-100 of 1 per cent. Gave no ppt. or change when diluted with water, the alcohol gently evaporated and the residue tested with Mayer's reagent.

No. 2.—Non-alcoholic solution made from yeast, slight brown, odor of carbolic acid. Two c.c.—0.041 residue or 2 5-100 per cent. Gives a slight precipitate with Mayer's reagent and gives test for albuminoids with Biuret test. Dose ten to eighty minims hypodermically as a non-poisonous germicide.

No. 3.—Colorless liquid, non-alcoholic. "Made from shad's roes." Two c.c.—0.005 residue, ¼ of 1 per cent. No ppt. with Mayer's reagent but gives yellow color. Does not respond to test for albuminoids. Price $2.50 per ounce.

Natural Sodium Salicylate.—"There is considerable variation in color, odor and taste of market products. What explanation can be offered?" When the salt is made by acting on the oil of wintergreen with solution of sodic hydroxid there is a possibility of the contact being insufficient or the temperature too low. In consequence a considerable quantity of sodium methyl salicylate is produced. This is a white powder, but neutralizing with an acid frees gaultheria oil and salicylic acid instead of salicylate acid only. We have seen samples that contained over 25 per cent. of sodium methyl salicylate.

The latest investigations of oils of gaultheria and birch by Dr. Fred. B. Power and Dr. Clemens Kleber demonstrate that the statement of many text-books that these oils contain 10 per cent. of a terpene C_{10} H_{16} is an error, and must have arisen from an examination of an oil adulterated with turpentine. Power and Kleber conclude that the true oil of wintergreen consists of 99 per cent. of methyl salicylate with fractions of 1 per cent. of a paraffin, an aldehyde or ketone, an apparently secondary alcohol and an ester. When *fresh* it has a left rotary power. Oil of sweet birch, commonly offered as gaultheria oil, consists of 99.8 per cent. of methyl salicylate, the remaining .2 per cent. being made up of the before-mentioned paraffin, an aldehyde or ketone and an ester, but does not contain any of the secondary alcohol. It is always optically inactive. The artificial oil of wintergreen is supposed to consist entirely of methyl salicylate.

It is said that the statement that natural oil separates at once in drops from water while artificial does not, is erroneous. It is doubtful if any ordinary observer can detect the presence of as much as 40 per cent. of synthetic oil added to the natural and the *natural* salicylate of sodium might possibly prove to have been made largely from an artificial oil. Why should any natural sodium salicylate made from oil of wintergreen completely converted possess any advantages over a pure product from any other source?

Kola Nut and Kola Wine.—Much has been written upon kola nut. It has been stated that the fresh nut does not contain caffein but that this alkaloid and theobromin are produced by the decomposition of a natural glucoside by a proteid ferment having diastasic power. Kola red and glucose are said to be produced at the same time. Heckel and Schlagdenhauffer give as the constituents of kola: Starch 33 to 37 per cent., cellulose 29 to 30 per cent., water and inert matter 22 per cent., tannin 1½ per cent., kola red 1¼ per cent., albuminoids 67 per cent. and caffein 1 to 2½ per cent.

We have obtained from different lots of dry kola 1.2, 1.5, 1.48, 2.2, 1.48, 1.88, 1.91, 1.52, 1.32, 1.6, 1.76 per cent. of caffein.

Fresh Jamaica kola nuts assayed .795 per cent. caffein. They contained 61.19 per cent. of water, so that the dried should yield 2.05 per cent. caffein. A portion of the fresh nuts dried rapidly at 60 degrees C. assayed, gave 2.16 per cent. caffein.

Three of the market kola wines assay as follows:

No. 1. Twenty-ounce bottle, alcohol 13.22 per cent. by weight; 6 per cent. of extractive and 0.036 of 1 per cent. caffein, equivalent to 2.25 per cent. of an average kola nut.

No. 2. Seventeen-ounce bottle, alcohol 13.81 per cent. by weight; 23 per cent. extractive including glycerin and 0.11 of 1 per cent. of caffein, equivalent to about 7 per cent. of an average kola nut.

No. 3. Sixteen-ounce bottle, alcohol 16 per cent. by weight; 12 per cent. of extractive and 0.198 of 1 per cent. caffein, equivalent to 12 per cent. of an average kola nut.

Ether.—Are the complaints frequently made concerning the value of ether due, as suggested by Dr Squibb, to different methods of use or inefficiency in administration? The same lot that is pronounced by several operators as superior in every respect is decried by others as "watery," "half alcohol," "weak," etc.

We were requested to supply different grades of ether to a skillful operator for trial, the samples to include an ether as nearly pure as possible. The samples were numbered and consisted of the following products:

No. 1. Two 4-oz cans, the contents having a specific gravity of .7420 at 25 degrees C., equivalent to 74 per cent. of absolute ether, 26 per cent. alcohol and water.

No. 2. Two 4-oz cans of 1890 ether specific gravity .7163 at 25 degrees C., equivalent to about 95 per cent. absolute ether.

No. 3. A carefully distilled concentrated ether of specific gravity 0.7150 at 25 degrees C., was shaken repeatedly with distilled water during twenty-four hours, separated, added to 10 per cent. of its weight of quick lime and 10 per cent. of its weight of potassic carbonate recently dried at 125 degrees C., shaken frequently, decanted and fractioned by distillation, that fraction having a gravity of 0.7110 at 25 degrees C., and corresponding to over 98 per cent. of absolute ether being submitted for trial.

No. 4. A second lot prepared the same as No. 3 from Squibb's ether, of specific gravity 0.7146 at 25 degrees C., (95.35 per cent.) and giving a product testing the same as No. 3—about 92.06 per cent. absolute ether.

No. 5. Prepared as No. 3, using quicklime alone, and giving a product of specific gravity 0.7109 at 25 degrees C., equivalent to about 98.13 per cent. absolute ether.

No. 6. Prepared as No. 3, using dried potassic carbonate alone, and giving a product of specific gravity .7104 at 25 degrees C., equivalent to 98.51 per cent. absolute ether.

(A small amount of yellow liquid remaining after distilling each lot of ether, that evaporated from filter paper, left an unpleasant odor resembling that of cyanids or bitter almond.)

The surgeon reported: "No appreciable difference could be observed in the action of the different lots. In comparison with Squibb's ether, we were impressed that it was somewhat more bland, *i. e.*, seemed to have rather less irritating effect upon the respiratory mucous membrane.

"Very careful records were kept of every patient upon whom we made the tests. I still have the feeling that ether of superior quality to anything now in the market may be produced by using chemically pure materials to start with. If I could have a sufficent supply to carry me through a year of surgical work, which would aggregate between two and three hundred anesthetizations, I think I could draw conclusions which would be of some value."

It is interesting to note the specific gravity accepted as correct for absolute ether at 25 degrees C. by different authorities:

Dumas and Boullay, 0.70737; Sassure and Thenard, 0.70987; Gay Lussac, 0.71190; Kopp, 0.7084; Watt and Wurtz, 0.70891: Mendeljiff, 0.70826; Allen, 0.71000; Roscoe and Schorlemmer, 0.70750; Dr. E. R. Squibb, 0.70842.

MODERN METHODS OF TREATMENT OF TYPHOID FEVER CRITICALLY REVIEWED, WITH SUGGESTIONS FOR A RATIONAL THERAPEUSIS.

BY GUSTAVUS M. BLECH, A.B., M.D.

DETROIT, MICH.

Motto: Im Erkennen und Heilen der Krankheiten liegt die Aufgabe der Medicin. Das Erkennen allein ist Wissenschaft; das Heilen war bisher Empirie und wird es noch lange bleiben.—*Hyrtl.*

There is hardly any other disease to which the above, written by the immortal Austrian anatomist, could be better applied than to typhoid fever. The dignity, the value of all scientific work and research, lies in the recognition of this malady and its pathology—not in its therapeusis. The more there is written to enlighten the profession in that respect, the better for us. The devising of new formulæ or new methods of treatment can never add much to the reputation of the prospective discoverer (?) Typhoid fever patients have recovered without any treatment whatever; others have died, and probably will die, under the most rational and scientific therapeusis.

Infallible methods exist only in the minds of their promoters and advocates. The number of methods, sub-methods and modifications is as large as that of bivalve vaginal specula which are baptized after their modifiers, the modification often consisting only in the different shape of an unimportant screw or handle. In this article only those methods will be considered which have acquired some popularity, or which have really a scientific value.

A priori, typhoid fever does not always appear as that dreadful constitutional disease described in textbooks; there are light forms of short duration. Individuals of regular habits will offer a good deal of resistance, the fight between the disease and the system being even, while others, especially alcoholic drinkers or those with prostrated or affected nervous systems, will succumb immediately. Again, the age, the previous history and the present status of the patient, all need to be considered, and will indicate the course of treatment that should be pursued. We should not treat diseases the same way the cook prepares a certain soup, after a receipt; we claim to be scientific physicians, and as such will have to use our own judgment in each individual case. A specific for typhoid fever has not been discovered as yet. However, we have made of late some advance in the knowledge of the treatment, and can truly assert that our methods of to-day, if properly applied, are more scientific and more effective than the symptomatic treatment of ten or fifteen years ago.

We will first of all consider the treatment of typhoid fever with water.

Balneo- and Hydro-therapy.—This system, especially when carried out in the rigid manner advocated by Brand, who gave it to the profession, influences the entire course of the disease, reducing the mortality to a minimum, preventing complications (especially affections of the respiratory tract), and now stands ahead of all other therapeutic measures. Hydro-, especially balneo-therapy, has its opponents, one of the objections being that cold bathing is cruel, and can hardly be carried out in private practice. There is much truth in the criticism, and many general practitioners have often been compelled to let patients die from hyperpyrexia, owing to their prejudice or poverty. If the full cold baths be objected to, we can immerse the patient in lukewarm water and let the water gradually cool. Dr. L. E. Maire,[1] of this city, when a general practitioner, obtained good results from full baths with hot water. Where the procedure can not be carried out, the wet pack will prove of great help, although it is not as efficient as the full bath. But in no case of typhoid fever, should regular sponging of the body be neglected. I use in my practice a 10 to 20 per cent. aqueous solution of alcohol. Balneo-therapy will not only reduce the temperature but influence the entire nervous system. Strümpell[2] is right when he asserts that under balneo-therapeutic measures the grave "status typhosus" is much rarer than otherwise.

The details of bathing can not be given here; in fact, the condition of the patient and his surroundings will dictate to what extent and degree this method of treatment should be employed. In mild cases sponging of the whole body is sufficient.

The Abortive Treatment.—The theory that typhoid fever can be aborted is not of recent date. Wunderlich[3] believes that if at the onset of the disease a few large doses of calomel were administered, the disease could be aborted. His assertions, however, are very conservative, and he is not so sure of being able to abort *every* case as some modern writers are. *A priori*, typhoid fever aborts spontaneously in some cases, without any interference whatever. The so-called typhus levissimus runs a mild and short course. If such a case came under the care of the authors referred to, they would surely attribute the short course of the disease to the drugs they have "fired" into the stomach of their patient. When reviewing the statistics of their reports, this should always be borne in mind.

Dr. Aulde, of Philadelphia, editor of the *American Therapist*, asserts that he can abort typhoid fever with arsenite of copper. His paper was read only in part at the last meeting of the Mississippi Valley Medical Association. The writer has no experience with this drug. Dr. Aulde's assertions have not been verified by competent authorities in medical literature.

Dr. Woodbridge, of Youngstown, Ohio, has proclaimed himself a pioneer of the jugulant treatment of typhoid fever, and states that if he sees a case early he can undoubtedly abort it, and that death is a wholly unnecessary consequence, for which the physician is to be blamed. It is natural that such assertions must cause some excitement, although at the above mentioned meeting, his theories were received

by a large body of eminent physicians with disbelief and skepticism. He calls his system after his own name. It consists of tablets and soft elastic capsules containing small doses of calomel, thymol, menthol, guaiacol, podophyllin and eucalyptol, of which he administers one every fifteen minutes.

What is more startling is that he allows his patients to eat what they please and to attend to their business affairs while sick! His tablets and capsules are put up and sold by Messrs. Parke, Davis & Co., of Detroit, who send reprints of his various articles to every physian free of charge and distribute them "*en masse*" among students of medical colleges. Dr. Woodbridge could never have gained so much popularity, had it not been for the action taken by Messrs. Parke, Davis & Co., and it is for this reason that I beg the reader's pardon for dwelling somewhat at length on his treatment. It is well for every one to send for his pamphlet, so as to verify the following criticisms:

Dr. Woodbridge is not the first one who has claimed that typhoid fever could be aborted. His formulæ are nothing but a combination of antiseptics and aperients which have been used singly for years by different physicians; the combination forms no new chemical. It is nothing but a "shot-gun" prescription. Similar preparations are already on the market, the well-known antiseptics sold under the trade names listerin, borin, pasteurin, euthymol, etc. He is not original. If Dr. Woodbridge expects us to accept his statistics, he must first prove to be a man who adheres to facts even in little things. He states in his publication that the discussion, which took place after his paper was read at the Mississippi Valley Medical Association, Sept. 4, 1895, lasted three hours; while in fact, including my own criticism, which was also the concluding remarks for my own paper, the discussion lasted thirty-five minutes only.

As regards the value of the formulæ, as intestinal antiseptic treatment, I fully appreciate them. There is nothing bad about them, unless it be that it is very unwise to prescribe his ingredients in tablet form, owing to the pungent taste and the volatility of some ingredients. All his formulæ ought to be put up in soft elastic capsules. To bother a typhoid fever patient every fifteen minutes, is an outrage. Why not give usual doses every three or four hours? The effect is the same. But Dr. Woodbridge regards rest as unnecessary. I trust that no sane physician, for the sake of his patients and his own reputation, will accept this theory of the uselessness of rest and dietetic restriction.

Dr. Woodbridge points with pride to the reports sent him by other physicians. Without casting any reflections on the standing of the reporters, I will merely say that, considered carefully, the reports are inexact, unreliable and far from satisfying the scientific reader.

In most cases we are compelled to accept their statement that they treated cases of typhoid fever. If my criticism has been harsh, I will cite two of the reports which will amuse us:

One physician reports a case in which he observed the usual prodromes. Highest temperature 103.4 degrees; no delirium, no eruption; cure in seven days! *O tempora, O mores!* Another physician reports a case of two weeks' standing, after which he was called in. He gave one tablet and the patient improved immediately after the first dose. It must be borne in mind that the second dose had to be administered fifteen minutes after the first one. The abortive treatment as such is valueless; the title antiseptic treatment, however, is justified.

Antiseptic Treatment.—According to modern views, typhoid fever is considered a microbian disease, caused probably by Eberth's bacillus typhosus. Most of these germs gain entrance into the human system, multiply in suitable soil and develop toxins, causing a general infection of the entire system.

By internal administration of antiseptics and chemicals the action of the germs is neutralized, their powers of multiplication and toxin production destroyed, thus giving the system an opportunity to eliminate the noxious toxins already produced. Pathology teaches that typhoid fever, as far as local lesions are concerned, is principally an intestinal affection, hence intestinal antiseptics are indicated. Bouchard[6] urges us to employ general as well as intestinal antisepsis.

This at best is theory only. The writer has practiced, and intends to practice, antiseptic therapeutics in affections now generally accepted as of microbian origin. But he frankly admits that he does so, not from blind belief in the correctness of the above quoted theory, but because it is the duty of every physician to leave nothing undone that might save the lives of his patients or prove of benefit to their sufferings, as no harm can follow from a judicious administration of antiseptics.

Trouessart[3] complains that antisepsis has not received general acceptance in internal medicine, while it is indispensable in all surgical procedures. That was so two or three years ago. To-day, chemic antisepsis is entirely discarded by modern surgeons. Even in septic wounds the antiseptic measures taken are not those formerly used. Modern surgeons state that wounds ought to be treated "aseptically." This is not the proper term.[4] Modern antisepsis in surgery does not consist of the employment of strong and toxic chemicals, but mild measures are used, such as sterilization, normal salt solution, peroxid of hydrogen, etc. The reason for this change is that carbolic acid, mercury, etc., in solutions usually employed, have been found to have very little influence on the microbes, and that wounds, even of a septic character, heal just as rapidly and just as nicely under a less rigorous antisepsis. If such is the case in surgery, the present fad for killing the germs through general counter-intoxication, will have to give place to a less serious medication.

In looking over the list of antiseptics one is impressed with the large number. Almost every drug, beginning with ordinary household coffee (in infusion) and ending with a saline cathartic has been found to be a direct or indirect antiseptic. And now the old-fashioned treatment of malaria with quinin, rheumatism with salicylates, and syphilis with mercury, has been found to be nothing but the antiseptic treatment of those affections. What is in a name? And now modern surgery has taught us that salicylate of soda has but a slight antiseptic power! If the typhoid fever bacillus is so easily neutralized by guaiacol carbonate, that Dr. Woodbridge, or others, have succeeded in bringing typhoid fever patients to an almost normal state, as far as the symptoms of a general intoxication are concerned, in twenty-four hours, why, I ask, does the same drug not kill the malaria organism or the as yet undiscovered and unbaptized but sure to exist bacillus rheumaticus?

That it does not I can testify from clinical experience. In several cases of malaria, for a few days, various antiseptics (guaiacol carbonate, carbolic acid, calomel, iodin) were tried with no effect. A hypodermic injection of the arsenite of quinin was sufficient to stop the chills.

In acute inflammatory rheumatism the salicylate of sodium, in spite of the fact that it has but slight, if any, antiseptic power, has proven of greater benefit than any of the above-mentioned antiseptics. Is rheumatism after all then a non-microbian disease? Colchicin has proven to have no antiseptic power whatever, and still one must be astonished to read in French literature the results obtained from its use in various rheumatic affections.

I have a large number of cases of chronic rheumatism, deforming and non-deforming under my care, and the administration of general antiseptics has produced no marked results within four weeks. Generally in private practice I can control chronic rheumatism with large doses of natrium salicylicum in about ten days.

If microbes are the cause of disease and they are destroyed by antiseptics, then consumption will soon be as much a curable disease as typhoid fever.

When such an eminent man as Osler, with his unusually large opportunities for observation in one of the largest hospitals in the world, testifies to the inefficiency of the antiseptic treatment of typhoid fever[5] I must defer further discussions of "cause and treatment of microbian diseases" until further experiments can be carried out. It is to become my life study henceforth. The statement of the eminent Chicago surgeon, Nicholas Senn, at the last meeting of the AMERICAN MEDICAL ASSOCIATION that antiseptics fail when we mostly expect them to do the work, ought to have awakened the dormant thinking energy of many an intelligent practitioner.

It has been said that the antiseptic treatment influences considerably the typhoid fever curve. Most of the antiseptics are antipyretics and vice versa, and the fever could probably be controlled just as well by the continuous administration of small doses of quinin or acetanilid, which antipyretics have but slight depressing action on the heart. That the fever curve is considerably lowered by a systematic treatment with water is well known.

The hygienic and dietetic treatment of typhoid fever forms an essential part of the general management of such cases. It would be too much risk, however, to abandon all other means of treatment and to rely solely on the dietetic, as has been advocated by some believers in the *vis medicatrix naturæ*. In mild cases it may be sufficient, but who can tell whether a given case is to remain as mild as it appears in the beginning? *Non medicamentis sed medica mentis* is a very good sophism, but I fail to see why it should be the motto solely of doctors, "à la Kneipp." It ought to be, and in fact is, the motto of every drug practitioner. As regards hygienic treatment it can be framed in four words: Rest, a good bed, ventilation and an intelligent nurse. The diet of typhoid fever should be light, liquid and nutritious. Meat, ordinary bread and raw fruits, especially apples and pears are to be strictly prohibited.

The patient should drink cold, fresh water freely. I allow my patients from ten to twenty glasses *pro die* and would give them more if they so desired. The water can be acidulated with hydrochloric acid, lemon or peroxid of hydrogen (or hydrozone) alternately. Alcohol should be given early. I am surprised that most of the latest writers restrict its use to cases where direct stimulation only is indicated, as it is a medicine and food at the same time.

The key note of the dietetic treatment is nutrition. For more than a century plain cow's milk has been used. But plain cow's milk has many disadvantages, deranging the digestion and necessitating repeated macroscopic and microscopic examinations of the stools. These objections can be ovorcome by the addition of Mellin's food. This food, although hardly needing any further recommendation, has proven to me of incalculable benefit not only in typhoid fever but in a great many other acute and chronic affections of the gastro-intestinal tract. The effects this preparation has on milk can be summed up as follows:

1. Owing to its alkalinity it acts chemically upon the casein of the milk, converting it into soluble albuminates.

2. The dextrin present is a powerful peptogen and greatly increases the secretion of pepsin from the stomach glands, by is physiologic action.

3. Clinical observation as well as chemic experiments have proven beyond doubt that if the food be added to cow's milk it is rendered more easy of digestion and more nutritious.

4. If necessary Mellin's food can be given with water instead of milk, with similar results.

Light soups, preparations of beef juices, beer and coffee, can be given in small doses.

Suggestions for a Rational Treatment.—After considering the former methods together with my own experience, I think I can propose a treatment, that although far from being infallible, will recommend itself to the thinking physician, as one that promises the most satisfactory results.

I divide the disease, for practical purposes into three stages: 1, the time when owing to certain symptoms and phenomena, the disease can be suspected only; 2, the time from the definite diagnosis of typhoid fever until convalescence; 3, convalescence plus two weeks.

The treatment as long as the disease is only suspected, consists of attending to the symptoms as they appear. To produce diuresis, diaphoresis and catharsis is the most rational procedure.

But as soon as a diagnosis of typhoid fever is made, all energy should be awakened.

Hygienic and hydro-therapeutic treatment must be outlined for the entire course of the disease and systematically commenced at once.

No matter what the condition of the bowels, the first two days, the following prescription is given.

℞. Calomel . . . . . gr. iii | 18
Salolis . . . . . ʒss. 16 |

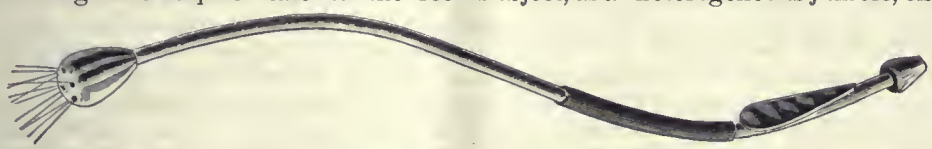
Misce. F. pulv. No. VI. Sig.: One powder three times a day.

Then I commence with tonics, calculated not only to support vitality but to sustain the heart. Digitalis, strychnin, nitroglycerin are prescribed in suitable doses, and proper excipients administered at regular intervals. (Stearn's essence of pepsin is what I prefer.) For this reason I commence early with the administration of alcohol. French brandy (cognac) port or sherry wine are suitable. Recently I have obtained good results from the wine of fresh (undried) kola nuts, "kolavin-Stearns," which is not only a good tonic but a brain stimulant.

But one of the drugs on which I place much dependence is the peroxid of hydrogen. Care should be taken to obtain the strongest and best brand, as most of them sold in this country are poor imitations of even what the Pharmacopeia prescribes and that is weak enough. Hydrozone, as prepared by the New York chemist, Charles Marchand, is at this date recognized as the best in every respect being a 30 volume solution. It is best administered in teaspoonful doses (to be measured with a glass spoon only) in the water used as drink three or four times a day. I also add some hydrozone to the water used for washing the colon. The effects of hydrozone when administered in typhoid fever are these:

1. It oxygenates the blood, thus keeping the brains in activity. It is a brain tonic. If hydrozone be given properly all cerebral disturbances, delirium, that state of semi-unconsciousness which most of our patients pass through will be a "rara avis." 2. It improves digestion and checks abnormal fermentation. 3. It stimulates exertion. 4. Mechanically it cleanses the bowels, allays the hyperemia, prevents ulceration, and assists in "disinfecting" the contents of the gastro-intestinal tract. 5. It is as powerful an antiseptic as creosote and carbolic acid without possessing any of their disadvantages.

A useful procedure is irrigation of the colon, which should be practiced twice daily in cases of typhoid fever. It matters little whether the fluid passes beyond the ileo-cecal valve or not, for either through reflex action or through the aseptic state of the rectum, the state of the bowels is greatly improved by the irrigation throughout the disease. It produces a natural catharsis. Only when an emaciating diarrhea exists (a case I never observed) I would substitute sugar of lead and opium and then would not irrigate but inject the fluid as a simple clysma. A stiff rectal rubber tube attached to a fountain syringe is the best means for irrigation. Soft rubber is not to be used as it lodges in the mucous folds of the rectal wall and bends over.



A metal sigmoid flexure irrigator has been devised by Dr. Cole. It is manufactured by Messrs. Halsey Bros. of Chicago, to whom I am indebted for the accompanying cut, which represents about one-third the actual size. On my suggestion they now manufacture smaller nozzles for children, which can be easily screwed on the instrument. This instrument has proved of great use in my hands, as it can be easily introduced into the sigmoid.

This treatment is routine in my practice. Depending on circumstances it is altered in minor points. Special symptoms call for special medication. This article is an incomplete pen sketch rather than a treatise on the treatment of typhoid fever. It is intended to cause the general practitioner to think, not to copy formulæ.

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TREATMENT OF TYPHOID FEVER.

BY F. M. GREENE, M.D.
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Before continuing the discussion, on the disinfectant and eliminative treatment of typhoid fever, which was presented in a former paper, we wish to notice some criticisms upon this method read at the last meeting of the AMERICAN MEDICAL ASSOCIATION at Atlanta. The distinguished chairman of the section on general medicine, attacks rather severely, the advocates of the new method, calling them "heretics of the worst possible stamp," because they do not choose to "swim in his puddle with him." Being himself an advocate of hydrotherapy of most enthusiastic stamp, he takes issue with all those who differ from him, and triumphantly declares it "impossible to disinfect 25 feet of intestinal canal, with such remedies as Woodbridge recommends." He may find before getting through with the discussion of this important subject that there are "more things in heaven and earth than are dreamt of in his philosphy"; also that there are more than "two grains of wheat in his two bushels of chaff." His late work on the Practice of Medicine, lies on the table before us, and we venture the assertion that he will not spoil the next edition of his "jewel" by omitting a full description of the new method of treating typhoid fever. He may not then regard the papers which have hitherto appeared in the JOURNAL of the ASSOCIATION on the subject, as a "heterogeneous jumble, entirely unworthy of the best traditions of the profession, and of a subject connected with the names of Bartlett, Gerhard, Jackson and Flint." He might have added also the name of George B. Wood, who first called attention to the value of oil of turpentine in this disease. We had the pleasure of listening to the clinic lectures of both Gerhard and Wood on typhoid fever, and believe that were they with us to-day, they would be found in the front ranks of antiseptic medicine. The latter had discovered an intravascular disinfectant of great value, without being able to explain its "modus operandi."

We agree with Dr. Osler that "all wisdom is not found in the professorial corps" and that "a good thing may come out of Nazareth." Professor Quine from the chair of the section on the Practice of Medicine, was more considerate of the new method and reports "twenty-one consecutive cases, covering his private practice during the last two years," and which were treated antiseptically. Under the same treatment, he gives an account of 275 cases and 6 deaths; a mortality rate of 2.2 per cent. He does not claim however that "the Woodbridge method was employed in one of them." The plan of treatment followed consisted in a general way of purgatives to the extent of from two to six evacuations daily. The antiseptics used were a mixture of guiacol carbonate, thymol, menthol and eucalyptol—but not the Woodbridge formulæ. He declares: "Athough no death occurred, the results, especially in the direction of aborting the malady, albeit, not discouraging to one who had not expected much, were less brilliant than those recorded by our friend from Ohio."

Again—"It is not assured that this inconsequential showing proves anything" !! Were "reasons as plenty as blackberries" we would not ask Professor Quine to give us "a reason upon compulsion." Finally he concludes: "No one has the right to condemn the method without proof." We think an impartial reader of these criticisms, might conclude that the one is highly prejudiced against, and the other favorably inclined toward it. The opponents of the method try to account for its success by saying that the observations of medical men everywhere go to show that the disease has existed in a mild form for the past two or three years, which is about equivalent to saying that a patient is threatened with typhoid fever. Physicians of experience know that it is one of the gravest maladies, and never threatens anyone; that in the same endemic, in the same section, and in the same family, the most severe and mild forms, frequently exist together. In these mild and so-called "walking cases" we may have grave complications, as hemorrhage and perforation. Both the etiology and pathology of this disease has been determined. The typhoid bacilli having entered the alimentary canal, find lodgement in the glands of the ileum, or are carried away in the excreta from the bowels. They have doubtless commenced their work when the physician is called, and there already exists hyperemia and congestion of the mucosa in this locality. Some time elapses before there is ulceration, erosion or necrosis. It is not the work of a day, but of many days before these changes take place. Neither are they confined to the lumen of the bowel, but through the absorbents they enter the blood, and are conveyed to the most distant parts of the system. They have been found in the liver, spleen and pancreas. It is some time, usually about the close of the second, or beginning of the third week, before a toxin is formed and nervous symptoms begin to appear, such as delirium, subsultus tendinum and picking at the bed-clothes. Now if we see the patient early, disinfect the bowel as soon as possible, and at the same time maintain free evacuation and elimination, it is not improbable that we may prevent these secondary symptoms, or that the disease may be aborted in its earlier stages. This is what some of its advocates claim, and the result seems to bear out the assertion. We have the testimony of many physicians that, under it, meteorism when present rapidly subsides; putrefactive changes are prevented, and the stools lose their peculiar odor. The most remarkable results are shown in fall of temperature, which sometimes reaches normal by the tenth or twelfth day of treatment. The patient now enters upon a favorable convalescence, asks for food, and it may be allowed much earlier than under the old régime. The bowel at any rate is the starting point of the bacilli, and if they are destroyed here, the intensity of the infection at least is modified, and the work of the phagocytes is lessened in proportion. It is more than probable that the essential oils of eucalyptol, menthol, thymol and turpentine act as intravascular disinfectants in the various organs and tissues of the body. Dr. George B. Wood introduced the latter many years ago, and it has maintained its reputation up to the present time. These remedies are absorbed before they reached the ileum, and are not supposed to act locally upon ulcerated surfaces.

The remedy which is perhaps the most important of all is the carbonate of guiacol, which has been proved to be insoluble in the stomach. After it leaves the stomach it is broken up into guiacol and carbonic acid. The former is the active principle of creosot, and the odor of the latter is detected in the various excretions. Hoelscher and Seifert of Berlin and many other German physicians regard it as an intestinal antiseptic of much value, and especially useful in typhoid fever.

Creasote has gained reputation as a germicide in phthisis and is destructive both of the typhoid bacilli and other putrefactive bacteria which are found so abundantly in typhoid stools. We do not claim that it can repair damage already done or cure ulceration already existing, but when used early, is preventative of these, and other grave complications. Neither can the carbonate of guiacol be regarded as an antipyretic, although rapid fall of temperature follows its administration. It is therefore the destruction of bacteria and consequent prevention of rapid metabolism, which, if not the cause, is always associated with the pyrexia of this disease. As the season approaches for the prevalence of this fever, physicians will have courage at any rate, to try the new method and decide for themselves its real merit or demerit.

So many new remedies have been foisted upon the profession lately, all claiming to be specifics, and when tried have proven worthless that it is difficult to call the serious attention of physicians to a new method which claims as much as this. We may undoubtedly control the high temperature of typhoid fever by the Brand method, but the disease is not subdued but only held in check and we have yet to contend with dangerous complications and sequelæ. There is some difficulty in carrying it out with hydrophobic children, and the poorer classes, among whom the disease is more prevalent. It is impossible for the physician to be present during the administration of the baths and there are required a number of intelligent assistants to carry it out properly.

There are sometimes contraindications to the use of cold baths in typhoid fever. In hemorrhage, whether active or passive, the exertion required in taking them is injurious, and the application of cold to the surface produces a greater determination of blood to the internal organs. So in hypostatic congestion of the lungs and in pneumonia; though in moderate attacks the application of cold water may be beneficial. In very great weakness of the heart's action, there would be danger from shock by the sudden immersion of the body in cold water. In country practice and among a large class of patients in our cities it is impracticable, unless, Diogenes-like we carry our tub around with us.

We allude to some of the difficulties of the Brand treatment not to influence any one against it, but to show that the new method is better adapted to patients of all classes and conditions.

26 North Mill Street.

THE RATIONAL TREATMENT OF TYPHOID FEVER.

Abstract of paper read at the meeting of the Tennessee Medical Society in Chattanooga, April 14, 15 and 16, 1896.

BY J. A. CROOK, M.D.

JACKSON, TENN.

That the curative treatment of a disease so universally prevalent in all countries, latitudes and civilizations as typhoid fever, should engage the attention of lovers of science and the promoters of health, is most

natural and laudable. A disease whose preference is so great for young manhood and womanhood when active life, with its duties and pleasures is just unfolding a disease whose grave character and fatal issues, makes its consideration and the possibility of its abortion of great importance to the profession and to humanity, is certainly worthy of the attention of this honorable body, devoted, as it is, to the amelioration of suffering and the conquest of disease.

Typhoid fever is a disease, whose nature and pathology have long been known and often described, but whose etiology, until recently, has been but little understood. This has been left for late observers, with the aid of the microscope and much experimental research, to develop and determine.

While some observers were of the opinion that every one carried in the intestinal canal, waste products from the organism, material susceptible of putrid intoxication and the development of typhoid fever under favorable circumstances, later authorities, as Koch, Eberth and others, have demonstrated the bacillus typhosus to be the germ and cause on which this disease depends, and its origin otherwise impossible; that the disease is not contagious and these germs have to be introduced into the system from without in order to produce the disease, and that this is chiefly done through drinking water; that the habitat of these germs is chiefly the lower portion of the ileum and upper portion of the colon, where they rapidly grow and multiply till sufficient irritation and toxins are produced to develop the characteristic fever.

While every form of treatment that could be devised had been tried, none, until very recently, tended to cut short the disease, and typhoid fever had come to be regarded as a self-limited disease and had to run its usual course. Flint says: "It must be admitted that the known resources of therapeutics do not afford reliable means for the arrest, nor even shortening the febrile career." Loomis, says: "After the poison has once gained entrance into the system, no means have as yet been discovered by which it can be counteracted or neutralized so as to prevent the development of the disease. The duty of the physician is to guide the disease to a favorable issue, keeping in mind that a certain definite time must elapse before this result can be accomplished." Johns Hopkins Hospital report, Vol. 10, No. 1, says: "No known drug shortens by a day the fever. No method of specific treatment or of antisepsis of the bowel has passed beyond the stage of primary laudation."

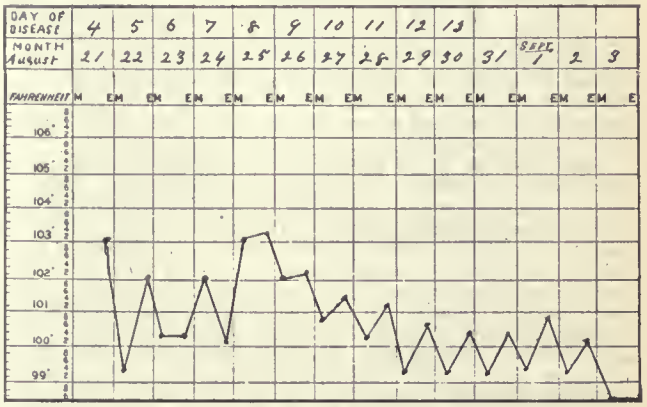
While, until very recently, this represented the true status of medical knowledge, yet, if the consensus of professional opinion be true as to its cause, namely, a specific germ whose habitat is the small intestine, any remedy that will sterilize the entire alimentary canal, destroy this germ and neutralize its toxins effectually, that is not deleterious to the system, is certainly rational and worthy of trial.

Flint again says: "It is not an unreasonable expectation that an antidote or parasiticide as effective in typhus and typhoid fever as quinia in malarial fever, may hereafter be discovered, and such a discovery is a proper aim for continued experimental observations."

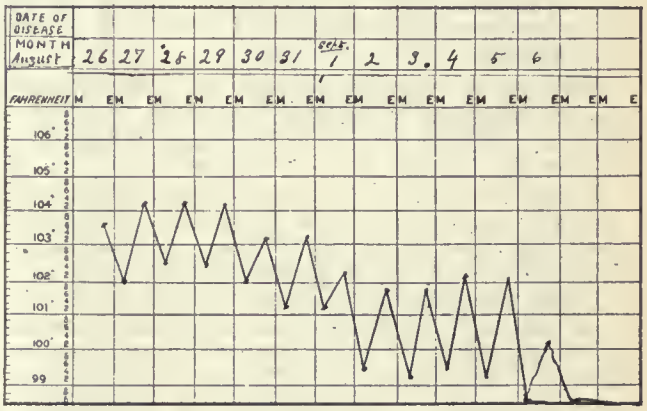
This has been the teaching of nearly all authors. On this idea carbolic acid and iodin, sulpho-carbolate of zinc, salol, salicylate of ammonia, etc., have been used as intestinal antiseptics and germicides. Notwithstanding all these remedies, with the Brand treatment, lessened the mortality and modified the course of the disease in some instances, it remained for John Eliot Woodbridge to discover and introduce to the profession the ideal intestinal antiseptic, and demonstrate with certainty, the success of his remedies, and render typhoid fever no longer one of the grave and much dreaded diseases.

I here report some of my cases:

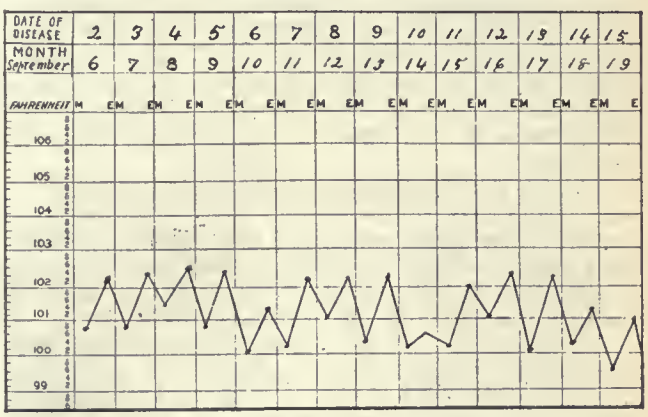
Case 1.—K. McC., male, age 17. I was called to see him on the fourth day of his sickness; temperature 103, tongue coated, and a feeling of malaise. I gave blue mass calomel and soda to move bowels, also phenacetin to reduce fever, and pressed



No. 1.—K. McC.



No. 2.—H. R.



No. 3.—L. M.

quinin. Next morning bowels had acted well; he had a free perspiration, temperature 99.4. In afternoon temperature was 102.. Morning and evening temperature next day 100.4, free perspiration. Temperature next morning 102. Afternoon temperature 100.2, when I put him on Woodbridge tablets No. 2 every hour, but kept up quinin. Temperature next morning 103, and in afternoon 103.2; added phenacetin. Temperature next morning 102, and in the afternoon 102.2, I added Woodbridge No. 3 alternated with No. 2. From this time on the fever gradually declined, the yellow thin actions kept up from

bowels for a while, the nervousness grew less, and the patient's temperature reached normal on the seventeenth day of the disease, and the tenth day after the Woodbridge treatment was commenced, and he rapidly recovered. I may add that this young man was very despondent from the start, as he had a short time before lost his cousin with the same disease.

Case 2.—H. R., age 47, married. August 26, temperature 103.6, bowels tympanitic and three or four paint-like actions a day. I put him on Woodbridge treatment every hour, gave nothing else. Next morning temperature 102. No other change. I added Woodbride No. 3 alternated with No. 2. The temperature continued as shown by the chart until the fifth day of treatment, when it reached normal. His recovery was uneventful except one of his legs swelled and remained swollen for some time during convalescence.

Case 3.—L. M., age 25. September 6, the second day after he had taken to his bed, morning temperature 100.8; put him on Woodbridge No. 2 every hour; afternoon temperature 102.2; added an occasional dose of quinin to satisfy patient; September 8 added Woodbridge No. 3, alternated with No. 2. The seventh day I noticed several rose spots on his chest and abdomen. September 20 his temperature reached normal.

Case 4.—Miss M., a young lady. October 2, temperature 105.5, tongue coated. I thought she had bilious fever. I gave blue mass, calomel and soda to move the bowels and put her on phenacetin and quinin. Next day bowels had moved well; she was perspiring freely but fever high. I pressed phenacetin and quinin. On the third day, as her fever kept up, I put her on Woodbridge No. 2 every hour, and kept up quinin. Next day no change. Next morning fever not so high and patient not so nervous. About 2 o'clock same day I found that she had had hemorrhage from the bowels three times, the chamber nearly filled with clotted blood and she was almost pulseless, temperature below normal. By the use of hypodermics of strychnia, stimulants and astringents, I was enabled to bring about reaction. As soon as I felt that she was sufficiently safe from another hemorrhage I put her on Woodbridge No. 3, alternated with No. 2 and kept it up.

When this hemorrrhage occurred I thought that she had been sick longer than reported. It appeared she had been sick for two weeks or more, but had tried to wear the feeling off.

I might add reports of a dozen cases thus treated with like results, but I deem these sufficient, with the testimony other physicians who have had like results, to establish the fact that typhoid fever can be cured.

I have used only prescriptions Nos. 2 and 3. This I did purposely, as No. 2 contained the same amount of everything as No. 1, and four times as much carbonate of guiacol and the addition of one-sixteenth grain of thymol. I am confident that the virtue of these perscriptions is increased, if not dependent on one or both of these drugs; and it seems more rational to give these at once, and get the patient earlier under the influence of these remedies. Besides it is contrary to my idea of treating a patient, to disturb him and his stomach every fifteen minutes with medicine.

I think that the success of this treatment is due to one or all of the components in No. 3, and that if this combination alone were used, with sufficient calomel and sodium tablets to keep the bowels open, the result would be the same as when Nos. 1 or 2, or both, are used, according to Dr. Woodbridge's directions.

In closing will say, that from the facts here adduced, in addition to statements published in Dr. Woodbridge's paper read at the meeting of the AMERICAN MEDICAL ASSOCIATION in Baltimore last May, the following conclusions may be drawn:

1. That the treatment given by Dr. Woodbridge for typhoid fever far surpasses in results any other treatment hitherto employed.

2. That it is entirely harmless, and it, or the antiseptics it contains, can and should be given without hesitation by any physician to any and all patients and under all circumstances when typhoid fever exists.

3. That if this treatment is begun early and persisted in, the disease will not only be materially shortened, but that all serious consequences and sequelæ, such as tympanites, glazed tongue, nervous prostration and delirium, will be prevented.

4. That if any reliability can be placed in this evidence, the Woodbridge treatment actually cures typhoid fever as certainly and surely as quinin does malaria, and that under this treatment there are but two stages of this formidable disease, first, that of rapid decline in temperature, and secondly, that of convalescence.

1796–1896.

THE MEMORIALS OF EDWARD JENNER.

Address delivered at the Centennial Celebration held at Atlanta, Ga. May, 1896.

BY HORATIO R. STORER, M.D.

HON. PRES. NEWPORT MEDICAL SOCIETY, NEWPORT, R. I.

Upon the one hundredth anniversary of Jenner's discovery, anything connected with him becomes of unusual interest. There exist a number of medals, statues, busts, paintings, engravings, lithographs and wood cuts, purporting to represent him as he appeared in life.

Medals.—It was my intention to present to the ASSOCIATION a list, with descriptions, not merely of the personal medals of Jenner, but of those illustrating the history of smallpox and the physicians who have written thereon; inoculation, and those identified with its employment; and vaccination, with those, including Drs. N. S. Davis and J. M. Toner, who have been prominent, since Jenner's day, in its development. Quite a number of them were shown by me to the ASSOCIATION at its Newport meeting in 1889. A portion of the medals relating to the subject have been given by Dr. Charles Louis Hippolyte Klnyskens[1] of Ghent, and a larger number still by Medicinal Rath Dr. L. Pfeiffer and Hof Rath C. Ruland[2] of Weimar. The first of these gentlemen has now deceased. His list of medals comprised twenty-nine, only of vaccination. To the others, Pfeiffer and Ruland, too much praise can not be given for their indefatigable labors. In their latest publication, 1882, they gave twelve medals of inoculation, and fifty-four of vaccination. That I have been able to materially add to these numbers, has been only through constant searching through several years, and a large amount of correspondence with numismatists. The list has been nearly finished, but ill health has pre-

[1] Numismatique Jennérienne. This first appeared in the Revue belge de numismatique for 1875, vol. xxxi, page 55, and was privately reprinted.

[2] Dr. Pfeiffer, who has been a prolific writer upon smallpox and vaccination, has been the collector of these medals, and Mr. Ruland, the curator of the Goethe Museum at Weimar, has been their collator. Dr. P. first published in 1876 "Die auf die Entdeckung und Ausstreitung der Impfung geschlagen Denkmünzen" (*Deutsche Zeitschrift für prakt. Med.*, Leipsic, 1876, pp. 516–524). There then appeared anonymously but evidently from the hand of Mr. Ruland, "Beschreibendes Verzeichniss Der zu Ehren William (*sic*) Jenner's und Aloysio Sacco's Sowie Auf Die Schutzpocken-Impfung und die Blattern-Inoculation Geprägten Medaillen" (*Archiv für path. Anatomie*, Berlin, 1877, LXXII, pp. 1-14). This was privately reprinted. There then came, also anonymously, "Pestilentia in Nummis. | — | Beschreibendes Verzeichniss | der auf Epidemien von Pest, gelben Fieber, Cholera, auf Pocken—Erkrankungen und Inoculationen, auf Jenner, Sacco und die Vaccination, sowie der auf Hungersnöthe und andere Calamitäten geprägten Medaillen," Weimar, 1880; and finally, with the authors' names for the first time upon the title page, "Pestilentia in Nummis. | Geschichte | der Grossen Volkskrankheiten | in Numismatischen Documenten. | Ein Beitrag zur Geschichte der Medicin und der | Cultur." Tübingen, 1882.

[Since my paper was presented at the Atlanta meeting I have received still another and very interesting article upon the subject from Dr. Pfeiffer, entitled "Zur Jenner feier | des 14 Mai 1896 | Medaillen, Porträts und Abbildungen, | betreffend | E. Jenner, die Variolation, die Vaccination | und die Vaccine." | Tübingen, 1896. While it lacks a number of the memorials I had cited, it gives several that were new to me. These I shall enter, giving due credit for each with an asterisk.]

vented its completion, and indeed the hours of the present session have been so wisely parceled in advance that there would have been scant leisure for its consideration. I shall, therefore, now offer but a catalogue of the personal medals of Jenner alone.

ENGLAND.

1. *Obverse.* Apollo presents a sailor who has been preserved by vaccination to Britannia, who holds a civic crown bearing: JENNER Legend: ALUA NAUTIS STELLA REFULSIT. 1801.

Reverse. An anchor. Above: GEORGIO TERTIO REGE. Below: SPENCER DUCE (Viscount Althorp, First Lord of the Admiralty and subsequently Earl Spencer.)

Gold.

Schlichtegroll, *Annalen der gesammten Numismatik*, I, p. 156; Rudolphi, Recentioris Aevi Numismata de Rebus Medicis et Physicis Meritorum Memoriam Servantia, Berlin, 1829 (3d edition), p. 81, No. 338; Kluyskens, Des Hommes Célèbres dans les Sciences et les Arts, et des Médailles qui Consacrent leur Souvenir, Ghent, 1859, II, p. 68, No. 1; *ibid.*, Numismatique Jennérienne, No. 1; Duisburg, C. A. Rudolphi, etc., Denuo Edidit, Emendavit et Auxit C. L. D. D., Dantzic, 1862, p. 230, DCIX, 1; Pfeiffer and Ruland, 1882, p. 139, No. 385; Baron, Life of Edward Jenner. London, 1838, II, p. 456; Storer, *Sanitarian*, March, 1889, No. 926; *ibid.*, *American Journal of Numismatics*, July, 1894, p. 14, No. 747. [Pfeiffer, 1896, p. 3, No. 385.]

Presented to Jenner by the surgeons of the British Navy. Its locality is now unknown. It is not, as Pfeiffer has supposed, a portrait medal of Jenner.

2. *Obverse.* Bust, clothed, to left. Upon truncation: [T.R.] POOLE 1809 No inscription.

Reverse. Blank.

Of pink wax upon colorless transparent glass; 82 mm. (length of bust).

Storer, *loc. cit.*, April, 1895, p. 128, No. 880. [Not given by Pfeiffer, 1896.]

In the Library of Royal Medical and Chirurgical Society of London. I know of it through Dr. F. P. Weber of that city.

A gold medal was presented to Jenner by the Medical Society of London, at its anniversary dinner, March 4, 1804. It bore either upon its rim or the casket that contained it: E. JENNER M.—D. SOCIO SUO EXIMIO OB VACCINATIONEM EXPLORATAM

Biographie Médicale, V, p. 574; Rudolphi, p. 81, No. 339; Kluyskens, II, p. 68, No. 2; *ibid.*, Num. Jenn., No. 2; Duisburg, p. 230, DCIX, 2; P. and R., p., 139, No. 386; Storer, *Sanitarian*, March, 1889, No. 927; *ibid.*, *Amer. Jour. of Num.*, July, 1894, p. 14, No. 748; Baron, *loc. cit.*

Though mentioned by all these writers, its true character has remained undecided until it was lately ascertained by Dr. F. P. Weber of London that it was the John Fothergill medal of the society (Storer, *Am. Jour. of Num.*, Oct., 1893, p. 35, and July, 1895, p. 6, No. 645). Its present locality is unknown. If the inscription were upon its casket it is possible that it is the specimen now in the British Museum, as but one or two of these medals were struck in gold. [Pfeiffer, 1896, p. 3, No. 386, describes its bust as that of Jenner. It was not so, however, but of Dr. John Fothergill.]

There exists a medallion engraving, with bust in profile to right, by J. B. Drayton, from life, and Anker Smith. Though drawn for the purpose of a gold medal it was never struck.

A centennial medal has just been issued at Bristol.

3. *Obverse.* Bust, to right. Beneath: Fenwick, Sc.F. Birm'm. Inscription: Edward Jenner, M.D. LL.D. F.R.S. &c. Born 17 May 1749. Died 26 Jan. 1823. Berkeley, Glostersh.

Reverse. Within laurel wreath: May 14th, 1896. In commemoration of the centenary of Dr. Edward Jenner's First & Successful Experiment in Vaccination May 14th, 1796.

Silver. 38 mm.

Brettauer, *Mittheilungen des Clubs der Münz-und Medaillen Freunde in Wien*, May, 1896, p. 55.

A medal in honor of Jenner has also been determined upon by the Epidemiological Society of London.

HOLLAND.

4. *Obverse.* An allegorical group.

Reverse. EDUARD JENNER, DOCTOR IN DE GENEESKUNDE | GEBOREN DEN 17 MEY 1749 TE BERKLEY IN HET GRAAF | SCHAP GLOCESTER IN ENGELAND EN ALDAAR OVERLEDEN | DEN 26 JANUARIJ 1823. UITVINDER DER KOEPOKINENTING | IN HET JAAR 1775. DOCH EERST IN 1798 DOOR HEM | BEKEND GEMAAKT.

Copper. By A. Bemme, at expense of H. Westhoff, Jr.

Dirks, Nederlandsche Penningen, 1889, I, p. 169, No. 210; Storer, *Am. Jour. of Num.*, July, 1894, p. 14, No. 749. [Not given by Pfeiffer, 1896.]

BELGIUM.

5. *Obverse.* Bust, upon an oval shield, between two females holding over it a crown. Beneath, an elongated shield, upon which a cow, to right.

Reverse. Blank.

Plaster of Paris. 37 mm. Unique. By Charles Wiener of Brussels.

Alvin, *Revue belge de numismatique*, April, 1888, p. 243; Storer, *Sanitarian*, March, 1889, p. 935; *ibid.*, *Am. Jour. of Num.*, July, 1894, p. 15, No. 757. [Not given by Pfeiffer, 1896.]

Reference to Jenner is also made upon a medal of Dr. Vrancken of Antwerp.

FRANCE.

6*. *Obverse.* Bust. Beneath: BARRE. Inscription: NAPOLEON III. EMPEREUR.

Reverse. Bust of Jenner, facing. At sides, a cloaked and a nude female figure, with laurel wreath. Beneath, a cow. Inscription: EDWARD JENNER. Upon rim: COMITÉ DE VACCINE DE LA SEINE INF. By Hamel.

Silver. 41 mm.

Pfeiffer, 1896, p. 6, No. 415c.

7. *Obverse.* Bust, facing, within palm leaves. Inscription: EDWARD JENNER. To left: HAMEL ET LECOMPTE Beneath, 1749 (the date of Jenner's birth).

Reverse. Between laurel branches: MEDAILLE DE 1RE CLASSE. Inscription: COMITÉ CENTRAL DE VACCINE DU DEPARTMENT DU NORD.

Silver. 40 mm.

Kluyskens, Num. Jenn., No. 9; Pfeiffer and Ruland, p. 145, No. 416; Storer, *Sanitarian*, March, 1889, No. 933; *ibid.*, *Am. Jour. of Num.*, July, 1894, p. 15, No. 755. [Pfeiffer, 1896, p. 7, No. 416.]

8. *Obverse.* As preceding, but bust somewhat toward left, and on pedestal, upon base of which the date.

Reverse. A laurel wreath, beneath which: MEDAILLE DE 2E CLASSE. Field vacant for name of recipient.

Silver. 36 mm.

Pfeiffer and Ruland, p. 146, No. 417, fig. of obv.; Storer, *Sanitarian*, March, 1889, No. 934; *ibid.*, *Am. Jour. of Num.*, July, 1894, p. 15, No. 756. [Pfeiffer, 1896, p. 7, No. 417.]

In the collection of Dr. Joseph Brettauer of Trieste.

9*. *Obverse.* As preceding.

Reverse. Merely the wreath.

Silver. 36 mm.

Pfeiffer, 1896, p. 7, No 417 a.

GERMANY.

10. *Obverse.* Beneath a rose bush and a cornucopia, an infant with rose in its hand points to its arm. At right of bush: L (OOS) Inscription: EDUARD JENNER'S WOHLTHÆTIGE ENTDECKUNG Exergue: VOM 14 MAI | 1796

Reverse. ZUM | ANDENKEN | AN | ERHALTENEN | UND | MITGETHEILTEN | SCHUTZ | (a scroll) | GEREICHT VOM | DOCTOR (EDUARD) BREMER | IN BERLIN | 1803

Silver. 25 mm.

Rudolphi, p. 82, No. 340; Kluyskens, II, p. 68, No. 3; *ibid.*, Num. Jenn., No. 5; Duisburg, p. 230, DCIX, 3; P. and R., p. 141, No. 393; Baron, *loc. cit.*; Storer, *Sanitarian*, March, 1889, No. 928; *ibid.*, *Am. Jour. of Num.*, July, 1894, p. 14, No. 750. [Pfeiffer, 1896, p. 4. No. 393.]

In the Brettauer collection, that of the U. S. Army Medical Museum and my own.

11. *Obverse.* As preceding.

Reverse. As preceding, save that after SCHUTZ there is: — - —, and after BERLIN: 1811— | 8 L. 6 GR.

Silver. 25 mm.

Rudolphi, p. 82, No. 340; Kluyskens, Num. Jenn., No. 6; Duisburg, p. 230, DCIX, 3, note: Bremer, Die Kuhpocken, Berlin, fig.; P. and R., p. 142, No. 394; Storer, *Sanitarian*, March, 1889, No. 929; *ibid.*, *Am. Jour. of Num.*, July, 1894, p. 14, No. 751. [Pfeiffer, 1896, p. 4, No. 394.]

In the Brettauer collection and my own.

12. *Obverse.* Bust, to left. Beneath shoulder: F. Loos Inscription: EDUARD JENNER ENTDECKER DER SCHUTZIMPFUNG D. 14 MAI 1796

Reverse. An angel from clouds, garlanding a cow, around which seven children are dancing. Legend: EHRE SEY GOTT—IN DER HÖHE Exergue: UND FREUDE | AUF ERDEN

Silver, bronze, Berlin iron. 36 mm. Thick and thin planchets.

Rudolphi, p. 82, No. 341; Kluyskens, II. p. 69, No. 4, fig.; *ibid.*, Num. Jenn., No. 7; Duisburg, p. 231, DCIX, 6; P. and R., p. 139, No. 387, fig.; Wroth, *Numismatic Chronicle*, 3d series, VI, 1886, p. 303; Storer, *Sanitarian*, March, 1889, No. 930; *ibid.*, *Am., Jour. of Num.*, July, 1894, p. 14. No. 752; Weber, English Medals by Foreign Artists, p. 50, No. 161. [Pfeiffer, 1896, p. 3, No. 387.]

In the Brettauer and U. S. Government collections, those of Prof. S. Oettinger of New York, Dr. W. S. Disbrow of Newark, N. J., and my own.

13. *Obverse.* As preceding, save that engraver's name is in exergue.

Reverse. Hygieia, with serpent upon her right arm, protects, by a shield bearing a cow, an infant against a flying demon. Legend: TRIUMPH! GETILGET IST DES SCHEUSALS LANGE WUTH

Silver, bronze, Berlin iron. 28 mm. With and without loop.

Rudolphi, p. 82, No. 342; Kluyskens, II, p. 69, No. 5; *ibid.*, Num. Jenn., No. 13; Duisburg, p. 231, DCIX, 7; P. and R., p. 140, No. 388; Wroth, *Num. Chronicle*, 3d series, VI, 1886, p. 302; Storer, *Sanitarian*, March, 1889, No. 931; *ibid.*, *Am. Jour. of Num.*, July 1894, p. 15, No. 753; Weber, *loc. cit.* [Pfeiffer, 1896, p. 3, No. 388.]

In the Brettauer and U. S. Government collections and my own.

14. *Obverse.* A child, between a rose tree and the rising sun, exhibits its arm; at its feet a serpent. Legend: DANK DER GUTIGEN VORSEHUNG. Exergue: KRÜGER.

Reverse. Within a pearled octagon: WOHL | THATIGE | ENTDECKUNG | DER | SCHUTZPOCKEN | DURCH | ED: JENNER.

Silver. 30 mm.

Kluyskens, Num. Jenn., No. 8; Duisburg, p. 231, DCIX, 8; P. and R., p. 142. No. 397; Storer, *Sanitarian*, March, 1889, No. 932; *ibid.*, *Am. Jour. of Num.* July, 1894, p. 15, No. 754. [Pfeiffer, 1896, p. 4, No. 397.]

In the Brettauer collection.

15. A centennial medal is said to have been issued at Berlin, of which the details have not yet reached me.

RUSSIA.

16. There has also been a centennial medal struck at St. Petersburg, but its description has not been received.

ITALY.

Jenner's name appears upon the two medals of Dr. Sacco of Milan.

THE UNITED STATES.

A week after the meeting at Atlanta, the following medal was issued by the Medical Society of the County of Kings (Brooklyn, N. Y.), to commemorate its own very successful Jenner celebration. It is to be regretted that, through inadvertence, the locality of the society was omitted from the medal.

17. *Obverse.* Bust, with queue, to left. Inscription: VACCINATION, MAY 14TH | 1796—1896 | .JENNER.

Reverse. Within a circle, the staff of Æsculapius, upright. Inscription: MEDICAL SOCIETY OF THE COUNTY OF KINGS | (Pointed rosette.) (This is a copy of the society's seal.)

Silver (but four struck), bronze. 38 mm.

Scientific American, May 30, 1896, p. 344, fig. of obverse. In my collection, the gift of the Society.

PAINTINGS.[3]

I. Standing, facing and slightly to the left, leaning against tree; right arm upon branch, with hat, glove and cane in dependent left hand. Milkmaid with four cows and buildings at left.

Drawn from life. J. R. Smith, 1801. [Pfeiffer, 1896, p. 18.; not B. M. J.]

II. Three-quarter's length, in coat lined with fur, to right, seated at table upon which his work, "An Inquiry, etc." showing diagram of pustules, lies open. In background, figure of Hygieia and cast entitled "Sacred Cow."

By James Northcote, R. A. (For the Medical Society of Plymouth and Plymouth Dock.) [Pfeiffer, 1882; not mentioned by him in 1896; B. M. J.]

III. Older. Facing, with left forefinger upon brow.

Northcote. This is preserved in the National Portrait Gallery at London.[4] [P., 1896; not B. M. J.]

IV. In easy chair. Bust turned to left, but looking forward, and showing portion of right hand.

Sir Thomas Lawrence, Pres't R. A. Owned by Royal College of Physicians. [P., 1896; B. M. J.]

V. Seated. Facing, and to left. At side, MS. with inkstand and pen. In background, reclining cow and buildings, at left.

J. Robinson.[5] [Not P., 1896; B. M. J.]

VI. Bust, to right; medallion.

Drawn from life by L. B. Drayton. [Not P., 1896; B. M. J.]

VII. Three-quarters length, in arm chair, with fur-collared robe. Left elbow resting on volume lettered at back: JOHN HUNTER.

Wm. Hobday. [Not P., 1896; B. M. J.]

VIII.† Aged, three-quarters length, seated, facing and slightly to left, with right arm resting on that of chair.

By Sir Thomas Lawrence. Owned by Mr. T. Malcolm Watson. [Not P., 1896.]

IX.† Artist unknown. At Royal College of Surgeons of England. [Not P., 1896.]

X.† There is said to exist an original portrait in the possession of Mr. William Smith of Chesterfield, a photograph of which is in the collection of the Royal Medico-Chirurgical Society. I have not as yet been able to identify this.

STATUES.

I. Marble statue, at west end of nave of Gloucester Cathedral, near his birth place. Erected in 1826.

By Siévier. [P., 1896; B. M. J.]

II. Bronze statue, in London. Erected in 1858 at Trafalgar Square, and thence transferred in 1862 to Kensington Gardens. In gown, face resting upon left hand, and right holding a scroll; seated in antique chair, upon whose side the staff of Æsculapius.

By W. C. Marshall. [P., 1896; B. M. J.]

III. Statue at Boulogne-sur-Mer. In standing position, left hand upon a pillar, and right flexed forward with lancet. Upon base: JENNER. Upon pedestal: A | EDUARD JENNER. | LA | FRANCE RECONNAISANTE | 11 SEPTEMBRE 1865.

By Eugène Paul. [P., 1896; not B. M. J.]

IV. Marble statuette, with rounded pedestal. Seated, and vaccinating a nude child, upon his knee.

By Giulio Monteverde. Exhibited at the Paris Exhibition of 1878. [P., 1896; B. M. J.]

BUSTS.

I. Looking to left and upward, draped, rounded and on rounded pedestal.

By C. Manning. [P., 1896; B. M. J.]

II. Looking forward and to right. Nude, squared, without pedestal.

[Not P., 1896; or B. M. J.]

III. At Brünn, Moravia. Within a temple dedicated to Jenner. Upon its pedestal: DIVO ANGLO | EDUARDO JENNER, | LXV. | AETATIS EJUS ANNO | VACCINATA BRUNENSIS | MDCCCXIV. (Baron, Life of Jenner, II, p. 214.) [Not P., 1896; B. M. J.. which wrongly calls it a statue.]

IV. By Fujite Bunzo. Exhibited at the Centennial Vaccination Festival at Tokio, Japan.

ENGRAVINGS.[6]

I. From painting No. I:

a. With the milkmaid and four cows.

1. J. R. Smith, 1801. [P., 1896; B. M. J.]

2. Engraved by R. Page. No other inscription. Rectangular, 95x125 millimetres. In the J. H. Hunt collection. [Not P., 1896, or B. M. J.]

b. As preceding, but showing only a portion of hat and glove, and with but two cows and milkmaid.

3. D'Argent Sc., Edward Jenner (in script), M.D. F.R.S. Rect., 73x98 mm. At library of Surgeon-General's office. [P., 1896; not B. M. J.]

4. As preceding, but anonym. and without title. Rect., 73x98 mm. S. G. O.; N. Y. Academy of Medicine. [P., 1896; not B. M. J.]

c. As preceding, but not showing hat or glove, cows or milkmaid.

5. J. R. Smith pinxt., Londini—Dav. Weis sculps. Viennae | Dr. Jenner (in German script) | Zu finden in Wien bey Phil. Jos. Schalbacher. Oval, 98x120 mm. S. G. O.; J. H. H. [P.,1896; not B. M. J.]

d. As preceding, but less shown of left arm and waist.

6. Engraved by E. Scriven:- | JENNER | From a print engraved and coloured by J. R. Smith, in the possession of the late John Ring, Esqr. Under the superintendence of the Society for the Diffusion of Useful Knowledge. London. Published by Charles Knight, Ludgate Street. (The Gallery of Portraits; with Memoirs, London, 1836.) Rect., 100x125 mm. S. G. O.; J. H.

[3] While this paper is in press a list of Jenner memorials has appeared in the British Medical Journal for May 23. I gladly take the opportunity to add the few that had escaped me, distinguishing them by a cross, and also indicating by initials the others which were there mentioned. I also add four references to the Revue Scientifique for June.

[4] A copy of this in oil was at the Bristol (Eng'd) Industrial and Fine Arts Exhibition in 1893, examination of the catalogue of which, comprising the Mockler collection of Jenner relics, I owe to Dr. Joseph H. Hunt of Brooklyn, N. Y.

[5] A minature of the above, on ivory, possibly the original, was at the Bristol Exhibition.

[6] I am under the greatest obligations to Deputy Surgeon-General D. L. Huntington, U. S. A., Curator of the Army Medical Museum and Library, who, upon my request for information concerning several of the engravings of Jenner in his care, most generously sent to me at Newport for inspection the whole collection, over thirty in number. Dr. Joseph H. Hunt of Brooklyn, N. Y., with equal courtesy, forwarded to me for examination as many more, all different from the preceding, from his own magnificent collection. I have thus been able to perfect the list to an extent that would otherwise have been impossible.

H., and Redwood Library, Newport. [Not P. 1896, or B. M. J.]

7. J. R. Smith pinxt E. Scriven, Sct | Edward Jenner, M.D. | William Mackenzie, Glasgow, Edinburgh, London & New York. Rect., 105x130 mm. J. H. H. [Not P., 1896, or B. M. J.]

8. Mackenzie Sc. (in centre), Edward Jenner, M.D., F R S., &c. (in script). | Pub. July 1, 1802, by T. Hurst, Paternoster Row. Rect., 72x98 mm. J. H. H. [P., 1882, not 1896; not B. M. J.]

9. Mackenzie Sc. (in centre) | Edward Jenner M D., F R S., &c. | Pub. Aug. 1, 1802, by T. Hurst, Paternoster Row. Oval, 83x102 mm. J. H. H. [Not P., 1896, or B. M. J.]

10. Mackenzie Sc. (to right) Edward Jenner (in script) M.D. F.R.S. Rect., 74x100 mm. J. H. H. [Not P., 1896, or B.M.J.]

11. P. Anderloni. [P., 1896; not B. M. J.]

12. R. Page, 1823. [P. 1882, not 1896; B. M. J.]

13. Engraved by G. Stodart. | Jenner. | Published by J. Mason, 14, City Road, & 66, Paternoster Row. Rect., 70x90 mm. J. H. H. [Not P., 1896, or B. M. J.]

II. From bust alone of Painting I.

14. Smith pinxt.; Rahl Sct. Dr. Jenner (in script). Oval, 65x74 mm. S. G. O. [P., 1896; not B. M. J.]

15. H. Lips sculp. | Eduard Ienner, M.D. | Entdecker der Schutzblattern (in script, and both upon an oblong label). Oval, in rect. setting, 165x125 mm. S. G. O.; J. H. H. [P., 1896; not B. M. J.]

16. As preceding, but merely Eduard Ienner, M.D., Entdeker der Schuzblattern (in script, and both upon an oblong label). Oval, in rect. setting, 165x125 mm. (*Scientific American*, May 30, 1896.) J. H. H. [Not P., 1896, or B. M. J.]

17. Jacquemot sc. | Jenner (in script). | durch Kunst-Verlag, W. Creuzbauer in Carlsruhe. Open, 78x75 mm. S. G. O.; J. H. H. [P., 1896; not B. M. J.]

18. As preceding, J. M. Fontaine | Jenner. Open, 78x75 mm. S. G. O.; J. H. H. [P., 1896; not B. M. J.]

19. As preceding, but head more elongated. Dessiné et Gravé par Ambroise Tardieu | Eduards (*sic*) Jenner. Open, 80x80 mm. S. G. O. [P., 1896; not B. M. J.]

20. J. R. Smith pinx. J. Hopwood sculp. | Edward Jenner, M.D. | Publish'd June 4. 1803 by W. Bent, London. Oval 73x90 mm. J. H. H. [P., 1882, not 1896, or B. M. J.]

21. Edward Jenner, M.D. | Painted by J. R. Smith—Engraved by Joseph Jenkins. | Published by James Robins & Co. Ivy Lane, London, Sep. 1. 1828. Open, 80x95 mm. J. H. H. [Not P., 1896; or B. M. J.]

III. From Painting I, but reversed.

a. Bust to right, with left arm on bough, and merely hat and glove in right hand; the hat shows two-thirds; milkmaid and but two cows, at right.

22. cst. von Hoppe Leipzig 1804 | Dr: Edward Jenner; | Wohlthäter der Menscheit durch Erfindung | der Schutzpocken (all in script). Oval, 120x145 mm. S. G. O. [P., 1896; not B. M. J.]

b. As preceding, but body is shorter and but small portion of hat seen.

23. Anonym. Edward Jenner, M.D. F R S &c. (in script(Engraved for the Hib. Mag. (1802.) Rect., 70x98 mm. J. H. H.; H. R. S. [Not P., 1896; or B. M. J.]

IV. From bust alone of Painting I, but reversed, to right.

24. J. R. Smith pinx. London | Edward Jenner, M.D. | Erfinder der Schutzpoken (in script) | ——*—— | Zugeeignet dem eifrigen Beförderer dieses grosen | Wohlthat | für die Menscheit, seinem Freund (in script) Dr. Eichhorn | von Christoph Wilh. Bock sen. (in script.) Oval, 72x90 mm. S. G. O. [P., 1896; not B. J. M.]

25. Anonym. Oval, 55x65 mm. (Knight, Popular History of England, VII, opposite p. 475.) J. H. H. [Not P., 1896; not B. M. J.]

26. C. Böhme sc. | Dr. Edward Jenner. Above, z. f. d. J.—No. 8 (in script). Oval, 75x93 mm. J. H. H. [P., 1896; but wrongly classed as lith.; not B. M. J.]

V. Seated upon a bank in top boots, to right and facing; left arm upon tree with its closed hand against temple, while right holds a scroll; behind, at left, two cows.

27. Bosio dis. F. Testadura inc. | Edoardo Jenner (in script). Rect., 115x168 mm. J. H. H. [Not P., 1896, or B. M. J.]

VI. From Painting II.

28. W. Say. Published January, 1803, by W. Say, No. 5 Quicksett Row, New Road, opposite Fitzroy Square, London, 270x275 mm.[7] [Not P., 1896; B. M. J.]

29. Anonym. [P., 1882, not 1896, or B. M. J.]

30. J. Northcote, Esqr., R.A.—Edw'd Finden | Edward Jenner, M.D. F.R.S., &c. &c. | Published by John Murray, Albemarle Street, 1830. Rect., 62x60 mm. (Lives of British Physicians, 1830.) S. G. O.; J. H. H; H. R. S. [Not P., 1896; B. M. J.]

[7] At the Bristol Exhibition.

VII. From Painting III.

31. European Magazine (in script), (xcvi, 1804, p. 163.) Engraved by Ridley from an original Painting by Northcote. | Edward Jenner M.D. | Published by J. Asperna at the Bible, Crown and Constitution Cornhill 1 Oct 1804. Oval, 78x98 mm. J. H. H; N. Y. Acad. of Med.; H. R. S. [P., 1896; B. M. J.]

32. Anonym. [P., 1882; not 1896, or B. M. J.]

See also at the end of this list.

IX. From Painting IV.

33. Sir T. Lawrence, P.R.A.—W. H. Mote | Edw. Jenner (in facsimile script), M.D. F.R.S. | Fisher, Son & Co. London & Paris. 1838 (Frontispiece to Vol. I, Baron's Life of Jenner; Pettigrew, Medical Portrait Gallery, II.) Rect., 100x112 mm. J. H. H.; N. Y. Acad. of Med. [P., 1896; B. M. J.]

X. From Painting V.

34. J. Robinson pinxit.—R. M. Meadows sculp. | Edward Jenner (in script) M.D. | Published by M. Thomas. for the Analectic Magazine. 1817. Rect., 85x110 mm. S. G. O.; J. H. H.; H. R. S. [Not P., 1896; or B. M. J.]

35. As preceding, but without the Published, etc. Rect., 85x110 mm. J. H. H. [Not P., 1896; B. M. J.]

XI. From Painting VI.

36. L. B. Drayton, ad. viv. del.—Anker Smith A.R.A., sculp. | Edwd. Jenner, M.D. L.L.D. F.R.S. &c. Circular, 47 mm. S. G. O. [P., 1882, not 1896, or B. M. J.]

37.† As preceding. Published February 1st, 1823, by J. B. Drayton, Cheltenham, Gloucestershire. [Not. P., 1896.]

XII. From Painting VII.

38. Wm. Skelton, "begun by the late William Sharp." Dedicated to the King, George IV by permission. Engraved from the Original, in the possession of Edward Davies. London: Published by R. Ackerman, 101 Strand, January 2d. 1826. 325x425 mm.[8] [Not P., 1896; B. M. J.]

XIII. Profile bust to left, seated, and with queue, arms folded.

39. Anonym. Dr. Jenner within scrolls; above at left, Ms C L (Meyer's Conversations Lexicon) No. 1730. Rect., 84x96 mm. S. G. O. [P., 1896; not B. M. J.]

40. As preceding. Dr. Jenner | Eigenthum & Verlag des Bibl. Instituts in Hilburghausen Above, walhalla—No. 38. Rect., 80x96. J. H. H. [P., 1896; not B. M. J.]

XIV. Shortened bust of preceding.

41. W. Read sc. | Dr. Jenner (in script). Open, 40x50 mm. (Profess. Anecd. or Ana of Med. Lit., London, 1825, II, p. 74.) J. H. H.; H. R. S. [Not P., 1896, or B. M. J.]

XV. Silhouette bust, to left, with queue.

42. Anonym. Dr. Jenner (in script). (Frontispiece to Vol. III, Lettsom, "Hints Designed to Promote Beneficence, Temperance and Med. Science," London, 1801 and 1816.) J. H. H.; Redwood Library. [Not P., 1896; B. M. J.]

43. As preceding. E. Jenner M.D., F.R.S., &c. (in script.) J. H. H. [Not P., 1896, or B. M. J.]

XVI. Aged bust, facing.

44. W. Read sc. | Edward Jenner, M.D. Open, 65x55 mm. S. G. O.; J. H. H. [Not P., 1896, or B. M. J.]

XVII. Bust facing, coat thrown open, shoulders truncated obliquely.

45. Anonym. Edwd. Jenner M.D. Open, 43x42 mm. J. H. H. [Not P., 1896, or B. M. J.]

XVIII. Erect, facing and slightly to left, with right arm resting upon pedestal of a pillar.

46. Anonym. Dr. Jenner. | The Discoverer of Cow Pock Inoculation (in script). Published by J. Robins & Co. Ivy Lane, Paternoster Row, March 22. 1823. Open, 100x100 mm. J. H. H.; H. R. S. [Not P., 1896; or B. M. J.]

47. Anonym. jenner. Rect., 53x40 mm. J. H. H. [Not P., 1896, or B. M. J.]

XIX. With cocked hat. (?)[9]

48†. Hicks sc. Published by Henry Fisher. Caxton. London: March 1st, 1823. [Not P., 1896.]

XX.

49†. By Branwhite. Bust. In Medley's group of the Founders of the Medical Society of London. Not originally upon the plate, but subsequently introduced. I am not as yet certain as to its exact place in this list. [Not P., 1896.]

XXI.

50†. J. Hazlitt jun. C. Turner, sculptor. London: Published October 20th, 1808, by J. Hazlitt, No. 109, Great Russell Street, Bloomsbury. I am also uncertain as to the exact classification of this. [Not P., 1896.]

XXII.

[8] At the Bristol Exhibition.

[9] That this is of Jenner is denied by Dr. Hunt, who points out that it seems identical with that of Dr. Sims of London, in Medley's group of the Founders of the Medical Society of that city.

51†. Head, on large scale. H. E. Shrapnell. I am not sure as to its allotment. [Not P., 1896.]

XXIII. From Statue II (London). Front and to right.

52. Engraved by J. Moore, from a Daguerreotype by Beard. | DR. JENNER. Rect., 95x120 mm. S. G. O.; J. H. H. [P., 1896; not B. M. J.]

XXIV. From Statue II, left side.

53. JENNER. | ENGRAVED BY J. BROWN FROM THE STATUE BY W. C. MARSHALL, R.A. Open, 130x165 mm. J. H. H. [Not P., 1896; B. M. J.]

XXV. From bust of Statue I (Gloucester). Looking to right and slightly downward; draped, squared and on mounted pedestal.

54. *Anonym. [P., 1896; not B. M. J.]

XXVI. From Bust I.

55. EDWARD JENNER, M.D. L.L.D. F.R.S. | Engraved by J. Dadley from a Bust by C. Manning [Esq.] (in script.) Open, 65x110 mm. S. G. O.; J. H. H. [P. 1896; not B. M. J.]

XXVII. From Bust IV. Japanese.

56. (Sei-i-Kwai Medical Journal, Tokio.)

XXVIII. There exists also an engraved portrait, of 1801, with this inscription in Spanish:

57. Edward Jenner, English physician, to whom the world is indebted for the discovery of vaccina, the wonderful and only preservative from the smallpox. It is prefixed to the dissertation upon cowpox published by the Royal Academy of Medicine. (Baron: Life, etc., I., p. 604.) [Not P., 1896, or B. M. J.]

In addition, there is an engraving of a cow with star above shoulder and crescent upon side. R. Reeve sc. Above; Sacred Cow. Circular. S. G. O.; J. H. H. I do not number it. It alludes to the cast represented upon Painting II, and refers to the "Sacred Cow of India," represented upon a medal of Dr. Guillaume Demanet of Ghent. [P. and R., 1882, p. 421.]

One of Northcote's paintings, II or III, is reproduced in the *Practitioner* for May, 1896.

LITHOGRAPHS.

I. From bust of painting I.

1. Th. Hosemann. [P., 1882; not 1896, or B. M. J.]

2. Anonym. Lith. de Gregorie et Deneux, à Paris. | E. JENNER. Open, 195x190 mm. (Médecins et Chirurgiens célèbres. Paris, 1842.) J. H. H. [Not P., 1896, or B. M. J.]

3. Anonym. Lith. rue Salle au—Comte, 10. | E. JENNER. Open, 200x190 mm. S. G. O. [Not P., 1896, or B. M. J,]

4. As preceding. E. JENNER. | Vigneron del.—Lith. de Engelmann. Open, 200x190 mm. S. G. O. [P., 1896; B. M. J.]

5. *As preceding. Engelmann. [P., 1896; not B. M. J.]

6. †As preceding. Lithographed by C. de Lasteyrie, 1824. (Asclepiad, VI, p. 250.) [Not P., 1896.]

7. *As preceding. Villani. [P., 1896; not B. M. J.]

8. As preceding. Steandrrij van H. J. Backer, Dordt. | Edw'd Jenner (in fac-simile script). Open, 98x100 mm. S. G. O. [P., 1896; not B. M. J.]

9. E. JENNER, M.D., F.R.S. &c. | Hart & Mapother, lith. Louisville, Ky. Open, 100x110 mm. S. G. O.; J. H. H. [Not P., 1896, or B. M. J.]

10. Anonym. DR. EDWARD JENNER. | BORN 1749. DIED 1823. | AT BERKELEY, ENG., | &c. &c. Dr. H. M. Alexander & Co., &c. Open, 40x40 mm. J. H. H. [Not P., 1896, or B. M. J.]

11. Anonym. Dr. Edw. Jenner (in script). | 1749—1823. within cartouche, over palm leaves; Dr. H. M. Alexander & Co., &c., 30x40 mm. J. H. H. [Not P., 1896, or B. M. J.]

12. Anonym. JENNER. (Dr. H. M. Alexander & Co., Columbian Exposition.) Circular. Colored, 30x30 mm. J. H. H. [Not P., 1896, or B. M. J.]

II. From bust of painting I, but reversed, to right, and with smooth instead of wavy hair.

13. Lagrand (in script)—Lith. de Ducarme. | E. JENNER, | Médecin Anglais, | 1er Observateur de la Vaccine, né en 1749, mort en 1823 (in script). Galerie Universelle—Publiée par Blaisot. | Place Vendome, No. 24, | No. 353. Open, 150x135 mm. S. G. O. [Not P., 1896, or B. M. J.]

III. From bust of painting I, but reversed, to right, with left arm dependent, and right extending a MS. volume, upon cover of which a cow.

14. Leon Noel (in script)—Lith., de Frey | EDOUARD JENNER. Open, 100x170 mm. S. G. O.; J. H. H. [P., 1896; not B. M. J.]

IV. From engraving XIII.

15. Anonym. Dr. Jenner (in script). | Published by R. Phillips, No. 71, St. Paul's Churchyard, London. Open, 42x45 mm. J. H. H. [Not P., 1896, or B. M. J.]

16. Anonym. EDWARD JENNER, M.D., LL.D., F.R.S., ETC., ETC. Open, 45x50 mm. (*Brooklyn Med. Jour.*, December, 1891.) J. H. H., H.R.S. [Not P., 1896, or B. M. J.]

17. As preceding. DR. JENNER. Open, 45x50 mm. (*Ibid.* April, 1896.) J. H. H.; H. R. S. [Not P., 1896, or B. M. J.]

18. As preceding. At sides: 1796—1896. (Jenner Centennial Festival, Med. Society of County of Kings, Brooklyn, N. Y.) Open, 45x50 mm. J. H. H.; H. R. S. [Not P., 1896, or B. M. J.]

V. From bust of Statue I (Gloucester).

19. EDWARD JENNER. M.D. | L.L.D. F.R.S., &c. &c. | Drawn from the bust by H. CORBOULD, and on stone by R. J. LANE. | Printed by C. Hullmandel. | Published March, 1827, by Henry Colburn, London. Open, 80x120 mm. (Frontispiece to Vol. II, Baron's Life.) S. G. O.: J. H. H. (P., 1896., B. M. J.]

20. As preceding. EDWARD JENNER. M.D. | L.L.D. F.R.S. &c. &c. Open, 95x140 mm. J. H. H. [Not P., 1896, or B. M. J.]

21. Anonym. (Variola and Vaccina. N. E. Vaccine Co.) J. H. H. [Not P., 1896, or B. M. J.]

VI. From Bust I.

22. M. Gauci, 1823. Published by N. Chater and Co., 33 Fleet Street, London, & Washbourn & Sons Gloucester, August 10th, 1823. 225x300 mm. J. H. H. [P., 1882; not 1896; B. M. J.]

23. MÉTHODE DE DESSIN | PAR VIGNERON.—Pl. 49. | Edwd. Jenner | Inventeur de la Vaccine. | — | d'après une Gravure Anglaise (engraving No. 55 of this list). | Paris, Mon. Basset, 33, rue de Seine. Lith. de Thierry frères, Paris. Open, 294x420 mm. S. G. O. [Not P., 1896, or B. M. J.]

VII. From Bust II.

24. Anonym. Jenner (in script). Open, 68x95 mm. S. G. O. [Not P., 1896; or B. M. J.]

WOODCUTS.

I. From bust of Painting I.

1. Anonym. Edward Jenner, born May 1749, died February, 1823. (From an illustrated paper.) Open, 100x130 mm. J. H. H. [Not P., 1896, or B. M. J.]

2. Anonym. (Russell, History and Heroes of Art of Medicine, London, 1861.) 60x65 mm. J. H. H. [Not P., 1896, or B. M J.]

II. From bust of Painting I, but with a cow beneath.

3. LES MÉDECINS ET LES ADMINISTRATIONS RECONNAISSANTS. | MONUMENT | À | JENNER. | W. BROWN DEL. & SC. Rect., with upper corners rounded; 195x245 mm. S. G. O. [Not P., 1896; or B. M. J.]

III. From bust of Painting I, but reversed, to right, with head erect.

4. Anonym. (German.) Eduard Jenner. Open, 65x76 mm. S. G. O. [Not P., 1896, or B. M. J.]

IV. As preceding, but head inclined downward.

5. Anonym. (German.) Eduard Jenner. Rect., 74x87 mm. S. G. O. [Not P., 1896., or B. M. J.]

V. From Engraving XIII, but with large collar to coat.

6. Anonym. DR. JENNER. Rect., 100x130 mm. J. H. H. [Not P., 1896, or B. M. J.]

VI. From Statue II (London). Front and slightly to right.

7. D A—J A W (in script). STATUE OF DR. JENNER.—SCULPTURED BY W. C. MARSHALL.—PLACED IN TRAFALGAR SQUARE. Open, 115x185 mm. J. H. H. [Not P., 1896, or B. M. J.]

VII. From Statue II, looking to right.

8. STATUE OF DR. JENNER TO BE ERECTED IN TRAFALGAR SQUARE. Open, 135x120 mm. J. H. H. [Not P., 1896, or B. M. J.]

VIII. From Statue III (Boulogne). To right and front, with vessels, groups and buildings.

9. Anonym. STATUE OF DR. EDWARD JENNER, RECENTLY ERECTED AT BOULOGNE, FRANCE. Open, 240x165 mm. J. H. H. [Not P., 1896; or B. M. J.]

IX. From Statuette IV.

10. Anonym. EDWARD JENNER. (*Leipziger Illustrirte Zeitung*, 1885.) Open, 115x185 mm. S. G. O. [P., 1896; not B. M. J.]

11. As preceding. From the original by Monteverde. Open, 115x185 mm. J. H. H. [Not P., 1896, or B. M. J.]

12. †As preceding. Ferrier. Jenner vaccinating his own child. From the statue by Monteverde. (*British Medical Journal*, May 23, 1896, p. 1254.) Open, 70x106 mm. [Not P., 1896.]

PHOTOGRAVURES.

From Painting I.

1. †Anonym. From an engraving by J. R. Smith. (*British Medical Journal*, May 23, 1896, p. 1251; *Revue Scientifique*, June, 1896. p. 741.) Rect., 84x110 mm. [Not P., 1896.]

From Painting II.

2. †Anonym. From a painting by Northcote now in the National Portrait Gallery. (*British Medical Journal*, May 23, 1896, p. 1247; *Revue Scientifique*, June, 1896, p. 739.) Rect. 127x152 mm. [Not P., 1896.]

From Painting IV.

3. †Anonym. From the painting by Sir Thomas Lawrence in the possession of the Royal College of Physicians. (*British*

Medical Journal, May 23, 1896, p. 1246; *Revue Scientifique*, June, 1896, p. 738.) Rect., 82x100 mm. [Not P., 1896.]

4. As preceding. Edw. Jenner (autograph) M.D. F.R.S. Souvenir Jenner Centennial Celebration by American Medical Association, Atlanta, Ga., 1896. Rect., 94x115 mm. [Not P., 1896, or B. M. J.]

5. As preceding. Edward Jenner. (Journal of the American Medical Association, June 13, 1896.) Rect., 94x115 mm. [Not P., 1896, or B. M. J.]

From Painting VIII.

6. †Anonym. (*British Medical Journal*, May 23, 1896, p. 1249; *Revue Scientifique*, June, 1896, p. 743.) Rect., 125x152 mm. [Not P., 1896.]

From Engraving 53, of Statue II, left side.

7. †Anonym. Statue in Kensington Gardens by Mr. W. Calder Marshall, R. A. (*British Medical Journal*, May 23, 1896, p. 1248.) Rect., 127x153 mm. [Not P., 1896.]

From Lithograph 4.

8. †Anonym. From a portrait by Vigneron. (*Ibid*, p. 1252; *Revue Scientifique*, June, 1896, p. 738.) Rect., 82x100 mm. [Not P., 1896.]

There are a number of caricatures of Jenner, and engravings of vaccination, vaccine farms, etc., but I have purposely omitted these.

During Jenner's life, as an offset to the innumerable insults and scurrilous attacks that he received, the Royal Jennerian Society was founded in 1803. In 1808, at his own request, it was merged in the National Vaccine Establishment. He was given a Parliamentary grant of £10,000 in 1802, another of £20,000 in 1807, and subsequently an additional £8,000 by India. He was also presented a service of plate by his country friends, and the freedom of the city of London, in a casket set with diamonds. There is a memorial window and tablet of him at the church in his native Berkeley.[10]

THE SEMINARY METHOD IN TEACHING SURGERY.

Read before the American Academy of Medicine, Atlanta, May 4, 1896.

BY BAYARD HOLMES, B.S., M.D.

PROFESSOR OF SURGERY IN THE COLLEGE OF PHYSICIANS AND SURGEONS OF CHICAGO.

I can best give an idea of this method by relating the history of an experiment which I made in teaching a few topics in surgery to a class of thirty students. A case of osteomyelitis of the tibia came to my clinic and was carefully studied by me with the help of the class. The history was outlined upon the blackboard, and the diagnosis, prognosis and indication for treatment were carefully discussed and our conclusions written down. When this had been done the students were instructed to bring into the class at the next recitation hour histories of three or more cases of osteomyelitis, which they had themselves observed or had copied from articles in the medical literature. The class had previously been instructed in the method of using the medical library, and cards had been placed in the card catalogue of the college library guiding the students to as many articles as the library contained bearing upon the subject of acute osteomyelitis. During the next clinic hour this patient was operated upon in the presence of the class, and a large sequestrum of bone removed. The involucre was so cut down so as to allow the resulting concave surfaces to be covered with skin. At the next recitation hour the students came with some original and some copied histories of cases of osteomyelitis. One student with a good voice and prompt address was requested to read one of his cases aloud. This case had been selected by me because it was typical and well recorded. As the reading progressed notes were placed upon the blackboard indicating the age of the patient, the predisposing causes of the disease, the immediate cause of the onset of the disease, the most prominent symptoms and the subsequent course and the treatment.

Opposite the age of this typical case was set down the age of the sixty-four other patients, whose histories were in the hands of the students in the class. In this way we discovered that nearly all the patients were between six and twenty-five years of age, one student was requested to make a statement, which would show the condition represented by the mass of figures. After a number of trials he wrote out the following sentence, which was accepted as expressing the facts: "Of the sixty-four cases presented by the class, 52 per cent. were between 5 and 20 years of age, 20 per cent. were between 20 and 30 years of age, and all of the remaining 28 per cent. were less than 46 years of age." In the same manner the previous condition of the patient and the predisposing causes of the disease were noted down upon the blackboard and afterward expressed in short sentences, thus: "Thirty per cent. of the sixty-five cases presented had suffered from some acute infectious disease immediately before the onset of osteomyelitis." In the same manner the other important points in the clinical history, in the pathology and in the treatment of the disease, was discussed. It required several hours for this work, and the intervening time was spent by the students in collecting new information and in exchanging histories of cases with one another. After every important point had been studied, the students were directed to make an abstract of the histories of ten or more cases, and then from these cases to prepare a generic history of the disease. Instructions had been given as to the size of the sheets of paper, the disposition of the manuscript on the page and the method of arranging and binding. Two weeks were then allowed for the completion of the thesis upon this disease. Thirty very excellent and satisfactory papers were written. One would naturally expect a great deal of sameness in these efforts, but contrary to my own expectation there was the greatest variety of treatment. One student of a judicial turn of mind numbered very carefully his cases and the pages of his manuscript, and then in the original portion of his thesis referred after each statement to the cases which authorized it. One man divided his histories up into fragments and quoted the fragments in full corroboration of each fact or conclusion stated. A few men copied outright from text books on surgery, but on the whole this was a most satisfactory exercise.

Various other subjects were studied in the same manner, all the class working upon the same subject at the same time. When familiarity with the method of work had thus been secured, separate topics were given each student, and he was directed to investigate the literature of the subject as represented in the college library, and then to prepare in the usual manner a complete account of the disease, its pathology and treatment, basing his remarks entirely upon the histories of the cases, which he had either observed himself in the clinics or on those he had abstracted from the literature, but best of all upon both. Care was of course taken to assign only such subjects as were adequately represented in the college library, and also so as to give each student one surgical disease of the head, one of the thorax, one of the abdo-

[10] They are figured in the British Medical Journal for May 23, 1896, p. 1253.

men, and one of the extremities. At first the work was reluctantly undertaken by the students, but after an examination at the County Hospital had been held in which, by chance, questions were asked involving a knowledge of two of the subjects which had been studied by this method, the value of this intensive teaching was recognized, and enthusiastically undertaken by nearly all the class ever afterward.

This method of study must be conducted in small classes of mature students, who understand the use of and have an adequate library at hand. It requires about six or eight hours preparation for each recitation hour, and it must be conducted by a teacher who fully understands the resources of the students and is wise enough to present at the start no insurmountable difficulties. Perhaps the ideal can only be attained when the teacher has previously studied each of the subjects he assigns in the library of the college and has taken care to have such cards put in the catalogue as will guide the student to all the literature without too much effort.

One of my students had assigned him a topic involving the repair of fractures in long bones. He took the trouble to study the specimens in the museum, and he also made a series of experiments on animals in which he made microscopic demonstrations and prepared large macroscopic sections sawed out near the seat of fracture. In the seminary method nothing should be neglected which will add to the concreteness and vividness of the conception of the student. He should be placed as far as possible in the position of an original investigator, with many of the difficulties which ordinarily beset the investigator removed.

This method is equally applicable to the study of any topic in the medical curriculum, but it should not be used to the exclusion of any other method, but rather as supplementary to any or all of them. It is especially adapted to students who have been trained in independent thought in colleges and universities, and it will be found an excellent preparation for such students as propose to contribute to medical literature.

MALARIA.

BY ELLSWORTH D. WHITING, A.B.
AURORA, ILL.

(The L. P. C. Freer Prize Essay, Rush Medical College, 1896.)

(*Concluded from page 269.*)

The increase of connective tissue is first observed in the interlobular spaces, and later dips down into the lobules. The atrophy of liver cells follows this increase of interstitial connective tissue. (Plate vi.)

On gross examination the kidney is found to be larger and heavier than normal. In consistency it is either firm or soft and edematous, presenting a mottled surface, the result of infarction. The capsule strips readily or is thickened and adherent as in severe cases. The Malpighian bodies are either prominent and swollen or sunken and atrophied. These conditions are often present in the same specimen. On cut section the color of the kidney varies from the normal to a yellowish brown, marked by opaque, dark and minute hemorrhagic areas. The medullary rays are pale, showing between them dark, red lines of congested intertubular vessels. The cortex is generally thick and paler than normal. It is translucent and of yellowish appearance. (Plate iv.)

On microscopic examination the glomeruli may fill their capsules, but they are often atrophied, the space between the glomerulus and Bowman's capsule being empty or filled with albumin, red corpuscles, disquamated epithelial cells or leucocytes. In some instances there seems to be a proliferation of the cells lining the capsule. Outside the capsule, at times, a space may be made out, filled with leucocytes and red corpuscles. Within the capillaries of the glomeruli are numerous leucocytes, parasites and microorganisms, which may completely fill up the lumen of the vessels. The leucocytes contain granular pigment and parasites. Parasites are also present in large numbers outside of the leucocytes. In the glomeruli macrophages are generally few.

Turning to the convoluted tubules, these appear dilated, the epithelial cells of which are swollen and show evidence of degeneration. Fringing these epithelial cells are small hyalin droplets. The tubules are often plugged with granular and hyalin casts, within the substance of which are blood corpuscles, degenerated epithelial cells, pigmented granules and yellowish urinary sediments or excretions. The intertubular capillaries are also dilated and crowded with the foreign materials found in the glomeruli. (Plates iii and v.)

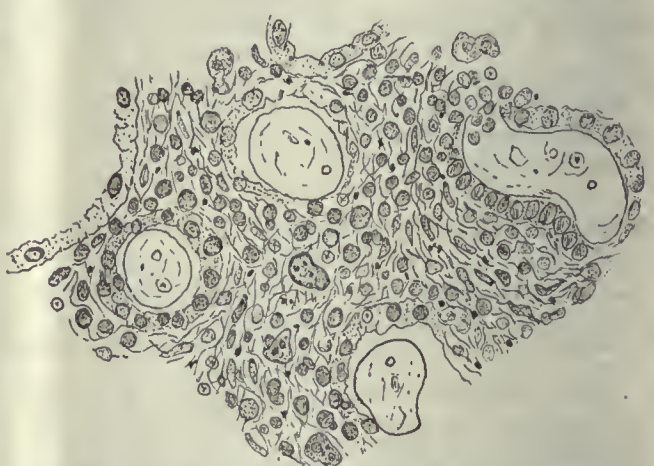


Plate III. KIDNEY.—Figure shows enormous increase of connective tissue which is infiltrated with round cells, macrophages, parasites and pigment granules. Tubules are filled with hyalin casts in which are seen pigment granules and leucocytes. Zeiss Obj. D D, Oc. 5. Draw tube 160 mm.

The changes in the interstitial tissue are usually slight. Here and there may be seen areas of round-cell infiltration, consisting of lymphocytes and large mononuclear leucocytes. In severe cases these changes may be great. (Plate iii.)

As a result of thrombosis extensive infarcts are present, embracing glomeruli, tubules, blood vessels and interstitial tissue. These infarcts are surrounded by a strongly marked margin of deeply staining round cells. It is in these thrombosed vessels, at the apices and margins of the infarcts, that the greatest number of parasites are found.

Fatty degeneration is present in the glomeruli, the lining membrane of Bowman's capsule and muscular coats of the arteries.

The heart on gross examination is practically normal in size and weight. The only constant pathologic change present is a brown pigmentation of the myocardium and a slight thickening of the endocardium. Calculus degeneration is commonly present in the valves, associated with atheromatous degeneration of great and coronary vessels.

On microscopic examination the only pathologic

picture to be seen is in the muscular fibers of the myocardium, where, at the poles of the nuclei of the muscle cells an excess of brown pigment may be observed.

Pathologic changes are common in the bone marrow. Macrophagi are present in great numbers and show contents similar to those found in the spleen and liver. Red corpuscles both nucleated and degenerated may be seen in increased numbers, also leucocytes whose nuclei are fragmented and filled with pigment. The endothelial cells are also degenerate and filled with pigment.

On gross examination the lungs are either normal or emphysematous and non-collapsing. When non-emphysematous they are much darker than normal. On cut section edema of dependent parts is observed. Large and small bronchi are filled with a muco-purulent secretion, showing general bronchitis. In a great number of autopsies no lung lesions are present with the exception of a slight general bronchitis.



Plate IV. KIDNEY.—Figure shows atrophy of glomerulus, increase of interstitial tissue, infiltration with round cells, parasites and pigment granules. Epithelium of uriniferous tubules is swollen and granular. Zeiss Obj. D D, Oc. 5. Tube length 160 mm.

On microscopic examination the pleural and pulmonary veins are seen to be dilated. Here malarial organisms are present in great numbers, either enclosed in the red corpuscles, free in the plasma or in the leucocytes. Collections of pigment granules and phagocytes may exist in sufficient quantities to plug up the lumen of the vessels.

Pathologic changes in the brain are not numerous, but those present are of great importance from a clinical standpoint.

On gross examination an increase in the spinal fluid is observed. The dura is thickened and small pigmented and hemorrhagic areas can be made out, associated with turgescence of blood vessels.

On microscopic examination infected corpuscles and organisms are present in the phagocytes and endothelium lining the capillaries. In the cerebral tissue white infarcts with hemorrhagic margins are quite numerous.

In the supra-renal bodies many pathologic lesions are present which correspond closely with those described as associated with the kidney, liver and spleen.

Oligocythemia is always present in malarial fevers. It is caused by the direct destruction of the red corpuscles by the organisms and is in inverse ratio to the number of parasites present in the blood. A marked reduction of red corpuscles is noted after the paroxysm, from which point there is a gradual increase which continues to the beginning of the next paroxysm. In the mild tertian and quartan types during the apyretic stage complete restitution of corpuscles may be accomplished but in the severer form there may be an actual decrease during this period. It is quite a noticeable fact that restitution of red corpuscles takes place to a greater degree during the earlier days of the disease than in the later stages. As the disease lengthens in duration the decrease in red corpuscles may reach as low as one million corpuscles to the cubic millimeter. After protracted sieges of malaria the changes brought about in red corpuscles, are marked. In the blood stream may be found poikilocytes, degenerated and vacuolated red corpuscles, microcytes, macrocytes, normoblasts and megaloblasts. (Plate xvi.)

In regard to the leucocytes, their number follows



Plate V. KIDNEY.—Figure shows enlargement of epithelial cells lining tubules and increase of interstitial tissue, which is infiltrated with round cells, macrophages and pigment granules. Zeiss Obj. 1-12 oil. Oc. 3. Tube length 160 mm.

closely the changes noticed in the red corpuscles. Directly after the paroxysm there exists a marked leucocytolysis. At times the number may reach as low as one thousand per cubic millimeter. From this point an increase is observed until during the first hour of the paroxysm, when the count may be normal or an actual leucocytosis exist. The degree of leucocytolysis seems to depend greatly upon the size of the spleen. The greater the size of the spleen the greater is the leucocytolysis, a condition directly opposite to that found in splenic leukemia.

The recuperative power of the leucocyte is much less than that of the red corpuscle. In postmalarial conditions the red corpuscle generally gains its normal state long before the white, but in some cases of pernicious malaria a marked leucocytosis exists.

In regard to oligochromemia, its presence in malaria, as would be naturally expected, is marked and is generally in direct ratio to the oligocythemia. In some cases the lack of hemoglobin is greater than can be accounted for by the oligocythemia. No acute infection known has such a depleting action upon the

hemoglobin of the blood as malaria. Depending upon the severity of the underlying cause this condition may be brought about in a few days or be the result of a long infection. (Plate xvi.)

As in oligocythemia and leucocytolysis, oligochromemia increases after the paroxysm and diminishes gradually until the beginning of the following paroxysm. The rapidity and severity of the loss of hemoglobin affords a valuable diagnostic aid in differentiating malaria from pneumonia, typhoid fever and enteric fever.

The relative number of phagocytes present in the blood crresponds closely to that of the leucocytes. The ability of the leucocyte to cope with the parasite seems to increase with the age of the leucocyte. The small mononuclear leucocyte or lymphocyte which is supposed to be the first stage in the development of the adult form, possesses little or no phagocytic power. The large mononuclear has some phagocytic function, but is unable to cope with flagellate forms of the organism. The eosinophile has never shown any indications of phagocytic power. The greater portions of the work done by phagocytes is therefore accomplished by the large polynuclear leucocytes and macrophages aided by the cells lining the blood

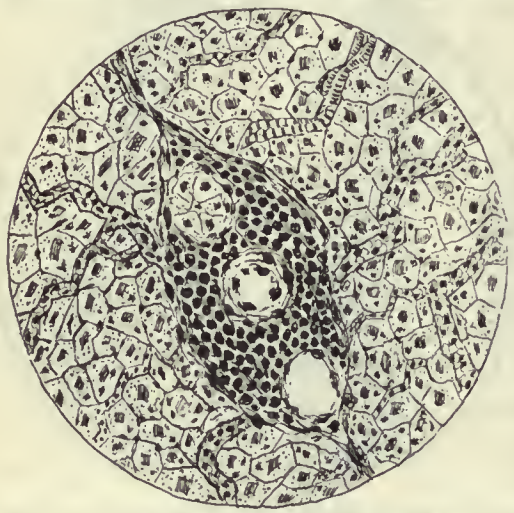


Plate VI. LIVER.—Figure shows interlobular space with portal vein, hepatic artery and bile duct and greatly increased connective tissue. Pigment granules are seen in and between hepatic cells. Capillaries are distended with many leucocytes. Connective tissue is infiltrated with round cells. Zeiss Obj. D D, Oc. 3. Tube length 160 mm.

vessels and endothelial cells of the liver and spleen.

As to the effect of the phagocytes upon the course of the disease there are two theories. The first, upheld by Golgi, Bignami and others, goes to prove that the spontaneous cure of malaria and the prevention of the mild forms from becoming pernicious is due to the action of the phagocytes in removing from the body spores, adult organisms and degenerated corpuscles. These men account for relapses by stating that when spores are contained in white corpuscles a struggle takes place between the two bodies, in which the phagocyte is finally worsted. On the other hand, Osler and others claim that phagocytes do not play the most important part in cutting short the course of malaria. To prove this statement these observers call attention to the fact, that in severe paroxysms phagocytosis is most apparent, and that in cases of spontaneous recovery there is no evidence of increased phagocytosis, but rather an increase in the number of degenerated organisms. They also call attention to the rhythmic course which untreated malarial fevers pursue. The paroxysms gradually increase in severity, a period of fluctuation, then spontaneous recovery followed in two or three weeks by a relapse. If the checking of the course of the disease depended upon the action of the phagocytes, the fever would be allayed in the first part of its course, for phagocytes are as numerous in this part of the course as in the later stages.

The theory of these latter investigators is that malaria is self-limiting and that at each period of segmentation a toxic substance is thrown into the blood stream, which becoming more and more virulent at each succeeding paroxysm, eventually becomes sufficiently potent to cause the death of the organisms, only a few spores protected by degenerate phagocytes surviving to be the source of a relapse.

Mannaberg claims that the temperature caused by the body in reacting against the toxic irritants in the blood, exerts also a deleterious influence upon the half and full grown organisms.

Thus in summing up causes which may bring about spontaneous cures we must take into consideration these three factors, phagocytosis, toxic excretions of the parasite and the temperature.

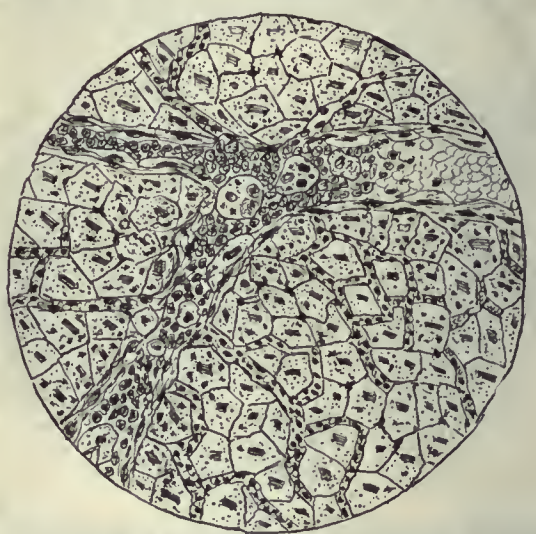


Plate VIII. LIVER.—The figure shows a thrombosed vessel containing red blood corpuscles, small round cells, macrophages, parasites and pigment granules. Pigment granules also in capillaries and in and between hepatic cells. Capillaries are dilated and contain many leucocytes. Zeiss Obj. D D, Oc. 3. Tube length 160 mm.

In consideration of malaria from a clinical standpoint, it may be divided into the following forms: 1, intermittent; 2, pernicious intermittent; 3, remittent; 4, pernicious remittent; 5, typho-malaria; 6, malarial cachexia and irregular forms. The clinical manifestations of malaria may also be classified in reference to the length of time between paroxysms: 1. Quotidian, produced by the segmentation of two groups of tertian organisms on successive days. 2. Tertian, produced by a single group of the tertian organisms. 3. Quartan, single, double and triple, produced by the quartan parasite. 4. Irregular or continuous, produced generally by estivo-autumnal parasites. The first classification, as proposed by Thompson, is much more complete and will be followed here.

Intermittent fever is caused generally by the tertian or quartan parasite, rarely by the estivo-autumnal. It is characterized by complete disappearance of symptoms between paroxysms. Its course may be divided into three distinct stages: 1, the cold stage; 2, the hot stage; 3, the sweating stage.

The first stage may appear suddenly or come on gradually. It is preceded by a headache and general malaise and is characterized by a subjective sensation of cold while the thermometer records a rise of internal temperature. The face is pale and pinched, the skin cold, clammy and of the goose quill appearance. The pulse is weak and rapid and respiration shallow. The patient complains of cold which abundant covers will not relieve, muscular pains and headache. Associated with the chill are often severe rigors in which the patient shakes violently from head to foot. The teeth chatter wildly and coherent speech is impossible. The superficial, sub-normal temperature is caused by the constriction of the peripheral vessels, resulting in great internal congestion. This fact explains the enteric, liver and splenic symptoms, evinced by frequent nausea and vomiting and tenderness. The paroxysm may be of varying duration. In some instances it may last for but a few moments, associated with simply a chilly sensation, or feeling of weakness, or it may last from two to four hours, accompanied with great rigors and intense pain. In children the chill may be replaced by a convulsion. There seems to be no relation between the severity of the chill and the following hot stage.

The second stage is characterized by a gradual rise in temperature which may reach as high as 106 F. The face is flushed; the skin of the mouth, throat and nasal passages hot and dry; the pulse full, rapid and strong and frequently dicrotic. The respiration is deeper; the headache and vomiting may continue, but disappear with the fever. When the fever runs exceedingly high the patient may sink into a comatose or delirious state.

The third or sweating stage follows the fall in temperature and is ushered in with a profuse perspiration. This commences upon the face and forehead, but soon the whole body is bathed in sweat, which often soaks the bed clothes. During this stage the patient experiences great relief. The headache, muscular pain, vomiting, tender abdomen and splenic tumor disappear. This is due in great part to the relaxation of the peripheral blood vessels, which relieves the internal congestion. After the perspiration has ceased the patient is greatly prostrated and may remain in this condition for many hours. This stage lasts from two to five hours and may continue from three to ten or twelve hours. During apyrexia the temperature is generally sub-normal.

The urine during and after the chill is increased in solids, although there is a relative decrease in the amount of urea excreted. Slight albuminuria and glycosuria have been noticed during paroxysms.

Intermittent fever at times assumes a grave and malignant aspect. It may be ushered by an ordinary paroxysm followed by a severe one which in turn is succeeded by a third and fatal one.

The following classification of intermittent pernicious fevers, based upon the most prominent symptoms, is given in the American Text Book of the Theory and Practice of Medicine: 1, bilious; 2, hemorrhagic; 3, algid; 4, asthenic; 5, comatose.

In the bilious form severe abdominal symptoms are present. There is generally flatulency and tenderness of the abdomen, associated with the vomiting of large quantities of bile, and watery discharges from the bowels. The liver and splenic areas of dullness are much increased. Jaundice may occur within a few hours after the paroxysm.

The hemorrhagic form is always grave. During the hot stage blood appears in the urine, which is decreased in quantity and contains albumin and casts. Soon there appear hemorrhages from the mouth, stomach, rectum and skin. Suppression of urine soon follows, with violent headache, delirium, coma, Cheyne-Stokes respiration, heart failure and pulmonary edema and death from uremic and malarial poisoning.

The algid form simulates closely the algid stage of cholera. Great prostration is present, associated with purging, vomiting, muscular pains, superficial subnormal temperature and at times jaundice.

The asthenic form is accompanied by great nervousness, imperfect aeration and feeble heart.

In the comatose form the patient may immediately enter into the comatose state from which he can not be aroused. If this first attack be survived the second is certain to prove fatal. This form may be present in any of the preceding types, but it is rare.

The same stages characterize the remittent forms of malaria as the intermittent, with the exception that the temperature rarely falls below 100 degrees F. This form of the disease is associated especially with the second cycle of the estivo-autumnal organism. Remittent fevers may commence as intermittent or they may immediately assume this form after a severe initial paroxysm. The second stage is often prolonged, lasting from twelve to twenty-four hours. The third stage is not so prominent as in the intermittent. During the interval between paroxysms the patient is not as free from symptoms, complaining of fever, nausea, vomiting and muscular pains. The remission generally occurs during the night. The fever may subside gradually, retaining its remitting character or first become intermittent before disappearing.

Penicious remittent fever is so nearly identical in symptomatology with pernicious intermittent fever that a separate description is not necessary.

Typho-malarial fever consists in a combination of the symptoms of malaria and typhoid fever. It begins with a chill followed by fever. The symptoms of this disorder may be most markedly those of either of these diseases; however, the typhoid symptoms are generally most prominent, the malaria being in evidence only by the variations in temperature. Typhoid fever, when associated with malaria is not as fatal as when existing alone.

Malarial cachexia is seen in persons who have had many attacks of malaria or in those who have lived for long periods in malarial districts. It is associated with a pale, muddy complexion. Anemia and indigestion are common. Circulation is poor and anasarca may be present. There is lassitude and mental depression. The temperature may be subnormal or slightly elevated. There is generally an enlargement of both liver and spleen.

Under the head of irregular forms are found many disorders of malarial origin which may escape the diagnostician. It is in these that the blood examination is of the greatest importance. In some instances the chill may be entirely absent. This is termed "dumb ague." In other cases the sweating stage is not present, and again both the foregoing may be absent. The entire paroxysm may be wanting, in the place of which malaise is noticed, headache, diarrhea or vomiting, with perhaps a very slight rise in temperature. Such patients are termed by the laity "bil-

ious." Again the malarial paroxysm may appear in the form of severe neuralgic pain associated with the fifth, sciatic, brachial or intercostal nerves.

The diagnosis of pure types of intermittent fever is readily accomplished without a blood examination, based upon the peculiar quotidian, tertian or quartan paroxysms and splenic tumor. These forms simulate closely, however, the onset of pneumonia which is later easily differentiated. Suppurative infection should be excluded by careful examination for infection atrium and hidden foci. In these diseases the chills and fever are irregular and no splenic tumor exists. When suppurative processes are present with phthisis it is necessary to examine the sputum. Even in cases where the symptoms are pathognomonic, corroborative blood examinations should be made, if possible, in order to establish the type of organism present.

On the other hand, when it is necessary to contend with remittent and pernicious forms the diagnosis is at times very difficult from a clinical standpoint. These forms may be confused with typhoid fever, cholera, ulcerative endocarditis, pyemia, septicemia and meningitis. It is in these cases that the microscope is of invaluable aid to the physician and in many cases is the only means of arriving at an accurate diagnosis.

When rose-spots are absent in typhoid fever, a condition which often exists, it may be simulated very closely by the typho-malarial form of malaria. In yellow fever the characteristic symptoms, peculiar onset, black vomit, jaundice and suppression of urine, are all simulated by pernicious malaria. The diagnosis of the algid stage of yellow fever from the algid form of malaria is impossible without a blood examination. Ulcerative endocarditis can usually be differentiated from malaria by a physical examination of the heart, and pyemia by establishment of infection atrium. In differentiating uremia and meningitis from comatose pernicious malaria it should be remembered that coma comes on later in meningitis than in malaria, and that it is accompanied with

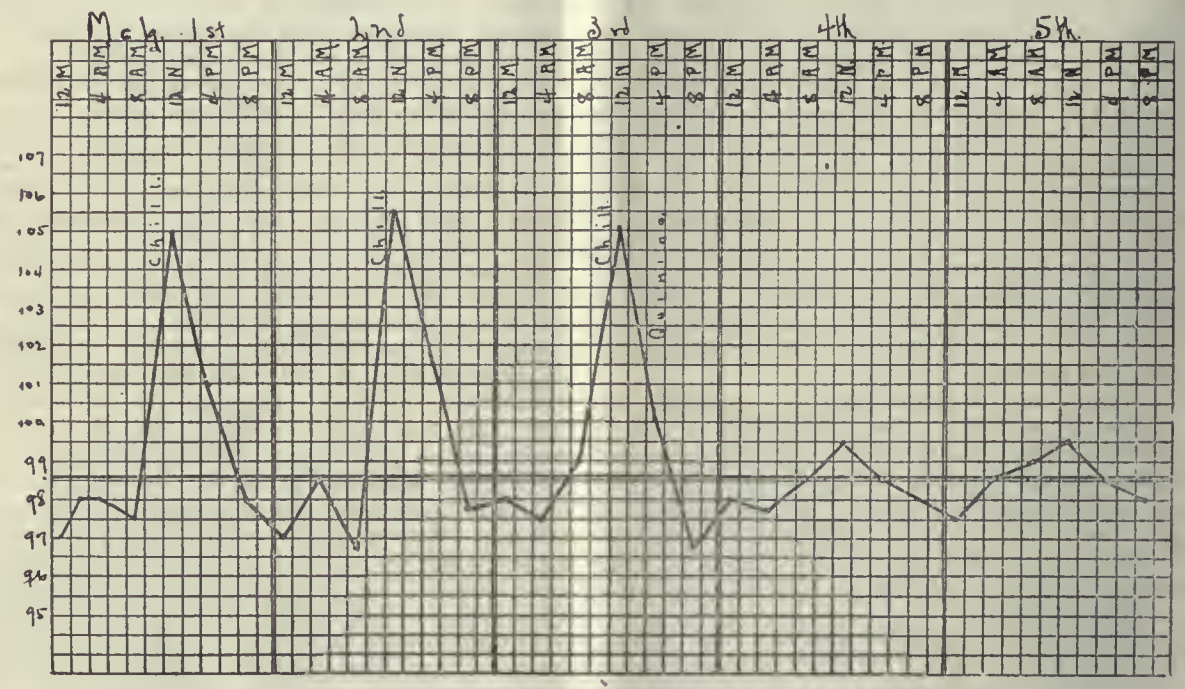


Plate XIII. INTERMITTENT QUOTIDIAN OR DOUBLE TERTIAN FEVER. TEMPERATURE CHART.

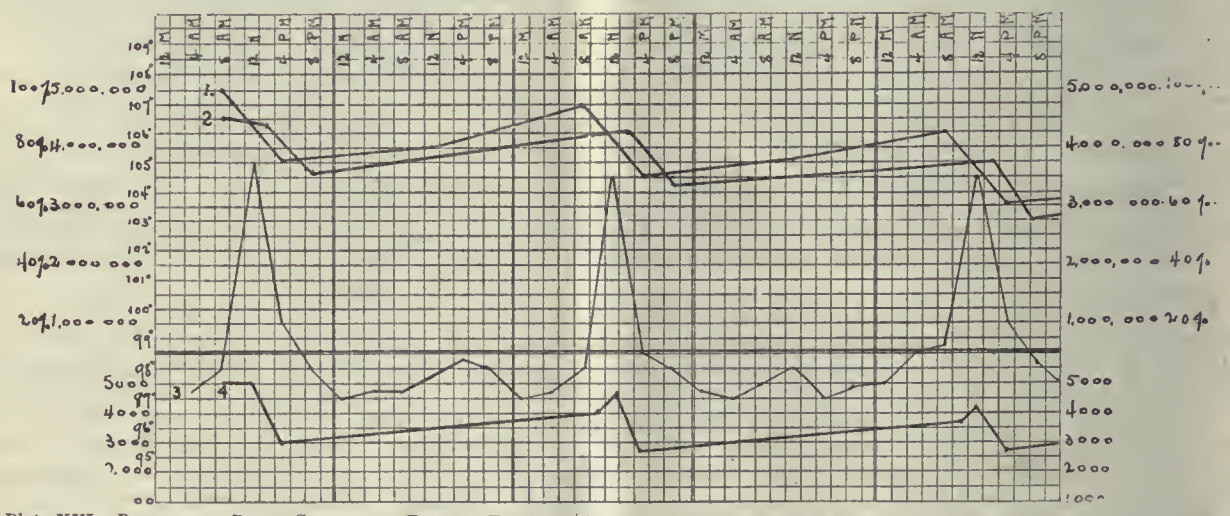


Plate XVI. DIAGRAM OF BLOOD CHANGES IN TERTIAN FEVER.—1, Red Blood Corpuscles; 2, Hemoglobin; 3, Temperature; 4, Leucocytes.

photophobia and lowered temperature. Pernicious malaria often merges into uremia and can be differentiated only by the microscope. It is in the differential diagnosis of malaria from the foregoing diseases that the discovery of the organism of malaria has worked its greatest benefit to the medical profession. This is especially true in the case of typhoid fever; and it is probably a fact that to-day many malarial patients are being treated for typhoid fever.

The prognosis of the milder forms of malaria is always good. In the pernicious types it is grave, the degree of mortality depending upon the vitality of the patient, the promptness of treatment and accuracy of diagnosis.

Prophylactic treatment is very efficient. Taken in connection with hygienic observations and pure water, quinin will in most instances establish immunity for a considerable length of time. Following this treatment travelers have invaded the most deadly malarial regions without serious results.

As to the treatment of malaria, quinin is the great panacea. Probably 95 per cent. of all cases succumb to its effects.

Most observers agree that quinin causes the death of the organism by direct contact when the parasite is in the sporulating form outside the corpuscle. This drug, when given two hours before the paroxysm, even in fifteen grain doses, will not stop the oncoming paroxysm but will prevent the spores from entering new corpuscles. This fact seems to prove that the adult segmenting organism is not affected by the drug while the free and growing spores constantly imbibing nourishment from the plasma of the blood are readily destroyed. When the spores have gained entrance into the corpuscles they are equally invulnerable as the adult organism. This goes to prove that the hyalin body lives to a great extent upon the protoplasm of the corpuscle.

As to the administration of quinin, two principal methods are in practice at the present time. The first consists in giving moderately large doses every four hours until the paroxysms are overcome and then gradually decreasing the size of the dose. The second method is to give small doses during apyrexia with very large doses from three to five hours before the anticipated paroxysms. As many as thirty grains may be given at one time. Good results follow both these methods.

In some instances quinin can not be given on account of individual idiosyncracies. But a few days ago the writer saw a young girl the skin of whose hands had completely peeled away as the results of taking a few grains of quinin. In other cases this drug in the minutest doses may produce distressing symptoms of cinchonism associated with nervousness and vomiting. In such cases the other alkaloids of cinchona must be tried. Marburg's tincture is often effective, and bone marrow and methylene blue have been used with a moderate degree of success. Arsenic is a powerful antiperiodic but is slower than quinin. During the paroxysm palative treatment should be used, as hot drinks and cloths during the chill and sponging during the fever if the temperature rise exceptionally high.

In pernicious cases quinin should be given hypodermically and with great promptness and the patient kept warm and quiet. The great object should be to tide the patient over the first paroxysm and abort the time of the second lest it should prove fatal. In these cases the medicinal treatment, aside from the administration of quinin, cathartics and diuretics, should be largely symptomatic, and the symptoms combatted as they appear.

As convalescence approaches, a nourishing and easily digested diet should be arranged and the medical treatment consist of tonics and simple bitters with a moderate amount of healthful exercise.

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Malaria as a Water-borne Disease. W. H. Daly, M.D.
Medical Diagnosis. J. B. Herrick, M.D.

NOTE.—The writer is under obligations to Drs. Bishop and Weaver who kindly loaned him the pathologic specimens from which the accompanying drawings were made, also Drs. Tice and Richter of Cook County Hospital, through whose courtesy he was able to procure the blood specimens.

PRACTICAL NOTES.

Keratitis Dendritica.—Dr. Frank Allport says, that from experience with the last cases under his care, the application of absolute alcohol affords the most certain and rapid cure. He soaks a bit of lint in alcohol and scrubs the surface of the cornea with it. This may require to be repeated two or three times.—*Am. Jour. of Ophthalmology*, July.

Loretin.—Drs. Nichols and Gee state that, loretin has been used in the dispensary of the Medical College of Virginia for over a year under most careful and conscientious observation and with entire satisfaction. They have arrived at the definite conclusion that it not only equals, but surpasses, iodoform in its favorable action upon the processes of granulation and healing. As it is entirely odorless, it is obviously much more pleasant than iodoform to handle.—*Med. Bulletin*, July.

Camphor in Strychnia Poisoning.—Dr. A. K. P. Meserve reports the case of a child, 2½ years old, who was supposed to have taken 1-60 grain of strychnia. Characteristic symptoms of the poisonous action of the drug soon appeared. In the absence of a physician ten drops of tincture of camphor was given. The effect was almost instantaneous, the spasms relaxed and when a physician arrived, nearly an hour later, the danger seemed to be over, tannin and a larger dose of camphor, gtt. xx were administered, as a precautionary measure. The next day the child had fully recovered.—*Journal of Med. and Science*, July.

Diagnosis between Diphtheria and Tonsillitis in Children.—True diphtherial exudation may commence at the orifices of the crypts of the tonsil, but does not long remain limited to the tonsils and muco-lymphoid glands of the pharynx, as does the exudate of tonsillitis. The diphtherial membranes will extend within twenty to twenty-four hours to the pillars, velum or pharyngeal wall. The exudate of tonsillitis is thin and not materially raised above the surface. It is white, translucent and presents a living, clean aspect and no necrotic changes, while the exudate of diphtheria protrudes from the surface, is opaque and of a dirty yellow color. The exudate of tonsillitis is punctated, the spots corresponding to the follicular openings, and two or more puncta may join each other at their borders. In simple inflammation of the pharynx and in follicular tonsillitis as compared with diphtherial inflammation, the invasion is more sudden, the temperature higher and the redness of the throat more diffuse, and not confined to one side, as is frequently the case in commencing diphtheria. In follicular tonsillitis the yellowish-white spots can often be removed from the crypts which the secretion occupies, and the inflammation frequently ceases in thirty-six hours, whereas in diphtheria it

continues for a week or two. A doubtful looking layer of mucus is often removed by having the patient gargle the throat with some mild antiseptic or salt-water. The microscope of course clears up the diagnosis if the Kleb-Loeffler bacilli be present in large numbers.—Dr. Leo B. Auerbach in *Denver Med. Times*, July.

Observations on Surgical Shock.—Dr. W. N. MacArtney says: "In the human subject after crushing injuries of the limbs I have occasionally seen the pulse very slow and strong, but with a peculiar characteristic which should indicate to the careful observer that shock was present. It is a pulse difficult to describe, but which points unmistakably to a tendency to cardiac spasm. There is a prolongation of the systole, which encroaches upon and interferes with the diastole; cardiac spasm diminishing cardiac relaxation. This increase in the length of the systole once recognized in the pulse is not easily forgotten. This slow pulse indicates grave shock impending, and where I have observed it, when, in spite of protests, operation was done at once on the theory that with such a pulse no shock could be present, profound and sometimes fatal shock followed. It is a warning not to be lightly disregarded. In these cases do we have vaso-motor paralysis or does vaso-motor spasm precede the paralysis? The term vaso-motor paralysis, however, is so ambiguous that some uncertainty exists as to the exact meaning. There are vaso-constrictor and vaso-dilator fibers, and the term vaso-motor paralysis might be construed to mean either or both."—*Charlotte Med. Journal*, July.

Acute Milk Infection.—Dr. W. H. Wells says: One of the most fatal of diseases is cholera infantum. Its causes are always the same, namely, the poisons produced by various forms of pathogenic milk bacteria. It is always found in infants fed on artificial foods containing milk. It seems particularly virulent in infants fed continuously on condensed milk, or the various dextrinized foods which are intended to be used with milk. The child having once taken milk containing the germs no amount of subsequent feeding on sterilized or Pasteurized milk will prevent the continuation of the acute poisoning. The point in the treatment which is of the first importance is to take the child absolutely from a diet of milk and all substances containing it. The second indication is to free the system as quickly as possible from the milk poison with which it is already charged. The plan generally followed is to give the child no food at all for twenty-four hours and sometimes longer. During this time cold sterilized water into which fifteen or twenty drops of good brandy or whisky have been dropped, can be given to the child every hour.—*Philadelphia Polyclinic*, July.

Suburethral Calculi in the Female.—The *Rev. Int. de M. et de C.*, for June 25, remarks of an article on this subject in the April *Annales des Mal. des Org. Gen.-Ur.*, that it fills a gap in medical literature, as there is no other study of the calculi formed in the urethro-vaginal wall. These sub-urethral calculi are rare, and are different from the calculi of the urethra itself. The pocket forms in the anterior wall of the vagina, below the under surface of the urethra, into which it opens, one centimeter at least, above the meatus. The walls are usually composed of the vaginal mucous membrane, a layer of muscular tissue and of urethral mucous membrane, with a fibrous intergrowth and enlarged veins. The contents are a scanty yellowish liquid, sometimes sero-purulent, urine mixed with blood, with the calculi, generally ovoid in shape, but always of urinary origin. The symptoms are obscure; distress when seated, increased by walking and relieved or abolished, by reclining, with frequent and painful mictions, each followed by an involuntary discharge of a few drops of urine. Hematuria may also exist, with trouble in coitus. Investigation reveals a hard and painful tumor in the anterior wall of the vagina, with crepitation if there is more than one calculus. Certainty is attained by introducing a curved, grooved sound into the urethra, with the finger in the vagina. Spontaneous recovery is rare. The urethrocele sometimes discharges its contents into the urethra and heals, but new calculi are apt to form or a fistula persist. The best treatment is an urethro-vaginal incision, with resection of the pocket and complete suture on two separate planes.

Strangulated Hernia.—Dr. Alexander Hugh Ferguson says, that in a case of stranulated hernia, judicious and peristent taxis, carried out for five minutes, is long enough to tell of its inefficiency without an anesthetic. This being administered, taxis may be tried for five more minutes. At the expiration of this time, all preparations for herniotomy should be complete, and if taxis had failed, no time would be lost before liberating the strangulation. The dangers of prolonged taxis are: 1, ultimate failure and increased injury to the hernial contents; 2, rupture of the bowel; 3, the reduction of so traumatized and gangrenous a bowel as to cause peritonitis; 4, reduction en masse, *i.e.*, without liberating the bowel; 5, intraparietal reduction and reduction into the canal; 6, the non-detection of a second strangulation should it be present; 7, the rupturing of the sac and the forcing of the gut through the rent between the peritoneum and abdominal wall; 8, a diseased and perforated vermiform appendix may be reduced; 9, reduction en bissac, *i.e.*, the forcing of hernial contents into a congenital pouch or diverticulum; 10, bruising of the contents and hemorrhage into the sac is common. Most of these complications are rare, but they have all been encountered.—*Chicago Med. Recorder*, July.

Simple Treatment of Chronic Catarrhal Deafness.—Dr. B. Alex. Randall says, in the majority of cases, decided improvement will follow rational treatment, and though this may leave the patient possessed of only a remnant of hearing, it may be many times greater than before, and a most acceptable benefit to him. For the attainment of this result, no elaborate methods or apparatus are needed. "The naso-pharynx, from which the affection proceeded, must first be gotten into better condition. Only a small proportion of cases will present deformities or hypertrophies, which compel operative intervention to free the air passages. Vigorous spraying with an alkalin fluid in the hand atomizer, will generally suffice to cleanse the pharynx vault, but must be supplemented by mopping the region of the tube-mouths, and any parts to which the mucus clings, with the bent applicator, generally charged with glycerole of tannin or of iodin. An oil spray can usually advantageously follow, that of menthol-camphor, 1 to 2 per cent., for most cases. This gives a protecting coating to surfaces denuded of their usual covering of mucus, and about to be exposed to the outer air, while it medicates the cavities with a stimulating, disinfecting vapor, which will saturate every breath of air passing into the nose for a considerable while. It lubricates the nose, too, for the easy passage of the catheter." A good catheter is a very important factor. One of 3 millimeters external, and 2 millimeters internal diameter, 13 centimeters long, made of silver to secure pliability, serves in all but exceptional cases. The auscultation tube is very necessary. Only by its aid or the examination of the drum-head later can we determine that the tympanum is actually reached by the inflations. With the catheter properly placed it is easy to substitute the atomizer with its oily spray for the air bag and spray the fluid freely up the tube. Pure fluid petrolatum is recommended for this purpose, but probably more can be accomplished by medicating it, usually with from 1 to 2 per cent. menthol-camphor. Careful massage with the pneumatic speculum of Siegle or similar apparatus should complete the procedure. Without denouncing the "new" and "radical" procedures which are constantly being thrust into notice, better results can generally be secured by avoiding these innovations.—*University Med. Mag.*, July.

Application of Gastric Juice in Therapeutics.—Fremont announced at a recent meeting of the Académie de Médecine, that he had been very successful in relieving and curing gastric disturbances, such as enteritis, grippe with gastro-intestinal complications, apepsia, etc., by administering gastric juice obtained by isolating the stomach of dogs, according to his method previously communicated.

Treatment with Serum from Convalescents.—Weisbecker has been experimenting with serum from patients recovering from measles, with which he injected others in the incubatory stage. He considers the results quite satisfactory, as the incipient disease was very much modified, and cases of measles pneumonia cured. He urges others to continue these experiments with serum which nature herself has immunized, in scarlet fever, measles, etc.—*Therap. Wochenschrift*, June 28, from *Zeitschr. f. kl. Med.*, Nos. 3, 4.

Tannigen in Diarrhea.—Tannigen is a diacetyltannin, and like tannalbin (see JOURNAL, June 27) does not release its tannin until it reaches the lower alkalin secretions. Bachus reports marked success with it in seventy cases, and no unfavorable accompaniments. In some cases the improvement was surprisingly rapid. The dose for an adult was as much as could be taken up on the point of a knife, and for children 0.25 grams, three times a day. The only failures were in a few cases with ulcerous or tuberculous complications. The diarrhea ceased in two or three days in the forty-one cases of children treated. He preceded the tannigen with three powders of calomel, at 0.008 to 0.01 gram, in severe cases (*Münch. Med. Wchnsch.* Dec. 37). Schneider calls attention to the fact that tannigen becomes viscid at the temperature of the body when moist, and therefore he recommends mixing some insoluble substance with it (like silica one-half to -one-tenth part), to prevent the adhesion of the particles of the tannigen.—*Nouveaux Remèdes*, June 8.

Cardiac Therapeutics.—A hypertrophied heart sometimes needs aconite or bromids to restrain an excess of effort. If bromids are used, that of potassium should be avoided on account of the especially toxic action which it has on muscle. Perhaps a conspectus of the drugs which have been commonly used to add to the heart's force, will aid in making a rational choice.

Tonic and sedative—Digitalis, tonic, slows pulse, cumulative, contracts arterioles, diuretic; spartein and convallamarin, similar, but not so powerful and not cumulative; squill, practically digitalis plus a nauseating but stimulating expectorant: strophanthus, digitalis minus cumulative action and with very little action on the arterioles; caffein, digitalis plus cerebral stimulant and with especial diuretic action, not cumulative but secondary depressing action liable to occur; cactina, not well understood. General supporter—strychnin. General regulator—atropin which is stimulant to arterioles in small dose, relaxing in large dose. Emergency class—ammonia, accelerator and stimulant; alcohol and ether, slightly accelerating and stimulant, vascular dilators, later depressing; amyl nitrite, nitro-glycerin, etc., vascular dilators, scarcely stimulant to heart muscle.—Dr. A. L. Benedict in *Am. Therapist*, July.

Formalin in Dental Practice.—Abraham, in *Zahnärztliches Wochenblatt* is quoted in the *London Therapist*, June, as follows: By the use of this substance he has been enabled to avoid that form of secondary periostitis that so often complicates the treatment of periodontitis. It is his belief that the vapors of formalin have a regenerative influence upon the diseased periodonitum and promote restitutio ad integram. The method of formalin treatment made use of by the author more recently is less complicated, and less likely to cause pain by the formalin accidentally overflowing on the surrounding tissue. He makes use of a powder, calc. sulphas., 200; hydrarg. bichlor. 4. These to be finely mixed, also a liquid form, acid sulphuric 32; formalin, 100; aq. destil. 100. A few drops of the liquid are rubbed on a glass plate together with sufficient of the powder to form a paste, which, introduced into the previously dried root canal, solidifies in a few minutes. The crown can be filled with any stopping desired. The small quantity of corrosive sublimate and sulphuric acid in the paste, does not have any discoloring or corrosive effect on the tooth. The above proportions have been found to be the best as a result of numerous trials, and this formalin root cement may be employed safely after cautery of the pulp, etc., and for closing the foramen piacale. In a few cases, after employing this cement a slight periostitis without pain has appeared, continuing only one or two days.

Morbus Basedowi a Neurosis.—Hoesslin questions the rôle generally attributed to the thyroid gland in the evolution of this disease. He considers it a neurosis, and describes several unusual features in some cases he has had under observation for years (*Münch. Med. Woch.*, No. 2). One case (6 years) was distinguished by the marked rhythm of the pulse; it grew fast in the morning and slow at night. The attacks of tachycardia were also peculiar, beginning so suddenly that the pulse would jump from 130 to 250 in a minute, and ending as abruptly, with the phenomenon of a sudden violent contraction of the heart. These attacks lasted from an hour to weeks, and were most distressing. In another case the struma fluctuated in size, growing smaller as the tachycardia developed, and increasing as the latter subsided. A typical leucoplasia also formed on the tongue, forming a "lingua geographica" with painful cracks, as the disease reached its height, and subsiding with it, which Hoesslin attributes to sympathetic action of the vagus. In one case the patient ascribes his recovery to the vegetable diet which Hoesslin enforced for three years. He states that the attacks of tachycardia were much relieved or prevented by several successive rectal injections of opium, 20 to 30 drops of the ordinary tincture in a mucilaginous medium. All other treatment proved ineffectual.—*Deutsch. Med. Woch.*, June 25.

Brenz-catechuin Located in the Suprarenal Capsules.—It is announced from the Path. Inst. at Berlin that the presence of brenz-catechuin (pyrocatechuin) in the suprarenal capsules has been definitely established. It has hitherto baffled investigators, as it did not respond to the usual tests, owing to its combination with a still unknown substance, from which it has finally been successfully separated. It is secreted in the medullary substance, and it is an interesting fact that the part of the medullary substance next the cortex is the deepest in color. Brenz-catechuin is turned brown by contact with the air, and alkalins, which explains this fact, and is also probably the explanation of the bronze pigmentation in Addison's disease. As it is a poison, abnormal secretions of it may not only be responsible for the pigmentation, but also for the other symptoms of this disease. It has been much disputed whether it is to be attributed to abnormal functions of the suprarenal capsules or of the celiac ganglion. The present investigators consider it settled that the former secrete the brenz-catechuin, while the latter or the suprarenal plexus, neutralize its toxic effects in normal conditions. The announcement in the *Deutsch. Med. Woch.* for June 25, is soon to be followed by a more comprehensive report in *Virchow's Archiv*.

A Case of Antipyrin Eruption.—Dr. H. W. Webber of Plymouth, reports in the London *Lancet*, an interesting case of the above nature. The patient was a woman aged 53 years, who had two months previously undergone supravaginal amputation of the cervix uteri for cancer. "On Dec. 7, 1895, I found the entire surface of her body covered with a copious eruption exactly resembling in appearance that of a severe case of measles; the face and eyelids were also swollen. The temperature was 101.4 degrees F. and the pulse 102. She had been taking ten-grain powders of antipyrin twice daily for the previous three weeks for the relief of pain extending down the right thigh. These had produced no ill effects, but it appeared on the evening of December 5, she had eaten some unwhole-

some food, the results of which no doubt interfered with the proper elimination of the drug. Three grains of calomel and a mixture of ammonium acetate were prescribed, and the next morning the skin was almost free from eruption, the swelling of the face had subsided, and the temperature had fallen to 98 degrees. The antipyrin was omitted and pills containing a quarter of a grain of morphia were substituted. Finding, however, that these did not relieve the pain so well as the antipyrin had done, after a few days the patient recommenced taking the powders. After a second dose swelling and redness of the face came on and she had again to leave them off. No symptoms of cardiac depression appeared to be produced by the drug in this case."

Colles' Fracture.—Dr. J. B. Morgan (*Southern Medical Record*, July, 1896) says: "A great deal has been said and written about the diagnosis of this typical fracture; but two points only are necessary to observe, in order to arrive at a correct diagnosis. The marked displacement of the whole hand toward the radial side of the wrist, and the relative position of the styloid processes of the ulna and radius. In the natural condition of the parts with the arm hanging by the side, the styloid process of the radius is on a lower level than that of the ulna; that is to say, nearer the ground. After fracture, this process is on the same or higher level than that of the ulna. The first requirement in treatment is to effect exact reposition. The best way to effect this is with the patient's hand in pronation, you grasp his forearm with one hand, in such a way that while the radius is firmly held, your thumb rests just above the line of fracture. With the other hand, you grasp the hand of the patient, so that your thumb presses firmly upon the back of the lower fragment. The hand is now carried strongly back toward the dorsal aspect of the radius in forced and extreme dorsal flexion, until you feel by palpation that the lower fragment has become unlocked, and can be pushed into place by your thumbs, while at the same time, the patient's hand, under strong extension, is carried into the normal position. The best temporary and, in most cases, the best permanent dressing is Wyeth's modification of Pilcher's. It is applied as follows: Roll two pieces of a bandage, two inches and a half wide, into a compress about as thick as the little finger. After reduction is complete and the hand brought back into straight position, place one compress along the inner aspect of the ulna, extending from the anterior margin of the carpus upward, the other parallel with this, along the outer border of the radius, over the styloid process. Secure them by strips of adhesive plaster, one inch in width, wound around the wrist and arm, from the upper to the lower end of the compresses."

Etiology and Diagnosis of Epidemic Cerebro-spinal Meningitis.—Heubner announces in the *Deutsche Med. Woch.* for July 2, that he has succeeded in locating in the spinal fluids of patients suffering from epidemic cerebro-spinal meningitis, the microbe discovered not long ago by Jaeger, in necropsies after this disease. He has also established its pathogenic action by successfully inoculating with it a couple of goats, after failing with rabbits, guinea pigs and dogs. The microbe is found inside the pus cells, and is in the form of a diplo- or tetracoccus, not long nor lance shaped, but broad and arranged side to side, recalling the gonococcus in this respect. It develops luxuriantly on agar, dirty yellow in color, but shining like varnish. The experiments on animals showed that it is not a virulent microbe like the pneumococcus, which corresponds to the facts observed in epidemics of the disease. A pneumococcus meningitis ends fatally in a very few days. (Netter records sixty-one deaths in sixty-eight cases.) In epidemic meningitis on the other hand, only a half or third terminate fatally, and they frequently last weeks and even months. This also explains the relatively small number of cases in an epidemic. Heubner adds that when it is once accepted that this meningococcus intracellularis is the factor in epidemic meningitis, then Quincke's "lumbar puncture" with aspiration of the spinal fluid, will become of still greater importance, enabling us to differentiate at once sporadic cerebro-spinal meningitis from isolated cases of epidemic cerebro-spinal meningitis.

Hemostasis of the Bones with Shoe Nails.—The *Semaine Méd.* of July 8 states that Professor Rapin of Lausanne controlled the hemorrhage during a Kraske operation by stopping the blood vessels in the bone with a small shoe nail which he inserted in each. They were left in place until the suture was to be made; no further hemorrhage occurred after their removal. Six of these little nails sufficed to arrest completely the hemorrhage across the surface of the sacrum.

The American Blood Test for Cattle Tuberculosis.—Dr. Ephraim Cutter compares the morphology of human blood in health with that of tuberculous subjects and says that consumption can be detected before there is any appreciable lesion in the lungs. He states the points of similarity of kine tuberculous blood to that of man are: White corpuscles enlarged often more than in man; the mycoderma aceti or vinegar yeast is present as in man. It is on this yeast the diagnosis is made. He summarizes the advantages of the blood morphologic test over that of tuberculin, in cattle, as follows: 1. It is simple, readily learned, easily applied. 2. It introduces no diseased matter into the blood to set up efforts to expel diseased tissues (not to stop causes), which efforts of expulsion cause fever. 3. It allows the diagnosis of the pretubercular stage and the cure of the cattle; tuberculin is of no value except when there is actual disease and breaking down of the lungs. 4. It does not involve the loss of the kine. 5. It is always good so long as pre-tuberculosis or tuberculosis exists; and as in man, is of immense value in making negative diagnoses when neither tuberculosis nor pre-tuberculosis exist. 6. The amount of the yeast spores present is a sort of measure of amount of the lesion; the more the disease the more the yeast. 7. It can be applied often and harmlessly. 8. It is common sense in principle, as it treats of causes, while tuberculin treats only with results, not influencing causes. 9. It is the best means of detecting tuberculosis and pre-tuberculosis in man and kine. He says that the evidence is overwhelming that tuberculosis comes from food, in excess and long-continued, which either before or after ingestion undergoes the acetic acid fermentation.—*New England Med. Monthly*, July.

Lithium Preparations.—The *New York Medical Journal* gives the following abstract, which states that the *Therapeutische Wochenschrift* for April 5, mentions in a list of new remedies, two preparations of lithium. The first is the American tartarlithin or lithium bitartrate. The *Wochenschrift* remarks that it is much employed by American physicians in the treatment of Riggs' disease (pyorrhea alveolaris) on the theory that that form of suppurative gingivitis is of a gouty nature. The calcareous collections about the roots of the teeth are said to contain, beside the ordinary calcium carbonate and phosphate, a considerable amount of uric acid, calcium urate and sodium urate. Dr. E. C. Kirk is cited as having found tartarlithin a remarkably efficacious remedy in this affection, superior to any other lithium salt. Its diuretic action is manifest in many cases, but with some persons it acts as a laxative. Five grains may be given three times a day, dissolved in a glass of carbonic-acid water. The other preparation is lithium bromid, which is described as a grayish-white granular powder, soluble in water and in alcohol. The efficacy of this compound in gout is attributed by Mendelsohn to its diuretic effect rather than to any action as a solvent of uric acid. Polakow has employed lithium bromid in acute and chronic parenchymatous nephritis and found its diuretic action accompanied by diminution of the excretions of albumin and subsidence of edema, even when the patients were not on a milk diet or subjected to any other remedial measures. Polakow uses lithium bromid in the following prescription: Lithium bromid, 1 to 2 parts, sodium bicarbonate 4 parts, distilled water 200 parts. Mix. Sig.: Three or four tablespoonfuls to be taken in the course of twenty-four hours.

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SATURDAY, AUGUST 8, 1896.

THE NOMENCLATURE OF DISEASES.

The want of an authorative and uniform standard nomenclature of diseases, for the purposes of registration, has long been felt in this country by registration officers and scarcely less by medical writers.

The confusion that long existed in the materia medica nomenclature in the middle ages was measurably corrected by SIMON of Cordo, who was physician to Pope NICHOLAS IV and chaplain to Pope BONIFACE VIII, but no similar service was rendered the profession in regard to the nomenclature of diseases until the present century.

As nearly every reform in medical methods in this country has had its origin in the AMERICAN MEDICAL ASSOCIATION, so we find that as early as 1847 a system of classification was adopted by the ASSOCIATION, and in 1851 a Committee was appointed "to consider the subject of registration of births, marriages and deaths, and to use their influence to cause the same to be adopted by their respective legislatures." The Committee had no general meeting, but the chairman, Dr. EDWARD JARVIS, of Massachusetts, reported at the meeting held at Washington in 1858 in favor of the nomenclature prepared by Dr. WILLIAM FARR, of London, which had been adopted by the Registrar-General of England, and in this country by Massachusetts.

The report of Dr. JARVIS was not adopted at this meeting, but referred to a special Committee consisting of W. L. SUTTON of Kentucky, EDWARD JARVIS, Massachusetts, EDWARD M. SNOW, Rhode Island, WILSON JEWELL, Pennsylvania and R. W. GIBBES, of South Carolina. The report of Dr. SUTTON the following year, signed by *all* the members, recommended adherence to the nomenclature adopted by the ASSOCIATION in 1847, because many of the States had subsequently adopted it and it was still in use. They made very few alterations, but left the twelve classes according to the original and added two, viz.: 1, zymotics; 2, diseases of general ulceration, or unlocalized seat; 3, diseases of the nervous system; 4, diseases of respiratory system; 5, diseases of the circulatory system; 6, diseases of the digestive system; 7, diseases of the urinary system; 8, diseases of the generative system; 9, diseases of the locomotive system; 10, diseases of the integumentary system; 11, old age; 12, from external causes; 13, from causes not specified; 14, stillborn.

No action was taken on the report except to refer it to a committee, and the minutes are silent as to any further action, but the meeting in New York City in 1864, on motion of Dr. CYRUS RAMSAY of New York, passed a resolution of thanks to Dr. APPLETON HOWE of Massachusetts and Dr. JOHNSON GARDNER of Rhode Island for having, while serving as State senators in 1842, secured the adoption of the (FARR) nomenclature. In 1867 Dr. CHRISTOPHER C. COX presented the ASSOCIATION with advance sheets of the "Provisional" nomenclature, proposed to be adopted by the Royal College of Physicians of London.

At the meeting held in 1869 a Committee was appointed "to determine what alterations, if any, are necessary to adopt the 'Provisional' nomenclature to general use in the United States." This committee consisted of FRANCIS GURNEY SMITH, GEORGE B. WOOD, S. H. DICKSON and ALFRED STILLÉ of Philadelphia, S. E. CHAILLE of New Orleans, J. J. WOODWARD and GEORGE A. OTIS, U. S. Army, W. S. W. RUSCHENBERGER and NINIAN PINKNEY, U. S. Navy, ALONZO CLARK of New York, EDWARD JARVIS of Massachusetts, WM. M. MCPHEETERS, of St. Louis, L. P. YANDELL of Louisville, A. B. PALMER of Ann Arbor, THEOPHILUS PARVIN of Indianapolis, and R. F. MICHEL, Alabama. Surely as strong a Committee intellectually as was ever appointed by the ASSOCIATION on any subject. This committee issued 1,000 printed copies of the English and Latin portion of the proposed nomenclature to the members of the ASSOCIATION for criticism and comment, but outside of the membership of the Committee, but three replies were received by the chairman; a majority and minority report resulted. The majority favored the adoption of the following resolution:

Resolved, That the AMERICAN MEDICAL ASSOCIATION be requested to appoint a committee to prepare a nomenclature of diseases which, on approval by the ASSOCIATION, shall be

submitted to the medical practitioners of the United States for adoption and observance.

Dr. AUSTIN FLINT and Dr. CHAILLE favored the adoption of the London nomenclature.

The Medical Society of New York sent a paper on the subject of the nomenclature, and through Dr. ALFRED UNDERHILL moved that it be substituted for the report of the Committee, but the majority report of the Committee was adopted.

In accordance therewith, at the meeting held in Philadelphia, 1872, the Committee reported the preparation of a nomenclature. They offered a system based upon the provisional nomenclature of the Royal College of Physicians, with some additions and modifications. They gave precedence to the English over the Latin names, an example which was followed when the London nomenclature was finally published. The Committee reported that they had held nearly fifty meetings in the two years. This report also had a majority and minority report, Drs. A. B. PALMER, AUSTIN FLINT, J. J. WOODWARD and GEORGE A. OTIS asserting that they had not attended the meetings of the Committee and had had no time to examine the report. The ASSOCIATION thereupon voted the distribution of the proposed nomenclature before final adoption. At the meeting at St. Louis in 1873, the "Philadelphia" nomenclature, as it was called by Dr. WOODWARD, was reported by a majority of the Committee. Dr. WOODWARD, representing the minority, asserted that the proposed nomenclature was inferior to that of the British, and that "as it was advisable to have some nomenclature which should be recognized wherever the English language was spoken, it would be advisable, until some definite plan was adopted, for that of England to be used, there being so many objections to that of Philadelphia as to render its adoption inexpedient." He then proposed the rejection of the majority report, and the appointment of a committee of three whose duty it should be to communicate with the Royal Physicians of London, and to negotiate for representation of the AMERICAN MEDICAL ASSOCIATION in the first decennial revision of their nomenclature. This was adopted, and the Committee consisted of Drs. WOODWARD, EDWARD JARVIS of Massachusetts, and ALFRED STILLÉ of Philadelphia. It was also resolved, on motion of Dr. TONER, that the occasion of the centennial celebration at Philadelphia was opportune for the consideration of plans for the adoption of an universal nomenclature for use by the profession throughout the world.

The action of the ASSOCIATION was in effect the adoption of the London nomenclature, and in October, 1873, the late Dr. JOHN M. WOODWORTH, the Supervising Surgeon-General of the Marine-Hospital Service, issued formal regulations adopting the provisional nomenclature of the Royal College of Physicians as the official nomenclature for the use of that Service, and in 1874 and 1878 republished the nomenclature and distributed them to the Medical Corps, and to health officers generally. The American Public Health Association also indorsed the nomenclature in 1873.

The second edition of the nomenclature began to be considered by the Royal College in October, 1880, and to the Committee, Dr. CHAS. F. FOLSOM of Boston, and Dr. JOHN S. BILLINGS, U. S. Army, gave aid and suggestions. The revision was completed and the book issued late in 1885. This revision was adopted by the U. S. Marine-Hospital Service by a circular issued Nov. 7, 1885, by Surgeon-General HAMILTON.

The third edition of this nomenclature, being its second revision, has just been issued by Her Majesty's Stationery Office in London, and we regret to notice that no American representation was had in this revision. The Italian version which was included in the former editions has been very properly omitted from this. This revision necessarily has made many changes, for pathology has been greatly changed by the discovery of the microbic cause of many diseases; and the section relating to bacteria is entirely new.

There may well be question whether more frequent revisions are not required, for no sooner has a nomenclature been promulgated, than the progress of discovery and changes in art make portions of it behind its time, and by the end of the decade, the whole nomenclature is well-nigh obsolete, although, for the essential of uniformity, it must still be used until officially changed. The general plan of former editions has been retained in this, while many new terms have been introduced.

THE LEAST ATTRACTIVE DUTY OF THE SURGEON.

The specialized surgeon of the present has so many things in his favor, as compared with the surgeons of fifty and a hundred years ago, that it becomes necessary at intervals to "shake him up," and remind him of his full duty, a part of which is unwelcome to the minds of some of us. It is related of the late Professor ALFRED C. POST, of New York, that his sense of rectitude led him to unduly emphasize, before his classes in surgery, the fatalities that occurred in his practice. Dr. POST was a surgeon in every sense of the word; he was actuated always and only by the highest motives, and yet his formula, "But, gentlemen, the patient died," recurred so frequently in his prelections that the average student often wondered, what, after all, is the good of surgery? Both VON NUSSBAUM and Sir JAMES PAGET have recognized the less welcome side of surgery, its contretemps, its disasters. We quote the *British Medical Journal*, May 16, in further confirmation of this thought which is never far distant from, if never fully formulated in, the genuine surgeon's consciousness: "The ideal of the surgeon, as PLATO said of

his ideal republic, is laid up in paradise for him who will behold it and regulate his life according to it. And the recognition of all the slight defects of average surgery will surely help toward a clearer sight of our ideal. In every walk of life, the recognition of our demerits is essential to improvement of our practical work. An operation that is faultless is a wonder indeed, and most operations are far from faultless; the exquisite accuracy, fine touch, resource, insight, swift decision which the public attribute to the surgeon are seldom seen in practice. But if the surgeon will keep a daily record of his slightest faults he will find a sure way of improving his skill. 'Live in your own heart,' says PERSIUS, 'and you will then find how scanty your furniture is.' And if he desires the advancement of surgery, let him not be silent, or like an ostrich hide his head in the sand of success and think that nobody sees the tail feathers of failure. It would be a good rule for every hospital surgeon to point out to those round him at least one slight defect in each operation, and seldom to publish isolated cases; for these, as a rule, are of no great value unless they are ahead of what other men have done.

"Two suggestions are pertinent to him who wishes to fill the blank left in the literature of surgery by the want of any regular record of our faults. It is not proposed to set apart a confessional of surgeons, for that has been tried before, and commonly with the result that the confessions were loaded down with an unprofitable vicarious impleading of the *faults of others*. But there is a real need of a careful and complete statement of the defects of surgical work. VON NUSSBAUM'S essay, published in 1887, is only a sketch of what might be done. He begins with the dangers of the anesthetic; next, the general risks of operation, such as hemorrhage, septic absorption and traumatic delirium; then he considers the mistakes made in various operations, some of them belonging to minor surgery, such as tenotomy, circumcision, puncture of hydrocele, removal of tonsils; others being of a graver character, such as tracheotomy, ovariotomy and the operation for strangulated hernia. He gives examples of faults in all these operations and in many others; and indeed the ways of error in tracheotomy and herniotomy, to take these two only, are many and hard to avoid; each one of them might well afford a whole chapter of accidents. But his essay is short, incomplete and somewhat old fashioned; we want a full, careful, fresh account of the defects of surgery. Happily grave errors are rare; it is the trivial faults, the slight mistakes of skill or judgment, many of them so slight as to have the least influence on the result of the operation, that require to be set forth. The risks of the anesthetic, the drawbacks of this or that antiseptic lotion or dressing, the disadvantages that may attend the boiling of instruments, these might go toward the first chapters of the essay. But the essayist would find that his chief business lay apart from these subjects, in collecting, arranging and criticising all the small techinal faults of operative surgery, and thus raising the standard which we desire to reach.

"Our second suggestion is that surgeons should publish less often isolated cases, and more often groups of cases, sets of consecutive operations, every example that has come under their care. This has been done by many surgeons—Sir SPENCER WELLS, Mr. KNOWSLEY THORNTON, Mr. HERBERT ALLINGHAM, and others; the method may be studied in such works as BARDELEBEN'S Klinik, or in some of our hospital reports. This is the way to advance knowledge and to carry conviction; and we may be sure, for example, that Sir SPENCER WELLS would have had even greater difficulty in establishing the success of ovariotomy if he had published only selected cases; it was just because he published every case that he won the field for the operation and for himself a name that will not soon be forgotten."

It is as VON NUSSBAUM says, a single reverse has more teaching in it than ten successful cases. Students are quick to remember every criticism that the surgeon makes on himself, and trust him all the more for it; and they tend to distrust him who seems always satisfied, or finds fault in everybody and everything but himself. Again, the reports in the medical press and at medical societies of isolated successes, unless they mark some definite advance of surgery, do not teach much to those who read or hear them; they make us wish that the surgeon had published other cases where the result had been less pleasing to himself; they raise unkind doubts whether his experience is not in inverse ratio to his readiness to publish it. And it is certain that in the long run we hesitate to believe in the man who always believes in himself; and he who begins by publishing nothing but his success may end by having nothing to publish.

The confession and record of an imperfect work, and the publication of consecutive rather than isolated cases, are a sure way to improve the details of operative surgery; and unless we do these things we remain exposed to the reproach that the surgeon's art owes its high place in the minds of man not wholly to his own skill and insight, but in some degree also to the fact that he practices it on a fabric more frail and more precious than anything else in the world.

SHOULD GOVERNMENT ENCOURAGE MEDICINE, OR QUACKERY?

It is high time that the American medical profession should ask the American people if it is the proper function of our Government to enact and execute laws furthering the science of medicine, and therefore the health of the community and the progress of civilization, or whether it is much longer to ignore these noble purposes and continue to support downright quackery? A most striking instance of this pernicious result of legislation has lately come to light in the last Report of the Postmaster General, in which he shows that the Government annually carries 133,000 tons of mail matter costing at the rate of eight cents a pound, for which there is received in postage but one cent a pound; this results in a direct annual loss of about eighteen and one-half millions of dollars. It would be impossible to say what proportion of this second-class mail matter thus carried at so heavy a loss to the Government is nostrum and

"patent medicine" advertisements, but there can be no doubt that much more than half is this execrable trash. Hence we are deprived of one-cent postage on letters, a thing that long ago should have been brought about, in order that the nostrum vendors may make fortunes. Beside their larger direct profits wrung from the ignorant and poor, we give them an indirect Governmental bonus of ten or fifteen million dollars more out of the postal revenues. What insane folly!

But this was not intended. It is an unseen consequence of the mistaken policy that we should publicly encourage the diffusion of printed matter by lowering the postage upon second-class mail matter. Now, the reading of ink-marked white paper is *per se* no aid either to intelligence or to morality, and Government should very properly leave it to private enterprise. It has, as we see, got itself into a box by the mistaken aim, and a large part of the labor of the post-office officials is now expended in trying to exclude from the mails the filthy and injurious literature which the law permits the greedy advertiser to put there. We may reasonably hope for some remedial legislation which shall undo the blunder. But physicians should aid in bringing it about. It will hardly come of itself.

A still more powerful effect of laws, and one that is no unseen or unintended happening, is Governmental protection and encouragement of quackery by our patent or copyright laws. It may be that some of the so-called "patent" nostrums are comparatively harmless when considered in their direct effects. But, by encouraging reliance upon them instead of upon intelligent diagnosis and treatment, even these do incalculable harm. But what physician does not know that the majority of these vile concoctions are directly and positively injurious? In how many ways are they not directly injuring the poor in health and pocket, and indirectly preventing medical progress and sanitary civilization? If a cure-all can repair the damages of disease, why prevent the disease by sanitary legislation and a lowered death rate? What imaginable reason except this and allied facts is there for the difference between the English and the American death rate? If we were as wise as London in these matters, the number of our dying would each year be very many thousands less than it is.

How much longer are we to continue our hideous policy of protecting the nostrum vendors by United States laws and so-called patents? Why has the United Profession of Medicine had nothing to say to the United Quacks of America about this matter? Are we afraid of the silly gibe that we are acting simply from selfishness and for our "monopoly" of medicine? Let the answer be heard that they who unpaid carry on the free treatment of all comers in the thousands of hospitals and dispensaries, may not be charged with selfishness by patent medicine vendors and syndicates!

Why do not our Congresses of medical men and our American Associations act to abate the disgrace? When the "homeopaths" meet in general convocation, a big proportion of their energies and time is spent in the consideration of public laws in their interests and in agitation concerning their public estimation and position. "And for that very reason we should not do the same," do we hear? For that very reason, we answer, we should—not do the same, but do better. The public does not understand or care about our technical questions, and somewhat justly concludes that if we care nothing about our own professional well-being and estimation, and especially about national medical questions, we are therefore more interested in fads and theories than in public health. In the one exceptional instance when we have spoken out—*rê* vivisection—this mistaken idea of professional feeling on the part of the public is, unfortunately, likely to be increased. The public are opposed to what they call "vivisection." The "homeopaths" are, of course, with the public and against us. It therefore is doubly unfortunate that we are extremely likely to find an increased hostility toward medicine in the minds of the people and, rest assured, especially in a democracy like ours, this hostility will make itself disastrously felt in wretched laws and bitter agitation. We already have enough of this prejudice to bear in private, professional and public life, without having any further increase of it. In what way can we offset and neutralize it better than by showing interest in the public welfare, and by attempting to influence legislation on medical matters for the public good. The ignorant and the nostrum syndicates will for awhile roar at us all the more, but the leaders of public opinion, and indeed the great body of intelligent people, will be with us. Beside all this, it is wrong to longer permit this wrong to go on. "We must educate our masters," and if we would only collectively and thoroughly take the matter up, we could soon bring such influence to bear upon our Congress at Washington as to convince even that body that our contention is just. The copyrighting a name as a trade-mark of a nostrum, keeping constituents and method of manufacture secret, instead of being justified by our law-makers, should be made a crime. At present the Government stamps the crime with its hall-mark of favor, and the poor deluded public is encouraged in its stupidity by the very authority that should be its protector. There is no work, scientific or other, to which the AMERICAN MEDICAL ASSOCIATION could devote a tithe of its energies better than to this of abolishing the laws at present the very condition of quackery. Every physician should personally write his representatives in

the House and in the Senate, and petitions signed by every practicer of scientific medicine in the country should be presented to both bodies. A committee of leading members of the ASSOCIATION should also be appointed to effectualize the reform. Even the "homeopaths" should be willing to join in such a movement.

INSANITY AND DIVORCE.

"Modern Barbarism" is the title given by a well-known and well-edited New York religious weekly to the recent action of the German Reichstag in making incurable insanity a legitimate cause for divorce, and to the commendations of this legislation by an English paper, the *London Chronicle*. The latter had said, in effect, that in making this enactment the German legislature was in accord "with the common sense of civilized mankind," and that the existing law of England which does not recognize insanity as a cause for divorce, was only "a piece of barbarian bigotry."

From an alienist's medical point of view the stand taken by the religious journal can only be commended. Insanity acquired after marriage is a misfortune only comparable with other serious diseases, and it should therefore be no more considered as a cause for complete legal separation of husband and wife than should tuberculosis, organic heart disease or any other chronic and presumably incurable disorder. If the marriage relation were nothing more than a mere partnership for the purpose of keeping up the population, sterility would be a sufficient ground for divorce and insanity perhaps a still more valid one. But there are many other considerations to be taken into account, both ethical and social, and in a purely medical point of view divorce for insanity can not be considered justifiable. The subject was fully considered and discussed in France several years ago and the conclusion reached was much more creditable to the moral sense of the nation than appears to have been the case in Germany. While most cases of long-continued insanity are probably permanent or incurable, it is almost impossible to predicate this in any particular case with absolute certainty, and unexpected recoveries are constantly occurring amongst the chronic insane. The mere fact that the puerperal condition is one of the common causes of mental derangement in women is enough to affect the question; it would be manifestly wrong to make the wife suffer for what is partly at least the husband's doing. The chances of and temptations to actual wrong-doing that such a cause for divorce would afford are not to be ignored, but this is a sociologic rather than a purely medical consideration.

It is advisable, indeed, that the insane should not propagate their infirmity, and a legal restriction of the conjugal relations might be desirable. This, however, would apply in many conditions of mental disease that are not to be included under the form that are proposed as a cause for divorce. Insanity is, of all disorders, the most liable to recur, and a single acute attack, as a rule, implies a cerebral weakness or instability that has a bad outlook as regards the inheritance transmitted to offspring, and should from this aspect be considered as valid a pretext for divorce as a chronic, so-called, incurable type of the disease.

There are other points that can be made against the admission of chronic insanity as a legal cause for divorce, but the above are enough, from a medical point of view, to condemn it. If incurable or transmissible disease of any kind is to be so considered, there are other affections that should precede insanity; the governmont itself should take the initiative and no more regard should be given to one side than the other; the elements of plaintiff or defendant should not be allowed to enter into the case. Our civilization, however, is not tending toward such a state of affairs, and the action of the German parliament is not in the line of progress any more in its medical than in its moral aspect. Perhaps "modern barbarism" is about as suitable a term to apply to it as any that can be suggested.

LOCATION OF THE JOURNAL.

The following is the result of the ballot cast on the permanent location of the JOURNAL, as counted by Trustees D. W. GRAHAM and JOSEPH EASTMAN:

Chicago	2128
Washington	810
New York	24
Philadelphia	48
St. Louis	22
Baltimore	4
Louisville	3
Cincinnati	3
Boston	2
Atlanta	2
Cleveland	1
Columbus, Ohio	1
Milwaukee	1
Salt Lake City	1
Hamilton, Ohio	1
Pittsburg	1
Elmira, N. Y	1
Sedalia, Mo	1
Little Rock	1
Indianapolis	1
San Francisco	1
Camden, N. J	1
Charleston, S. C	1
Buffalo	1
Total votes cast	3061

Five thousand two hundred and sixty-five ballots were issued to members, 2,204 of whom did not vote. Several ballots were signed but no place specified, and several were filled out but not signed; these were necessarily thrown out.

Chinese Graduates in Medicine.—Two Chinese girls have been graduated from the University of Michigan, Department of Medicine and Surgery. They were sent to the university by Miss Charlotte Howe of the mission school at Kinglang, and are to act as medical missionaries in China.

CORRESPONDENCE.

The Michigan Medical Legislation League.

Open Letter No. 2 to the Members of the Medical Profession (regular) in Michigan.

DETROIT, MICH., Aug. 3, 1896.

In response to my brief, but earnest appeal to the adherents of regular medicine and the friends of suffering humanity in this State, published in the JOURNAL of the 23d ult., two letters appear in the issue of August 1, just received.

One of these letters is signed by the President of the so-called "League," and the other by his "alter ego," J. H. Carstens. Simmered down to their ultimate elements, these communications, with apparent politeness, charge me with "illiberality" and with Phariseeism, and my attitude toward the question at issue as lacking in patriotic duty. To all such personal accusations the only answer that I have time or inclination to offer is written and can be plainly read in the quarter century record of my professional life in Michigan.

Neither do I propose to condescend to recriminations or "tu quoque" charges of any kind. Surely if the "Catholics and Lutherans and Presbyterians" can afford to be ranked with or compared to the indefinite, inglorious and mercenary sects which are so eager to grasp at any recognition by or association with true scientific unselfish regular medicine; surely, I say, if the friends of these three great branches of the Christian church can rest satisfied with the use which the president of the League has seen fit to make of their time honored names, it is not for a humble sinner like myself to undertake their vindication. But will the president kindly show us where we may be able to read and learn of the occasion when any one branch of the Christian church or the church as a whole ever formed or sought to form a coalition for the attainment of any great ecclesiastic undertaking, and in so doing asked its combined enemies to accept the controlling power and assume the honors which belong to the majority? While it is quite true that both religious and secular bodies have formed from motives of policy coalitions with other bodies more or less inimical to them, has the spectacle ever before been witnessed in the history of nations, of churches, or of professions of the party overwhelmingly in the majority, and possessing the greater power, humbly proposing that it be graciously and with humility accorded a position in the coalition inferior in point of numbers (and therefore of power) to that of its combined enemies?

I am not opposed to a Legislative Medical League as such, but I am opposed to any proposition which amounts to a confession of weakness on the part of the medical profession, of which I am a humble but a loyal member.

The president of the League says, and truly, that "our efforts at convincing the people and politicians of the wisdom of adopting measures which we alone promulgate have repeatedly failed, as the history of medical legislation, not only in this State, but in every other State in the Union, attests."

Does the president wish us to understand him to say that, "Because well known errors and weaknesses of human nature have in times past operated to prevent us from getting a good law, therefore, we have no resource but to turn round and labor for a *weak, inadequate and infamous law?*" "Half a loaf better than no bread" is a good old homely adage, but if that half is saturated with cold poison, how then? "*Better fast a little longer.*" Would it not, my friends, be better, wiser, more worthy the history and traditions of our noble profession to pause and study carefully the causes on our own part of failures in the past and wake up to a true and just sense of their nature, their magnitude and the means of avoiding and counteracting them in the future? Two or three lines in the very characteristeric letter of my friend, Dr. Carstens, to my mind, gives the whole case of the Michigan Medical League dead away. They are as follows: "It will give the young man a chance by preventing competition;" also the immediately succeeding lines as follows: "It makes no difference to Dr. Maclean or myself how many or how few quacks there are in this State, but it does make a difference to the new beginner." "*The public be damned!*" The letter and the spirit of these sentences are, so far as I am myself concerned, *absolutely repudiated.* If I had the strength and the opportunity to do ten times the amount of my present work, I should still take as great an interest in this legislative question as I now do, and I should still feel grieved and humiliated that in spite of my utmost exertions thousands of my fellow citizens are still medically, morally and financially writhing in the clutches of the omniverous quack.

As to the young doctor himself, his interests have ever been a sacred and affectionate object of my most earnest consideration, and it is in the defence of his best and highest prosperity, and his good name that I protest against any such accusations of weakness on his part, no matter from what quarter they may come. I should pity and despise the young doctor, ambitious for professional distinction and usefulness, who should be willing to accept and endorse this cringing proffer of protection. *Protection from what?* May I be permitted to quote here a single sentence from my open letter No. 1. "Can it be possible that at this late date the regular profession in Michigan feels itself so feeble and unable to maintain itself that it stands ready to defy the public professional sentiment of this and all other lands in the hope of obtaining a milk and water degree of protection (*for themselves rather than their patients*), enter into a combination and unholy alliance with its most insidious and meanest foes and place the balance of power in the hands of the enemy?"

The president of the "League" complains of the term unholy alliance, and perhaps I should have used some other term, and I will leave it to the readers of the JOURNAL who have the instincts of honorable regular physicians to say what it shall be. One of the members of the executive board of this "Legislation League," with whom Dr. Shurly and others have formed an alliance, is Dr. C. Edson Covey, 6 Madison Ave., Detroit. The following is his advertisement, which appears daily in Detroit papers:

"Specialist in private or delicate and all chronic diseases. Confidential. Call or write Dr. Covey, 6 Madison Ave., Detroit."

When we consider the full significance of this advertisement, we do not envy Dr. Shurly any glory he may get from it, even though the profession generally do not consider it unholy. Quackery and charlatanism is condemnable in every field of human endeavor and in none more so than in the matter of "Medical Legislation."

If the regular profession in Michigan and in America hopes ever to assume and enjoy the regal and just position freely accorded the profession in other lands, we must study the history and emulate the example of the profession in these countries. Let us confess our manifold sins and transgressions, too numerous and too well known to require rehearsal here. Let us go back to fundamental principles. Let us study not merely the letter, but the spirit of the code of ethics of our National Association; let us live up to its teachings and laws, using them not as a cloak for Pharaseeism and disloyalty, but as a true living and ennobling inspiration and guide for all the duties and relations of professional life.

This may seem utopian and the expression of a forlorn hope, a vain aspiration in the direction of the unattainable. But is it not more worthy of our vocation to persevere in our efforts and die if necessary in our upward and onward struggle than to sell our birthright for a mess of pottage and barter all our hard earned power and honor for any such ficticious aid and comfort as this alliance could possibly promise?

The last two sentences of the "President's" letter charge me with error as to the statistics of the Executive Board of this "League." If so, all I have to say is that I am unable to read and understand plain English when I see it in plain print. But let that be as it may. Neither of these, mine, accusers have assailed the statistics upon which my main plea is based, namely, that the Board of registration provided for in the main clause of the bill, is by the request of the president and all his "League" to consist of nine members, *not more than four of whom shall be regulars, the other five to be just about any thing you please to call them.*

Before closing it is impossible for me to avoid calling attention to a most marvelous misstatement on the part of Dr. Carstens as follows:

"Dr. Maclean has been at the head of the Legislative Committee of the regular State Medical Society for twenty years, and has never accomplished anything." The facts are:

1. Dr. Maclean was chairman of that Committee for *one year and no more.*

2. No such thing as a Legislative Committee of the State Medical Society has existed except during occasional years and then by special appointment.

3. Dr. Maclean might have been successful in his earnest effort to secure a just law, but for three things, namely:

1. The dignified apathy and the masterly inactivity of the regular profession. 2. The beaverlike political activity, the wire pulling and the perfect consolidation of the quacks of every denomination. 3. Dr. Maclean's unalterable determination to stand true to that which he believes loyalty to the great science and art of medicine demanded and still demands of every individual who owes allegiance thereto. The tone and tenor of the two letters herein reviewed, together with the general "facial" characteristics of the Michigan Medical Legislation League, can hardly fail to excite the dread that the signification of the term "loyalty" as understood and interpreted by the fathers and friends of the *League* is in great danger of undergoing an unfortunate and degenerated form of metamorphosis, and being changed into "a something" utterly different from that which has always been accepted and approved by the fathers and friends of the regular profession of scientific medicine in this and all other countries from the dawn of civilization down to the date of the conception of the Michigan Medical Legislation League.

Dr. Carstens closes his very striking letter in these words: "I am happy to say that it is the overwhelming sentiment of all regular practitioners, of all so-called (*sic*) 'homeopaths' and of all the quacks of this State that the further influx of charlatans and quacks should be checked."

My friends, this is a truly wonderful sentence from a man in Dr. Carstens' position, and it will repay your careful dissection and analysis. His right to speak authoritatively for all the so-called "homeopaths" and quacks of this State, I have neither the right nor the desire to question, but by the authority of written letters and countless verbal declarations, I have not only the right, but equally the pleasure of giving here an absolute denial to the only statement contained in this never to be forgotten sentence, worthy of our attention, namely, that which in so wholesale a manner presumes to commit "the profession" to this preposterous scheme of abdication and degradation and evil association.

Finally, brethren, let me assure you that nothing could be further from my inclination than strife and dissension. If the accouchement of this anomalously begotten "League" *should* by any chance be successfully accomplished, and if by any chance the resulting progeny should after all prove to be a healthy, vigorous and noble infant, and if I should live long enough to see genuine signs and marks of "good breeding" with a promise of a life of usefulness and honor, I will be found ready to take my hat off to the youngster and wish *him, her,* or *it* Godspeed. Not only so, but I will be found equally ready to pay all reasonable honor and respect to its strangely assorted progenitors and apologize for any "remarks" I may unadvisedly have made about them at the time of their courtship and marriage.

But if, on the other hand, to speak seriously, the effect shall prove to be, as I fear it will, to disgust and deter *desirable* and to attract *undesirable* persons to the ranks of the profesion in this State, thereby leveling the profession down and the irregulars and charlatans up, I will at least, no matter how much such a result would inevitably grieve me, have the satisfaction of having done what little lay in my power to protect and defend science and humanity from so great a misforune, and I will do my best to rest satisfied with the verdict of approval from what to the individual is the highest of all earthly tribunals, namely, the tribunal of *my own conscience.*

DONALD MACLEAN, M.D.

Was Goldsmith a Physician?

SYDNEY, AUSTRALIA, June 29, 1896.

To the Editor:—In your issue of May 16, Dr. John Morris publishes an extremely interesting and scholarly article under the above heading. There is great doubt concerning the dates of the various incidents in Goldsmith's life, and as I may be able to throw some light upon the matter, I send you a few remarks on the subject of the poet's life in Trinity College, Dublin.

Dr. Morris states that Goldsmith was born at Pallas, or Pallasmore, in 1728, that he entered Trinity College in 1745, and took his degree of B.A. in 1750. John Forster, in his "Life and Times of Goldsmith," gives these dates also, but they are not in agreement with the records of Trinity College.

The Rev. Dr. Stubbs, in his "History of the University of Dublin," published in 1889, gives in an appendix, some university records of well-known members of the college during the seventeenth and eighteenth centuries, from which I extract the following passages: "It may be interesting to inquire what the college records inform us as to the undergraduate career of the eminent men who were educated in Trinity College during the first two centuries of its university work. It must be remembered that no records of terms or examinations during the first century of the college have been preserved. The Senior Lecturer's books, which contain an account of the attendance of the students at the term examinations, and of their answering, were not kept until the middle of the eighteenth century. The old Senior Lecturers, however, filled up in their own handwriting a series of books in which were entered the names and the Christian names of all who were admitted into the college as students, the names and professions of their fathers, the place of their own birth, their own age at entrance, the date of their admission, the name of the schoolmaster who had educated them, and of their college tutors. The oldest of these books which remains begins in January, 1637–8, and continues to November, 1644. The entries then ceased, and they were not resumed until January, 1652, from which day to the present there is a continued record of the admission of students." Then follows a list of the most notable students of the college: "Goldsmith, Oliver, admitted as Sizar 1744, aged 14 years; son of the Rev. Charles Goldsmith; born in Westmeath; educated by Mr. Hughes; college tutor, Mr. Wilder. B.A. 1750." He was the celebrated poet, and the author of the "Vicar of Wakefield." As this entry was made during Goldsmith's stay in the college, there is every reason to believe that the statements it contains are correct. Therefore, Goldsmith was born in 1730 (not 1728), at Westmeath (not at Pallas, which is in the County Longford), he entered Trinity College in 1744 (not 1745), and took his degree of B.A. in 1750 (not 1749). The Catalogue of Graduates, published in 1869, gives the record, "Goldsmith, Oliver, B.A., *Vern.* 1750."

Now, Forster states that the Goldsmith family moved from Pallasmore in 1730, "to a respectable house and farm on the verge of the pretty little village of Lissoy, 'in the County of Westmeath, barony of Kilkenny West,' some six miles from Pallasmore, and about midway between the towns of Ballymahon and Athlone." From this it would appear that the poet was born after the removal from Pallas.

In my opinion, the dates given by Dr. Morris and other biographers of Goldsmith are not quite accurate.

Yours very truly, GEORGE LANE MULLINS, M.A., M.D.
Trin. Coll., Dublin.

Medical Grievances.

NEW YORK, July 18, 1896.

To the Editor:—I respectfully submit the prevailing grievances of the profession, as near as I have been enabled to collect them:

1. Medical appointments in free hospitals, dispensaries, maternities and other medical charities, lodges, societies or clubs, free visiting physicians of boards of health and daily newspapers, vaccination by boards of health, drug store charities, free advice in newspapers, etc., shall be made under the supervision of our medical associations. These associations should appoint committees or engage persons to investigate the financial responsibility of all recipients of charity and collect accordingly. These sums to be applied to a general fund, which should be devoted to the assistance of needy practitioners.

2. The duration of medical appointments in institutions to be so regulated that all applicants shall have equal opportunities to serve.

3. Charitable medical institutions should not have the power to make rules prohibitive as regards the profession in general or to employ offensive officers in their buildings.

4. Directors have no right to be overbearing toward attending physicians.

5. Physicians in hospitals or dispensaries, professors, lecturers and instructors should avoid making derogatory statements concerning other physicians.

6. There is a too prevalent disregard of our code of ethics. If members were disciplined for slight offences, graver ones would be avoided.

7. Many patients, who are in moderate circumstances, but not poor, prefer the skillful attendance obtained at our modern free institutions, with their perfect appointments, to that of the young medical beginner in private practice.

8. Hospital authorities have no right to refuse a patient admission because the diagnosis was made by a physician not connected with the institution. A physician does not wish his patient's case re-diagnosed and remarked on by any but the prospective operator or chief in the institution.

9. A physician, once given an appointment for an unlimited period, should not have his office vacated without the acquiescence of our medical associations.

10. Physicians having medical appointments should not be guilty of improper practices.

11. If a patient is temporarily in financial difficulties and visits a charitable institution, it is not proper to say that he or she is "nobody's patient" for that reason.

12. Physicians should not send patients to charitable institutions unnecessarily. Many operations can just as well be done at home, with proper assistance, and had better be accepted for a smaller fee, or referred to a neighbor who will.

13. Directors of free hospitals should be prohibited from making store-to-store canvasses for the purpose of soliciting members, and incidentally to laud the virtues of their institutions and their members. Women should be prohibited from making house-to-house visits for the purpose of collecting charity for certain hospitals, and incidentally acting as solicitors for the institutions and their associated physicians.

14. Midwives should be prohibited from acting in any capacity beyond that of nurse, unless they have a complete obstetric education.

15. A physician dare not prescribe for the purpose of producing a criminal abortion; yet a druggist may sell "remedies" to his heart's content. Thousands of abortions are occurring annually.

16. Druggists sell therapeutic preparations for all ailments. When charged with prescribing, they contend that it was only for an emergency, which is legally allowable.

17. Patients with contagious disease are indiscriminately brought in contact with healthy customers in drug-store dispensaries.

18. It should be considered a breach of ethics for a physician to prescribe or recommend patent medicines, proprietary articles or drugs which have been untried in hospital or dispensary practice, or to recommend quacks or charlatans, or their remedies.

19. Physicians should not compound their own medicines or furnish tablets. These practices have a deteriorating influence.

20. Physicians should be discouraged from furnishing certificates of competence to midwives and nurses.

21. College appointments should be made solely for efficiency.

22. Association meetings should not be controlled by certain groups of members, to the exclusion of the remaiuder. All members should receive equal opportunities to address the meeting.

23. Associations should not devote all their energies to some professional offence affecting a few members, while ignoring the grievances of the mass of the profession.

24. The adoption of polyspecialism is not fair toward the mass of specialists. A professor on one subject should confine himself to that specialty alone.

25. "Indirect" professional advertising has been complained of.

26. The medical press should be freely accessible to the profession on all occasions and at all times.

Audi alteram partem. S. B.

The Oppenheimer Drink-cure in Bellevue Hospital and Gen. O'Beirne's Letter.

To the Editor:—Herewith is given *in extenso* the rejoinder of Charity Commissioner O'Beirne, in response to charges of collusion between the board, which he represents, and the new remedy for alcoholism.

The action of the Commissioners in this matter has been much the subject of two virulent attacks by the *Medical News* of July 18 and 24; but, after all, on cooler reflection, there does not seem to be any substantial ground for the charges made against the Commissioners. The medical profession should for once and all time, cast aside prejudices, and when a regular member of the profession, after proper testing and experimenting, offers a remedy for trial in a public hospital, before announcing it in general details to the profession at large, he should be permitted the fullest liberties in this direction. This was done in Paris, with Pasteur's attenuated virus for hydrophobia; with Roux's antitoxin serum in Charité and Koch's tuberculin in the Moabit Hospital and the Berlin Institute, for months, before its composition was revealed to the professional world. From what can be gathered from reliable and impartial sources, nothing further than this is being done at Bellevue, as the following communication from Commissioner Jas. R. O'Beirne in the *New York Herald*, July 20, clearly shows:

"The statements under caption of 'No Cure for Drink,' in your issue of to-day, are not true in point of fact. As I know the *Herald* aims to present only facts, I take occasion to say,

in correction of the article in question that, so far as it assumes to speak for the Board of Commissioners of Charities and 'the action they are to take to-day,' as to a specific for the cure of drunkenness—to 'saddle the city with several thousand dollars extra expense'—it is unfounded and unwarranted. So also is the case as to ignoring the Medical Board. The same is true as to taking the views of 'a young practitioner and Superintendent Murphy.' In making a trial of methods ascertained to be of value by a respectable practicing physician of standing in his profession, the object sought by the Board is to discover, with all proper safe-guards whether suffering humanity, in cases of misfortune and vicious habits, with apparently irresistible appetite for liquor, may not be further assisted and rescued in the domain of charity through the conscientious discharge of duty by the Board of Charities of New York city. If they can save the drunkard, the morphin fiend and the poor unfortunate conspiring against his own safety and that of the community, they believe it is their duty to do it, and that the charitable public of New York will approve it and rejoice if it shall be demonstrated a success. It is worth trying, at least, and, believing this to be their duty, they have acted accordingly, but do not think 'there is no cure for drink.' So far encouragement to warrant a reasonable doubt, without any expenditure of money. It is a misrepresentation to say that 'the Commissioners paid certain patients to undergo the treatment without expressing any opinion on the merits of the 'cure' as not one cent has been paid to any one by the Commissioners in connection with it, and the investigation as to its character and effectiveness having been assigned to me by the Board, it becomes imperative that I should make this denial. It will perhaps take months before a final conclusion will be reached in this investigation, which will be thorough, fearless and honest, but the result will be duly given to the public. [Signed] JAS. R. O'BEIRNE,
Commissioner of Charities, New York.

General O'Beirne, whom I am sure you know personally, is a high minded and scholarly gentleman, incapable of a mean act. Faithfully yours, JUSTITIA.

Test for Albumin.

TRAVERSE CITY, MICH., July 28, 1896.

To the Editor:—On page 1094 of our JOURNAL of May 30, 1896, I find a test for the detection of albumin in urine. The reagent suggested contains sodium hypochlorite, a compound known only in solution, and one that I believe can not be obtained for use as indicated in the formula. If you know of any way of preparing the reagent, will you be kind enough to tell me how it is done? Yours very truly,

GUY L. NOYES, M.D.

Resigned his Editorship.

CHICAGO, Aug. 1, 1896.

To the Editor:—Will you kindly notify your readers that in consequence of the intrusion of nostrum advertisements by the publishers on the *Medical Standard*, the attempt to convert this journal into a write up organ for nostrums and allied performances, I have severed my connection therewith after an editorial service of nearly ten years.

Very sincerely, JAS. G. KIERNAN, M.D.

We are sorry to see that our valiant colleague has been crowded out, but we hope to have an occasional article from his trenchant pen in our JOURNAL.—ED.

PUBLIC HEALTH.

Illinois State Board of Health.—Governor Altgeld has accepted the resignation of Dr. William E. Quine of Chicago as member of the Illinois State Board of Health, and appointed Dr. Edgar P. Cook of Mendota to the vacancy.

Special Tuberculosis Committee.—The New York State Board of Health at its meeting in Jamestown July 13 appointed two of its members, the Hon. Owen Cassidy of Montour Falls and Dr. Frederick W. Smith of Syracuse, a special tuberculosis committee

Double Entente.—"Mike," said the superintendent, "there is a dead dog reported in the alley between Illinois and Meridian streets. I want you to look after its disposition." An hour later the intelligent officer telephoned: "I have inquired about the dog, and find that he had a very savage disposition." —*Indianapolis Journal.*

Delaware County (Pa.) League of Health Boards.—The call which has been issued for a meeting at Chester July 16, of the various boards of health of Delaware County, was liberally responded to. An organization was effected to promote sociality and the interchange of views on sanitation. Dr. Isaac Crowther of Chester was elected president, Dr. D. M. McMaster of Ridley Park vice-president, and W. H. Flaville of Chester secretary and treasurer.

The Monongahela Valley.—The Monongahela valley of Pennsylvania is a complete wreck from Pittsburg to the head waters of the Monongahela River. All kinds of crops have been swept away, fences and outbuildings destroyed and scores of cattle and stock drowned. Fruit trees were blown bare and thousands of acres of oats, corn, etc., destroyed. To make the matter worse the contents of vaults have been swept over the low lands and will breed disease. Half-ripened fruit and all kinds of vegetables line the river banks. It is reported that the assistance of the State Board of Health will be asked to destroy decomposing matter.

The Navy to Assist in Florida Quarantine.—Governor Mitchell of Florida has appealed to the Navy Department for help in protecting his State against the introduction of smallpox from Cuba, where the disease is reported to be raging. Secretary Herbert has accordingly telegraphed instructions to Captain Crowninshield of the *Maine*, now at Key West, to aid the local health authorities in the work of boarding steamers and passing upon bills of health. The *Maine* will not long be kept at this work, as orders have been given to the cruiser *Montgomery*, now at Tompkinsville, S. I., detaching her from Admiral Bunce's squadron and sending her to Key West to take the *Maine's* place in looking after filibustering expeditions and enforcing observance of quarantine regulations.

Ophthalmia Neonatorum in South Carolina.—In the above-named State the following enactment was adopted and became law on Feb. 25, 1896, and is applicable to all towns having a population of one thousand or more: "Be it enacted by the General Assembly of the State of South Carolina, that should one or both eyes of an infant become reddened or inflamed at any time after birth, it shall be the duty of the midwife or nurse or person having charge of said infant to report the condition of the eyes at once to the local board of health of the city or town in which the parents of the infant reside; that the Secretary of State shall cause a sufficient number of copies of this act to be printed, and supply the same to health officers and health committees, whose duty it shall be to furnish a copy to each person who is known to act as midwife or nurse in the cities or towns for which they have been appointed; any failure to comply with the provisions of this act shall be punishable by a fine not to exceed $25 or imprisonment not to exceed one month, or both."

Advice to Inmates of Public Institutions.—Dr. John Morris, one of the Board of Managers of the Maryland Prisoners' Aid Association, has prepared a circular of advice to the inmates of public institutions, 3,000 copies of which have been printed and one placed in every prisoner's cell in the State, including reformatories male and female. The circular urges upon all prisoners the necessity for cleanliness, moderation in diet, and, above all, the avoidance of the practice of self-pollution. For cure of the habit it recommends cleanliness of the body, simple food, hard beds, abundance of fresh air and, more important than all else, occupation of mind in some elevating study or pursuit. Directions for the prevention and cure of many minor ailments to which persons in confinement are subject,

are given. Attention to the advice contained in the circular would add much to the bodily comfort and mental tranquility of the prisoners.

Staff of the German Hospital, Chicago.—The following are the names of the members of the new medical staff: Surgery—Christian Fenger, William Hessert, Weller Van Hook, E. H. Lee, Truman W. Miller consulting surgeon. Medicine—Gustav Fütterer, F. W. Rohr, J. H. Hoelscher, Otto T. Freer, Gustav Hessert consulting physician. Gynecology—Fernand Henrotin, William Doepp, Albert Goldspohn, Paul R. Welcker. Ophthalmology—H. C. Welcker, F. C. Harnish, Boerne Bettmann consulting ophthalmologist. Laryngology and Rhinology—Otto T. Freer. Obstetrics—P. R. Welcker.

Sanitary Plumbing for Toledo, Ohio.—Steps were taken at the special meeting of the health board July 23, which will result in a revolution in Toledo plumbing, sewerage and ventilation. A new board was created, which will look after all plumbing and see that it is done in accordance with the best sanitary precautions. A new inspectorship of plumbing was made and will be filled at an early date. The last Legislature provided for the creation of a board of plumbing directors, whose duty it is to examine all plumbers engaged in business in the city. The examination is to be conducted upon the lines of qualification in sanitary work and house ventilation. An inspector of plumbing is also to be appointed under the law, whose duty is to examine all work under construction and report violations of the plumbing ordinances to the board of health. He is supreme in his position, and no work can be done, except in repairs of leaks, without his permission. A penalty of from $5 to $50 is provided for all violations of the regulations, and a plumber's license can be revoked at any time for good cause.

Prevention and Cure of Seasickness.—Legrix has made a study of seasickness for the last twenty-seven years and asserts that all will be exempt if they follow his directions as given below. First, as a preventive, take one or two ½ milligram pills of strychnin (arsenate, sulphate or hyposulphite) every fifteen minutes for an hour before the boat starts, five to ten pills in all, and lie down. At the slightest symptom of uneasiness take every fifteen minutes the following combination: One strychnin pill as above, with two pills of ¼ milligram hyosciamin extractive and one pill of 1 milligram morphin (hydrobromate or hydroiodate). Twenty doses of this triple combination can be taken if necessary without danger. To establish the cure, take at night three 1 centigram podophyllin pills, with the triple combination above three times a day, for three or four days. Keep the horizontal position as much as possible; remain on deck in the open air; avoid pastry, acid candies and liquids. Brucin can be substituted for the strychnin in the case of children from 4 to 7 years, given every half hour, with no morphin and the hyosciamin pills only three or four times a day. Calomel should replace the podophyllin.—Address at the Tunis Congress of the French A. A. S., April.

Differentiation of Pathogenic Bacteria in Suspected Waters.—Besson states that the difficulties so often experienced in locating pathogenic bacteria in waters supposed to contain them, are due to the presence of other interfering bacteria, which prevent their development, as the development of the cholera bacillus is retarded by the presence of certain other bacteria in the intestines and in cultures. In analyzing water this fact is of supreme importance, as the preventing bacteria conceal the presence of the pathogenic microbes. Cultures of waters near Tunis developed constantly and exclusively a red coccus, resembling the micrococcus prodigiosus, which produced trimethylamin and was fatal to rats and guinea pigs. But persevering with another medium, Metchnikoff's gelo-pepto-salt medium, at 100 degrees, three passages resulted in pure cultures of an unmistakable bacillus pyocyaneus, which never showed at all on the plate cultures. Further investigation disclosed the prevalence of this bacillus everywhere around Tunis, which may explain the fact that this region has always been exempt from cholera although hygienic conditions certainly invite it, as Kitasato and Metchnikoff have stated that its presence retards the development of the cholera bacillus. Besson urges the adoption of Metchnikoff's medium in the analysis of waters; it retards the growth of saprophytes until the pathogenic bacteria have had time to develop. He also commended Elsner's method of differentiating typhoid bacilli as a valuable aid in analyzing waters. (See JOURNAL, March 7, page 493.)—From address at the Tunis Congress of the French, A. A. S.

The Health of New York State in June.—The *Bulletin* of the State Board of Health of New York reports the following statistics for the month of June, 1896: The reported mortality for the month is 200 less than that of the preceding month, but is 600 greater than that of June, 1895. The death rate for the month was 16.85, against 17.50 in May and 19.30 in April, that of June 1895, having been 16.10. The customary decrease in the mortality is less than usual, the average daily mortality for the month being in fact greater than in May, 311 against 308, that for June the past ten years having been 285. Of the 9,342 deaths 37.0 per cent. occurred under the age of 5 years, and 18.3 per cent. were from zymotic diseases. More than half of the deaths of this class, and nearly 10 per cent. of the total mortality were from diarrheal diseases. The diarrheal mortality of June is very variable, some years the number being less than 500 and others over 1,000, because of the varying earliness of commencement of the summer increase. This month there were 900 deaths, or about 250 more than the average. In the Maritime district 12.5 per cent. of the total mortality was from this cause, and in the Lake Ontario and Western districts 9.0 per cent., but in the more rural parts of the State it constituted but from 2.0 to 4.0 per cent. of the total mortality. From all other zymotic diseases respectively there were fewer deaths than in May. From consumption there were 1,100 deaths, which is above the average for the month. Acute respiratory diseases decreased one-half from May, a saving of 600 in the number of deaths, less than 10 per cent. of the total mortality being from this cause against 15.5 per cent. in May. There is an increase in the reported mortality from diseases of the digestive system, which always varies with the diarrheal mortality. Deaths from all other local diseases are less than in May. Next to November, June is the healthiest month of the year in this State. The average mean barometer was 29.96, the relative humidity 71 per cent. and the average temperature for the entire State 69 degrees, or 2 degrees above the normal; there was an average rainfall of 3 inches, a slight deficiency. The prevailing wind was southwest.

Health Report.—The following health reports have been received in the office of the Supervising Surgeon-General, Marine-Hospital Service:

SMALLPOX—FOREIGN.

Barcelona, June 1 to 30, 35 deaths.
Bombay, June 23 to 30, 13 deaths.
Buda-Pesth, July 8 to 15, 2 cases.
Calcutta, June 13 to 20, 1 case.
Callao, June 28 to July 5, 10 cases.
Genoa, July 11 to 18, 1 case.
Havanna, July 9 to 16, 23 deaths.
Licata, July 4 to 11, 4 deaths.
Madras, June 19 to 26, 3 deaths.
Odessa, July 4 to 11, 11 cases, 3 deaths.
St. Petersburg, July 4 to 11, 14 cases, 4 deaths.
Warsaw, June 27 to July 4, 2 deaths.
Yokohama, June 19 to 26, 2 cases, 1 death.

CHOLERA.

Bombay, June 23 to 30, 19 deaths.
Calcutta, June 13 to 20, 29 deaths.

YELLOW FEVER.

Acapulco, July 11 to 18, 1 case.
Havanna, July 9 to 23, 115 cases, 46 deaths.
Matanzas, July 15 to 22, 100 cases, 54 deaths.
Sagua la Grande, July 11 to 18, 65 cases, 8 deaths.

NOTE.—The report of 7 deaths each in Warsaw and St. Petersburg from yellow fever, in last week's JOURNAL, should read 7 deaths each from smallpox.

NECROLOGY.

Surgeon Charles S. D. Fessenden, United States Marine Hospital Service died at Salem, Mass., July 23, aged 68. He was a great-grandson of the Rev. William Fessenden, and brother of Ex-Secretary William Pitt Fessenden, of Maine. He was born in Portland, Maine, Feb. 23, 1828, was graduated from Bowdoin College in 1848, from the Brunswick medical school in 1851, and settled in Portland, where he was for three years city physician. He was appointed to the Marine Hospital Service in 1861, and served at Portland, New York, Louisville and Mobile. In November 1895, he was placed on waiting orders on account of physical disability. Although not a frequent contributor to medical literature he possessed great ability in his profession, as an able operator and a profound scholar. He was greatly beloved by his fellow officers who deeply regret his loss. He was for many years a member of this Association.

Frank Whitman Ring, M.D., of New York city, died July 17, in New Haven, Conn., at the home of his brother, Dr. Henry Wilson Ring, where he had been ill for nearly three months. Dr. Ring was born in Portland, Me., August 28, 1848. He graduated from Bowdoin College in the class of 1869, and from the Medical Department in 1878. He subsequently continued his medical studies in Paris and London, returning to New York city in 1883. He has since been well known as a most proficient eye and ear specialist. At the time of his death he was the Executive Surgeon of the Manhattan Eye and Ear Hospital of New York city, a member of the American Ophthalmological and Otological Societies, the New York Ophthalmological Society, a Fellow of the New York Academy of Medicine and a member of the New York County Medical Society. He was the author of several important professional pamphlets relative to his specialties.

A. C. Mackenzie, M.D. (Long Island College Hospital, Brooklyn, N. Y., 1868), of Negaunee, at Marquette, Mich, July 13.——N. N. Patton, M.D. (Jefferson Medical College, Philadelphia, 1873) at Monongahela City, Pa., of Bright's disease, July 14, aged 50 years.——Phillip G. Corkins, M.D. (Rush Medical College, Chicago, 1853) at Harwood, Mo. July 16, aged 70 years.——W. B. McPheters, M.D. (Medical Department of Western Reserve University, Columbus, 1870), at Hookstown, Pa., July 20, aged 45 years.——G. M. Roberts, M.D. (Hospital College of Medicine, Louisville, 1880) at Union Center, July 25. ——W. W. Walters, M.D. (Pennsylvania Medical College, Philadelphia, 1853) at Johnstown, Pa. July 23, aged 73 years. ——J. M. Benedict, M.D. (University of the City of New York Medical Department, 1867) at Salt Lake City, Utah, July 24, aged 52 years.——John D. Dillon, M.D. (Jefferson Medical College, Philadelphia, 1878), at Philadelphia, July 28, aged 40 years.

Wm. Rose, M.D., aged 49 years, July 26, of apoplexy, at Columbia, Ill. He was born in Germany, where he received his early education. At the age of 17 years he came to this country. After graduating from the College of Physicians and Surgeons at Keokuk, Iowa, in 1878, he located in Columbia, where he practiced up to the time of his death.

Cub. Isaacs, M.D., aged 40, a well known physician and politician, died at his home at Flat Fork, near Saylersville, Ky., of general debility. He had been blind for several years and was confined to his room; his condition not improving he became despondent and his failure was rapid.

Simeon H. Pearce, M.D., died at Friendship, N. Y., July 16, aged 66 years. He graduated from the Medical College of Castelton, Vt., in 1854. Has been a resident of Mt. Vernon, Ind., and in active practice of his profession since 1859. He was a member of the American Medical Association since 1875. Member of Indiana State Med. Association, Secretary of the Posey County Board of Health, and member of the Pension Examining Board, and Posey County Med. Association from its organization. He had gone East for his health.

SOCIETY NEWS.

Mississippi Valley Medical Association.—St. Louis, July 30, 1896. *To the Editor:*—I desire to announce that the date of the meeting of the Mississippi Valley Medical Association has been changed to September 15, 16, 17 and 18, in order to permit the members and their families to take the opportunity accorded by this change to make a pleasant tour through the Yellowstone Park, so justly celebrated as the Wonderland of America. Prominent resident members of our Association in St. Paul and Minneapolis are formulating plans for the Special Yellowstone Park Excursion Trip, to leave on the evening of September 18, arriving in Mammoth Hot Springs in the Yellowstone Park about noon on the following Sunday, and devoting the following five days to the wonders of this remarkable region, returning to St. Paul Sunday, September 27. The cost of the trip, including all expenses west of St. Paul, will be announced in due season, but we are authorized to say that the figure will be a very favorable one, and we simply wish at this time to make the preliminary announcement of this most enjoyable feature of the St. Paul meeting, so as to give members the opportunity of making their plans in advance to join the party. It is desirable that there be a party of one hundred or more, in order to obtain the benefit of the special train service in both directions. It is urged that all members who desire to join the party should send their names to Dr. C. A. Wheaton, Chairman of the Committee of Arrangements, St. Paul, at as early a date as possible. If you desire to read a paper before the meeting, please send to me the title at once. Very truly yours, Hanau W. Loeb, Secretary.

The Upper Peninsular (Mich.) Medical Association.—This society held its first meeting at Marquette on July 20. Physicians from all parts of the peninsula were present. The election of officers held in the afternoon resulted as follows: President, Dr. J. Vandeventer, Ishpeming; Vice-President, Dr. O'Keefe, Menominee; Treasurer, Dr. B. D. Harison, Sault Ste. Marie; Secretary, Dr. H. J. Hornbogen, Marquette; Committee on Organization, Drs. O. G. Youngquist, O'Keefe, Felch, Harison, Crowell.

MISCELLANY.

Yale's Oldest Medical Graduate.—Dr. Chauncey Ayer of Stamford, Conn., is said to be the oldest living graduate of the Yale medical school. He was a member of the class of 1831, and was born in 1808.

Insane Asylum Appointment.—Dr. C. T. Simpson, superintendent of the lunatic asylum located in Austin, Texas, tendered his resignation July 25, to take effect August 1 or as soon as his successor could be appointed. The Doctor leaves to take charge of the insane asylum of Oklahoma.

Kentucky School of Medicine.—A number of changes were made in the faculty July 28. The chair of anatomy was divided between C. W. Kelly and W. Ed Grant. Louis Frank was elected to the chair of clinical and operative gynecology; Henry E. Tuley, professor of obstetrics and also obstetrician to the Kentucky School of Medicine hospital; Carl Weidner to the chair of physiology. The chair of the practice of medicine was divided by the appointment of Ewing Marshall as professor of physical diagnosis. The chair of clinical ophthalmology, laryngology and otology will be filled by Thos. C. Evans.

An Honest Newspaper.—In a recent issue of the *Post*, published in Fort Dodge, Iowa, the editor of that paper declares that its advertisement pages can not hereafter be used by traveling doctors and medical fakirs. He says: "The *Post*, while not holding itself responsible for its advertising columns,

does feel this to be true, that it owes to the public who read it a duty, especially relating to advertising traveling doctors and medical fakirs, for the reason that no one is so liable to be imposed upon as a person in search of health, and such a one is deserving of the utmost good faith upon the part of every professional man who is called upon for advice or treatment. This, we are convinced, they are not apt to receive from the hands of traveling doctors and medical fakirs. In the future the advertisement of no such person will appear in the *Post* while it appears under its present management."—*Am. Med. Surg. Bulletin.*

Dr. Henry T. Byford of Chicago has gone to Geneva, Switzerland, to attend the International Congress of Gynecology and Obstetrics.

Pregnancy Following Salpingo-oophorectomy.—Dr. S. C. Gordon reports the following case: "March, 1894, I removed both ovaries and tubes from Mrs. R., aged 33, and so far as I know there were no fragments of the ovaries left; each was much enlarged and flabby, that on the right side being two and one-half inches long. She recovered promptly, but menstruated regularly each month after two or three months. In June, 1895, she became pregnant. The period of gestation was marked by no peculiar symptoms, and she was delivered of a healthy child March 12, 1896. In this case there must have been some stroma of ovarian tissue left, but the question of interest is, by what means did the ovum reach the uterine cavity? The only explanation is that the tube, after being ligated, must have opened at the stump, thus allowing it to pass through. I have seen the lumen of a varicose vein resume its normal caliber after having been ligated with catgut—absorption having taken place before the coats were destroyed. I presume the same may occur in the Fallopian tube."—*Jour. of Med. and Science*, July.

Deciduoma Malignum.—The Vienna letter to the London *Lancet*, July 11 contains the following note on Saenger's disease: At a meeting of the Vienna Medical Society Dr. Neumann read a paper on deciduoma malignum, a disease which was first described by Saenger in 1882. As a rule it occurs after delivery, abortion or cystic mole, and it may sometimes be observed even in childbed. It is characterized by obstinate hemorrhage which renders the sufferers too weak and anemic to undergo an operation. Metastatic deposits are formed in the vagina and lungs; in the latter case there is hemoptysis which may cause death by asphyxia. The initial symptoms are hemorrhage associated with enlargement and softening of the uterus; the disease may be distinguished from cystic mole by microscopic examination of portions removed by curetting. The general form of the tumor is like that of a polypus, its tissue has a reddish-gray color and shows hemorrhages, and in growth it resembles sarcoma.

Lumbar Puncture of the Subarachnoid Space.—Dr. A. H. Wentworth summarizes the results of some experimental work as follows: 1. The normal cerebro-spinal fluid contains neither cells nor fibrin, and is perfectly clear. 2. In cases of meningitis the cerebro-spinal fluid is invariably cloudy when withdrawn. The degree of cloudiness is to some extent proportionate to the amount and character of the exudation in the meninges. 3. The cloudiness is caused by cells. The character of these differs with the variety of the meningitis. After withdrawal, more or less fibrin is formed in the fluid. The presence of these cells and fibrin is pathognomonic of inflammation in the meninges. 4. The cloudiness is oftentimes so slight that close observation is necessary to detect it. 5. The operation is not difficult to perform on infants and children. It is not dangerous, if strict cleanliness is observed. 6. The differential diagnosis between the various kinds of meningitis can be made by microscopic examination of the sediment, by cultures taken from the fluid and by inoculation experiments. 7. Inoculation experiments afford the surest means of determining tubercular meningitis. It is of value to distinguish between the varieties of meningitis in order to determine if tubercular meningitis is recovered from. 8. In the normal fluid, a faint trace of albumin is usually present, about one-fiftieth of 1 per cent., or less, by quantitative analysis. In meningitis the amount of albumin is increased, and has varied from one-thirtieth to one-tenth of 1 per cent. 9. In one case a diagnosis of general infection with the staphylococcus pyogenes aureus was made from cultures taken from the cerebro-spinal fluid.—*Archives of Pediatrics*, August, 1896.

"The Vilest of Crimes Against Dr. X."—The following is an expurgated edition of the reportorial note in one of our daily contemporaries: "Dr. X. announced last fall that he had discovered a preparation which, if used in season, would in the majority of cases prove a cure for ———. He has recently discovered that the country has been flooded with spurious preparations, not only worthless, but full of danger as compared with his own. As a result of this discovery, Dr. X. has just brought suit against two prominent individuals, placing his damages in each case at many thousands of dollars, and additional suits will be brought as soon as the necessary evidence is obtained. 'This is not a question of money with me,' said the proprietor of the preparation, which for convenience may be called Assertolin, or Dogmatocin, 'for I freely published the formula, in the hope that the use of the remedy would receive the widest extension. Personally, I object to the use of my name in connection with these spurious compounds, the manufacture and sale of which is a crime of the vilest kind. I shall rigorously prosecute every person I find engaged in this infamous traffic.'" If the language applied by Dr. X. to his imitators is correctly reported, it is vigorous and pungent, to say the least. Does he really mean that the offense of which he writes is an "infamously vile crime?" Such conduct is admittedly tricky and of the nature of sharp practice, designed mainly to reduce the financial prosperity of the person imitated. The personality of the latter is indifferent to the imitators; to them Dr. X. is an unknown quantity and the name, whether that of Dr. A. or Dr. X., is chiefly valuable to them in proportion to the amount of notoriety through the press that has been previously attained.

Dry Sterilized Catgut.—Mr. Chas. Truax of Chicago has made some experiments on the tensile strength of sterilized catgut. He says: "I recently submitted specimens of catgut to the following tests: Ten pieces of German catgut, No. 6, each 6 feet in length were taken and numbered consecutively from one to ten, each being labeled at three points; at each end and in the center. These pieces were then each cut into three pieces, each 2 feet in length, resulting in three of each number. One set of sutures, those cut from the center of each piece, were then tested to ascertain their tensile strength by suspending with each a five gallon can and pouring water into the can until the suture broke. The breaking tensile strength was found to vary from 26 pounds to 32 pounds and 6 ounces, as shown by the following table:

	Raw.	Boeckmann.	Schimmelbusch.
No. 1	27 pounds	27 pounds, 12 oz.	27 pounds, 14 oz.
" 2	26 " 6 oz.	24 "	26 " 12 "
" 3	28 " 10 "	23 "	24 " 6 "
" 4	32 " 6 "	26 " 4 "	23 "
" 5	27 "	27 " 4 "	23 " 12 "
" 6	31 " 10 "	29 " 4 "	26 " 6 "
" 7	28 " 4 "	20 "	23 " 6 "
" 8	26 "	22 " 12 "	21 " 10 "
" 9	26 " 12 "	25 " 10 "	27 "
" 10	30 " 13 "	23 " 12 "	24 " 12 "
	284 13-16	249 10-16	248 14-16

"The second set of pieces were then sterilized by the Schimmelbusch process, which in brief consists in immersing the ligatures in ether for twenty-four hours, after which they were transferred to the following solution:

Corrosive sublimate	10
Absolute alcohol	300
Aqua destillata	200

where they were allowed to remain twenty-four hours, after which this solution was changed for a second lot of the same solution, and this process repeated until the catgut had successively passed through three like solutions, after which it was placed in absolute alcohol for forty-eight hours. The ten sutures were then subjected to the same test as above mentioned and the breaking tensile strength found to vary from 21 pounds and 10 ounces to 27 pounds and 14 ounces. The remaining ten pieces were subjected to the Boeckmann-Benckisser system of dry heat sterilization, after which the breaking tensile strength was found to vary from 20 pounds to 29 pounds and 4 ounces. It will be seen by consulting the above table that the combined weight sustained by the ten raw sutures was 284 13-16 pounds, or an average of about 28 5-10 pounds each. The ten sterilized by the Schimmelbusch process was 248 14-16 pounds, or nearly an average of 24 9-10 pounds each, while that subjected to the Boeckmann-Benckisser process was 249 10-16 pounds, or nearly an average of 25 pounds each. It is evident from this single experiment that the difference resulting from the use of the Schimmelbusch and Boeckmann-Benckisser systems is practically nothing, as a little variation in a single suture might have resulted in one or the other showing a slight advantage. It requires but little argument to demonstrate the superiority of the dry heat system. As the sutures require no vessels or containers in which to preserve them they can be stored or transported in a small space. Sealed in small sterilized envelopes they may be kept indefinitely without danger of infection. As no expensive chemicals are necessary either in the process of sterilization or storage the cost of preparation is reduced to a minimum. No expensive containers are required and no danger of loss by breaking of containers and spilling of contents is incurred in transportation. We trust that surgeons generally may be induced to make similar tests and satisfy themselves, for if these statements are verified by further actual tests and laboratory experiments still continue to demonstrate that catgut prepared by the Boeckmann-Benckisser method is surgically sterile the surgeon will have to exempt the catgut from blame if infection takes place."

Baltimore.

Dr. Edward N. Brush, Superintendent of the Sheppard Asylum of this city, has been elected professor of psychiatry in the Woman's Medical College of Baltimore.

Indianapolis.

Dr. Joseph R. Eastman of Indianapolis, the son of Dr. Joseph Eastman, has passed the examination at Berlin University, Germany, and received "Magna Cum Laude."

Cincinnati.

The Health Report for the week shows 132 deaths from all causes; annual rate per 1000, 19.61; below the age of 5 years 47; preceding week 111; corresponding week 1895, 114; 1894, 154; 1893, 108.

Dr. Charles A. L. Reed announces that the Mexican Central Railroad has made a single fare for the round trip to the Second Pan-American Medical Congress. It is expected that the American lines will make the same rate.

The Board of Medical Examiners have rejected one-third of the midwives who have applied for a license to practice. They have also notified a colored man by the name of Porter, who has been practicing medicine, that he must leave the State.

Dr. J. B. Barker of Piqua, Ohio, has been appointed U. S. Pension Examiner in his district.

An advertising specialist of Cincinnati, Dr. W. I. Kelley, has been arrested and fined $50 by the Kentucky courts upon a warrant sworn out by Dr. J. M. Mathews of Louisville, the President of the State Board of Health, charging him with practicing medicine without a State license. It is alleged that Dr. Kelley applied for a license which was refused him. The Hon. W. C. P. Breckenridge defended him and he has given notice of an appeal.

Mrs. Annie Florein has again appeared in the coroner's court as a result of an alleged suspicious death occurring at her establishment. In this instance she presents the evidence of a young practitioner who attended the case and who denies any grounds for suspicion regarding the infant's death. The State Board of Examiners are somewhat handicapped in any attempt at prosecution in this case for the reason that Mrs. Florein claims that she does not practice medicine and therefore can not be governed by the Board. It is a particularly unfortunate matter that she can call to her assistance regular members of the profession to attend cases in which a fatal termination is expected, and then be able to present the physician's certificate as evidence of the fact that she is not practicing medicine.

A case of unusual interest to the neurologist and pathologist developed last week through a postmortem held on a man who had fallen out of a window and sustained a fracture of the frontal and occipital bones. An extensive adhesion of the dura and pia mater was found at the top of the brain and a suit for heavy damages is anticipated, as it is claimed that the diseased condition of the brain was responsible for the fall and that in turn the diseased condition was the result of an injury he received on the head some six months ago while working in a freight car at which time a quantity of ice fell upon him, an engine having forcibly struck the car.

Dr. E. W. Walker is again on duty after a serious illness.

Philadelphia.

Death of Infant from Accidental Administration of Strychnia.—The danger of careless handling of medicine in the household was illustrated by a case investigated recently by the coroner, in which a fatal result in a colored child of 21 months was caused by eating some tablets administered by an older child who had taken them down from the mantel-piece. It was ascertained that they contained strychnin, which had been prescribed for the child's mother. A physician was brought in immediately, but was unable to save the child's life.

The Jewish Maternity Association of Philadelphia has greatly extended its usefulness by opening a Jewish seaside home for invalids at Atlantic City, the institution being now in its fourth season. Accommodations are also provided for sick infants and crippled children. It is purely charitable and no expense is borne by the patients. Dr. Boardman Reed of Atlantic City is the consultant and Drs. A. D. Cascaden and L. R. Souder are the attending physicians.

Pollution of Water.—In the annual report of the State Board of Health, Dr. Benjamin Lee, secretary, forcibly directs attention to the importance of the prevention of the pollution of water used for drinking purposes, and the great necessity of legislation upon this subject. He says:

"The fact that, during the past year, thirty-nine complaints have been made to the board of the pollution of water supplies, only serves to emphasize the misfortune to the State of the persistent refusal of the Legislature to accede to the request of the board to give it a special appropriation which would have enabled it to make a thorough investigation into the condition of the public waters of the Commonwealth. A pure water supply is the one great desideratum for building up a healthy, vigorous community. All other questions are dwarfed by it. The board will probably remember that early in the present year a communication was addressed to it by the health officer of Louisville, Ky., calling attention to the fact that a bill had been presented in Congress providing for the appointment of a commission to inquire into the pollution of such public streams as passed from one State to another, and requesting our Board to use its influence with the representatives of Pennsylvania in the national Legislature

in favor of the measure. A communication was also received from the State Board of Health of Missouri, enclosing a resolution adopted by that board endorsing the proposed law. At the meeting of the National Conference of State Boards of Health at Lansing, two years ago, your secretary, at the request of the board, made a report upon the subject, calling attention to the necessity of an investigation by the national government in consequence of the general inertness of State governments in dealing with this important question. A resolution was adopted at that time to memorialize Congress upon the subject, and the present movement was undoubtedly due to the action then taken. On receipt of the communication the board adopted a resolution approving the bill, and a copy of the same was forwarded to each of our representatives in the national Legislature, requesting him to give the measure his support. Inasmuch as many important streams pass both into and out of our territory from and to that of other States, such an investigation pursued by the thoroughness which characterizes work undertaken under national auspices could not but prove of the greatest benefit to us."

A SENSATIONAL ROBBERY IN A HOSPITAL.—A patient who occupied a private room in the St. Joseph's Hospital had his trunk forced open by an attendant, who carried off jewelry and bonds amounting to $20,000 or more. The thief was soon afterward arrested in New York City, and with a female accomplice is now in custody. In such a case it might be asked whether there was not contributory negligence in carrying into a public institution such a large amount of valuables with such slight protection as is afforded by a trunk.

ACCIDENT TO AN AMBULANCE—A trolley car last week struck an ambulance that was taking a boy to the Jefferson College Hospital to be operated upon there for appendicitis. The rear wheel was broken and the axle bent, and the boy's father was thrown violently upon the patient, greatly increasing the gravity of the condition. The operation was done soon afterward in the hospital and the lad, who was 12 years of age, died a few hours later. The coroner decided that the death had been accelerated by the accident, but had not been caused by it.

DEATH FROM ACUTE INDIGESTION.—On one of the warm days recently a man applied for treatment at the Episcopal Hospital, stating that he had eaten a great deal of cheese and thought that might be the cause of his illness. He grew rapidly worse and died a few hours later. He was a German, 49 years of age, and it was held that he died of heat stroke and acute indigestion or gastritis, from eating cheese.

THE SAMARITAN HOSPITAL on North Broad Street, which is under the fostering care of Grace Baptist Temple, is increasing its capacity by the erection of an additional wing to be devoted to isolation purposes.

THE NEW CLINICAL AMPHITHEATER of the Medico-Chirurgical Hospital is now under roof and presents a handsome appearance.

THE MEDICO-CHIRURGICAL COLLEGE TRUSTEES, it is announced, have in contemplation the creation of a faculty for a dental department as soon as the present arrangement with the Philadelphia Dental College is dissolved, which will be at the end of the next term. For a number of years the association of the two institutions in the same buildings was mutually advantageous, but the phenomenally rapid growth of the medical school has now placed it in position to occupy the buildings for its own purposes.

A CASE OF DOUBLE PERSONALITY.—At the Philadelphia Hospital a curious case of loss of memory has excited much interest, among the neurologists especially. The patient, a young man, after four months' stay in the hospital has been recognized by Dr. E. F. Robinson of the resident hospital staff as a former college companion named Spencer. The patient, however, did not recognize Dr. Robinson nor acknowledge the name. In fact, he did not remember his name at all and could not give any when admitted into the hospital, nor could he remember anything about his previous life or explain how he came to be in Philadelphia with nothing in his possession save some pawn tickets made out in the name of George Brandt, under which name he was received into the hospital. Dr. Daniel E. Hughes, the superintendent, took great interest in the case and recently brought him before the Neurological Society. Dr. Lloyd was of the opinion that the young man might have been hypnotized. Dr. Hughes considers that it is a case of loss of personal identity, or of double personality of the Archibald Malmaison type. Mr. Spencer's home is in Lawrence, Kan., where his father resides. He was last heard of January 27 in Washington, but he can give no account of his wanderings before coming to Philadelphia. From his conversation, however, and replies to questions, Dr. Hughes believes that he has recently been in London and perhaps on the continent.

COLLEGE NEWS.—The State Board of Medical Examiners and Licensers of Pennsylvania met at Harrisburg last month, as directed by the statute creating this board, and the results have just been published. The examination comprised questions in anatomy, physiology, pathology, diagnosis, hygiene, surgery, obstetrics, chemistry, materia medica, therapeutics and practice of medicine, and requires four days to complete it. Out of a total of 381 candidates 340, or 89.24 per cent., were successful in obtaining the license to practice medicine in this State. The University of Pennsylvania sent up 48 candidates, all of whom passed the examination, and the 9 candidates sent by the Woman's College of Philadelphia were equally successful. Three out of 42 from the Medico-Chirurgical College were unable to pass, and 8 out of the 131 from the Jefferson were unsuccessful. It is proper to state that one of those rejected from the former college had failed to pass the board last year and had not attended lectures in the interval. The West Pennsylvania Medical College of Pittsburg was represented by 81 candidates, of whom 62 passed. There were 16 from the College of Physicians and Surgeons of Baltimore, of whom only one failed to obtain the license. Among the names of the successful candidates is that of Horation C. Wood, Jr.

THE PUBLIC SERVICES.

Army Changes. Official List of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from July 25 to July 31, 1896.

Major Henry McElderry, Surgeon (Ft. Robinson, Neb.), is granted leave of absence for one month, to take effect on or about Aug. 3, 1896.

First Lieut. Isaac P. Ware, Asst. Surgeon (Madision Bks., N. Y.), is granted leave of absence for three months, on surgeon's certificate of disability.

Capt. George E. Bushnell, Asst. Surgeon, is relieved from duty at Ft. Hamilton, N. Y., to take effect upon the expiration of his present leave of absence, and ordered to Ft. Assiniboine, Mont., for duty at that station, relieving Capt. Peter R. Egan, Asst. Surgeon. Capt. Egan, upon being thus relieved, is ordered to Ft. Hamilton, N. Y., for duty.

Change of Address.

Dvorak, W. J., from 1620 to 1541 W. 22d St., Chicago.
Judson, A. B., from 25 to 1 Madison Av., New York, N. Y.
Kaumheimer, G., from 910 to 508 3d st., Milwaukee, Wis.
Lawrence, G. H., from Chicago to 6 and 7 Kittredge Bldg., Denver, Colo.
Morrall, G. W., from Barnwell to Millettville, S. C.
Martens, E. J., from St. Louis to Forsyth Junction, Mo.
McMahan, C. Agnes, from Chicago Beach Hotel to 2970 Indiana Av., Chicago.
McDaniel, E. B., from Cove to Rooms 306 and 307 Dekum Bldg., Portland, Ore.
Oglesby, C. R., from Pensacola, Fla., to Kirkwood, Mo.
Potts, J. S., from Los Angeles to San Jose, Cal.
Percy, J. F., Galesburg, Ill., to Mantorville, Minn.
Synon, G. C., from Cedar Rapids, Iowa, to 1557 W. Harrison St., Chicago, Ill.

LETTERS RECEIVED.

Arters, J. D., Oil City, Pa.; Alma Sanitarium Co., Alma, Mich.
Burr, C. B. (2), Flint, Mich.; Battle Creek Sanitarium, Battle Creek, Mich.; Beiser Mfg. Co., The, Brooklyn, N. Y.; Borck, Edward, St. Louis, Mo.; Butterworth, Alice, Chicago; Berry, H. A., Oswego, Ill.; Boehringer, C. F. & Soehne, New York, N. Y.
Caldwell, J. R., St. Clairville, Ohio; Colvin, D., Clyde, N. Y.; Chambers, J. H. & Co., St. Louis, Mo.; Chesman, Nelson & Co., St. Louis, Mo.
Drevet Mfg. Co., New York, N. Y.; Dvorak, W. J., Chicago; Dolber-Goodale & Co., Boston, Mass.
Gaston, J. McFadden, Jr., Atlanta, Ga.; Guthrie, F. A., Aledo, Ill.
Haldenstein, I., New York, N. Y.; Hummel, A. L., Adv. Agency (5), New York, N. Y.
Ingals, E. F., Chicago.
Kiernan, James G., Chicago.
Lawrence, G. H., Denver, Colo.; Leresche, E. P., Chicago.
Morse, Edward E., Washington, D. C.; Macmillan Co., The, New York, N. Y.; Maltine Mfg. Co., New York, N. Y.; Manley, Thos. H., New York, N. Y.; Marchand, Chas., New York, N. Y.; McDaniel, E. D. (3), Milton, Fla.
Rabuck, S. H., Lyle, Minn.
Small, Edward H., Pittsburg, Pa.; Stirling, A. W., Atlanta, Ga.; Smith, W. H. C., Lincoln, Ill.; Smith, H. F., New Troy, Mich.; Strong, B. F., Howard, Kan.
Tyree, J. S., Washington, D. C.; Truax, Chas. Greene & Co., Chicago.
Von Koerber, P. E., Loup City, Neb.; Van Cleve, A. H., El Paso, Texas.
Wathen, W. H., Louisville, Ky.; Walsh, Ralph, Washington, D. C.; Wood, Casey A., Chicago.

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ORIGINAL ARTICLES.

HEREDITY AS A SOCIAL BURDEN.

Read in the Section on State Medicine, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5-8, 1896.

BY A. W. WILMARTH, M.D.

FIRST ASSISTANT PHYSICIAN NORRISTOWN HOSPITAL FOR THE INSANE; LATE ASSISTANT SUPERINTENDENT PENNSYLVANIA INSTITUTE FOR FEEBLE MINDED CHILDREN.

NORRISTOWN, PA.

It may appear a waste of time to place before you proofs of the existence of heredity as a large factor in the production of those nervous diseases on which I wish to speak briefly to-day. My reason for doing so is two-fold. The existence of heredity as such a factor has been occasionally denied by men of such position that their opinion must carry weight, even though they are opposed by the majority of the thinking men who have given this matter their attention. The existence of heredity appears thoroughly established by statistics which have been most carefully compiled and verified. Moreover, the great number of these defectives, and the vast, ever-increasing expense of their maintenance, as well as their harmful influence on society at large, can only be realized in this way.

The three forms of disease which are most liable to make their victims dependent on society by rendering self-support impossible, or their society dangerous, are epilepsy, insanity and imbecility. In dealing with heredity in connection with these three forms of nervous disturbance, it is not reasonable to expect each condition to exactly reproduce its kind. The law of heredity is that each characteristic in the parents *tends* to reproduce itself in the offspring. Characteristics derived from one parent may be overcome by the influence of the other, and may even reappear a generation farther on, or be permanently obliterated. The three above named conditions are all simply evidence of degenerative changes of the nervous centers, dependent for their form on the portion of the brain attacked, and the age at which they develop. Brain trouble occurring early in life occasions imbecility; later, insanity; while epilepsy may complicate either condition or, rarely, occur independently. Almost any lesion or trophic change in the brain may occasion one or more of these manifestations of disturbed nervous action.

Let us look first at epilepsy as an inherited neurosis. The statistics being more accurate than in the other two diseases, for the reason that its symptoms are unmistakable, and thus friends can neither deceive themselves or others in regard to its existence. Even in uncomplicated epilepsy, if the spasms are at all frequent, the sufferer's power of self support is lessened, if not entirely destroyed, and he becomes a burden on friends or the general public. Echeverria, after ten years' careful research in tracing the offspring of epileptics, has published the most valuable statistics on this subject that I have yet found. Excluding all cases which could not be fully verified, he found that 62 male and 74 female epileptics begot 553 children whose life histories were as follows: 22 were still born; 195 died in infancy from spasms; 78 lived as epileptics; 18 lived as idiots; 39 lived as paralytics; 45 lived as hysterical; 6 had chorea; 11 were insane; 7 had strabismus; 27 died young from other causes than nervous disease; 105 were healthy. Excluding the last three divisions we have 414 out of 553 who either died in utero or were affected with nervous disease. Could a more convincing story be told? He concludes that the marriage of epileptic women to non-epileptic men is more liable to result in neurotic offspring than when the conditions are reversed. He quotes one case when two epileptics married and out of five offspring two died of infantile convulsions, one from hydrocephalus, one lived an epileptic, and one was said to be bright. Of his 136 original cases 87 had parents with either insanity or epilepsy, while in forty-six cases epilepsy had existed through three generations. One woman had epilepsy from puberty to her marriage, which demonstrates that marriage may benefit epileptics, but of four children born afterward, two were epileptic and one paralytic. Dr. Knight of Lakeville, Conn., in an address before the American Conferences of Charities and Correction, quotes a case where an epileptic mother bore fifteen children. Eight died in infancy, two were fairly teachable imbeciles, two were epileptics and three had sufficient intelligence to secure husbands and thus risk the multiplication of their kind. Dr. Landon C. Gray tells of an epileptic woman who bore nine children, seven of which died of infantile convulsions.

I studied the records of 500 epileptics at the Elwyn (Pennsylvania) school for the feeble minded during my residence there as a medical officer. Of these 149 were very incomplete. In the remaining 351 I found neurotic disease in 108 families on the father's side; in 106 on the mother's side; in 22 instances on both sides, or 236 families in all. In 19 other families some neurosis existed in brothers or sisters, but was not acknowledged farther back. From my personal knowledge of some of the families, I am sure that strict truth and the power to see "themselves as others see them" would swell these figures considerably. Insanity, imbecility and epilepsy with 56, 58 and 71 cases respectively, figure most prominently in this array of epileptic inheritance, chorea, paralysis, etc., forming the remainder.

The heredity of insanity is not so evident, nor is it so certainly transmitted to offspring, especially in neurosis of the same form, as is epilepsy. The reason for this may be looked for in the fact that many cases of insanity are the direct result of excesses, or other causes occurring in adult life. The transmitted effect manifests itself more frequently in childhood

or infancy, and epilepsy or imbecility results. Or possibly we may find that incurable perversion of the moral nature, aptly termed "moral imbecility," which furnishes so much contention as to whether it should be regarded and punished as depravity or treated as a congenital absence of the faculty of moral control. A smaller number reach mature years before coming into their inheritance of misfortune and are classed as insane, and occasionally reproduce the parent malady with singular exactness. Savage, the eminent English authority, states the matter very concisely as follows: "Heredity produces some insanity, but is more likely to produce either mental defect or special and unusual forms of muscular, sensory mental or moral disorder." Nearly every systematic observer admits heredity as an etiologic factor in insanity, and while the most conservative statistics place the average from 20 to 25 per cent. of the cases observed, others place it higher and Kestevan says: "The most influential of causative conditions is heredity, and it is the most commonly suppressed by the friends." The truth of the last statement at least is indisputable. I wish to particularly emphasize the influence of heredity in imbecility and idiocy for the following reasons. They are the legitimate offspring of nearly every form of neurotic taint. Their extent and baneful influences are not realized by any one who has not given the subject very careful study. The census reports for 1890 and the natural increase would bring their number to between 90,000 and 100,000. This is far below the real number. So slow are parents to publish their children to strangers as feeble minded, that the late Dr. Kerlin of Elwyn, Pa., investigated the matter. Out of 295 applications for admission to his school in 1880, 178, or 60 per cent., could not be found on the census enumerators list. How far this may apply throughout the country we can only surmise, but mothers are much the same everywhere, and are not willing to publish their childrens' defects.

There are two conditions in parents which figure largely in the production of feeble mindedness in children, tendency to neurotic disease and inebriety. These conditions are associated with the greatest frequency. Dr. Beach of England states that drunkenness is found in the ancestry of 38 to 40 per cent. of the parents of idiots (using the term idiot in its broadest sense). The Fourth Conference for the Care of Idiots in Germany agreed that inebriety was the principal cause of idiocy. In this country the Association of Medical Officers engaged in the care of the feeble minded agreed unanimously that a large per cent. of imbecility is due to the transmitted effects of alcohol and counseled, as did the German conference, more stringent legal restriction of its sale. It is well to bear in mind, in regard to these conclusions, that we can not draw too close a line between the habitual inebriate and the neurotic, for one class merges into the other and makes the distinction between cause and effect a difficult study. A cloud of witnesses testify to the transmission of neurotic taint in one or more of its many forms, to produce the multitude of imbecile and idiot children whose large aggregate number and marked increase is shown by every census. The largest and most complete studies on this subject have been made by Dr. Barr in this country and Drs. Beach and Shuttleworth in England. The work of these gentlemen is too well known to make any doubt of the great care exercised in the preparation of their tables, or the accuracy of their results, possible.

	Barr.	Beach.	Shuttleworth.
Total cases	1,044	1,080	1,200
	Per cent.	Per cent.	Per cent.
Insanity and imbecility	38.02	22.71	20.08
Other neuroses	21.55	36.85	Incomplete.
Total	59.57	59.56	

If we accept the aggregate totals of Barr and Beach which are nearly alike we have nearly 60 per cent. of the families with more than one victim of nervous disease. These figures fairly illustrate the results of other observers. We can not go much into detailed cases, but I would like to quote Dr. Ireland in illustrating the persistence of this tendency to produce offspring of low grade in some cases. He cites an instance where four illegitimate feeble minded children were born to one defective woman from four different fathers. In another instance, under my own care, was a little idiot boy with the well-formed but lax and useless muscles in certain regions, which usually accompany the cerebral condition known as microgyria. His mother, a robust, high grade imbecile with no apparent physical defect, came to see him. She had married again and bore in her arms another idiot child very similar to his half-brother. A local physician assured me that they were certainly the children of different men, the second husband not having come to that region until after the birth of the first child.

Such is the evidence that tendency to nervous degeneration or instability descends from generation to generation, broken or interrupted perhaps by infusion of stronger elements, reappearing a generation farther on. What is their number and to what extent do they affect the welfare and progress of the public? Of epileptics, Dr. Knight, who has given their care much study, estimated that in 1892 there were, in this country, 19,000. They almost invariably drift into imbecility, dementia or other form of insanity, and are cared for, if cared for at all, under these heads. Some children recover, but adults very rarely. They are ever liable to injury, which prevents their following many forms of employment. They are free to marry if they can find a mate, and there are very few who set out earnestly on that quest and are not very particular, who do not succeed; and they leave as a legacy to the public more epileptics. When subject to attacks of epileptic mania no class of the insane are more dangerously violent.

The number of the insane in the country will hardly number less than one hundred thousand. Probably there are more. It would be difficult to ascertain the total cost of their support. We will look at the approximate cost in the two largest States which in 1890 contained about one sixth of the population of the country, which will furnish some guidance to the possible expense in the whole country. In Pennsylvania, in 1894, there were 8,616 insane in institutions of all kinds, of which number 6,342 were in the six State hospitals and the private hospitals at West Philadelphia and Frankford. These 6,342 insane represented an expenditure of nearly one and one-half million dollars. The care of less than one-eighth of the State's feeble minded added $150,000 to this large total. New York spent in 1893 for the care of her insane in public hospitals and for a small proportion of her imbeciles, over two and a half millions of dollars. Carry out this ratio throughout the country and the amount would be startling. The bulk of the insane are in asylums, for public safety

demands this. Where are the feeble minded, who are found in European countries to outnumber the insane, and probably would here if properly enumerated? Not one-tenth are cared for in institutions. The remainder are in almshouses where their proper care is, in many cases, doubtful. Many are in homes where they monopolize their mothers' time and care, and elsewhere, where they are teased by children, abused by the vicious and live a strange life among their own people, with whom they have little in common. From the highest grades of imbeciles are recruited the ranks of petty criminals, prostitutes and tramps, who marry early and often, and who reproduce with the frequency of animals. Officers in reformitory institutions are becoming impressed with the idea that the majority of the younger criminals are permanently lacking in the higher mental traits, without which the development of moral character is difficult if not impossible. The growth of the burden on the industrious of supporting the helpless and the worthless may be better realized when we find that the New York State Board of Charities and Correction expended nearly eight and one-half millions of dollars in 1880 and nearly sixteen and one-half millions in 1890, although the population in that decade increased less than 20 per cent. Do you realize that the taxpayer may support, during a life of ordinary duration, members of three generations of these defectives? The remakable increase in numbers in a family line of defectives and incapables may be best illustrated by quoting two instances. One, founded on the report of Miss Schuyler, President of the New York Charity Aid Society, of "Margaret the Mother of Criminals," and progenitor of a family of paupers, beggars, prostitutes and criminals, which finally became a race of 700. Their family vigor was largely preserved by intermarriage with fresh, vigorous families of ruffians, and some of the women bore at least twenty children, among which were numbered insane, epileptic and imbecile. I would quote briefly from Dr. Barr's exhaustive article on the influence of heredity on idiocy, the record of the family known as the "Tribe of Ishmael," where the descendants of one unclean, neurotic man traced through many years, "multiplied by consanguineous marriages into 250 families, numbering some 5,000 individuals, whose continuous criminal record has poured over the Northwest a flood of imbecility and crime." Nor do these instances stand alone. It is the salvation of society that at a certain stage of nervous retrogression nature appears to check further increase by making the most defective sterile and short lived.

The cost of human life through the insane each year is very large. Professor White, late of Cornell, places the number of homicides in the country last year at over 10,000. How many of these are due to insanity I will not pretend to say, but almost daily we read of suicides preceded too often by the death by violence of one, two, or even five or six people under circumstances which appear hardly consistent with normal mental balance. So frequent have such affairs become that only when some one of more than ordinary standing becomes the victim do they excite more than temporary local interest or arouse us to the danger which may be very near us.

The remedy for this state of affairs is a subject which demands earnest thought and radical measures for relief. The evil is so wide spread, so thoroughly grafted in the every day life of society that to think of its immediate or entire suppression would be folly. It is time to attack the evil in some quarter. We can not expect relief from purely medical means. No more hopeless disease exists among the more common maladies than epilepsy in the adult. The relatively small number of "recoveries" in hospitals for the insane would be diminished if we subtracted the number who are committed to recover from alcohol, and other such cases who go out only to find their way back to some hospital later. Officers of institutions for imbeciles no longer look for restorations to normal brain power in large numbers, and even in such cases as leave the institutions there is a fear that their places may shortly be claimed by their children. He knows that the chief value of his work lies in the knowledge that the high grade imbecile is safer and the low grade and idiot more comfortable than he could be made at home. That he has relieved other children of association which would work harm and no good. He has relieved the family of an expense which deprived the other members of their due and the mother of a burden often too great for her. More than this, by enabling one person to care for perhaps five of these children, five families have been able to turn their entire efforts to ordinary social duties unhampered by such a burden as an imbecile child. Moreover, defective imbecile children should become the wards of the State until the danger of child-bearing is past. It is not so important with males. I need not explain why girls with strong animal passions and low mental or moral powers need such care.

It seems strange that our marriage laws should be so lax. The marriage of the unfit goes on unhindered. The epileptic may marry his kind and reproduce more of his kind. The drunkard, from a body thoroughly diseased, may cause any number of defective children to become public wards to be supported by the more self-respecting and industrious. There is no legal preventive against the man whose father and grandfather have been insane, and who has been, at some time, insane himself, from marrying a woman similarly afflicted and charging the bill to the public. The lunacy law of Pennsylvania expressly provides that a patient while still insane may go home for stated periods to resume all his family relations. It is time for a radical change in this condition of things. The excellent example of New York should be followed in other States and more accommodation provided for mentally and morally incapable women and girls. More stringent marriage laws should be enacted and enforced. The need of some such law was most strongly impressed upon my mind during my frequent observations of the mothers of feeble-minded children, so many of whom, though not feeble minded were surely close to the line. So many had a different name from their child's, from remarriage. Possibly the fathers were the same, but this was not so evident. In one winter, out of five children who died consecutively, four of the mothers had contracted a second marriage. One woman who was said to be the mother of six microcephalic imbeciles, and had two of them in our care, once visited us and announced her intention of contracting another marriage. It is a well-established fact that a mother who has had a microcephalic child is liable to have any successive children similarly marked.

So long as this evil continues it is difficult to see how we can stop the constant increase of this class. Such marriages should be legally prohibited. While

women, in every way fitted to fill the post of wife and mother, hesitate before the responsibilities such a position entails, these women should not be allowed to assume such duties as they can never properly fill, at so great a public cost, for the mere gratification of animal instinct or a prospect of support. Such a law would not be unjust. The right of society to control all powers which militate against the general good ought not to be denied, and such a law judiciously applied would work no material hardship and interfere with no one's just rights. The marriage of an epileptic is a crime. It is almost absolutely sure to result in the birth of human beings foreordained to a lifetime of suffering.

On whom does the responsibility of righting these wrongs fall more heavily than upon ourselves. No one understands so well as we how surely the fruit follows the seed in these matters, and no one's word would have the same weight in molding public opinion to force proper legislation to this end. The marriage of the unfit should subject the perpetrator to punishment as surely as would any other offense against the public peace and morals. The whole body of the intelligent public would agree with us in this matter. The clergy would endorse such a move, perhaps excepting a few who are entirely unworthy of the vocation they have assumed, who disregard the divine warning that the consequence of the father's sins shall surely descend to the children and cheerfully assist, for a marriage fee, in perpetuating the evil.

These two measures, of providing safe and comfortable homes for the weak and preventing in some measure marriage among those who can only perpetuate and increase human suffering, poverty and crime, fall far short of fully solving the question, but they have the advantage of being practicable, and furnish, so far as I can see, the only radical method of presently reducing this class to its minimum number, for it truly attacks the evil at the root. We can not abolish human weakness and sin, but we can deprive it of the seal of the State and the Christian church.

HYGIENE VERSUS DRUGS.

Read in the Section on State Medicine, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5–8, 1896.

BY C. F. ULRICH, A.M., M.D.
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The American people have been called a medicine-taking nation. If the quantity of drugs prescribed by physicians, the masses of patent medicines, the barrels of so called home remedies, such as teas, decoctions, infusions and other monstrosities, swallowed by the American people, were ascertained, collated, arranged and published in a book, it would strike the reader dumb with astonishment. The fact that any human body can survive the injection of such an endless variety of vegetable, animal and mineral poisons as are poured into the patient and unresisting stomach and thence distributed throughout the various channels, acting upon the digestive organs, the circulation and the nervous system, proves that man is indeed "fearfully and wonderfully made," and has much greater powers of resistance than we would believe possible.

Let us suppose that an individual has what is commonly called a cold, which may be catarrh of the pharynx, the tonsils, the larynx, the trachea, the bronchi; it may even be an incipient pneumonia. This person tells his or her suffering to a neighbor, the neighbor replies: "Oh, I had that, and I took such and such medicine." Immediately the article is procured and taken. Another one comes in, hears the tale of woe, and recommends something else, this also is duly swallowed. By the time the gauntlet of the whole neighborhood has been run, and the entire catalogue of the domestic and the proprietary pharmacopeia has been exhausted, the patient has either recovered by virtue of his good constitution in spite of the horrible dosing, or the disease has progressed to a dangerous stage. In the former case, the wisdom of the neighborhood gossips or the excellence of this or that patent medicine is lauded to the skies; in the latter case the doctor is called in and is told they have given the patient everything that everybody recommended and having failed, they now call him in to try his skill. Thrice happy is the poor doctor if these busybodies have left enough constitution and vitality in their unfortunate victim to give him even a faint prospect of working a cure. If, however, owing to the exhaustion of the vital powers, or the general subversion of all the functions of the body by the heavy, indiscriminate and absurd dosing to which the poor sufferer has been subjected, the doctor fails to cure him, all the vials of wrath will be poured upon his devoted head by the would be doctresses in the neighborhood. If he thinks the patient requires rest from drugs and gives nothing, he is promptly discharged and another one called in, who will come up to their standard of excellence by ordering some kind of medicine to be taken every hour, or oftener. I have frequently been told when presenting a bill that certain visits should not be charged for, because I did not make the patient take medicine on those days. My answer would be that it required as much medical knowledge to determine when medicine is unnecessary as to know what remedies are required. It has often been suggested to me by my patients, or their families, that it is not necessary to come every day, but to return about the time the medicine is exhausted, in order to prescribe more. It does not occur to these individuals that the physician's duty is to watch the course of the disease, note its changes, assist nature in her efforts to bring about recovery, prescribe suitable remedies against unfavorable tendencies; in short to act as a kind providence to watch over the patient and promote recovery. They imagine the physician's business is to pour all sorts of drugs down the poor patient's throat and keep him constantly saturated with medicine. While engaged on the preparation of this paper, I visited one of my patients in the afternoon, whose medicine was exhausted in the morning. I found the family in terrible trepidation because he had not been dosed for six hours. The fever having abated, the temperature normal, the pulse regular, the patient free from pain, he was all the better for getting a little rest from drugs; but the family had suffered agony on account of my coming so late, and were on the point of sending a messenger to my house to inquire what was to be done. It is often necessary to prescribe a placebo in order to retain the patient. The physician who studies nature carefully, who makes himself thoroughly acquainted with the physiologic and pathologic processes of the human organism, acquainting himself with all the changes that take place in the interior of the body, both in health and disease;

giving the proper remedy at the right time and refraining from the administration of drugs when nature is doing the work for him, will be successful where success is possible; although he may sometimes confront the prejudices or the dense ignorance of his clients, and thus lose caste with some of them; but in time, it will be better, not only for the patient, but for the physician himself.

I can call to mind very many families who had abandoned me for some new and more complaisant physician, who would prescribe large quantities of drugs, resort to a variety of mechanical methods, that he represented as new, convincing the family thereby that he possessed more knowledge and skill, who finally became disgusted with the meddlesome activity of the new man and returned to me, saying: "I like the old doctor best after all." Having said as much as is necessary about the pernicious abuse of drugs, let us see what we can offer as a substitute. Hygeia, in the ancient mythology, was the goddess of health. We call this divinity Vis Medicatrix Naturæ, the healing power of nature. To the diligent student of nature and of physiologic processes in the human body, this divinity, Hygeia, assumes a greater importance than is generally attributed to her by the young and inexperienced practitioner. In a paper read at San Francisco in 1894, entitled "Cleanliness the Chief Antiseptic," I endeavored to show that the earnest and continued effort to prevent the development of bacilli and their entrance into the human organism, is of much more value in promoting health than the effort to destroy them after they have been introduced, or to relieve the system of the disease caused by their presence. This is the first consideration in the study of hygiene, which was fully discussed in that paper. But, as every physiologist knows (and every physician should be a thorough physiologist), there is a very complete apparatus in the human system to carry off, not only the waste material in health, but to dispose of the results of abnormal processes and of disease caused by the introduction of malignant bacilli. This consists of the various emunctories, as the large intestine, assisted in part by the entire alimentary tract; the urinary apparatus, *i. e.*, the kidneys, the ureter, the bladder, the urethra; the skin with its system of transpiration, *i. e.*, the sudoriparous glands and ducts. Now, although physicians know all about these, the masses are ignorant of the importance of keeping these emunctories in order, and many physicians are inclined to be careless in this direction. Bacteriology, antisepsis and abdominal surgery have so engaged the attention and called forth the enthusiasm of our modern practitioners, that the good old custom of investigating the bowels, the kidneys and the skin is often lost sight of. How much misery and suffering might be avoided, what an enormous quantity of patent pills and other purgative drugs would be rendered useless, and the sums of money wasted on them might be devoted to making the family more comfortable, if proper attention were paid to keeping the intestinal tract in good condition, which could be done without taking pounds of pills or swallowing gallons of medicine, by simply adopting a sensible and hygienic system of diet, by observing proper times for attending to the calls of nature, by never allowing other avocations or a false notion of propriety to interfere with the performance of that most important function. How much kidney disease might be averted by only introducing into the stomach such liquids as contribute to the preservation of the proper relations between the solids and fluids of the body. Here some one asks the question: "Shall we live like the beasts of the fields, drinking nothing but water? Shall we not pay some attention to the taste which nature has bestowed upon us, and enjoy the pleasant beverages with which the world abounds?" I do not propose to be so severe; you may enjoy the pleasant beverages that nature, assisted by the art of man, furnishes you, but you must practice moderation; you must become acquainted with the capabilities of your organization; you must study the effect of these beverages, and stop before the point of deleterious influence is reached. When you see a man suffering from that deadly malady, Bright's disease of the kidneys, take it for granted that he has abused that great organ, whose function it is to rid the body of worn out and dead material. It is a very patient and long-suffering organ, that will submit to an immense amount of abuse; yet there is a limit to its endurance and it must eventually succumb. The skin, an important auxiliary to the kidney, can be kept in a healthy condition by attending to hygienic rules. If we promote perspiration by reasonable and moderate exercise, and by keeping the pores open through frequent ablutions, we will find much poisonous material carried off that the kidneys would fail to dispose of. If these two organs, the kidneys and the skin, are treated according to the rules of hygiene, much disease will be prevented and the taking of enormous quantities of drugs avoided. The stomach, that great work-shop, in which the first stage of converting food into tissue is accomplished, is as much abused as the kidneys and the skin. All kinds of incongruous, indigestible and injurious articles, under the false name of food, are forced into the long-suffering and much-enduring stomach; indigestion or dyspepsia, which brings in its train so many other ills, is the inevitable result. This was for many years the prevailing disease of the American people, causing them to be distinguished by their sallow complexions and pinched features. The consequence is that the sufferer, not knowing what is the matter with him, resorts to all kinds of absurd medication, throwing the entire machinery of the body out of gear, thereby damaging the intellectual faculties and ruining the disposition. There is not a more unfortunate creature in existence than the chronic dyspeptic, a source of misery to himself, to his family and to all who come in contact with him. Now, how is this to be prevented? Not by filling the stomach with drugs which, in many cases, act as a foreign body, or even as a poison. It can only be avoided by learning the requirements of the system, the ability of the stomach to dispose of the ingesta, and the peculiar characteristics of the food to be supplied. Another thing to be avoided is the unhealthy habit of bolting the food to gain time for business, neglecting mastication, an essential process in digestion, and swallowing the too often unhealthy food with such rapidity that it forms at first an inert mass and afterward ferments, producing gastralgia, acidity of the primæ viæ, with a long train of disastrous consequences. This is perhaps the most important branch of hygiene, and should be studied by every parent and by all the children old enough to understand it. The hygiene of drinking-water has been sufficiently discussed to require no mention here. Already intelligent housekeepers are filtering and boiling their drinking-water, and the

remarkable absence of typhoid fever in our city shows that this reform has borne good fruits. The hygiene of the lungs, the heart, the liver, etc., would require space enough for another paper; hence the examples given must suffice.

The question may be asked: "What has all this to do with State medicine?" The answer is plain: Give all your working men and women, your employes in stores, offices, factories, etc., ample time to consume their food leisurely; let none but healthy teachers be employed in your schools; require every teacher to be well versed in the elements of physiology and hygiene, and require them to teach these branches to the children who are old enough to understand them; devote a reasonable amount of time in the schools to physical culture; require the teachers to inculcate general rules of health into the minds of the pupils. Another thing I would recommend: Let schools for hygienic cooking be established at the public expense, to enable poor people to enjoy healthy food as well as the more prosperous. Much of this can be accomplished by intelligent legislation. If the rules barely hinted at in this paper be carried out by the more intelligent part of the community, and taught by precept and example to the masses, the unreasonable consumption of drugs will be reduced to a minimum, and the health, prosperity and happiness of our people will be more than doubled in a few years.

PREVENTION OF SMALLPOX.

Read in the Section on State Medicine, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5-8, 1896.

BY ELMER LEE, A.M., M.D., PH.B.

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It is not my intention to rudely characterize the world-wide process instituted by Jenner just one century ago, as either inefficient or a failure. As there was more than one road which led to Rome, it may be that there is other than one method by which a given disease may be prevented. It was 100 years ago, on the 14th day of May, that the English physician perceived the effect of a slight accident and gave the world the deductions by which vaccination with cowpox, made his name forever to be remembered, and rendered universal aid to the people. It has not been in my power, personally, to inaugurate experiments for determination of the correctness of conclusions concerning prophylaxis by vaccination; indeed, it is the privilege of few physicians, to know the exact facts by personal knowledge. It is not my purpose to question the validity of the statistics which are prepared for our guidance on this subject. There are some physicians both in America and Europe who have expressed a doubt concerning the efficacy of prophylactic inoculation. Their sincerity and privileges of investigation have undoubtedly been equal to the majority of the physicians who may take an opposite view.

The reason that the paper on this subject was prepared for this occasion, was suggested by the near at hand centennial of our great confrère. This meeting of the ASSOCIATION is, practically, a memorial to one whom the world loves to cherish, and whom physicians are willing to honor. The first thought on the subject was to prepare an address relating to the treatment of smallpox, but owing to the relationship which exists between this Section and myself, a paper suitable for that Section was suggested.

The origin of smallpox is unknown, at least, it is not recorded. The first recognition which is authentic, of the appearance of this disease dates only to the sixth century, in Europe. Undoubtedly it prevailed among nations during the earlier centuries, but owing to imperfect classification, as well as defective records, recognition is lost. The unwritten history of the disease is probably co-equal with the age of our race.

Its propagation is by two methods, namely, contagion and inoculation. The first is the most important and far reaching. Of what this contagion consists, our senses fail to grasp. The active principle by which the attack is produced is not able to be encircled by either scientific processes of detection, or the highest development of the senses. Whether the contagious influences are transmitted to the air passages or to some other vital organ, it is surpassing strange that, up to the present time there is no means of detection. We know full well the pathologic order of the symptoms of the body which has been invaded. Precision of the successive steps in the development of the disease marks the course of every smallpox patient. It has been my privilege to note the physical expressions of variola by clinical experience. It seems to me that there is no disease so exact in the regular order of symptoms as the one under consideration. Once having mastered the knowledge of the diagnosis of smallpox, it is an acquirement which is never lost. The fever and the characteristic pain in the lumbar region, or the back of the head, with the rapid appearance of the papules, the vesicles and pustules, make it a picture never to be forgotten. This much is certain, that smallpox is a systemic disease and whatever process leads toward prevention is necessarily that which best preserves the general economy.

Vaccination by the use of smallpox lymph creates some alteration in the animal body which is beyond the keenest sense of man to determine. Analysis of the fluids and solids, by the highest scientific processes reveals not the secret wrought. It eludes investigation, and is analogous to and the parallel of electric display. We do not know the condition, only the effect. There is no perceptible difference, except by a knowledge of the result between the wire carrying the electric influence and the uninfluenced wire.

Inoculation also produces smallpox. This is a rare form by which the disease is contracted. It is easy to understand the relationship between the introduction of the virus into the circulating fluid, and its effect, but it escapes our keenest perception to explain disease from contagion. As inoculation is rarely the actual cause in the production of smallpox, measures of prevention against it need not occupy our consideration.

Smallpox preys upon all races regardless of geographic separations, it does not spare the young or the old. There are some individuals, however, in whom there is some prevailing condition by which they are rendered insusceptible to the disease. Whether vaccinated or not, their exemption from attack is perfect. Could we but know with scientific accuracy the precise peculiarity and state of the powers of resistance in such presence, it would afford data upon which to base absolute measures of protection

for others. My own opinion as to what constitutes this immunity will be explained presently. Negroes, especially those who inhabit warm countries, are disastrously affected by this disease. Generally speaking, one attack of smallpox precludes a second; but the rule is not invariable.

Vaccination, as is known to all of us, is the introduction beneath the skin, of a minute portion of lymph from the vesicle which is produced by inoculation of some lower animal with the virus of smallpox. A disease similar to smallpox in man is natural to cattle. The origin of vaccination sprang from the incident by which the maid who milked the cow received into an abrasion some of the cowpox virus, and thus became immune to the disease which ravaged the community. It was Dr. Jenner's part in this drama of life to discover the relationship between cause and effect, and give a world-wide significance to the incident of the milkmaid, and the humane service which she performed. The protecting influence of vaccination is regarded as acting in two ways. The first assumption is, that to him who is inoculated, a protection against the disease is sure to follow. The second, that if the individual contracts smallpox, its duration and severity are lessened. These positions are reasonable and upon the same line of thought my plan for prevention of smallpox is now to be, for the first time, presented for your consideration. It is the desire at this moment to state that my preventive proposition is founded upon a process of reasoning from analogy. There are no cases reported by which the position is sustained, and it may be that there never will be; but in my own mind the conviction is established that whatever measures we are able to secure, to preserve a perfect health of the body, are necessarily, a prevention of disease, even the disease of smallpox. My views take two directions. First, the natural agent which is able to preserve immunity, and second, a method whereby, the prophylactic measures can be made practicable. It is sometimes a long step between that which is useful, and that which is able to be used. The distinction may be the insurmountable difficulty in the present instance, but it is certain that one step in the plan is sure to find a sympathetic response from modern sanitarians.

Uniform and stable health is maintained by preserving the quality and parity between the solids and fluids and between the supply of new material and removal of the old. This is the quadrangle and within its four sides the processes of life and health are protected. Water is the controlling factor of the organized human body. More than three-fourths of all the structures are water; 80 per cent. of the blood is water; seven-eighths of the brain and nervous structures are water. The preservation of the integrity of the soft structures depends upon water. Insufficient water results disastrously to the cellular tissue of the vital organs and to the physiologic function of those organs. It is a maxim of health, that impairment must precede invasion by disease. If it is possible by any universal agency such as water to practically prevent impairment of the system then it is able to say that water, when used rightly, may be a prevention of smallpox. The knowledge of the proper use of water is not generally understood or employed. A brief reference to physiology teaches, that two liters of water or its equivalent is required to maintain physiologic equilibrium each day. There are but few people who are aware of this requirement and fewer still who practice it. My theoretic prevention of smallpox, other than by vaccination, is the physiologic use of water introduced into the system through the mouth. Does it not appear as a reasonable proposition that if water constitutes so large a portion of the tissues and of the fluids and solids of the body, then, according to the laws of nature if that relationship is persistently disturbed, a condition suitable for disease is established? Such is my conclusion based upon over four thousand clinical experiences in the use of hydriatics.

The second element of the proposition is how to make the first practicable. It would be my suggestion, first: that the United States government should speedily enact a law creating a bureau of public health, the commissioner of which shall be an officer of equal rank with those of the other present existing departments. Wise and sound measures of public health can be authoritatively disseminated among the people, only through a national department at Washington. As a direct means of prevention to the whole population, public baths for all classes and both sexes should be provided. At these public institutions there should be provisions made for supplying pure, soft water to drink. In each establishment permanently maintained printed instructions should adorn the walls concerning the physiologic daily uses of pure water. Circulars of information should emanate from the national department, plainly and in straightforward terms of simplicity, explaining to the people the value of water drinking, also the injury resulting from its neglect. The use of public baths should be included in the instructions. It is not the fault of the masses of the common people among whom smallpox principally prevails, that such measures of prevention are not employed.

Recently a private patient informed me that since his youth the average daily consumption of water had been so small that the quantity could not be remembered. As a result of his ignorance and neglect, while yet about 30 years old, his appearance resembled that of a man between 40 and 50. The stay of a month under treatment at the hospital revealed to him the value of the use of water internally, and gave him encouragement for improved and prolonged life. There is a wide difference between so-called hydropathy and true physiologic hydriatics. In formal treatises on hydropathy reference is especially made to external use of water, whereas, the essential principle underlying the views entertained and expressed by the author regards the internal use of the proper amount of the proper kind of water as of first importance. The use of the bath is a refinement and is to be encouraged by providing public establishments throughout the whole world, and in these public establishments may be easily and naturally taught the higher value of the internal use of water. At the same time the harmful and sad consequences of the abuse of alcoholic drinks could be successfully explained.

Finally, the prevention of smallpox, by other means than by vaccination, is by the physiologic uses of pure, soft water; and secondarily, the provision of a national bureau of public health and the construction of public baths for the use of the common people.

103 State Street.

DISCUSSION.

DR. COCHRAN—If a man were perfectly healthy would he be

equally resistant to the poison of scarlet fever, as the gentleman maintains he would be to the poison of smallpox or to the poison of diphtheria or strychnin, arsenic or any other poisons that we know of? I think not. I think water may be made to supply a very important part in the prevention of smallpox, but I think it is very hot water applied to the bedding and surroundings of the man who is sick, and not cold water taken internally. I expect if there is any attempt to celebrate Jenner's Day, there will be ample time to discuss this question. But I suppose from what I have heard that it is quite possible to prevent the spread of smallpox without vaccination or inoculation. Put a man under quarantine; smallpox does not fly through the air like a bird and attack people at a distance. It will not cross an ordinary street under ordinary circumstances, unless it is carried across. I have had large experience with smallpox. There is no doubt about the prophylactic efficacy of vaccination. You may vaccinate a number of men and place them in a smallpox hospital and if the vaccination is properly done none of them will have smallpox. It is a very curious thing, an item that went around among the papers a few weeks ago (among others the JOURNAL OF THE ASSOCIATION) stating that there had been a very considerable outbreak of smallpox in the town of Gloucester, the county town of Gloucestershire. It was the town in which Jenner lived and made his experiments. He did not live in the town of Gloucester, but in the town of Berkeley; but it is a little strange that in the town where he made his discoveries there is an Anti-Vaccination League with a large number of members, and owing to their systematic neglect of vaccination this disease has come on them.

DR. KOBER—One remark might be a trifle misleading. In my experience in treating smallpox, which has been considerable, I have never seen vaccination done without good effect. I believe if taken two or three weeks, or a month, before exposure one may then be exposed and not have smallpox; but if taken the same day of exposure, notwithstanding the fact that it runs its course, that patient is likely to have a modified form of smallpox.

DR. COCHRAN—My experience was not similar to that. We had an epidemic of smallpox in Mobile in 1874-5, and having made close observation of the disease, I concede the statement of the gentleman that the disease is checked in warm climates is correct. Along the Gulf coast during the summers smallpox will almost die out. When the weather turns cold in the fall the number of cases increase and continue to increase until the weather becomes warmer in the spring and then they diminish. At one time it prevailed continuously for ten years, and I made a table showing the mortality for three months; as the mercury fell in thermometer the smallpox increased among the people. Black races are very much more liable to smallpox than the white. Prior to this epidemic I speak of, very little had been done in the way of vaccination for many years. There were 450 cases when we took charge, and we had to work very energetically, and use a great many agents that had never had smallpox, nor had they been vaccinated, and we vaccinated them at the time. The general result was that those who were vaccinated nearly all escaped.

DR. MCDANIEL—We naturally are controversial, but when we try our best to agree it sometimes seems impossible. There was one remark made by Dr. Lee that I can not exactly understand. If I understand you, Doctor, you say that when we are healthy, perfect health would protect from smallpox. Do you take that stand?

DR. LEE—Yes sir.

DR. MCDANIEL—I desire to say that I appreciate his paper very much, but I believe that smallpox is a specific disease, and I believe that you will all agree with me. I believe that vaccination is a specific remedy for that disease, and if it be a specific remedy I do not see how it can confer a more perfect health on the individual than he had before he was put under the effect of vaccination poison. For instance, the results from vaccin virus are sometimes very severe. There has been a fatal case lately in our midst. In the convalescence from this extreme illness so produced, the patient is absolutely protected from an attack of smallpox. It can not surely be because he is on a higher plane of health at that time than before the vaccin ordeal was encountered, because of his debility, and in that debilitated condition is perfectly immune from the smallpox. During the war I had charge of a Confederate recruiting camp; smallpox had been brought from Marietta, Ga., among our men, the raw recruits. There were 127 persons that were exposed to this case of smallpox brought from Marietta. In a few days it developed into an unmistakable case of smallpox; as Dr. Lee stated, the case was so characteristic that none could make a mistake after a few days. So I found on examination. All in camp were examined. Those who were unprotected, had no scar, were vaccinated. There were 118 out of the 127 who had the pitted mark; these I had disinfected, but of the nine others one had a scar that I could not approve; it had some signs of vaccination, but were not satisfactory. That man contracted varioloid, the other eight genuine smallpox. Out of the one thousand or more that I vaccinated, not one had smallpox.

DR. STONER, of Baltimore—During the past month a vessel came into port on which was a case of smallpox. The patient was put in quarantine on arrival at Baltimore, and everything thoroughly disinfected; after a few days' detention the immigrants were allowed to go. As an additional precaution the health officers were disinfected, and as a result there was no spread of the disease. The point I wish to make is simply this, that where a case is otherwise susceptible, if that person is vaccinated, the vaccination, if successful, would not be an absolute protection against smallpox. It would be modified to a very great degree, and might, in forty-nine out of fifty cases, prevent. My experience is that vaccination modifies to such an extent; that smallpox is not entirely prevented every time and varioloid occurs to a small extent. The point is that vaccination is not a preventive against it, still it is well enough to vaccinate to endeavor to keep a man from contracting it.

DR. QUIMBY—One word in reference to Dr. Lee's paper; it seems to me, as long as smallpox is a filth disease, if the caution is taken to destroy and put the surroundings in a good sanitary condition, then carrying out Dr. Lee's treatment, we certainly would have a preventive. Then use cold water inside and out and put everything in proper sanitary condition, because it is an insanitary disease, and if we dispose of the filth, we are freed from the germinating microbe that forms the disease.

DR. KOBER—I desire to be placed on record as opposing Dr. Lee. It seems to me, in the present state of our knowledge, that nothing short of vaccination and severe quarantine regulations can afford perfect immunity from this disease. In proof of this I will mention an epidemic which occurred two years ago in California, where the people enjoyed the best hygienic surroundings, in perfect health and blessed with the purest water and best food. The case of smallpox was introduced into the community from Chicago, a distance of over two thousand miles, and within a period of three weeks not less than fifty cases occurred in adjoining houses. All the hygienic conditions did not protect them from the disease, but as soon as sufficient quarantine and vaccination were resorted to the epidemic stopped.

DR. HIBBERD—He did not hold that the presence of pure water prevents, and if you do not use it, it is not a prophylactic.

DR. KOBER—But if they use the pure mountain water it should be considered a prophylactic.

THE WELFARE OF THE COMMUNITY DEMANDS THAT MARRIAGE SHOULD BE REGULATED.

Read in the Section on State Medicine, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5–8, 1896.

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CHICAGO.

The closing hours of the nineteenth century are full of marvelous results in science and art, and of wonderful progress in medicine and surgery, but in the midst of these brilliant achievements may be seen on every side insanity, pauperism, criminality and the degenerating effects of various vices of nutrition so rapidly increasing that they will overwhelm the race unless they can be arrested. These melancholy effects are produced, at least in part, by the violation of the laws of heredity, constantly taking place in unregulated marriages. Under our higher civilization abnormal man, be he defective, dependent or delinquent, is propagated, cultivated and protected, his feeble and crippled offspring are nursed to manhood and sent forth to produce their kind. Under savage and semi-civilized conditions these abnormalities are speedily extinguished, the deformed and the weaklings have no place in their system, and some way or other are soon cut off.

The physicians, who have always been the advance guard of progress, ever watchful of the welfare of those entrusted to their care, must rise in their might, find the remedy and apply it to these defects of this brilliant age. The study of these defects of our civilization develop startling revelations.

First, consider the increase of insanity in Great Britain. In 1860 the proportion of insane to the population was 1 to 523, in 1870 1 to 411, in 1880 1 to 360, in 1890 1 to 320. The proportion of the insane to the population in New York to-day is 1 in 315. If this increase is to be stopped, it must be by the earnest efforts of such distinguished members of the profession as are gathered here.

Consider the question of crime. The census of 1890 places the criminals in prisons and reformatories at 82,329. If only one-third are incarcerated this gives a criminal population of about 250,000. Between the years 1850 and 1890 the population increased 170 per cent., the criminals increased 445 per cent. Between the years 1880 and 1890, the total population increased 24.5 per cent., the criminal population increased 45 per cent.

The statistics of pauperism show equally startling defects in our sociology. Dugdale, in his admirable study of the "Juke" family, shows how from one degenerate man, in seven generations there were developed 1,200 criminals and paupers. McCullock, in his history of the "Ben Ishmael" family, showed as the offspring of this degenerate, 1,750 criminals and paupers. Maudsley says that an idiot is not an accident, nor an irreclaimable criminal an unaccountable casuality. Our mental and physical condition is an inheritance, an estate in trust received from our ancestors; we make it better or we make it worse, and we hand it down to our children. Heredity, according to Ribot, "that biological law by which all beings endowed with life tend to repeat themselves in their descendants," is the great underlying factor, and yet, while we are extremely careful to observe its demands in the breeding of horses and cattle, we pay but little attention to it in laying the foundation for the physical, mental or moral condition of our children.

The laity need to be instructed on the subject; they should be taught that insanity, epilepsy, tuberculosis and drunkenness are all most certainly transmissable, and that out of them proceed pauperism and crime, and that he or she who possesses any one of these, or any other vice of nutrition, by marrying assumes a terrible responsibility in the suffering and misery they inflict upon their progeny.

Fortunately for the race these degenerates tend to extinction, and in the third and fourth generation, if not sooner, they have paid the penalty by annihilation, of their violation of the laws of nature.

Some of the laity are already deeply interested in this matter, and are seeking to find ways and means by which they may avoid these consequences; and the tendency to reversion furnishes us with the method by which the milder cases of hereditary taint may produce children who will but slightly inherit the abnormalities. We would, of course, advise such persons to unite in wedlock with those as far as possible removed from the vice of constitution which they possess, and then their progeny may be thrown back to the normal type.

The most perplexing, as well as the most active factor in producing the defects of our civilization, is alcoholism. The appetite for alcohol may be acquired, but it can be transmitted to the children, and various diseases and degenerations follow. Echeverria collected the statistics of sixty-eight males and forty-seven females who were alcoholics. The number of children born to them was 476. Of these, 23 were stillborn, 107 died of convulsions in infancy, 3 suicided, 96 had epilepsy, 13 were idiots, 19 maniacal, 7 had general paresis, 5 had locomotor ataxia, 26 had hysteria, 23 paralysis, 19 deformed, 9 chorea, 7 strabismus, 3 were deaf, and 205 exhibited drinking tendencies.

Dr. Tarnavskin examined at St. Petersburg prostitutes who had been inmates not less than two years, and found eighty-two per cent had parents who were habitual drunkards.

Boies[1] makes the statement, "that the consumption of distilled spirits, per capita, has not materially changed even in fifty years in this country, but the consumption of malt liquors has increased 738.1 per cent. contemporaneously with an increase of 445 per cent. in criminals in fifty years. These statistics show very plainly that the temperance reformers have not reached the masses. While the decanter is no longer seen on the sideboard, and the consumption of wine among the well-to-do people has diminished, yet the saloons are multiplying on every side. Surely we can not permit this condition of things to continue longer, and must recognize the inadequacy of the forces that are contending with it. The physicians must educate the laity, must impress them with a knowledge of the disastrous effects of alcoholism, and through their coöperation secure such legislation as will remove the blot from our civilization.

The effect of marriages, in disregard of the laws of heredity, are well shown in the following life trees. They are taken from Dr. Strahan's admirable book on "Marriage and Disease," and other sources.

[1] Prisoners and Paupers.

CASE I.

J. E——'s FAMILY.

M. A suicide. Aged 56. Married; no issue. — M. Died of cancer of stomach. Aged 66. — F. Died in a fit. Aged 54.

M. Died of cancer of stomach. Aged 58. Left five children.	M. Died of convulsions. Aged 13 weeks.	F. Died of consumption. Married several years; no issue.	F. Died of consumption. Married several years; no issue.	F. Died of consumption. Aged 16.	M. Healthy. has 7 children.	M. Epileptic. Twice insane. Testes in abdomen. Married. No issue.

CASE II.

K. S——'s FAMILY.

M. Epileptic. — F. Had sister insane.

M. Epileptic. Dead. No issue.	F. Epileptic and insane. Dead. No issue.	M. Idiot. Impotent.	F. Sane as yet. Nine children; some imbecile.	F. Insane; suicidal. Incurable. No issue.

CASE III.

Father a drunkard.

Son.

A drunkard; disgustingly drunk on his wedding day.

Died of convulsions.	Idiot at 22 years of age.	Suicidal. A dement.	Peculiar and irritable.	Repeatedly insane.	Nervous and depressed.

CASE IV.

M. Died mad.

M. Imbecile.	M. Irritable.	M. — M. Died of brain disease.

F. Imbecile.	Epileptic.	Epileptic.	1 2 3 4 5 6 7 All seven died in convulsions.

CASE V.

F. A suicide.

M.	M. Insane.	F.	F.

Excitable.	Dull.	Epileptic. Imbecile.

CASE VI.

M. Mute. — F. Normal.

M. Mute. No issue.	F. Normal. — M. Normal.

F. Mute.	F. Mute.	M. Normal.	M. Normal.

M. Mute.

CASE VII.

J. G. A——'s FAMILY HISTORY.

	Paternal side.	*Maternal side.*
1st Gen.	Grandfather, a drunkard.	Grandmother, "odd."
	Grandmother, normal.	Grandfather, normal.
	Uncle, a drunkard.	Uncle, epileptic.
	Uncle, a drunkard.	Uncle, rheumatic, total cripple; and his daughter also.
2d Gen.	Uncle, an epileptic.	Uncle, rheumatic.
	Father, excitable and irritable.	Aunt, rheumatic.
		Mother, died in an asylum.
3d Gen.	Daughter, has had rheumatism and has heart disease.	
	Son, now insane.	
	Son, died a few days old of convulsions.	
	Son, now a chronic maniac in an asylum.	
	Daughter, suicidal melancholiac; died in an asylum; no issue. Family extinct.	

CASE VIII.

S. H——'s FAMILY.

M. Asthmatic. — F. Somewhat weak-minded.

1 Healthy.	2 3 4 5 6 Died in infancy in convulsions.	7 Drowned.	8 Epileptic.	9 Healthy.	10 Idiot.	11 12 Died in infancy in convulsions.

13 Healthy.	14 Scrofulous.

FATHER. Eeeentric, hypochondriae.

M. Suicide. Age 40.	M. Suicide, Age 35.	M. Suicide. Age 30.	M. Suicide.	Normal.	F. Suicide.

—*Falret.*

FATHER. Melancholia; died insane. — MOTHER. Nervous, emotional.

1 2 3 Died in infancy.	F. Melancholia.	F. Imbecile. One child, Deformed, Imbecile.	F. Suicide. 3 children.	M. Imbecile. No issue.	M. Insane. No issue.	M. Insane. One child, Imbecile.

1–5 Die in Infancy.	6 Insane.	7 Eeeentrie.	1. Imbecile. 2. Dies of apoplexy. 3. An artist.

8 9 Marry. No issue.

—*Doutrebeub.*

FATHER. Cancer. — MOTHER. Tubereulosis.

1 Died of lupus.	2 Died of pulmonary consumption.	3 Died of epileptiform convulsions.	4 Died of diabetes.	5 Died of eaneer.

Dr. Richardson.

In the midst of these overwhelming exhibits, surely the welfare of the community demands that marriage should be regulated. It is horrible to contemplate what will be the condition of the race in the future, and what will become of our social and political institutions if this wholesale production of abnormalities does not cease.

In most of the States of the Union a marriage license is necessary before the ceremony can be performed, but its requirements are insignificant. Let us agree that in addition, proper evidence must be furnished that both parties are in good health, that they are not insane, criminals, paupers, alcoholic nor narcotic inebriates, that they are not tuberculous, cancerous nor epileptic, and that they have not active venereal disease.

If the members of this great profession will unitedly advocate this great reform, they will succeed, and more than ever deserve the title of public benefactors.

AGE AND SEX INCIDENCE OF MORTALITY IN MICHIGAN FROM DIPHTHERIA AND FROM CROUP DURING TWENTY-FIVE YEARS, 1870–94; A STATISTIC STUDY.

Read by title in the Section on State Medicine, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

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No apology is necessary at the present time for a statistic study bearing upon the history of diphtheria and croup in the United States during recent years. It is only a short time since the etiologic characteristics of the disease, or diseases, dependent chiefly upon the presence of the Klebs–Löffler bacillus and associated microörganisms, have been definitely ascertained, and a still briefer time has elapsed since the antitoxin treatment, based entirely upon modern bacteriologic research, has promised to revolutionize entirely the treatment, and to greatly reduce the mor-

tality of this, by far the most fatal acute infectious disease prevalent in this country, or at least its northern part.

It is of especial importance, therefore, in order that it may be known whether the claims of the new method of treatment are substantiated by experience, that reliable statistics of immediately preceding periods be available for comparison, and in case the employment of the serum therapy in any given locality appears to be attended with a reduction in the death rate from diphtheria, that it be known whether such reduction was probably caused by the special measures employed, or whether a reduction in mortality was reasonably to be expected as a consequence of the periodic fluctuations characteristic of the history of this and most other epidemic diseases.

Usually on the introduction of a new remedy, the appeal is primarily to the results of hospital treatment. This was necessarily so in the present instance, as the curative serum was costly and difficult to be obtained at first by general practitioners. Later, with increased facilities for its production and the undertaking of its preparation by official agencies, its use was more generally diffused, and an appeal could be fairly made to the testimony of the mortality statistics prepared by the general registry offices. Hospital statistics are notoriously unreliable, it being often impracticable to eliminate or fully describe the selective influences that determine the characters of patients and the results of treatment, as well as the preliminary diagnoses upon which the statistic conclusions largely depend. Small numbers are also usually employed, in themselves a frequent source of fallacy. In the deductions drawn from general mortality statistics, on the other hand, these minor sources of error tend to neutralize one another, so that any marked change from the usual course of a disease may, with considerable certainty, be ascribed to some extraneous influence.

Purpose of the present paper.—The data contained in the present paper are not presented in the interest of any particular method of restriction or prevention of diphtheria, nor, primarily, to illustrate the value of the antitoxin or any other method of treatment. If the serum therapy shall prove to be of as great usefulness as at present appears likely, valuable evidence as to its efficacy will probably be derived from the comparison of the incidence of mortality by sex and periods of age, as presented in this paper, for Michigan for the pre-antitoxin period, with corresponding data to be tabulated later for the "antitoxin era." If the antitoxin method goes the way of the Bergeon, Koch's tuberculin and other "fads," nevertheless the evidence here presented may be of special interest to the sanitarian and to all students of State medicine, from its bearing upon the history and success of the methods of prevention and restriction of diphtheria advocated and carried out by the Michigan State Board of Health under the able direction of Dr. Henry B. Baker. In any event it seemed to me that an impartial account of the prevalence of diphtheria in Michigan, and one as accurate as the available statistics would permit, would be of service in advancing our knowledge of this disease.

As indicated by the title, the discussion is confined entirely to the presentation of two features, with their inter-relations, of the mortality in Michigan from diphtheria and croup, viz., the distribution by ages in periods of years and by sexes of the decedents. It will be necessary to preface the subject proper with some general account of the history of diphtheria in Michigan as a whole, and its relation to the recorded mortality from this cause in other States and countries, in order that the position of Michigan in reference to the disease may be understood. Other important features of the recorded mortality are purposely excluded from the present discussion, *e. g.*, the geographic distribution through the State,[1] relative death rates of rural and urban populations, and monthly and seasonal prevalence, with relations to meteorologic conditions.

The study will chiefly show: 1, the availability of mortality statistics known to be imperfect in certain directions for use in certain other directions, as evidenced by the constancy and clearness of their testimony; 2, the characteristic differences in the age and sex incidence of diphtheria and croup, and, inferentially, the inexpediency of confusing their statistics under the term "diphtheria and croup" from a statistic point of view; 3, the desirability of ascertaining the causes, and so far as practicable, of preventing the increased relative mortality from diphtheria of female children on reaching the age of five years and upward.

Source and character of data.—The Registration Reports of Michigan are utilized as the source of information. This series of annual reports began April 5, 1867, and is continued at the present time in substantially the same form that it originally assumed. The method of collection of data is imperfect, being nearly the same as that of the United States census in non-registration States, *i. e.*, an enumeration of the facts some time after their occurrence. Many deaths fail to be registered each year, and the deaths in months near the date of enumeration are more thoroughly collected than those of months more remote from it. The result is precisely as in the case of the United States census mortality statistics of non-registration States, that study of the monthly and seasonal prevalence of mortality is entirely misleading, unless a graduated "correction" be applied to the monthly returns, something nearly or quite impossible to satisfactorily accomplish;[2] and, secondly, that the absolute rates for the year, both of aggregate mortality and of individual causes, are considerably below the truth. For the latter imperfection it has been necessary to make an approximate estimate, since otherwise we should have no means of judging of the relative mortality of the State as compared with other States and countries. In the Registration Reports of successive years up to the year 1890, amounts of deficiency, different for each year, have been calculated, varying from 66.24 per cent. down to 9.92 per cent. of the original returns, and giving an average "correction" of about 40 per cent.[3] There has been, however, no evidence whatever to show that the accuracy of registration has been any greater in one year than in another; indeed, the only condition of usefulness of the data presented, as employed for comparison of mortality in successive years, involves the assumption that the degree of imperfection of registration remained substantially the same from year to year.

[1] For geographic distribution, see Michigan Registration Report for 1892, map opposite p. 195; the period is one of five years, 1888 to 1892, and diphtheria and croup are taken as one disease. See also the maps of diphtheria and croup (separately) in the Mortality and Vital Statistics Report of the Tenth Census, in which, however, percentages to total deaths, and not death rates, are shown.

[2] See Mortality and Vital Statistics of the Tenth U. S. Census, Part I, p. xi.

[3] Mich. Reg. Rep., 1891, p. 132.

This is the assumption under which the vital statistics of successive United States censuses are compared, and is, in fact, even more tenable as regards the Michigan statistics, since they have been collected under an unaltered law and by precisely the same registration machinery, at least since 1869. For this reason the writer has rejected the variable "correction" formerly employed in the reports, and has substituted since 1891, and employs in the present paper, an estimation—a mere guess, somewhat qualified by study of actual registered death rates of certain Michigan cities, and knowledge of the general rate of mortality of similar populations—that the returns of deaths in Michigan should be increased by about 60 per cent. to give the actual deaths that occurred. This estimate is probably sufficiently low, corresponding to an increase of the registered mortality from about 10 per 1,000 to an estimated actual mortality of about 16 per 1,000 population; is applied uniformly to successive years, and to the subdivisions of population, by sex, periods of age, etc.; and is only applied when the Michigan statistics are brought into relation with approximately correct rates of registration States or countries for direct comparison. For study of the *course of mortality*, the uncorrected rates, if only the assumption of their substantial uniformity of inaccuracy be granted, are as reliable as more complete ones.

Having stated the chief respects in which the Michigan statistics can not be taken at their face value, viz., monthly and seasonal distribution of mortality and absolute death rates, the following points upon which the results obtained from the Michigan returns are probably fully correct and reliable may be stated: 1, relative mortality from all causes and from special causes of death in successive years—the latter subject to the usual criticisms dependent upon defective diagnosis; 2, geographic distribution of mortality through the State; 3, proportions of deaths from specified causes to total mortality—this, however, a discredited ratio in vital statistics, although much used in the United States census reports in default of a better; 4, incidence of mortality by sex; 5, incidence of mortality by age. It is with the two latter features that the present paper is specially concerned, and it should be clearly understood that the admitted deficiency of Michigan registration in certain particulars in no wise affects the indications drawn from a large and fully representative mass of returns in regard to the facts of age and sex incidence of mortality from diphtheria and croup.

Statistic nomenclature and classification of diphtheria and croup.—The statistic study of a disease is necessarily secondary, in point of time, to its clinical study. It follows that uncertainty in diagnosis, confusion as to the true clinical and etiologic characters of a disease, or confusion of one disease with another, will be reflected in the vital statistics subsequently collected. The advances of knowledge in methods of exact diagnosis are shared, first, by the most progressive members of the medical profession, or possibly, by specialists in certain fields of investigation, in whose particular lines of research the advances were made; second, the rank and file of the profession adopt the discovery and it becomes a part of ordinary professional opinion; and lastly, the new knowledge filters through medical opinion and is more or less rapidly and thoroughly disseminated by the press until it finally becomes a part of the common belief of the people. It is from the people themselves, as a rule without the immediate intervention of professional opinion, that the data in regard to causes of death are collected in Michigan, and the foregoing considerations are given in explanation of the facts that they are apt to be somewhat indefinite in character and, further, that the returns of any year do not correspond to the latest professional knowledge of the time. There is in this an advantage, however, that the returns are not affected by the more transient waves of medical thought, but only by those deeper currents representing well-grounded changes in medical belief.

The vital statistics of Michigan do not extend back, by about ten years, to the time of the first general recognition of diphtheria in this country. It is probable that substantially the same clinical distinctions between diphtheria and croup have existed during the entire twenty-five-year period. The early confusion between diphtheria and croup, prior to the recognition of the "new disease," such as appears in plain evidence in the death rates of Chicago (Table 2), had been outgrown, and the recent tendency to report deaths from what would have formerly been considered "croup" or "membranous croup," as diphtheria pure and simple, has probably not affected the statistics to a very great extent, although it may be expected to show a marked influence in the next few years.

Bacteriologic analysis, by its proof of the Klebs-Löffler bacillus as the cause of true diphtheria, has laid the foundation of future exact statistics of this and related diseases. But we should not allow our statistic methods to outrun the actual advance of knowledge. While on the one hand, there is undoubted evidence that many cases of croup are diphtheritic in character and due to the infection of the Klebs-Löffler bacillus, it is equally positive that a certain proportion of them are not diphtheritic. Indeed, a certain fairly large proportion of cases of clinical diphtheria is found to be lacking in the presence of the essential germ, under our present methods of recognition, while in the undoubted cases of true diphtheria the action of the Klebs-Löffler bacillus is modified so largely by the presence of other species of microörganisms that the tendency is undoubtedly, at present, in the direction of a more minute analysis of true diphtheria, rather than to the inconsiderate consolidation of diseases possessing quite distinctive clinical, etiologic and statistic characters. Professor Novy of the University of Michigan well remarks, "That which for clinical or anatomic reasons is described as a definite disease, may in reality be far from be an entirety. . . . What was called a disease becomes, through the study of its etiology, a group of diseases. The old typhoid fever has passed through such a history, and we may say in advance that diphtheria has recently experienced a similar development."[4]

In the older Farrean classification of causes of death, as employed at present in the Massachusetts and Rhode Island Registration Reports, and in the Michigan Registration Reports up to the year 1892, diphtheria and croup are placed together, but separately, among the zymotic diseases. In the later classification adopted by the Registrar-General of England, and which is in use in most of the English colonies and in certain States of this country, croup

[4] Etiology of Diphtheria, Trans. Mich. State Med. Soc., 1894, p. 396.

is removed from its position in conjunction with diphtheria, and placed among the diseases of the respiratory system under the class of local diseases. This was undoubtedly a mistake, although made with the sanction of the Royal College of Physicians at the time (1883), for recent bacteriologic evidence makes it clear that a large proportion, perhaps at least 75 per cent., of cases of croup is in reality diphtheritic. The distinction made by the Italian reports[5], which place "difterite (crup difteritico ed altre forme difteriche)" under the head of infectious diseases, while "crup non difteritico" is put under the head of diseases of the respiratory organs, would be valuable, were it not certain, in the light of our present bacteriologic knowledge, that the practical distinction of non-diphtheritic from diphtheritic croup must have been quite impossible at the time this classification was adopted. The tendency at present, as evidenced by many European (continental) reports, and some in this country, is to combine the mortality reported from diphtheria and croup under one title, namely, diphtheria and croup, or simply diphtheria. Bertillon says, referring to his proposed statistic nomenclature of causes of death, which was presented to the International Statistical Institute, Chicago, 1893:[6] "It is very important for exactness of international comparison that the titles 'diphtheria' and 'croup' should always be placed side by side to facilitate adding the numbers; we prefer to combine them under a single title." This latter preference I can not but regard as unfortunate for the reason that such statistics of diphtheria and croup cease to be comparable with those of diphtheria and croup stated separately, as found in all reports following the present Registrar-General's classification. An even worse method, considered statistically, however justifiable it may be from the present bacteriologic and from a sanitary point of view, is the plan boldly adopted in the Chicago report for the year 1894, of adding bodily 80 per cent. of the reported deaths from croup to diphtheria. The rates thus changed become wholly incomparable with those of previous years, which should have been either changed in a similar manner, or, better, an additional column showing the aggregate mortality from diphtheria and supposed diphtheritic croup might have been given. "It is not the duty of a statistic officé to interpret diagnosis (that is to say, to guess at what has been left incomplete). It can only register facts as they are formulated." (Bertillon.)

In the provisional classification of causes of death employed in the Michigan Registration Reports since 1892, I have placed the returns of diphtheria, croup and membranous croup side by side, in order that the summation or total deaths from diphtheria and croup, might be readily obtained, while at the same time the statistic integrity of each cause of death, as returned, remained unimpaired. The aggregate number of deaths registered during the twenty-five years from diphtheria and croup was 28,088, of which number there were 21,095 deaths reported as diphtheria, 5,897 as croup (otherwise unspecified) and only 1,096 as membranous croup. The very few cases returned as spasmodic croup are included under simple croup, while a few returned as diphtheritic croup have been compiled under diphtheria. So also are included under the latter head a few cases of "putrid sore throat" occuring during the early years of registration.

General prevalence of diphtheria and croup in Michigan.—Two tables are given in illustration of this subject, which show respectively the general importance of diphtheria as a cause of death during recent periods of years in certain European countries, Australasian colonies, and in the United States; and the course of diphtheria and croup as registered year by year in Michigan, compared with Chicago, Massachusetts, England and Wales, and the colony of Queensland.

TABLE 1.—Comparison of death rates per 100,000 population from diphtheria, and from diphtheria and croup in certain countries, states and cities during recent periods of years.

Country, State or City.	Years.	Rate per 100,000 population.	
		Diphtheria.	Diphtheria and Croup.
Europe.			
Austria	1887–91		132.0
Belgium	1887–91		57.7
England and Wales	1887–91	17.4	29.1
London	1897–91	32.3	
Cities, 28 largest	1890		21.9
France (cities)	1887–91	66.6	
Germany (cities)	1887–91		102.1
Cities, 28 largest	1890		92.0
Holland	1987–91	14.5	36.6
Italy	1887–91	60.8	70.5
Ireland	1887–91	7.6	23.7
Prussia	1887–91		141.7
Sweden	1887–91	38.9	52.0
Switzerland	1887–91		35.3
Australasia.			
New South Wales	1878–87		47.7
New Zealand	1878–87		24.2
Queensland	1878–87		47.5
South Australia	1878–87		59.3
Tasmania	1878–87		44.6
Victoria	1878–87		41.7
America.			
United States, registration States	1890	63.0	95.4
Cities, 28 over 100,000 pop.	1890		116.6
Massachusetts	1886–90	61.6	85.0
Baltimore	1885–90		80.1
Boston	1885–90		124.5
Brooklyn	1885–90		164.4
New York	1885–90		181.6
Philadelphia	1885–90		98.3
Washington	1885–90		59.6
Chicago	1885–89	119.9	170.7
Chicago	1890–94	72.7	100.3
Detroit	1890–94		164.0
Grand Rapids	1890–94		100.3
Michigan, as returned	1885–89	47.4	67.8
Michigan, as returned	1890–94	45.6	59.3
Michigan, as estimated	1885–89	75.8	108.5
Michigan, as estimated	1890–94	73.0	94.9

NOTE.—The data for Europe are from the *Statistica delle Cause di Morti*, Rome, 1894, and have been kindly revised by Prof. Richmond Mayo-Smith of Columbia College, from whose work, Statistics and Sociology, they were taken. The rates for Australasia are as given in the Victorian Year Book, 1894. The rates for the American cities during the six-year period, 1885–90, are from the special investigations of the Eleventh U. S. Census. The rates from diphtheria for Chicago are the means of the rates stated for the five-year periods in the valuable "Chronological Summary of Chicago Mortality, 1851–1894," forming a part of the *Annual Report of the Department of Health* for the year 1894. In obtaining the rates for croup from this Summary the writer nearly fell into error from the fact that the column in the statistics of this disease (p. 250) corresponding in position to the column of death rates per 10,000 population in all of the other tables, does not contain death rates, as stated by the general heading, but instead contains "percentages of total deaths;" it was necessary to calculate all of the rates given for croup in Table 2, and from these annual rates the means given above were obtained. For the Michigan cities, Detroit and Grand Rapids, reference was made to the table in the *Michigan Registration Report*, 1893, p. 248, the rates in which were based upon the deaths actually registered by the city health officers, and recorded in their monthly or annual reports.

Table 1 indicates the world-wide extension and universal importance of diphtheria as a cause of death.[7] Incidentally it shows the inconvenience in

[5] Elenco systematico delle cause di Morte, *Statistica delle cause di Morte*, 1885, p. LIII.

[6] Translated and appended to Report of Committee on Nomenclature and Forms of Vital Statistics made to the American Public Health Association, Montreal, 1894.

[7] Cape Colony has only just adopted a general registration system (Act of 13th July, 1894), so that data representative of Africa are not available. It may be noted, however, for certain cities and towns of Cape Colony the death rates from "diphtheria and croup" in 1894 were extremely high: Cape Town, 80.4; King William's Town, 83.0; Worcester, 92.5; Malmesbury, 162.5; Beaufort West, 179.1; Murraysburg, 382.8; Aberdeen, 398.4, all rates per 100,000 population. The antitoxin treatment has come into general use, serum being supplied to medical men free of cost.—*Cape of Good Hope Reports on the Public Health*, 1894, p. xxiv.

making comparisons arising from the fact that for some countries and cities rates for diphtheria only, in others for diphtheria and croup only, could be obtained. We notice that England and Wales, Ireland, Holland and Switzerland, show a low mortality as compared with other countries of Europe, that the prevalence in Australasia is light compared with Europe and America, and that the mortality in America is very high as a rule. The rates for the twenty-eight largest cities of the United States, Germany and England, are from the report made to the Eighth International Congress of Hygiene and Demography, Budapest, 1894, by the American Committee on Diphtheria, whose chairman was Dr. J. S. Billings, ex-Deputy Surgeon-General U. S. Army, editor of the "Vital Statistics Reports of the Tenth and Eleventh U. S. Censuses," and the foremost American authority on the subject.

TABLE 2.—Course of mortality from diphtheria and from croup—annual rates per 100,000 population—in Michigan, compared with Chicago, Massachusetts, England and Wales, and Queensland.

Year.	Michigan as returned.			Chicago.		Massachusetts.		England and Wales.		Queensland.	
	Diphtheria.	Croup. Membranous.	Croup.	Diphtheria.	Croup.	Diphtheria.	Croup.	Diphtheria.	Croup.	Diphtheria.	Croup.
1855					60.9			2.0	23.9		
1856					84.6			3.2	27.7		
1857					184.9			8.2	27.7		
1858					208.6	1	42	33.9	31.9		
1859				1.1	170.6	2	44	61.7	28.6		
1860				140.9	114.3	21	47	26.1	22.0		
1861				93.8	102.8	52	37	22.5	21.9		
1862				54.0	73.0	53	39	24.1	27.8		
1863				91.3	117.4	113	69	31.6	23.7		
1864				67.9	106.1	98	61	26.1	32.4		
1865				94.7	154.1	53	40	19.6	28.0		
1866				67.0	80.8	31	33	14.0	24.1		
1867				34.7	44.3	19	26	12.0	20.2		
1868				34.5	45.0	22	35	13.7	20.4		
1869				46.4	49.7	21	33	11.7	20.2		
1870	10.2	.3	10.5	63.4	81.4	17	29	12.0	18.1		
1871	9.9	.6	12.0	29.0	41.6	18	32	11.1	19.1		
1872	15.6	.8	12.1	40.3	55.3	18	31	9.3	15.7	27.8	30.2
1873	16.9	.5	12.8	24.2	35.0	19	28	10.8	18.8	52.1	43.6
1874	16.2	.7	9.9	19.7	22.3	31	25	15.0	21.1	30.3	35.6
1875	15.4	.8	11.3	31.2	34.5	73	41	14.2	18.9	36.0	38.9
1876	22.8	1.5	10.9	111.3	67.5	158	41	12.9	17.2	29.3	40.2
1877	40.1	1.3	9.8	77.4	54.9	158	33	11.1	15.8	22.6	43.6
1878	57.9	2.4	13.0	67.3	51.1	116	34	14.0	16.2	8.2	30.5
1879	98.3	2.8	14.7	122.9	73.9	101	33	12.0	14.1	11.7	21.0
1880	94.2	4.0	16.7	184.8	105.8	99	36	10.9	13.8	13.5	25.7
1881	122.0	3.8	18.7	112.8	73.7	94	32	12.1	13.8	12.7	89.8
1882	81.1	2.6	17.4	94.8	41.3	69	26	15.2	17.5	12.2	30.3
1883	56.0	2.9	15.8	102.1	21.5	58	28	15.8	17.2	14.6	40.3
1884	67.5	2.2	15.4	103.0	40.6	56	29	18.6	17.6	13.7	31.6
1885	55.7	2.4	15.4	106.2	46.0	51	27	16.4	15.6	27.3	38.0
1886	57.8	6.4	15.3	134.1	50.9	53	26	14.9	13.4	29.5	30.7
1887	47.4	5.9	14.3	131.8	52.9	55	26	16.0	14.3	26.5	18.3
1888	35.9	4.5	19.1	106.8	54.6	65	24	17.1	12.9	22.8	18.6
1889	41.3	2.2	17.4	120.4	60.0	80	22	18.9	11.4	22.7	18.9
1890	60.5	2.7	19.8	72.8	31.3	55	17	17.9	10.9	39.1	16.9
1891	43.7	1.6	11.9	76.7	32.0			17.8	9.1	38.8	11.9
1892	47.1	8.7	9.7	70.5	37.0			22.2	7.6	25.7	16.6
1893	43.5	1.9	9.8	60.9	30.6			21.8	7.1		
1894	28.6	2.0	6.1	82.4	7.3			29.2	5.8		

In Table 2 the fluctuations, but not the absolute rates, of the mortality in Michigan from diphtheria and croup may be compared with corresponding rates for Chicago, Massachusetts, England and Wales, and Queensland for successive years. These comparative data are chosen for their special significance. The course of the disease in Chicago, from its geographic proximity, may be taken as corresponding fairly closely to that in Michigan, but it extends over a longer series of years, in fact from beyond the first recognition of the disease diphtheria as such during the present period of prevalence. The high death rate from "croup" in 1858 and 1859, during which years practically no "diphtheria" was reported, together with the high death rate from diphtheria in 1860 attended with some decline of the rate from croup, are indicative of the confusion between these diseases which was present at its first outbreak. Until about 1875 croup had caused a larger annual mortality in Chicago than diphtheria as a rule, but since that time diphtheria has been the more fatal. It should be remembered that for 1894 the compiler of the Chicago statistics has taken 80 per cent. of the registered mortality from croup and added it to diphtheria, thus disturbing the true relations of these causes of death as returned.

Massachusetts was selected as a State fairly representative of the East, and because her system of registration is the oldest and probably the most perfect of any in this country. The data are from the Registration Report of 1890, the rates having unfortunately not been continued in later reports.

Besides the rates given for England and Wales as representative of European statistics of diphtheria, it would have been desirable to present a corresponding series for Germany or some other continental country, in which the disease is far more prevalent, as a rule, than in England. Unfortunately statistics were not at hand for this comparison, so that the general relations indicated in Table 1 can only be referred to as illustrative of the general European mortality from this disease.

The data for Queensland, which colony was taken as fairly representative of Australasian experience, do not extend back as far as would be desirable in order to show the early development of diphtheria as a cause of death in the Southern Hemisphere. They were, however, the longest series of death rates accessible to the writer, and have been taken directly from the annual reports of the Registrar-General of that colony. A complete file of the annual reports of New South Wales, beginning with the year 1857, completely covers the history of the disease, but, unfortunately, for the early years of registration the zymotic diseases are all grouped together, without stating separately the number of deaths due to each cause. The first mention of diphtheria occurs in the Report for the year 1864, but the disease had occurred to some extent during previous years, and had been tabulated as quinsy. An interesting table is given in the 9th Annual Report for 1865 showing the deaths annually registered from certain diseases during previous years, part of which is here given:

Deaths registered in New South Wales, 1856–64.

Year.	Scarlatina.	Quinsy.	Diphtheria.	Croup.
1856	81	4		61
1857	33	4		38
1858	165	6		69
1859	120	50		85
1860	89	115		52
1861	70	153		74
1862	103	309		35
1863	95	51	239	142
1864	350	32	162	85

General age and sex incidence of diphtheria and croup in Michigan during the twenty-five-year period, 1870-94.—In Table 3 are given the condensed results of registration for twenty-five years as regards these particulars. About 85 per cent. of all decedents from croup were under five years of age, and about 13 per cent. were aged from 5 to 9 years. The proportions at more advanced age periods were insignificant. From diphtheria a smaller percentage of deaths occurred under 5 years of age (46.3 per cent. for males, 42.1 per cent. for females), about one-third of the total deaths was at the period of 5 to 9 years,

while the period 10 to 14 showed about the same proportion of deaths from diphtheria as the preceding quinquennial period did from croup. Nearly 8 per cent. of all deaths from diphtheria were of persons over 15 years of age.

The death rates per 100,000 mean population from croup are much less than those from diphtheria at every period of age except the first (0-4); the greater concentration of deaths from croup into this period raises the rate of mortality from croup to over 50 per cent. of that from diphtheria.

As regards sex, the marked distinction will be noted that croup causes more deaths of males, diphtheria more deaths of females. Comparing the death rates at each age period by sex (and thus eliminating the unequal distribution of the sexes in the population, which would affect the results if the numbers of deaths of each sex were only compared), we find that the proportion of death rates of males is higher than that of females for croup at all ages and during the quinquennial age periods, 0-4, 5-9, 15-19. For the period 10 to 14 a lower rate appears for males, while for ages over 20 years the rates are equal. There were only 102 deaths returned from croup over 10 years of age, so that the proportions above the first two periods of age should probably be rejected from insufficiency of data. Except for the first five-year period, during which the death rates of each sex are nearly the same, with a slight excess of males, diphtheria shows a markedly greater fatality among females. From 5 to 9 years of age about eighteen males die for every twenty females; from 10 to 19 about seventeen males to every twenty females, and above 20 years of age the disproportion is still greater, being at the rate of only about thirteen males to twenty females.

In both age and sex incidence, membranous croup is seen to occupy an intermediate position between croup, returned only as such, and diphtheria. Contrary to what might have been expected, the proportions, both by sex and age, appear to stand in somewhat closer relation to those of croup than to those recorded for diphtheria. It is therefore obvious that in the statistic treatment of deaths returned from "membranous croup," consolidation with croup is more desirable than consolidation with diphtheria, provided the apparent distinction between these two latter forms of return is to be maintained. This position leaves open the question as to whether all deaths from croup are not largely diphtheritic, the peculiar age and sex incidence of the former being due to clinical distinctions not borne out by bacteriologic criteria.

In any case, from the small number of deaths reported from membranous croup, we shall be justified in neglecting this item, and referring chiefly to the deaths reported as croup and diphtheria in the following comparisons. Also, for convenience, the series of five consecutive quinquennial periods from 1870 to 1894 is generally employed rather than single years. Rates of the average deaths in each period, carefully computed from the mean population, are used, not the means of the annual rates. Since only .4 per cent. of decedents from croup were over 20 years of age, and only about 3.5 per cent. of those from diphtheria exceeded 20 years, we shall be justified in grouping all decedents aged 20 years or over together, analysis by quinquennial periods of age being confined to decedents under 20 years of age. We accordingly have four consecutive five-year periods, viz., 0-4, 5-9, 10-14, and 15-19, the study of which is practically exhaustive for the causes of death under consideration. Indeed, it will be found that so few deaths are reported for croup above the age of 10 years, that only the data referring to the first two quinquennial periods are of value in the discussion of this disease.

TABLE 8.—Showing, for the twenty-five-year period, 1870-94, in Michigan: 1, the percentage of deaths, by sex, at certain periods of age, as returned from croup, membranous croup and diphtheria; 2, the death rates per 100,000 population of same age and sex from each disease; 3, the ratios of death rates of males to death rates of females at each period of age

Causes of death as returned 1870-94.	Sex.	Periods of age of decedents.					
		All ages.	Under 5 years.	5 to 9.	10 to 14.	15 to 19.	20 and over.
Per cent. of total deaths from each cause at known ages.							
Croup. . . .	Males. .	100.0	85.7	12.7	1.0	.2	.4
	Females.	100.0	84.9	13.2	1.4	.2	.4
Croup, membranous. .	Males. .	100.0	72.2	25.3	2.0	.2	.3
	Females.	100.0	73.3	20.7	4.3	.2	1.4
Diphtheria .	Males. .	100.0	46.3	33.4	13.0	4.1	3.1
	Females.	100.0	42.1	34.9	14.4	4.7	4.0
Rates per 100,000 population of same age and sex.							
Croup. . . .	Males. .	14.6	103.3	16.2	1.4	.3	.1
	Females.	12.7	83.8	13.7	1.7	.2	.1
Croup, membranous. .	Males. .	2.7	16.1	6.0	.5		
	Females.	2.4	13.5	4.0	.9		.1
Diphtheria .	Males. .	45.8	175.3	134.2	56.4	19.7	2.5
	Females.	52.2	171.4	149.3	67.1	23.3	3.8
Per cent. of death rates of males to death rates of females.							
Croup. . . .	. . . . .	115.0	123.3	118.2	82.4	150.0	100.0
Croup, membranous. .	. . . . .	112.5	119.3	150.0	55.6		
Diphtheria .	. . . . .	87.7	102.3	89.9	84.1	84.5	65.8

Sex incidence of diphtheria and of croup by years and quinquennial periods.—Sex incidence at all ages is shown in Table 4 for diphtheria, croup and membranous croup. Individual years are given as well as the results for quinquennial periods. With the exception of a single year, 1873, the death rates of males from diphtheria are lower than those of females; with five exceptions, 1874, 1884, 1889, 1893 and 1894, the contrary is true for croup. From the small numbers involved, the relations of the mortality of the sexes from membranous croup may be expected to present less uniformity, but on the whole the death rates of males are greater, as with croup reported without further specification.

In the last two columns of this table the ratios of death rates of males to death rates of females from diphtheria and from croup are stated, the death rates of the females being taken as a basis (100.0 per cent.) in each case. This form of expression, which eliminates the error incident to comparison of deaths of males and deaths of females as returned without allowance for relative numbers of each sex in the population, will also be used in Table 5 for comparing the relative mortality of the sexes from each disease at the different age periods. It will be called, for convenience of reference, the *relative male mortality.* (See upper part of diagram.)

The relative male mortality from croup was slightly higher during the last quinquennial period than during the first; it rose rapidly from 1870-74 to 1875-79, declined nearly as quickly as it rose for the next two periods, and rose again from 1885-89 to 1890-94. The relative male mortality from diphtheria fell slightly from 1870-74 to 1875-79, but has risen since that time. It must be remembered that these statements refer solely to the quinquennial periods as a whole; within these periods are many minor oscillations in the opposite direction to that of the general tendency of the ratios.

By age periods, it will be noted that the curve of croup, 0-4, corresponds very closely to the relative male mortality of croup at all ages, as should evidently be the case, since about 85 per cent. of all decedents from croup were under 5 years of age. The relative male mortality of decedents from croup aged 5-9 may be said to exaggerate the variations of the group 0-5, rising and sinking more rapidly than the latter, but moving in the same general direction.

The relative male mortality of diphtheria for the two periods, 5-9, 10-14, corresponds closely to the relative male mortality of diphtheria at all ages. That of decedents under 5 years of age moves in the opposite direction to that of the two following periods, but on the whole shows little variation. The age period, 15-19, as is generally the case when the aggregate number of deaths is becoming too small for reliable inferences, shows the most violent changes. The relative male mortality from diphtheria between the ages of 15 and 19, during the period 1885-89, exceeded the relative male mortality from croup at any age, something quite the reverse of the usual experience.

TABLE 4.—Death rates by sex, from diphtheria, membranous croup and croup, as returned in Michigan for each of the years, 1870-91; with rates for the quinquennial periods included, and for the twenty-five-year period. Also per cent. of death rates of males from diphtheria and from croup to corresponding death rates of females.

Years and periods.	Death rates per 100,000 population, by sex.						Per cent. of death rates of males to death rates of females.	
	Diphtheria.		Membranous Croup.		Croup.			
	Males.	Females.	Males.	Females.	Males.	Females.	Diphtheria.	Croup.
1870 . .	9.1	11.5	.3	.2	11.5	9.4	79.1	122.3
1871 . .	8.3	11.6	.8	.3	12.2	11.6	71.6	105.2
1872 . .	13.4	18.0	.9	.7	13.1	11.0	74.4	119.1
1873 . .	17.1	16.6	.9	. .	14.2	11.3	103.0	125.7
1874 . .	15.5	17.0	.9	.6	9.6	10.2	91.2	94.1
1875 . .	15.0	15.8	1.2	1.3	12.8	9.5	94.9	134.7
1876 . .	21.4	24.3	1.2	1.8	12.8	8.9	88.1	143.8
1877 . .	38.5	41.8	1.3	1.3	10.9	8.5	92.1	128.2
1878 . .	49.3	67.4	2.5	2.3	14.1	11.7	73.1	120.5
1879 . .	85.8	101.6	2.2	3.6	17.7	11.3	84.4	156.6
1880 . .	86.3	103.0	4.1	3.9	17.2	14.1	83.8	122.0
1881 . .	115.8	128.9	4.4	3.1	21.3	15.7	89.8	135.7
1882 . .	73.1	90.1	3.2	2.1	19.9	14.5	81.1	137.2
1883 . .	52.8	59.4	2.9	2.9	16.3	15.2	88.9	107.2
1884 . .	51.5	64.0	2.5	1.8	14.6	16.3	80.5	89.6
1885 . .	50.6	61.2	2.8	2.0	15.8	14.9	82.7	106.0
1886 . .	54.6	61.3	5.6	5.1	15.3	15.3	89.1	100.0
1887 . .	45.9	49.0	6.6	5.2	15.4	13.1	93.7	117.6
1888 . .	35.4	36.4	4.4	4.6	20.3	17.7	97.3	114.7
1889 . .	40.1	42.7	1.8	2.8	16.1	18.7	93.9	86.1
1890 . .	57.1	64.2	3.5	1.8	22.3	17.1	88.9	130 4
1891 . .	49 1	50.5	1.6	1.7	12.0	11.7	97.2	102.6
1892 . .	46.6	47.5	3.7	3.6	11.4	8.0	98.1	142.5
1893 . .	39.5	47.8	1.9	1.9	9.7	10.0	82.6	97.0
1894 . .	27.1	30.3	2.1	1.8	5.8	6.4	89.4	90.6
1870-74.	12.8	15.0	.8	.4	12.1	10.7	85.3	113.1
1875-79.	43.2	51.6	1.7	1.9	13.7	10.0	83.7	137.0
1880-84.	75.1	88.2	3.4	2.7	17.8	15.2	85.1	117.1
1885-89.	45.2	49.9	4.2	3.9	16.6	16.0	90.6	103.8
1890-94.	47.8	43.7	2.6	2.2	12.1	10.5	91.4	115.2
1870-91.	45.8	52.2	2.7	2.4	14.6	12.7	87.7	115.0

Age incidence of diphtheria and of croup by quinquennial periods.—In the first part of Table 5 the ratios of deaths by sex, to total deaths at all ages from diphtheria and from croup are shown, for each of the quinquennial age periods studied, at each of the five-year periods of registration lying between 1870 and 1894. (See second part of diagram.) It will be observed that the lines representing the sexes are nearly parallel, thus showing that the influence exerted by the factor of sex at each age period is very nearly constant. The only exceptions to this rule are croup, 0-4, for the period 1875-79, and diphtheria, 5-9, during the last quinquennial period of registration, 1890-94.

The ratio of mortality from croup under 5 years of age to total mortality from croup at all ages is nearly double that from diphtheria at the same or at any other age period. Its course is nearly uniform, and averages about 85 per cent. for both sexes.

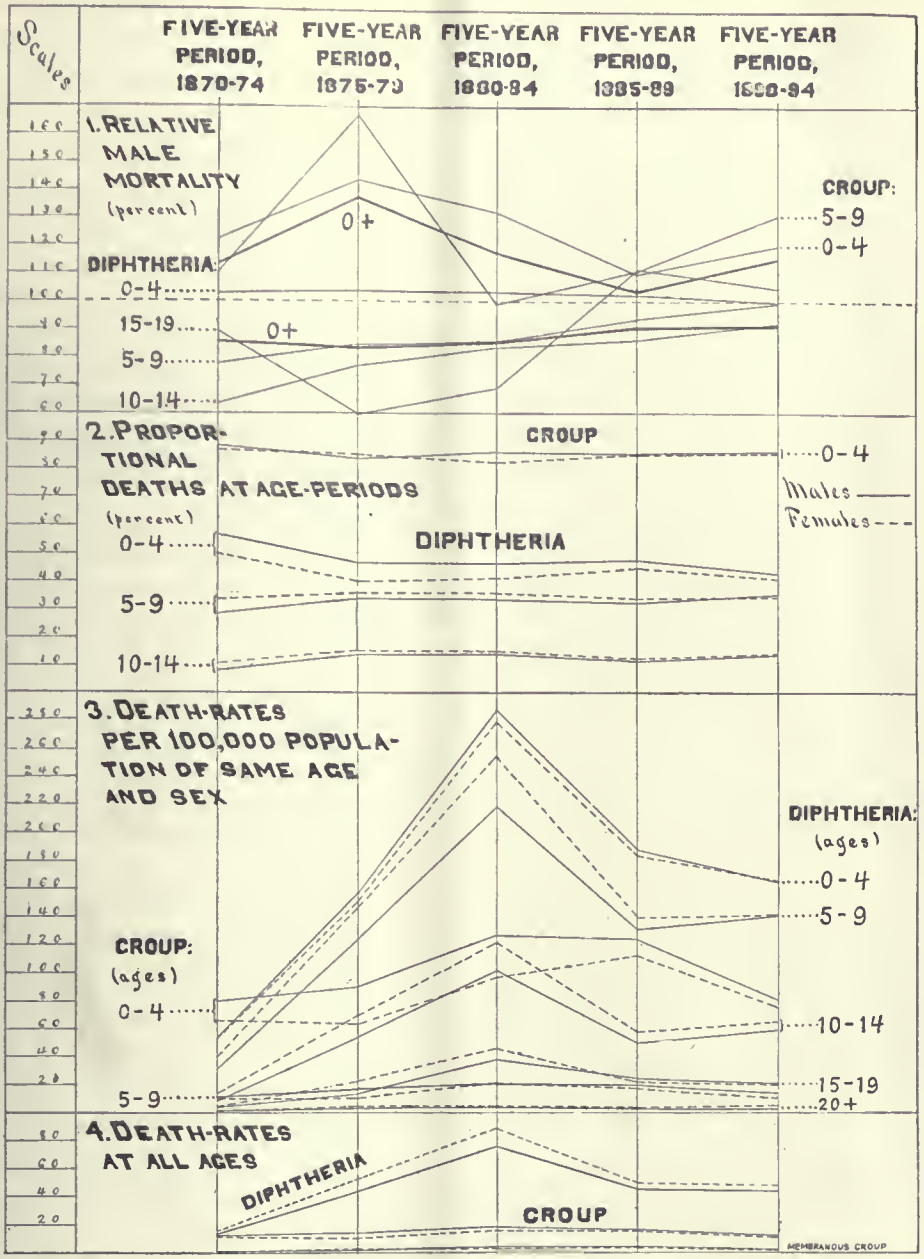
The curves representing the proportional mortality from diphtheria at the periods 5-9 and 10-14 are nearly parallel, and show a slight increase between the two most recent quinquennial periods. Both rose from 1870-74 to 1875-79, continued nearly stationary from 1875-79 to 1880-84, and declined together from 1880-84 to 1885-89. It is evident that the curve representing the proportional mortality from diphtheria in children under 5 years of age must exhibit changes of a compensatory character, that is to say, as appears after examination of the figures, the ratio of decedents from diphtheria aged 0-4 fell from 1870-74 to 1875-79, remained nearly stationary from 1875-79 to 1880-84, rose from 1880-84 to 1885-89, and fell again from 1885-89 to 1890-94.

TABLE 5.—Showing, by sex, the proportional deaths, death rates per 100,000 like population and ratios of death rates of males to death rates of females, at ceriain periods of age, from diphtheria and from croup, according to the returns in Michigan during five quinquennial periods, 1870-94.

Five-year periods.	Causes of death as returned.	Sex.	Periods of age of decedents.				
			Under 5 years.	5 to 9	10 to 14	15 to 19	20 and over.
Per cent. of total deaths from each cause at known ages.							
1870-74. .	Croup.	Males. .	88.1	10.9	.8		.3
		Females.	86.8	11.9	.6	.3	.3
	Diphtheria	Males. .	56.4	28.3	7.6	2.6	5.0
		Females.	49.8	33.5	10.9	2.7	3.1
1875-79. .	Croup.	Males. .	83.5	13.9	1.9		.8
		Females.	85.2	12.2	2.0		.6
	Diphtheria	Males. .	46.5	33.5	13.6	2.9	3.4
		Females.	39.9	35.7	15.6	4.5	4.3
1880-84. .	Croup.	Males. .	86.0	12.7	.7	.1	.5
		Females.	82.3	16.2	1.4		
	Diphtheria	Males. .	46.3	33.2	14.1	3.9	2.5
		Females.	41.0	35.6	15.4	5.3	2.7
1885-89. .	Croup.	Males. .	85.5	12.9	1.1	.2	.2
		Females.	85.4	12.9	1.1		.6
	Diphtheria	Males. .	47.8	32.4	11.3	5.2	3.3
		Females.	44.9	33.7	12.7	4.6	4.0
1890-91. .	Croup.	Males. .	86.1	12.4	.9	.4	.1
		Females.	85.7	11.6	2.0	.6	.2
	Diphtheria	Males. .	43.0	35.3	13.8	4.5	3.4
		Females.	41.1	34.5	14.4	4.2	5.7
Rates per 100,000 population of the same age and sex.							
1870-74. .	Croup.	Males. .	79.2	10.7	.8		.1
		Females.	65.1	9.9	.6	.3	.1
	Diphtheria	Males. .	53.9	30.3	8.5	3.4	1.2
		Females.	52.4	39.1	23.5	3.8	.9
1875-79. .	Croup.	Males. .	89.9	16.4	2.3		.2
		Females.	62.6	9.8	1.7		.1
	Diphtheria	Males. .	156.4	123.3	83.3	13.0	2.6
		Females.	150.9	146.1	69.2	21.8	4.1
1880-84. .	Croup.	Males. .	126.8	19.8	1.3	.2	.2
		Females.	96.2	20.0	2.0		
	Diphtheria	Males. .	287.4	218.6	101.1	30.8	3.3
		Females.	278.8	255.3	121.4	44.7	4.5
1885-89. .	Croup.	Males. .	123.6	19.1	1.7	.4	.1
		Females.	112.6	17.2	1.8		.2
	Diphtheria	Males. .	188.0	130.4	49.6	24.6	2.6
		Females.	183.6	139.3	57.7	22.1	3.7
1890-94. .	Croup.	Males. .	91.2	13.7	1.1	.6	
		Females.	76.0	10.5	3.0	.6	
	Diphtheria	Males. .	164.9	140.9	59.2	20.6	2.5
		Females.	165.4	141.8	64.3	19.7	4.9
Per cent. of death rates of males to death rates of females.							
1870-74. .	Croup.		121.7	110.1	133.3	.0	100.0
	Diphtheria		102.9	77.5	63.0	89.5	133.3
1875-79. .	Croup.		143.6	167.3	135.3		200.0
	Diphtheria		103.6	84.4	77.0	59.6	63.4
1880-84. .	Croup.		131.8	99.0	65.0		
	Diphtheria		103.1	85.6	83.3	68.9	73.3
1885-89. .	Croup.		109.8	111.0	94.4		50.0
	Diphtheria		102.4	93.6	86.0	111.3	70.3
1890-94. .	Croup.		120.0	130.5	55.0	100.0	
	Diphtheria		99.7	99.4	92.1	104.6	51.0

Relations of age and sex incidence of diphtheria and croup to their epidemic prevalence in Michigan.—Having considered separately the principal features of the changes in age incidence and sex incidence of diphtheria and of croup as manifested in the stastistics of successive quinquennial periods of years, it will be

GRAPHIC ANALYSIS OF MORTALITY IN MICHIGAN AS RETURNED FROM DIPHTHERIA AND FROM CROUP, BY QUINQUENNIAL PERIODS, 1870-94, WITH REFERENCE TO AGE AND SEX INCIDENCE.



NOTE.—Males are indicated by a continuous line, ————, and females by broken line, - - - - - - - -, in all cases. Ages are both inclusive: thus 0-4 represents the five-year group aged under 5; 0+ represents all ages, etc. Beginning at the lower part of the diagram (4), death rates at all ages per 100,000 population are shown for each cause of death. These rates are further analyzed by age-periods in the part above (3), and the relations indicated in this portion of the diagram are more clearly shown with reference to sex and periods of age in parts 1 and 2 respectively. In part 1 the basis of comparison is female mortality (death-rate) taken as 100 per cent.

of interest to see what relations these changes bear to the variations in the death rates. For this purpose the death rates from diphtheria and from croup at the most important periods of age, and from diphtheria, croup, and membranous croup at all ages, are represented in the diagram, by sex, and may be directly compared with the curves showing relative male mortality from each disease at specified age-periods, and with the curves showing the per cents of deaths at each period of age.

The death rates per 100,000 population according to the returns are, of course, too low in their absolute values for purposes of comparison with corresponding statistics of States or countries having accurate systems of registration; for this reason a supplementary scale making an estimated correction (addition) of 60 per cent. might properly have been added to the diagram on the hypothesis that the percentage of deficiency for these diseases, and for the several age periods included in them, is substantially the same as the estimated percentage of deficiency in the returns of deaths from all causes and at all ages. So far as the variations in mortality are concerned, ratios of the sexes, etc., the figures represented in the diagram are probably perfectly comparable among themselves, without correction. A constant error in statistic

data, affecting various elements uniformly, may be entirely disregarded for purposes of intrinsic comparison.

A characteristic feature of the curves representing the death rates from diphtheria is the high mortality for the period 1880-84. In the statement by single years (Table 2) it will be seen that the maximum year was 1881, the great epidemic year for diphtheria in Michigan, for which year the number of deaths registered from this cause (2,063) was greater than from any other cause of death, even consumption (1,954) being exceeded. The rise from the first period of registration, 1870-74, to the period 1875-79, and from the latter the period of maximum prevalence, 1880-84, was very rapid, being especially so for children at the age periods 0-4, 5-9. From 1880-84 the death rate as a whole declined, somewhat faster than it rose, to the next period, 1885-89, and continued nearly stationary from that to the present time. The ages 5-9 and 10-14 showed a somewhat more rapid decline from 1880-84 to 1885-89 than other ages, and have somewhat increased since 1885-89.

In marked contrast with diphtheria is the uniform and moderate course of croup. A slight amount of variation may, however, be noted, which is mostly in the same direction as the variations of diphtheria for the same time. Taking the age period 0-4 as especially characteristic, we see that croup increased very slightly from 1870-74 to 1875-79; somewhat more rapidly, but not at all approaching the virulence of diphtheria at this period, from 1875-79 to 1880-84; and, instead of rapidly declining like diphtheria, remained nearly stationary from 1880-84 to 1885-89. From 1885-89 to 1890-94 the death rate from croup has diminished.

The relative male mortality from croup appears to sustain a somewhat inverse relation to the general movement of the mortality from that disease. Taking the period 0-4 years of age as typical, the relative male mortality rose noticeably from 1870-74 to 1875-79 while the death rate increased in less degree; from 1875-79 to 1880-84 and 1885-89, the relative male mortality decreased while the death rate increased; from 1885-89 to 1890-94, the relative male mortality again rose while the death rate fell to about the same extent. Nothing very definite appears in regard to the proportional deaths from croup at this age, since the curves representing the ratios of male and female decedents move in opposite directions, and nearly neutralize each other.

The regular and nearly uniform rise of the relative male mortality of diphtheria at all ages, especially at the ages 5-9, 10-14, and the slight decline in the relative male mortality of decedents under 5 years of age, when compared with the very similar mortality curves at all of these ages would seem to indicate that sex has not been an appreciable factor in the epidemic history of the disease; that is to say, variations in the extension and fatality of diphtheria have not been attended with simultaneous special increase of mortality in one sex. The change in sex incidence seems to be a general one, advancing throughout the entire history of the disease, as included in the quarter century of statistics, in a determinate direction, and perhaps dependent upon some general social change or development in the treatment of male or female children.

Age incidence, unlike sex incidence, appears to sustain a certain relation to the degree of epidemic prevalence of diphtheria. This relation is direct for the age periods 5-9, 10-14, and inverse for the period 0-4. That is to say, when an increase in the general mortality from diphtheria and croup occurs, there is an increased percentage of deaths of children over 5 years of age and a decreased percentage of deaths of children under 5 years of age, as compared with the total mortality.

Dr. H. B. Baker, in a report to the Michigan State Board of Health on "The Present Comparative Immunity of Adults from Diphtheria," found that "when the reported deaths from diphtheria are over five-tenths of one death per thousand inhabitants, the average per cent. of diphtheria decedents over ten years of age is 22.55, and when the reported deaths from diphtheria are less than five-tenths of one death per thousand inhabitants, the average per cent. of diphtheria decedents over ten years of age is 19.27." This observation covered the statistics of Michigan during twenty-one years, 1868-88, for which period the mean per cent. of diphtheria decedents aged over ten years was 20.68.[9]

Mr. Arthur Shirley, President of the Epidemiological Society, makes the following statements in regard to the changes in age incidence in England and Wales:[10]

"There has been throughout England and Wales relating to the diphtheria mortality at all ages a considerably augmented incidence of the disease upon the population aged above 3 and under 10 years in the decennium 1871-80, compared with that in the decennium immediately preceding. And in the case of England and Wales as a whole, that increase has been maintained throughout the succeeding decennium 1881-90.

"When croup and diphtheria are taken together it is found that in both the periods 1871-80 and 1881-90 there was a relative increase of the disease at school ages (3 to 10) as compared with 1861-70."

Diphtheria declined in England and Wales from 1861-70 to 1871-80, and rose from 1871-80 to 1881-90. Between the two latter periods, therefore, the variation agrees with the tendency in Michigan, but the increased age incidence at older ages from 1861-70 to 1871-80, with a decreasing death rate, differs from the observation in this State. It is possible that the difference in the exact age periods taken may in part cause this decrepancy; and that it may be due, in part, to the increased proportion of children exposed at school in England under the Education act, which went into operation in 1870.

General conclusions.—It may be well to summarize the principal indications, statistic and otherwise, which may be drawn from the study of these statistics and which are clearly shown in the accompanying diagram. It is understood that such general conclusions have reference entirely to the history of the disease in Michigan, and are of wider application only so far as confirmed by the study of the statistics of other States and countries. As there are no other statistics, however, for any State west of New England embracing the time included in the Michigan statistics, together with statements of ages of decedents from individual causes of deaths, the results presented

[9] Rep. Mich. State Board of Health, 1891, p. xx.

[10] Quoted by Edward Seaton, M.D., in a "Report on the Present State of Knowledge Respecting the Etiology and Prevention of Diphtheria," presented on behalf of the English Committee at the Eighth International Congress of Hygiene and Demography, Budapest, 1894. British Medical Journal, Sept. 15, 1894.

in the Michigan Registration Reports will ever remain the only exact history of the course of diphtheria over any State area in the Western part of the United States during the onset and most fatal period of prevalence of the great epidemic, and as such are deserving of special study.

1. Statistically, the line of demarcation between diphtheria and croup is clearly defined. Their age incidence, their sex incidence, and, I might add, although the subject has not been studied in the present paper, their monthly and seasonal prevalence are distinct. This statistic difference is the expression of an equally well-marked clinical distinction. Even though bacteriology should decide with more certain voice than at present, that diphtheria and (nearly all) croup are identical, would it not still be advisable to keep separate the statistics of such a definitely distinguished portion of the diphtheria returns as are the deaths from "croup?" And if not the mere presence, but the predominance, of the Klebs-Löffler bacillus shall come in future to be the distinguishing characteristic of true diphtheria, statisticians may awake to the fact that a great mistake has been comitted in confusing the statistics of two diseases.

2. If the statistic distinction between diphtheria and croup be maintained, the return of "membranous croup," providing it be not given a separate place as in the Michigan reports, belongs rather to croup than to diphtheria.

3. The fact that the death rates are higher for males under 5 years of age from diphtheria, and that after that age the mortality of females from this disease is greater, is of interest, and accords with English observation. From this change in the relative mortalities, it would seem possible to derive therapeutic or prophylactic suggestions of value. What is there in the conditions attending the development of girls after the fifth year that is more favorable to fatality from diphtheria? They start out with a relative immunity, the death rate of female children under 5 years being markedly lower than that of male children at that age. Why does not this relation persist, and what causes the disease to bear more heavily upon girls than boys at the usual school age?

This question is discussed by Dr. T. W. Thompson in the article on "The Natural History of Infectious Diseases," *Stevenson and Murphy's Hygiene*, vol. ii. p. 298, but the reasons given are not intended to be considered conclusive. As embodying further the opinions of Dr. Downes and Dr. Thorne Thorne, I present his remarks in full:

"The excess of female mortality, at certain ages, at least, is no doubt largely due to greater exposure to infection—that is, to the closer and more continuous contact with the sick to which females are exposed as compared with males; but Dr. Arthur Downes has pointed to the very early ages at which the excess of female mortality is discernible as perhaps indicating that some further explanation is required. As regards this, Dr. Thorne remarks that 'the excess of diphtheria death which attaches to females over males from 3 to 15 years of age, increases precisely as the age advances which fits them more and more to take some share in the care of home, and of relations during the periods of sickness.' And he further remarks that 'something may depend upon the full significance of the term 'domesticity,' and upon its taking account of those acts of affection and tenderness which, in their relation to the sick characterize females during the period of girlhood, as well as in mature womanhood.' Both these considerations are deserving of considerable weight, especially as regards a disease such as diphtheria, in the dissemination of which close contact is known to play a conspicuous part; but it still appears to remain doubtful whether increased exposure to infection can be regarded as entirely accounting for the excess of female mortality, especially in the very early years of life."

It is probable that the greater docility, affectionateness and domesticity of girls render their share of the mortality from diphtheria greater than that of boys. A larger proportion of girls may be found in regular school attendance, owing to less temptation to truancy and less liability to employment during school age. Among children girls tend, as a rule, to come into more intimate personal contact with one another. Boys naturally isolate themselves after an early age, and repulse kisses, embraces and other demonstrations of affection, as unbecoming the manly character. Besides boys indulge much more persistently in outdoor sports and occupations, and thus "toughen" themselves to resist the initial lesions of the mucous membranes, resulting, perhaps, from atmospheric irritation, which often afford a point of entrance for the diphtheria germ. Speaking of croup, but with equal application to diphtheria, Hirsch remarks:[9]

"Something wrong in the upbringing of the family, particularly in the way of too much tenderness and coddling, has been the real cause of the family liability. The susceptibility which predisposes to this disease would seem to be bred in those children who are kept most from the effects of the weather, sheltered from every wind, and during the cold season anxiously detained whole days and even weeks indoors, and that too, in heated and not always well-ventilated nurseries."

Whatever the cause of the greater relative female mortality from diphtheria above the age of five years, it is a cause that has been undergoing progressive amelioration during nearly the whole history of the disease in Michigan. Should the change continue at approximately the same rate, the relative death rates of the sexes will become nearly the same after the lapse of a few years. Does this indicate that the "new woman" of the future is already foreshadowed in a more masculine type of education for girlhood? At least, then, one favorable result will have to be placed to the credit of the female renaissance, if it tends to prevent diphtheria.

4. The increased proportion of mortality at ages over five years coincident with a general increased prevalence of diphtheria, has already been sufficiently pointed out. Facts of this class have an important bearing upon our knowledge of immunity, and the self-limitation of infectious diseases, but the limits of the present paper preclude any special reference to this subject.

5. Incidentally the importance of stating death rates from diphtheria and from croup in the terms of the susceptible population has been suggested. It is only in this way that the real prevalence of these diseases in countries or States with various age-distributions of population can be accurately compared. For diphtheria the number of inhabitants under 15 years of age, or if this basis were not generally obtainable,

[9] Handbook of Geographical and Historical Pathology, iii, 65.

the number under the age of 21 years, would give fairly accurate results; for croup, the rates should be based on the population under five years of age. In the same way that the standard distribution of ages suggested by Körösi has been adopted by the International Statistical Institute for the computation of mortality indices, instead of the unreliable death rates, for international comparisons, so should certain standard ages be selected as bases for stating all mortality rates of children's diseases; and whenever a higher mortality is shown to belong to either sex, the standard population should be stated by sex.

6. Lastly, if this paper has any predominant purpose, it is to emphasize the necessity of statistic study of diseases, and to maintain that clear-cut statistic distinctions are equally cogent with clinical or bacteriologic arguments in determining nosologic classifications. Statistics may be likened to the brake that serves to restrain the plunges of the wild horses of medical theorizing, and prevent their dragging the car of true medical science through devious ways, and to final wreck amidst a chaos of unsupported opinions. It may not be the noblest office, but it is a necessary one; and a knowledge of statistic technique should be regarded as a fundamental part of the equipment of the medical reasoner just as fully as equipment in chemic, bacteriologic, pathologic and clinical methods is deemed essential at present. Vital statistics is historically and practically the basis of an enlightened sanitary science. The statistic pictures are to be considered, in their place, equally with the clinical pictures in making up our concepts of diseases; yet from the paucity of data, especially in this country, this is very seldom done. There are very few medical colleges in the United States that give any systematic instruction in the treatment of medical statistics. The hope for the improvement of this condition lies in the spreading of a higher opinion of the services of the medical statistician among the ranks of the profession at large, and through the profession to the people. As a result of such enlightenment, accurate systems of registration will gradually come into existence in this country in all of the states whose density of population and advanced civilization may warrant them; medical schools will adequately treat the subject in their curricula, and health officers, graduated therefrom, will be able to make intelligent practical use of registration data in limiting and preventing the spread of disease; finally a vast body of the most essential facts concerning the constitution and destiny of our people will be accumulated, whose full import, vast, social significance, and practical beneficence can not be estimated in advance, but, judging from the triumphs of sanitary science based upon an exact knowledge of vital statistics in the past, will prove a potent factor in the elevation of the human race.

PREVENTIVE MEDICINE IN APOPLEXY.

Read in the Section on State Medicine, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

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HARVARD, 1856; UNIVERSITY OF PENNSYLVANIA, 1857.

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Presuming that the Section I have the honor to address is a board of medical police whose business it is to detect the pre-stages of diseases and to procure their prevention, if not their birth, the subject is then legitimately up for thought and has an ever-present living importance. The press rarely appears without some reference to apoplexy. To-day it is Baron de Hirsch's death cabled across the Atlantic in thousands of words and eagerly read by the public who love and appreciate such wealthy nature's noblemen. The press also, with the confidence conferred by its position, affirms that champagne freely drank caused his apoplexy within a few hours. But it must have had pre-stages longer than these few hours. This idea was expressed by the late Dr. F. A. Sawyer, Vice-President Massachusetts Medical Society, who told his son that his death would be from apoplexy, as it was. My cousin, the late Dr. Calvin Cutter, author of Cutter's Physiologies, after he had experienced apoplexy accurately predicted to his son. Dr. J. Clarence Cutter, the two succeeding "strokes" he should sustain and that he would die from the third and last, which he did. If I am correctly informed, Prof. Joseph Jones, M.D., LL.D., late member of our ASSOCIATION, and one of the brightest medical lights of the South, if not of the age, died from apoplexy. So also died Job S. Crane of New Jersey, another A. M. A. member whose character was like pure gold, and whose presence in our meetings has added the charms of delightful friendship and genial personality in the past. If they do these things in a green tree what shall be done in the dry? If such medical men are destroyed what will be done with the laity? The high esteem of these distinguished gentlemen impels me to tell what I know personally about their disease as a grateful tribute to the lovableness and glory of their characters.

What is Apoplexy Clinically and Conventionally?—It means "sudden loss or diminution of sensation and power of voluntary motion, usually resulting from inter-cranial hemorrhage." Simple or nervous apoplexy is where no lesion is discovered. Reference is here confined to apoplexy from clot or serum pressure on or in the cerebral substance or ventricles. The chief agency lies in the rupture of an artery, usually the basilar. No rupture, no apoplexy. A normal artery will not rupture with ordinary or extraordinary heart pressure. It must be weakened beforehand. Or, in other words, there is a *weakening of the artery before it ruptures.*

This weakening is not due to violence of puncture by a weapon; we are not considering traumatic cases. For years it has been taught and it has been found true that this weakening comes from a substitution of the circular muscular fibers of the arteries and of the fibrous coats of capillaries, sometimes by fats or fat acids, as oil, cholesterin, lardacein, stearin and margerin, with gravelly matters as atheroma, etc. The fats have not the tensile strength of muscular and fibrous tissues and hence the damage comes the moment the artery is not strong enough to resist the arterial pressure, normal or abnormal. Indeed, the artery becomes fragile like a worn-out rubber hose, which gives out where the interstitial molecular changes of the mechanical mixture of rubber and sulphur are most rapid.

The Clinical Lesion is the Fatty Degeneration.—The results of the clot pressure vary from instant death to protracted paralysis more or less complete as the site of hemorrhage is nearer to or more remote from vital nerve centers. *Hemorrhagic apoplexy, then, is merely a masquerade and local* manifestation of fatty degeneration in the cerebral arteries and

this is the line on which our medical police have to work.

Clues Macroscopic, i. e., with Unaided Observation.—1, 50 years of age and over, though apoplexy sometimes comes in younger persons from severe sickness or bodily abuse by food, drink and otherwise; 2, arcus senilis; 3, cataract; 4, amaurosis; 5, apoplexy of retina; 6, obesity, though strictly speaking it is not a fatty degeneration; it is an abnormal accumulation in normal localities; 7, waxy and lardaceous countenance; 8, edema or thickening of eyelids; 9, hebetude; 10, neuralgia sometimes; tic douloureux; 11, muscular weakness; 12, flabbiness of tissues; 13, atheromatous radial and temporal arteries; 14, senile gangrene; 15, defective vision; 16, the urine shows albumin; often necessary to examine seven specimens from voidings of seven successive days; 17, glaucoma.

Clues Microscopic.—1, casts of kidney, tubes; 2, fatty epithelia; 3, amyloid bodies in blood and urine; 4, free oil in blood and urine; 5, pigments blue, bronze, anilin blue, emerald green in urine and blood. 6, fat globules in leucocytes; 7, cholesterin in blood (credit should be given Dr. Jas. H. Salisbury for first noting 3, 4, 6 and 7 in his writings); 8, protoplasmic, filamentous or Indian club catarrh, one or all alternating with albumin, casts and fatty epithelia. This catarrh is very common in neurasthenia and should not be overlooked. A recent case under my son's care had been diagnosticated gout because of painful shoulder by another physician. Use on urine work for above clues, first, a good inch objective. All clues are not present in every case.

Causes General.—1, impeded or retarded languid functions; 2, fat food in excess; 3, carbohydrate foods in excess, producing paralyzing gasses by fermentation in alimentary canal; 4, want of exercise; 5, old age; 6, disuse of organs; 7, lack of motions and emotions; 8, abnormal metabolism or transformation (Dunglison); 9, loss of vital force or dynamos by work or pleasure, etc.

The general prophylactic treatment is to stop causes, restore normal metabolism, fully sustain nature and then she will *restore healthy in place of fattily degenerated tissues.*

Particular Treatment.—1, restore languid, impeded or retarded function by removing all mechanical, physiologic, chemic or pathologic restraints; 2, avoid fat foods; 3, avoid carbohydrates including alcohol entirely till signs are gone, and thus stop the gases which paralyze parts near and remote, thereby impeding the functions of life. Dr. Joseph Jones, in 1856, reported through the Smithsonian Institute that carnivorous turtles fed on parsley had fatty degeneration. Sir B. W. Richardson of London and S. Weir Mitchell of Philadelphia produced cataracts in ten minutes by injecting under the skin of a guinea pig or a frog 1 dram of a saturated watery solution of sugar. 4, exercise in some labor that has the psychologic stimulus of doing good to others; work is healthy. 5, avoid premature old age. Obliteration of the caliber of arteries, more or less complete, by peripheral deposits usually of a calcareous, atheromatous character, blocks in the aged the circulation of blood, osmosis, secretion, etc. But there is no reason for having old age come prematurely and people should live longer than they do now. In olden times there were some 900 years old, showing what the human race is capable of! 6, organs should be used as far as possible consistent with common sense. Unused horses, overfed, fattily degenerate in muscles. 7, when the list of motions and emotions that the limited knowledge of the writer can trace in normal human life reaches forty-three in number, it is plain that life is made up of motions and that it is important these motions should be normal. If they are languid one indication is to quicken them by forms of motion biologically penetrating. Music is one such form of harmonious motion now proved by Dogiel of Kazan, Russia, to dilate the capillaries, increase the flow of blood, remove congestions, calm the nervous system revive memory, promote excretion of carbonic acid from the lungs, promote digestion and confer vital force. Hence music means much good to those predisposed to apoplexy and should be had by them either as listeners or performers. The Hon. J. G. Blaine, in his final fatty ills, is said to have allowed hand-organ music under his windows. The late Czar of Russia, it is said, in his last illness had the trombone played at midnight. There was good reason for this. Electricity (specially the *galvanic*, as Althaus says that the *induced will of itself produce fatty degeneration of the muscles*) is an effective form of motion, biologically penetrating. Hence the favorable use of galvanism in fibroids—the writer has seen cases standing cured for twenty-one years. Fibroids, probably, are caused by impeded or hindered functions as fatty ills are. On this principle galvanic electricity is useful in the pre-apoplectic. Trolley car rides do good also, by the induced electricity.

8. Normal *transformation* or the laying down and taking up of tissues all the time going on—or *metabolism*, if the Greek word is preferred, is aided greatly by drinking distilled hot water one hour before meals and on going to bed. It may be taken cold, not iced, as there is no easier way of retarding or impeding functions than by a temperature below 32 degrees F. One argument is, as there must be from 100,000 miles or more of capillaries in an average human adult, it follows that in normal conditions there must be considerable force expended to maintain the blood circulation and all the functions dependent upon normal circulations. Now, if this capillary circulation is impeded by lack of water in the system (which is too generally the case) the way to relieve it is to supply more water. Spring waters heavily charged with salts are interdicted. They produce evil by blocking. *Again*, the drinking of hot water washes out the stomach of slime and yeast, promotes peristalsis, carries off undigested and unfermented foods and thus removes the gases which are causes of apoplexy. In this clinical light, flatulence, which is tabooed by society ethics everywhere, is a means of relief. Pre-apoplectics would, there is evidence to believe, prolong their lives by allowing flatulence to have free evacuations. Hot water and sometimes cold wonderfully promotes beneficial flatulence by causing the unstriped muscular fibers to contract. The proper treatment to stop flatulence is by cutting off foods that ferment. Hot water also washes out the liver, kidneys, skin, keeping the primæ viæ clear of gas, wonderfully quickening retarded and impeded functions and promoting normal metabolism.

9. Loss of dynamos by work, worry or pleasure. Life is very much a question of expenditure of vital force. It takes a certain amount to "run," so to speak, the body systemic and the reserve should be used for work, worry or pleasure. If one has no reserve he is like Sam Small's steamboat that every time it blew its

whistle it stopped! Of course this is overdrawn, as stopping the body means death, immediate; but many pre-apoplectics are using so much steam to blow their whistle in work, worry or pleasure, there is not steam enough left to run the body healthily; hence a retardation and impeding of function, and hence follow fatty ills we are considering. Allow an illustration. A woman of 65 years with an enlarged and fatty heart showed signs of pre-apoplexy. Under treatment on these principles the signs had nearly disappeared on a certain visit. The next day the free oil in the blood and the fat in the white corpuscles were greatly increased. The cause lay in a sudden removal from one room to another in her boarding house, the patient being mentally worried and tired out by the discharge of womanly duties which she would not entrust to others. On resting these signs soon diminished but did not entirely disappear. Rest is a remedy approved by all practitioners of medicine, and cures are due to rest that sometimes are credited to schools of medicine and medicinal measures. Other ways of treating loss of force are by plenty of fresh air (air is food) by a diet for pre-apoplexy of two-thirds animal to one-third vegetable food, or better by beef, mutton, lamb, whites of eggs, all suitably cooked, not raw, for animal food; wheat, rye, potatoes, sage, hominy, tapioca (celery as a relish), choosing not all but few of these foods at a meal, and watching their digestion and assimilation by the condition of the blood, feces and urine, not depending upon the patient's feelings or opinions. Force is also to be conferred in massage or the imposition of hands. The masseur must not be tired; I have known such to deplete patients of strength given them by resting and food. Massage is an old measure dating, it is said, 2,600 B. C. The blind have been masseurs from time immemorial in Japan. Force can be conferred by contact with horses riding, driving and handling. Force may be conferred by the stimulus of ideas, of well-deserved praise, by trust in God, by calmness, moderation and temperance, by not pulling oneself up by the roots daily to observe progress, by crushing out all envy, malice, hatred, by following out the golden rule; force may then be saved by not wasting what one has. These are little things. David Copperfield said when his wife was dying, "Life is the sum of little things." The successful prevention of pre-apoplexy means the intelligent study of little things, and nothing that touches the patient is too small; these are the days when the medical heavens are illuminated (?) by the lights of pathologic experts, that is, dead men's doctors. Would it not be just as well to practice medicine for the living? Text books of medicine are silent on this great subject of pre-apoplexy.

The result to be expected is that nature will restore to health the diseased cerebral arteries; space does not permit the adding of the clinical evidence of cases on which this communication is based.

A NEW TREATMENT OF PHTHISIS.

Read in the Section on State Medicine, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5–8, 1896.

BY HUBBARD WINSLOW MITCHELL, M.D.

NEW YORK.

Pulmonary phthisis or pulmonary tuberculosis is perhaps one of the most widespread diseases to which mankind is subject. It occurs in persons of all ages and in every country, and in all conditions of life.

While tuberculosis occurs in nearly every organ of the body, the scope of this paper is confined to that form of the disease which attacks the lungs, and that form also which is known as acute tuberculosis.

Cause.—The cause of phthisis pulmonalis is due to the introduction into the lungs of the microörganism known as the tubercle bacillus. The existence of this bacillus was suspected by many, but it was left for Koch to demonstrate its existence, and its invariable association with this special disease.

The tubercle bacillus is a short, fine rod, slightly bent or curved, and hence the name often applied to it of the "bent rod." Its average length is from one-half to one diameter of a red blood globule. When stained with carbolic fuchsin it assumes a bright red color and presents under the microscope a well-defined body which contains from two to five vacuoles. These vacuoles give it a sort of beaded appearance, and some observer has attributed this appearance to the presence of spores, but it is probable that these vacuoles are the nuclei of new bacilli which are formed by the fission and subdivision of the parent bacillus. It is undoubtedly the case that these bacilli multiply by a rapid subdivision of themselves.

When the bacillus is treated with anilin dye or carbolic fuchsin it stains slowly of a bright red color, and retains this color permanently after treatment with acids, and this characterizes it from all other known forms of bacteria, with possibly the exception of the bacillus of leprosy. It can be cultivated in blood serum and on the potato, most readily in the former, and the cultures must be kept at blood heat. They grow slowly and appear about the end of the second week. The colonies of bacilli form thin grayish-white masses on the surface of the culture medium, and but little is known yet of the chemic composition of the tubercle bacillus. They are found in all tubercular lesions throughout the body, and in every organ where tuberculous disease is present, but, as above stated, they will be studied solely in connection with pulmonary tuberculosis.

The bacilli multiply with great rapidity in lung tissue, and a patient suffering with pulmonary consumption discharges them in the sputum in considerable numbers. When they are so expectorated, if great care is not taken to destroy their virulence, they become a focus of danger to others wherever they are discharged, and this shows the great danger associated with the sputum of phthisis unless it is most carefully disposed of.

In the dust collected from the walls and bedsteads of hospital wards, in asylums and prisons, bacilli have been found, sometimes in great numbers, showing that in these places the sputum was carelessly distributed and new foci of infection were thus formed.

The tubercle bacillus is thus a widespread and dangerous organism in all places frequented by patients suffering from phthisis.

Mode of infection.—It is not altogether satisfactory to say that phthisis is hereditary. Life insurance companies reject applicants for insurance whose parents or brothers or sisters have died of phthisis, even when the applicant himself was in perfect health. How far the theory of heredity is true is a disputed question, but from my own observation and studies, I believe that the ancestors of such persons did not confer a taint sufficient to warrant his rejection.

If a woman suffering with phthisis becomes preg-

nant it is not true, certainly in many cases, that she confers a phthisical taint upon her child, and the same may be said of a man suffering with phthisis, the woman whom he impregnates can not, through the venereal act, contract the disease, so that heredity is of less value to-day, in the line of modern researches, than it formerly was.

Contagiousness of phthisis.—If we accept the theory that phthisis pulmonalis depends for its existence upon the introduction into the lung of the tubercle bacillus, then that microbe must be introduced from without, and from some source where the bacillus has retained its activity and virulence, and when we remember that the sputum from phthisis patients contains vast numbers of these bacilli, which are distributed widely through dust and carelessness with which the sputum is voided, it will be seen that the danger from contagion is very evident, and the acquirement of this disease by contagion directly from a patient, or indirectly through his dried sputum which is inhaled elsewhere, forms the most common source from which this disease is acquired.

It has been very justly remarked by many observers that it is important to draw a line always between hereditary and accidental tuberculosis, for cases present themselves to the practitioner that have a very incomplete history, although by careful examination a conclusion can be reached upon which we can base our opinion as to its source.

Cases have been noted where phthisis has been acquired through inoculation, as from persons washing the clothes of phthisis patients, or the bite of a tuberculous person, or inoculation from a cut or abrasion where the sputum has been brought in contact with this traumatism. The expired air from the lungs of a tuberculous patient does not convey the disease, and a person coming in close contact with the patient will not necessarily acquire the disease from his breath, but kissing a tuberculous patient will undoubtedly produce the disease in some cases.

Infection by milk, by meat, and by water and food need not be touched upon here. The danger from these sources exists and must not be lost sight of, but space prevents my speaking of them in detail.

Influence of age.—Tuberculosis occurs at all periods of life. It is met with in the nursing infant, as well as in those tottering upon the edge of the grave. No age is immune from the disease. In the young we find the lymphatic glands very frequently affected, while in the old, the lungs seem to be especially prone to the disease.

In my judgment, *soil and locality* play an unimportant part, and the association of other diseases is to me of less importance than has been ascribed to them.

It is interesting to note the changes produced in the pulmonary tissue from the introduction of the tubercle bacillus. When a bacillus enters the tissue of the lung, it is believed to cause in the first place a proliferation of epithelioid and giant cells, followed by an inflammatory reaction and the formation of masses which are termed tubercle, and when these tubercle masses are once formed they quickly undergo caseation. This caseation, which is undoubtedly caused by the bacillus, is a process of coagulation going on in the cells, which lose their outline, become irregular, and are finally converted into a structureless substance. The tubercle may gradually be converted into a yellowish-gray pus in which the bacilli are abundant, and when this matter infiltrates the inflamed lung tissue it is loosened more or less by inspired air, escapes into the smaller bronchi, and finally is coughed up by the patient in the form of a thick yellowish or grayish sputum containing the bacilli in greater or less numbers.

When the bacilli are introduced into the lungs two processes may go on, the first, caseation and ulceration which is destructive and dangerous, the other, sclerosis, which is conservative and healing, and the ultimate result in a given case depends upon the capabilities of the body to restore the tissues, and limit the growth of the bacillus, or to permit the process to go on to a dangerous and finally fatal termination.

There are some cases where the bacilli are introduced into the pulmonary tissue and are for some reason destroyed at once, and in these we say sclerosis has taken place. The bacilli have gained a lodgment and have done some damage, but finally the victory is with the conservative forces of the body. In other cases the bacilli grow luxuriantly, caseation and softening occur, and victory is with the invading bacilli and a fatal result follows.

Symptoms of pulmonary phthisis.—After the bacillus has invaded the lung tissue, the symptoms are very soon manifest. The patient develops a cough which at first seems to be of a broncho-pneumonic type, and is marked with expectoration of a mucopurulent character. Dyspnea is a striking feature and is more or less severe. The respiration rises from twenty to fifty per minute and there is frequently cyanosis of the lips and finger-tips. The early physical signs are those of bronchitis.

Percussion teaches us but little in the early stages. On the contrary, auscultation is of the utmost importance. Râles are nearly always heard, either sibilant or sonorous, or they may be crepitant. We may, rarely, have crepitation from the presence of tubercle on the pleura. As the disease advances the râles become larger and more mucous in character, and we have a fine or coarse bubbling râle according to the intensity and extent of the disease. As the disease advances cavities may form in the lung tissue.

When the disease is confined to one lung the physical signs just described are present more or less, and the opposite lung is very frequently congested, and auscultation on that side reveals a harsh, rasping respiration.

The temperature rises sometimes as high as 103 degrees and is always a symptom of severity. The pulse is rapid and feeble in proportion to the extent and severity of the disease.

I will not touch upon the symptoms caused by the invasion of other organs by this disease. It is sufficient for this paper to deal only with the pulmonary type.

Duration of the disease.—Cases have been noted where the disease ran a rapid course and caused death in a few weeks. I have not myself met with cases terminating in so short a time. It is usually of a slower development and continues for a much longer period. In my own experience many months elapse before death takes place, and under the treatment which will be described later in this paper, no deaths have occurred up to this time, so that it is impossible to tell the exact duration of the disease. But without treatment of any kind the disease will terminate fatally in from four to twelve months.

Diagnosis.—The diagnosis of pulmonary phthisis is not difficult. The presence of cough, emaciation, night sweats, diarrhea, anorexia, thirst and general anemia, are nearly always present and point to the nature of the difficulty. But the unfailing test in the diagnosis is the presence of the bacillus in the sputum. As it is believed that this microörganism is the direct cause of phthisis, its presence is proof positive that the disease is pulmonary tuberculosis. If the sputum contains no bacilli, then the disease is not pulmonary tuberculosis *per se*.

It is not necessary here to touch upon the morbid anatomy of the disease, nor of the many lesser symptoms which are present in any given case, nor is it necessary to divide the disease into clinical groups, as some writers have done. This paper deals with pulmonary phthisis induced by the bacilli reaching the lung through the bronchi, termed by some writers "inhalation tuberculosis," the ulcerative tuberculosis which we are now considering.

Prognosis.—The prognosis of pulmonary phthisis, when not modified by treatment, is extremely fatal. Various percentages of death are given, and while these percentages differ with many writers, and perhaps no accurate percentage can be given, it is true, as every practitioner will testify, that the death rate is extremely high.

The mode of death may be by asthenia, or gradual failing of strength. Here the end is usually peaceful and quiet, disturbed perhaps by cough, but rarely by pain, and consciousness often is retained until near the end. Or by asphyxia. This occurs in the acute cases which run a rapid course, but rarely in the chronic, even of great severity. Syncope is also a mode of death, but not common. It occurs when patients in a very advanced stage of the disease insist upon going about, and if organic cardiac disease be present, as it often is, then syncope may occur.

Hemorrhage also may be a mode of death in chronic phthisis, and is due to the erosion and rupture of a large blood vessel or of an aneurysm in a pulmonary cavity. Coma may occur, due to meningitis, but this I believe is rare.

The most common mode of death is by asthenia, where the vital powers slowly succumb to the onslaughts of the disease.

Treatment.—The treatment of pulmonary phthisis is the special point to which I desire to call attention.

About three years ago I began to experiment in my private laboratory with a group of chemic salts known as the halogen group, and I found that these salts, when combined in definite proportions, formed a fluid having remarkable antiseptic powers. To this group I subsequently added the hypochlorites of sodium and potassium, as will be seen in the formula below. The resultant fluid was a chemic combination of the above named salts, and for want of a better name has been called after me, namely, "Mitchell's Fluid." It is with some diffidence that I use this name, but no better one appears to be available, and I will in this paper term it "fluid."

I first used the "fluid" in a large number of cases of ulcerative and suppurative processes occurring upon the external surface of the body, and through the courtesy of Drs. Taylor, Sturgis, Phelps, McGuire, Burchard, and the very able house staff at Charity Hospital, in the wards of which I was allowed to experiment freely, I obtained satisfactory results in ulcers of a syphilitic, traumatic and varicose nature, and in many of the lesions of syphilis and chancroid, the sores were healed in a very short time.

I conducted these experiments through a period of two years, treating 375 cases. I also used the "fluid" extensively in my own private practice, but up to this point it had been used externally only.

It occurred to me that if the "fluid" acted so well upon the outside of the body, it might be that it would act well upon phthisis, which is an ulcerative process in the lung tissue due to the presence of the tubercle bacilli, if the "fluid" could be brought in contact with the lung tissue, and I reasoned thus:

As the gastric juice is of hydrochloric acid reaction, and this "fluid" being of the same reaction, I thought if it could be introduced into the stomach when that organ was perfectly empty, it might be carried by the blood into the lung and there modify the course of the disease, and perhaps destroy the bacillus. This reasoning was acted upon immediately and with flattering success.

My first case was that of a young man 21 years old, who had a cavity in his right lung. He had had hemorrhages weekly of considerable severity, and when I first saw him he raised blood at each effort of coughing. His sputum contained pus cells and the characteristic bacilli. He had night sweats, anorexia, loss of flesh, and began to show the signs of phthisis cachexia.

I gave him the "fluid" in 2 dram doses, always on an empty stomach, that is, half an hour before each meal, and at bed time. The "fluid" was given full strength; no other remedy was employed. His diet was ordered to be rich and nutritious. Treatment was begun on June 1, 1894. On the third day his night sweats ceased, he stopped spitting blood and immediately his cough began to lessen. The treatment was continued steadily, and on July 31 his sputum contained few bacilli and few pus cells, and his general symptoms were much improved. On October 1, auscultation showed the lung had healed, and the sputum was free from bacilli and pus cells. He was completely cured.

I immediately selected eight cases, all women and all having the typical symptoms of phthisis pulmonalis. The treatment was the same as in the first case, and in periods varying from four to seven months they all recovered.

At this time I have in my private practice 130 cases of true phthisis pulmonalis. In every case there are present all the characteristic symptoms. Forty of these are now practically well, and this opinion is based upon the fact that the sputum is entirely free from bacilli and pus cells. Thirty of the above 130 cases are absolutely hopeless. The destruction of the lung tissue is too extensive to be restored, yet severe as they are, all of the symptoms are considerably modified. The diarrhea which so often accompanies severe cases is quickly checked, the night sweats cease, and very soon the respiration becomes more normal, and a degree of comfort given which was not hoped for, and when death comes, it will come largely robbed of its terrors through an amelioration of these distressing symptoms.

The remaining sixty cases, while they are all severe, I have every reason to believe that most of them will ultimately recover.

Treatment in detail.—I give the "fluid" in from 2 to 3 dram doses, clear, four times daily, always upon an empty stomach. This is absolutely a *sine qua non*.

I use a glass to measure the fluid, not a metal spoon. In all cases whisky is given, 1 to 2 ounces at a dose, two to three times per day.

The cough is somewhat lessened by adding essence of peppermint to the whisky in the proportion of half a dram to each dose. The diet must be nutritious and liberal.

In every case of phthisis in my practice the sputum is examined once in ten days or two weeks. These examinations are made by Dr. John Hoch of this city. His method of examining the sputum is as follows:

He stains the fresh sputum with carbolic fuchsin and methylene blue; the former stains the bacilli of a bright red, while the pus cells and other ingredients of the sputum are stained blue by the methylene. The sputum thus stained is mounted on glass slides, and a permanent record made of each case and of each examination, so that they can be referred to at any time.

Dr. Hoch uses a one-twelfth inch objective oil immersion lens, which gives a diameter of 925 times. This high power makes it possible to count every bacillus in each specimen of sputum, so that errors are absolutely eliminated. As the treatment progresses these microscopic examinations are made at short intervals, and the diminution in the number of bacilli are accurately observed.

When a case of phthisis presents itself for treatment I make a complete and careful examination of the patient, keeping a permanent record of each case with the history of all symptoms noted, and this with the record of the sputum made by Dr. Hoch, places the treatment of phthisis upon a firm, careful and scientific basis. This, so far as I am aware, is the first attempt made in this country to treat the disease in this scientific and methodic manner, and the results obtained have shown that it is of the highest possible value.

In addition to the above I enjoin every patient to keep as quiet as possible, remaining in bed and in doors when necessary, and I rely upon rest as an important adjunct of the treatment.

In the severe cases, where the cough is incessant and distressing and the fever high, I often give a pill at night, containing 3 grains of sulphate of quinin and ½ grain of powdered opium, omitting it as soon as possible for fear of disturbing the stomach.

The composition of the "fluid" is as follows:

Sodic hypochlorite	7	grams.
Potassic hypochlorite	7	"
Magnesic chlorid	1.5	"
Calcic chlorid	2	"
Hydric chlorid	2	"
Chlorin	5	"
Potassic sulphate	1.5	"
Magnesic sulphate	.5	"
Aquæ	1,000	"

Sodic carbonate, potassic carbonate, equal parts added in sufficient quantity to bring the solution to the proper degree of acidity.

Hemorrhage into the Pons and Opium Poisoning.—A special interest is attached to the symptomatology of hemorrhage into the pons Varolii, because lesions here sometimes very closely simulate narcotic poisoning. The slowing of respiration, the pinpoint contraction of the pupils, the unconsciousness, all give to some cases of pons hemorrhage a similarity to opium poisoning, and mistakes in diagnosis have been made even by men of large experience.—Dr. Dana in *Post-Graduate*, July.

THE EXPERIENCE OF SEVERAL PHYSICIANS WITH SERO-THERAPY IN TUBERCULOSIS.

Read in the Section on Practice of Medicine, at the Forty-seventh Annual Meeting of the American Medical Association held at Atlanta, Ga., May 5–8, 1896.

BY PAUL PAQUIN, M.D.
ST. LOUIS, MO.

One year ago, I was honored by the courtesy of this ASSOCIATION when I presented the results of my humble laboratory and clinical work in the domain of sero-therapy, as applied to tuberculosis. I had had then only six months of experience in the application of immunized horse blood serum in man. Preceding work had been in animals. Notwithstanding the many decided improvements I then reported and the apparent recoveries, it was yet too early to arrive at a reliable conclusion as to the merits of this form of treatment and the remedy itself. Since then, I have enlisted the aid of many physicians throughout the country, and will take pleasure to-day in reporting, in part, the results of their work, and my own, in proper cases, as well as indicate the failures, unavoidable in many instances by any and all forms of treatment. Many of these physicians have been persistent even in desperate cases of their tests of anti-tubercle serum, and some have been rewarded with results unlooked for.

Although I shall have the pleasure to present another paper on this serum to this ASSOCIATION, *i.e.*, before the Section of Pharmacy and Therapeutics, a preface to this report, by way of explanation of certain disputed questions concerning the rationale and utility of serum in tuberculosis will not be amiss.

I am facing some who have failed in treating consumption with serum; physicians who have doubts as to its value in therapeutics except as may be due to inherent conditions dependent on the relative immunity of the horse against tuberculosis; doctors who doubt the qualifications of private laboratories and their delvers and of a general practitioner's ability, opportunities and time to investigate, experiment scientifically, safely and successfully.

Since presenting my report last year Maragliano, of Genoa, reported recoveries of consumption by the use of the serum of the ass, to the British Medical Society; Behring, Winternitch, Foa, Roux and others write on the efficiency of immunized serum produced by themselves, either on experiment animals or man. Their labors are in the line of my own, and possibly some of their work antedated mine, although my researches on tuberculosis and its general treatment, which led to the production of serum and its application in medicine in 1894, date back many years, when I was connected with the State University of Missouri. While these foreign scientists of world repute, used serum from various animals, particularly the ass, the horse blood serum was immunized first in this country by myself.

The anti-tubercle serum, like the anti-toxin for diphtheria, rests on the biologic laws governing the defensive forces of an organism to oppose the encroachment of microbes and their products on the tissues and blood. Tuberculous individuals sometimes recover without remedy. This is due to nature's own efforts, viz.: exalted phagocytosis, with all that this interesting physiologic phenomenon implies. A complex being, such as man or the horse, is a republic of small animated subjects, the cells, with distinctive individual properties and obligated to co-operative functions for the sustenance of the whole. The brain

and nerve cells constitute the governing power; the phagocytes constitute the soldiers of the country. Their arms consist of their individual annihilating power in a physical sense and the antitoxin elements they produce, capable (probably by a digestive or diastatic property) of neutralizing the poisons thrown amidst them by the armies of microbes constantly attacking the wonderful aggregations which they defend. What occurs in a case of consumption cured by nature occurs in a horse properly subjected to the influence of the consumption poison. Either a natural antidote is increased in power, or a new one created, and this is what exists in the serum I use in man. Man suffering from tuberculosis is under the influence of a certain amount of tuberculin, a poison, and nature produces in his system an antitoxin to counteract this nocive agent. But usually the army of invaders win the fight after a more or less prolonged and painful conflict. What the laboratory is expected to do is, to supply man with this defensive force, the antitoxin, produced at the expense of the horse's system rather than his own.

One must not be too sanguine. Little hope can be offered to the unfortunate who suffers from advanced tuberculosis, with extensive destruction of tissue; general tuberculous intoxication; general debility; pronounced dyspepsia, deficient assimilation and dissimilation, difficult and perverted secretions and excretions, and the hopelessness of such cases is emphasized, more or less, according to the more or less pronounced microbic complications which may exist. These complications are influenced only secondarily, by virtue of nature having recovered some strength after the bacilli of tuberculosis are arrested in their development and devastation. I have confidence that early cases of tuberculosis can nearly all be arrested by serum administered under proper conditions, and that were it the policy of the laity to submit to constant observations and repeated analysis the moment a lung or bronchial irritation manifests itself, the diagnosis of incipient phthisis would be made early enough to diminish the death rate due to consumption 90 per cent. by the action of serum.

While I would take pleasure in quoting from all the reports of more than sixty physicians, who have used the serum, more or less successfully, the time at my command will not permit it. Consequently, I will limit myself to cases that have not yet been reported, or reported in the past to a limited degree, and are now in a different or more improved condition.

I shall call attention first to a case of J. R. Lemen, M.D., St. Louis (reported in the *New York Medical Journal* for Sept. 21, 1895) in which the Doctor claims to have effected the recovery of an acute case of tuberculosis, in the person of R. C. G., a real estate agent; age 60. I am personally acquainted with the patient and saw him when he was prostrated in bed, weighing less than 160 pounds. The symptoms were clearly those of acute tuberculous pneumonia. The bacilli were present in profusion. He has now recovered and to-day attends to his business as usual and weighs 224 pounds.

Case under care of Geo. W. Cale, M.D., St. Louis, Mo.: B. McG., age 18 years, 2 months, has been suffering with joint and bone tuberculosis for seven years and had had ten operations performed on different parts of his body to open abscesses and to remove necrosed bones. The seat of the primary trouble was the right hip joint but it was giving him trouble in every limb. The left tibia was much involved, having at one time eight openings, discharging a tubercular pus. The hip had three openings that would heal and open alternately and one that was open continually for seven years. He had an abscess on each arm, one of the sternum, one of the index finger of the right hand, a tubercular nodule in the scrotum, an abscess near the apex of the left scapula and two on the lower jaw. The patient says that after the continued efforts of Dr. J., of Waverly, Ky., who had four consultants, Drs. H., of Henderson, Ky., and A. J., of Sturgis, Ky., had failed to cure the patient; it was decided to let nature take its course. He was without medical aid for two years. In the fall of 1894, he was put in charge of Dr. Broome, St. Louis, who performed an operation to remove necrosed bone from thigh and tibia, thinking that these openings would heal. This having failed, he decided to try the serum treatment and the case was taken in charge by Dr. Cale. He began the treatment in March, 1895, at which time he had four abscesses discharging a characteristic tuberculous pus and two others that afterward opened. He had daily injections of 20 to 30 ms., and at the close of six months treatment, five of these abscesses had healed, he had gained ten pounds and temperature was normal. He is working steadily and is still gaining in weight. The last and only opening, a very slight one, is in the thigh, and dead bone has been located which is the cause of it remaining open. Up to the present date he has gained sixteen pounds, and is enjoying good health.

Dr. L. L. Shropshire, of San Antonia, Texas, reports in the *New York Medical Journal*, of January, 1896, the case of a brakeman 25 years old, who had had hemorrhage of the left lung, followed by fever, purulent expectoration, loss of weight, and generally declining health. The physical examination had revealed dullness over upper lobe of the left lung, moist râles and a gurgling sound; violent cough; abnormal temperature reached as high as 103 F. Had had night sweats; could retain but little food, losing flesh rapidly, weighing at the time 125 pounds. Microscopic examination revealed bacilli of tuberculosis. After two or three weeks of daily injections of serum, night sweats grew less, appetite returned and digestion improved. Four months after the beginning of treatment he is practically well, and to-day, about seven months after the beginning of the treatment, he is reported as recovered and attending to his duties as a brakeman.

He reports another case, a shoemaker, age 51, who had contracted tuberculosis. The diagnosis was made from physical signs and microscopic analysis. He had declined in health and strength very rapidly, weighing at the time 131 pounds. At the time of the report, he had returned to work and had gained 18 pounds, and to-day he is reported as having recovered.

He reports two other cases with positive improvement and gain in flesh and mentions twenty-five cases, treated up to that time with improvement in all of them.

A. M. Hayden, M.D., Surgeon, St. Mary's Hospital, Evansville, Ind., reports cases as follows (In the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION):

My first case was one with large cavities in left lung, hepatization of the lower portion of right lung; had a great many hemorrhages; sputum contained large quantities of bacilli; weight 120 pounds. Treatment commenced May 10, 1895. In

three months tubercular bacilli disappeared from sputum entirely, and it has remained free from them ever since. The cavities in left lung healed up, with great contraction of the left chest, three or four inches. It has remained so. The patient ceased to expectorate heavy sputum, and now expectorates a light frothy sputum. Has had no hemorrhages since treatment began; he has weighed 140 pounds for the last six months; ridden a bicycle; eats well, and commences his duties as assessor to-morrow. After the first three months, I gave him one to two ounces only at intervals of one and two months. I am satisfied that he would have been dead long before this had he not had the serum.

Case 2.—A young man, 25 years old. Family history was that of tuberculosis. His sputum contained quantities of tubercular bacilli; weighed 110 pounds; had been west without benefit; had night sweats, fever and all symptoms of the dread disease. I commenced his treatment September 8, 1895. I gave him 56 daily injections of 35 ms. each. Tubercular bacilli disappeared from sputum; gained 10 pounds. January 20 I commenced and gave him 16 more injections, during which time he gained five pounds, which is more than he ever weighed in his life. He is still in splendid health and says he is feeling better than he ever did in his life. To-day I advised him to take another ounce of serum to guard against relapse.

Case 3.—A young man with long standing hip-joint disease. I gave him an ounce in January, 1896, during which time he gained sixteen pounds in flesh and general health much improved. He then stopped two weeks, during which time he ceased to gain flesh. He then commenced again and took one ounce more and gained ten pounds. His health has been much improved since.

Case 4.—A man aged 40 years. Several brothers had died of tuberculosis; was taken sick in November with a cough, night sweats and fever. His family physician treated him until January, 1896, when I was called. He was much emaciated, no appetite, night sweats, fever, etc. While he coughed almost incessantly, he did not expectorate. I failed to find any lesions of the lungs in physical examination. His liver failed to act (chalky evacuation, etc.) His family physician had treated him faithfully without results, and he was satisfied that patient was suffering with tuberculosis of liver and other glands. I advised him to use serum, stating to patient that if his trouble was tuberculosis he would be benefitcd, if not cured. He consented and started the treatment. The improvement commenced at once. In sixteen days he gained sufficient to get up and walk a square to a grocery and get weighed, and found that he weighed his usual weight, 150 pounds. We then stopped the treatment for ten days. Patient requested me to begin again, saying that his appetite was not so good and that he was having night sweats again. I ordered another ounce; had him weighed, and found he weighed 150 pounds still. I gave him one more ounce, which covered sixteen days, and again had him weighed, and found he weighed 170 pounds, a gain of twenty pounds in sixteen days. He is now at work and says the serum saved his life, and will not hear to anything else. After I commenced the treatment I stopped all other medication.

I have a case of laryngeal tuberculosis that has just finished her second ounce, of thirty-two days' treatment, and she has gained one pound; has a better color and says she feels much better; and Dr. Lehardy, a throat specialist, who has been examining her throat, says the ulcers on vocal cords are improved.

I have one lady patient with acute tuberculosis of lungs that has taken two ounces, thirty-two days' treatment; was benefited during the first two weeks, since which time she has lost, and at present her condition is not any better than when she commenced her treatment. However, she has a mixed infection.

I am also treating another lady that has pulmonary tuberculosis. She has taken 1½ ounces, twenty-four days' treatment. She is improving very rapidly, and I am satisfied that she will recover. All my cases have been diagnosed by presence of tubercular bacilli in the sputum, as well as by physical examination, except the one with tuberculosis of the liver. Diagnosis in that case was based on family history and physical signs, together with the fact that he went from bad to worse in spite of the best medical treatment.

Dr. J. A. Dunwoody, Cripple Creek, Colo., April 23, 1895, reports: I will begin first with my own case.

Case 1.—J. A. D., male, white, age 30. On July 26, 1895, upon physical examination, the upper two thirds of the left lung was found to be infiltrated; numerous moist râles could be heard throughout this portion. Expectoration of a mucopurulent character; about two ounces during the twenty-four hours. Weight 125 pounds. Microscopic examination showed tubercle bacilli. Range of temperature was from 99 to 100 degrees in afternoon, which continued until August 2, when I was attacked with acute pleurisy on the left side, which confined me to bed ten days. The temperature ranging then from 100 to 102.5 degrees for a week, after which time it fell to 99 to 100 degrees; until September 18, when it became 98.5 degrees. The injection of serum was begun July 26, 1895, with 10 m. and rapidly increased to 45 m.; then went back to 30 m., which was maintained continuously, notwithstanding the attack of pleurisy, until Dec. 24, 1895, at which time there was a small abscess produced, through want of proper care of the physician giving the injection. Weight at the time (December 24) had increased to 143 pounds; expectoration had ceased, not being able to collect enough for microscopical examination. Physical examination revealed the absence of all râles; clear vesicular respiration throughout the affected portion of the lung, though somewhat weak in character. Right lung not affected at all. March 24 was attacked with la grippe, during which time weight was reduced to 134 pounds, and cough returned for a short time, loss of appetite, etc. April 13, I resumed the daily injection of 30 ms. of serum with an increase in weight of two pounds, and cessation of cough. Have used no other treatment at all, the ingestion of serum alone. This point in my case proves conclusively the great mistake of stopping the serum before the lung tissue has been restored to its full strength and vitality.

Case 2.—H. H., white, female age 4. Weight 27 pounds. Date of examination Jan. 3, 1896. Left lung almost completely consolidated; no vesicular respiration, bronchophony quite distinct, cough quite distressing at times; range of temperature 99 to 100 degrees in the afternoon. Began the use of serum Jan. 3, 1896, with a dose of 4 ms. and rapidly increased to 12 ms. daily. Right lung no lesion. During the first six week; of sero-therapy patient increased in weight four and one-half pounds and has maintained this weight (31½ pounds) until the present time. Upon physical examination, April 8, find that there is some vesicular respiration throughout the affected lung; cough has almost entirely ceased. During the last three weeks the injections have been somewhat irregular as the little patient was in another city two miles distant from my office, having had a mild attack of scarlet fever.

Case 3.—Mr. S., white, male, age 46; weight 135 pounds. Date of examination March 16, 1896. Left lung almost completely consolidated; no vesicular respiration; quite dull and flat upon percussion; small tubercular ulcer upon the epiglottis and vocal chord, affecting the voice. Expectoration about four ounces daily. Patient states that he was first affected with tuberculosis in October, 1894. Daily injections of 30 m. were begun on date of examination. There was considerable erythemia in this case which gradually disappeared, though the serum was given daily. Examination, April 21, find that there has been wonderful improvement in the condition of the lungs. There is already some slight vesicular respiration throughout the lung. Expectoration has diminished about one-half. Has increased four pounds in weight. When this patient commenced the daily injections of serum, he could only walk a very short distance without extreme fatigue; now he can walk at least half a mile, without any discomfort at all.

Case 4.—J. B., male, white, age 21 years. Date of examination Feb. 15, 1896. Patient states that he has had tuberculosis since the spring of 1893. His normal weight was formerly 143 pounds. Left lung at time of examination was in the same condition as the preceeding case; no vesicular respiration; dull and flat upon percussion. Present weight 115 pounds; very much emaciated. Patient difficult to control and comes at irregular intervals for the injections. There is evidence that this patient practices the disgusting habit of masturbation. Upon examination April 21, can find little or no improvement and there is little hope of his ever being relieved.

Dr. A. D McIntyre, Union Grove, Wis., reports having used the serum, with very flattering results, in a case of ovarian tuberculosis, the history of which I failed to receive in time to embody in this paper, but which will be published.

Dr. William Miller, Boerne, Texas, reports a case of pulmonary tuberculosis in the second stage absolutely recovered. I had an opportunity to examine this case about a month ago and there existed then no physical signs of tuberculosis, nor in the expectoration by microscopic analysis. After several months of treatment, on March 19, 1896, Dr Miller reports as follows concerning this case: "Examination of Mr.

Malloy, at Boerne, Texas, March 19, 1896: Pulse, 72, full and strong; respiration 18; temperature 98⅕; weight 152 pounds. This gentleman has gained 20 pounds since he came under treatment. Chest measure: expiration, 35½; inspiration, 37¾. Respiratory murmur clear and distinct over both lungs; no cough or expectoration."

Dr. Miller claims "specific improvement in 40 per cent. of the cases treated; 30 per cent. received some benefit, and 20 per cent. did not improve." In his explanation of the failures he says: "Nearly all the cases I have treated were in the third stage, and 30 per cent. of these at the end of their rope."

Dr. Hoell Tyler, Mentone, Cal., himself a tuberculous patient, states that he took the serum for five months through the kindness of Dr. C. C. Browning, Highlands, Cal., and that he had on Jan. 2, 1896, no symptoms of the disease in his lungs, and to-day he is attending to his usual duties as a physician.

Dr. J. L. Wiggins, East St. Louis, Ill., had the following case in June, 1895:

Miss V. Z., East St. Louis, Ill.—Had been ill several months and prostrated in bed with a complete history of acute, pulmonary tuberculosis for some weeks. Temperature 103 to 104 degrees F. almost continually; microscopical analysis demonstrated the bacilli of tuberculosis. Three physicians consulted and diagnosed acute tuberculous pneumonia. Every ordinary method of treatment was pursued, and the fever remained at 104 F., even reached 105 F., with symptoms of delirium, etc. The lungs were both largely involved, consolidation nearly complete in one. Dispnea excessively pronounced, weakness extreme; prognosis fatal. Everything having failed, the serum which I produce was tried. The treatment began early in June, 1895. Doses ranged between 20 and 40 ms. daily, and were continued some six weeks more or less regularly. The result was that the temperature decreased gradually and steadily after the first seven days' treatment to normal temperature, which was reached on the 22 of June, or thirteen days after the first injection. Injections were continued until the end of July. The patient gradually gained strength and flesh and is again at work. She weighs 132 lbs; was emaciated to at least 80 lbs before treatment. The germs of tuberculosis have disappeared entirely and all previous symptoms of lung disease are absent. Case recovered. The diagnosis of this case, which seemed clear to all the physicians, was questioned by one man because recovery had occurred, and here is the reply of Dr. Wiggins: "In answer to your query, 'Did you consider the case of Miss V. Z. acute tuberculosis,' I will answer unqualifiedly, yes. At the time of treatment with serum I had no hopes that the case would recover, either with or without serum. But as the temperature began to fall, diarrhea, which was before uncontrollable by medication, was controlled without medication, and the cough and hemorrhage became lessened and gradually disappeared. I concluded that these marks of improvement were more than a mere coincidence. The diagnosis was clear, outside of microscopic analysis. This in the beginning was clouded. I would have filled out a death certificate, had she died, as being the result of tuberculosis."

Among my own cases I may report:

Mr. E. D., St. Louis, Mo., age 36 years; occupation, shipping clerk. History of glandular tuberculosis, dating back about eleven years. Had pneumonia four years previous to examination in my office, May 16, 1895; had been declining six months; had night sweats and fever; pain in left lung, back and front. Pulse at 108 degrees at the time of examination; abnormal temperature ranged from 99 3-5 to 101 degrees; cough chiefly in the morning; expectorated a yellowish matter. Bacilli present. Slept fairly well on the right side but could not sleep on the left; was too weak to attend to his duties properly. Dullness in the left lower lobe and crepitus of the left apex over a lateral area of four inches, extending about three inches downward; interrupted breathing both sides. All these symptoms disappeared in four months of treatment consisting of 15 to 30 ms. of serum a day. Several examinations of sputum made since revealed no bacilli. Mr. D. is at work from twelve to fifteen hours a day, Sundays included, and feels strong and in good health. He did not bear the injection of serum well, but he was persistent and recovered.

Mrs. H. R., St. Louis, Mo., consulted me in February, 1895. Had been ill for two years. Had had slight hemorrhages; was coughing very severely and expectorated a yellowish, mucopurulent material, occasionally tinged with blood. The sputum was full of bacilli of tuberculosis and largely loaded with different forms of pus germs. There was infiltration in the apex of the right lung between the third and fifth rib, covering an area of about four inches, laterally, and penetrating the lung more or less. There were mucous râles about the middle of this area, very pronounced, and interrupted breathing on both sides. The circulation was exceedingly rapid and the fever ranged from 99 to 101 degrees F.; it rarely went above that. Patient had lost much flesh, being reduced from 130 to 90 pounds. At the regular dose of 30 ms. three days for four months and then irregular treatment three or four times a week, and with a loss of three weeks at one time, the whole treatment covering a period of six months, Mrs. R. increased in weight to 132 pounds, and became strong accordingly; developed a splendid appetite, and for the last three months the sputum was exceedingly scarce and comes now only when she is affected by cold. It exhibits no bacilli of tuberculosis. She suffered a miscarriage and six weeks' illness recently, but her lungs remained apparently sound. The consumption symptoms which existed at the beginning have disappeared.

Mr. F. S., St. Louis, Mo., was examined in February, 1895. He weighed about 145 pouuds at the time. He had had very profuse hemorrhages at Hot Springs, and was sent home considered hopeless; had lost about fifty-five pounds from his regular weight which was above the normal for his size; coughed a great deal at night and day; expectorated a thick, yellowish matter loaded with the bacilli of tuberculosis and other microbes and was gradually losing ground. He was unable to perform his duties as a groceryman. Physical condition evidenced tuberculous affection in both lungs, particularly in the right, over the whole of which interrupted breathing was very marked. The lower half of the lung exhibited moist râles and softening. Symptoms after seven months of more or less regular treatment, which consisted of 20 ms. daily in the beginning, and was increased to 40, and once in a while to 60 ms., almost entirely disappeared, with the exception of a slight interrupted breathing. Flesh was regained to the amount of 170 pounds, and now strength is as good as ever. Mr. S. has been for four months without treatment, attending to his usual duties, working hard every day. He expresses the opinion that he is free from disease. The bacilli are now absent, but there is still a slight catarrhal condition of the bronchi, with micrococci. His condition of health is continually improving. Active tuberculosis, at least, has been arrested by the serum.

Mr. G. N. F., St. Louis, Mo., was examined April 29, 1895. Age, 45 years; occupation, bookbinder. Had had a dry, hacking cough two years; had had pneumonia at the age of 18, congestion of the lungs, so-called, two years previous to his examination. February 7, 1895, he had severe hemorrhages, and at the beginning of treatment he weighed 130 pounds. Expectoration thick and yellowish. Bacilli of tuberculosis numerous. Temperature increased at times; infiltration of the left apex below the second rib, about three inches downward and four inches across, evidenced both anteriorly and posteriorly, dullness over same region; crepitus over some of the area, and râles and crackling on deep inspiration extending below left breast, anteriorly. Mr. F. was treated with tubercle antitoxin from the beginning of May until October, almost every day, at the dose of 30 to 40 ms. Since then several examinations have been made and no germs of consumption are to be found. Physical symptoms have now disappeared and the patient is at his work, feeling strong and well and considers himself cured. He weighs 143 pounds, which is more than his normal weight before his illness.

Mr. F. B. M., St. Louis, Mo., age 20; occupation, railroad clerk working at night. He had bronchitis at the age of 14; had suffered from night emissions of early puberty; previous health feeble; cough slight; pain in the lower lobe of the left lung; temperature 99 to 100 F. Physical examination evidenced dullness of the lower left lobe, beginning at a line drawn below the nipple and extending toward the base. Microscopic examination revealed the bacilli of tuberculosis; not in large numbers. Mr. M. was treated from May 27, 1895, to the middle of September, practically four months. All physical symptoms and evidences of tuberculosis have disappeared. He is now at work as before in good health. No bacilli have been found in examinations made since September.

Miss G. A., St. Louis, Mo., age 19 years; occupation, music and vocal student; had influenza in Memphis six years before; dry cough for a year; weighed 123 pounds. Hemorrhages four years previous to examination Sept. 26, 1895, larynx infiltrated; temperature from 99.5 to 101; coughing much and expectora-

tion in the morning of a yellowish matter. Bacilli of tuberculosis quite numerous. Heart disease evidenced regurgitation. Treatment began the last day of September, 1895; injected very small doses on account of her heart condition, that is, 10 to 25 ms. daily. At this time Miss A. weighs 136 pounds; the bacilli of tuberculosis are now absent and for two months there has been but one or two in the field of bi-monthly examination. Cough has almost entirely disappeared. Strength has been regained and appetite is splendid, and the patient is considered as having almost, if not quite, recovered, as there exists no longer the physical signs of infiltration nor any signs of breaking down. There is still expectoration with micrococci.

Miss S., Nashville, Tenn., began treatment in May, 1895, and remained under its influence for some three months. She came with a written diagnosis of pulmonary tuberculosis from her family physician, which was substantiated by microscopic and physical examination. The bacilli of tuberculosis were found in large numbers and the patient was rapidly losing ground both in weight and strength; coughing considerably, particularly at night; expectorated occasionally a yellow greenish matter. Night sweats had existed and fever ranged at times from 99 to 102 F. She was treated with serum at doses ranging from 20 to 30 ms. daily. After three months she had gained ten pounds. She then removed to Las Vegas, N. M., where she resumed the treatment and her improvement continued. She had first lost flesh, but again increased in weight and every symptom seems to have disappeared, if I may judge from the reports sent me. Bacilli have not been present for two months.

Mrs. A. C., age 26 years, married, has had three children and two miscarriages, one recently. At the age of 14 she received a blow in the chest, at which point pain appeared frequently whenever the patient contracted cold. On examination infiltration was discovered, covering an area of about three inches in diameter, on the right side below the breast; also a dullness in the left lung between the second and third ribs, extending about two inches downward and two inches laterally. She had had various symptoms of tuberculosis for some years and dated the accidental incipiency of it fourteen years previously when she had received the injury mentioned. She has had several hemorrhages. The active development of the disease dated three years before my examination, which occurred June 7, 1895. At that time she weighed 115 pounds. To-day she weighs 135 pounds. She had dyspnea; expectorated a great deal; coughed very much and had a poor appetite. Now all these symptoms have disappeared and her strength has increasd so that she is able to perform her duties; comes to my office daily and expresses herself as improving continually. The physical signs above mentioned have disappeared almost completely. A few bacilli were found in the last three months.

Mr. V. (employed at our institution) a patient under the charge of Dr. Hanau W. Loeb, had laryngeal and pulmonary tuberculosis. His condition had been declared hopeless by a number of specialists in St. Louis. He has been treated under the special care of Dr. L. and myself, occasionally, for a period of about ten months, having received from 30 to 120 ms. daily. At the beginning of his treatment there existed infiltrations of the larynx and other lesions. He had lost his voice, weight and strength. He was in a hospital, unable to perform any work. He was, at the writing of this report, assisting in the care of some twenty-two horses, working many hours every day in water and dust. His appetite had improved and his strength good. He is susceptible to colds, but under the treatment with serum he had gained a condition which permits him to do all the menial labor that can be asked of any man. Rarely have we found the bacilli in the scant expectoration of the last four months. I report him because he was incidentally and indirectly under my supervision some months, and the injections were done by my assistants or myself. The case is surely under control at present. Some physicians pronounce him practically cured.

John H., aged 48. Pulmonary tuberculosis two years; prostrated in bed at city hospital; cavity, contracted lung, bacilli numerous; mother died of phthisis; cough aggravating. Injections 30 ms. daily, begun Dec. 1, 1894; continued for three months regularly. Weight increased 6½ pounds first two months. Has since been under treatment irregularly. Has been at work for over a year, grooming from twelve to twenty horses, ploughing and farming generally part of the time. Bacilli absent.

Miss Y., age 18; pulmonary tuberculosis, first stage. Lost ten pounds; infiltration in and dullness over area of three inches in diameter between second and sixth ribs, in right lung; cough persistent at night and expectoration profuse in morning; bacilli present. Miss Y. was treated over four months almost daily, at a dose of 30 ms. hypodermically. To-day she has more than gained her normal weight, is absolutely free from cough, and the last symptom of pulmonary tuberculosis has disappeared; bacilli absent.

Dr. S. B. Hall, Rock Island, Ill., reports as follows, April 28, 1896:

Case 1.—Age 27; has been coughing since January, 1895; normal weight, 160 pounds. Weight at commencement of treatment (Dec. 20, 1895) 132 pounds; present weight 136 pounds. Average dose 25 to 30 ms. Have had to suspend treatment several times. Coughs and raises very little at present; sleeps well; has a good appetite, has moist râles in upper lobe of left lung. Right lung normal. Have suspended treatment for a while. This was a charity case; lived in a poor damp house and had barely the necessaries of life. I think he has made a wonderful improvement.

Case 2.—Male, age 40; sick one year, given up by several doctors, is a carpenter by trade; was confined to bed three months prior to the beginning of treatment June 25, 1896; no cavities, but the upper lobe of the left lung and the middle lobe of the right lung were the most affected. Cough was incessant—coughed two-thirds of the night. Maximum dose 45 m. average 30 m. Cough is markedly diminished and he sleeps and eats fairly well. His greatest trouble now is a soreness in the trachea and bronchial tubes. He says they seem raw. Both of these patients refused any additional treatment and they have both improved wonderfully.

Dr. C. E. Bauer, St. Louis, Mo., writes on April 28, 1896:

Case 1.—Age 40 years; weight 140 pounds; height 5 feet 10 inches. I was called the latter part of October, 1895, while he had a hemorrhage. I was told that he had two hemorrhages before this last one, about three or four months apart. He coughed a great deal and expectorated a thick greenish sputum. On percussion I found a dullness of the left side extending from the supraclavicular space to three or four inches below clavicle. On auscultation, I could hear nothing but a blowing murmur; after coughing, moist râles. Very profuse perspiration at night. Temperature in the morning 99; in the evening 100 and 101. I commenced with injections of 10 ms. of serum and gradually increased to 50 ms. daily. After injecting about two months, I had to reduce the amount to 30 or 35 ms. on account of sudden rise in temperature. I have used the serum in this case from Nov. 2, 1895, until April 1. Since then I am only making two injections a week. The patient has increased in weight from 140 to 156 pounds. He coughs very little and there is not any sputum at present. The sputum before treatment showed a great number of tubercle bacilli and streptococci. Night sweats have ceased entirely. On auscultation, I hear a blowing murmur, but no moist râles. He has returned to his occupation as fruit peddler.

Case 2.—Miss L., age 22 years; height 5 feet, 4 inches; weight 110 pounds before treatment. Had a cough for some months and was losing flesh, expectorating a great deal; respiration increased to about 35; temperature in the morning 99; in the evening 102 and sometimes 103 degrees; perspires considerably when sleeping; face becomes flushed toward evening. Sputum was examined before treatment and showed a great number of tubercle bacilli, also streptococci. On percussion I found dullness on the right side from the clavicle down about four inches, also over suprascapular space; on ausculation, I could hear moist râles. I have been injecting serum in this case since November 3, daily, up to two weeks ago, and intend to continue. This case did not get along very well but we have been rewarded at last. The temperature does not go above 99; she coughs and expectorates very little. I do not hear moist râles on ausculation. Her weight has increased from 110 to 118 pounds; respiration is not so frequent and she does not perspire at night. When she came to me she could not speak above a whisper. I examined the larynx and found the vocal cords red. On the left cord was a small ulcer; since the treatment with serum her voice has been entirely restored; the ulcer cicatrized. I have treated this case with Paquin's anti-tubercle serum, commencing with 10 and increasing to 50 ms., but had to reduce it to 25 ms., on account of palpitation of the heart. I think it very advisable to discontinue the injections for about two weeks in cases where patients have been injected daily for three or four months.

Dr. Elizabeth McLaughry, New Castle, Pa., in one of her recent reports states:

Patient, a young woman, age 32, had been ill for two years,

gradually growing weaker. When I first called, found her prostrated with a temperature of 104, pulse 120. Cavity in left lung and dullness in apex of right, dyspnea, huskiness of voice, night sweats, cough, which prevented her from sleeping; sputum, muco-purulent, often streaked with blood. No appetite, throwing up what food she did take, and diarrhea. Weight 84 pounds. Bacilli very abundant in sputum. Began treatment by injecting five minims of serum—increasing to thirty daily. She began to improve at once; temperature gradually went down to normal in less than two weeks, night sweats ceased, coughed much less, slept soundly all night, appetite became good and diarrhea ceased. Now after two months treatment, she has grown quite strong; gained four pounds.

Dr. Richard Fricke, Fort Wayne, Ind., April 28, 1896:

Case 1.—Mr. S., a man 37 years of age, was taken sick January 4 with typhoid malaria. About the beginning of February the fever had disappeared, and there were no symptoms, except weakness. But after about one week's time a hacking cough set in, with but little expectoration, and at the same time, he began to get asthmatic, losing flesh and having night sweats. I learned that several members of the family had died of consumption. By examination, I find the apices dull and contracted. The microscopic examination was negative. March 4 I began to inject the Paul Paquin anti-tubercle serum. After about one week's treatment he began to feel better, his appetite improved, his night sweats grew less and at the end of the second week he had gained four pounds. From that time he improved rapidly in every respect and gained an average or three pounds a week. He lost his night sweats, his asthma, got strong and robust and is now at work again. During the treatment he did not take any medicine except the injections of serum.

Ed. W., St. Louis, Mo. Examined July 9, 1895, complained of sore lungs, both sides for two years. Dullness in left apex; cough slight; expectorated, thick yellow sputum, containing bacilli of tuberculosis. Dyspeptic. Bowels irregular; had lost seven pounds in preceding three months. Was treated with an average dose of 30 ms. almost daily since examination, and to-day is absolutely free from tuberculous phenomena, although he has a slight catarrhal discharge with micrococci. He has regained lost strength and weight.

It is useless to say that the improvements in cases in very advanced disorganization and prostration have not been of long duration. Nothing will restitute a lost tissue to its former condition, nor will anything cure moribunds.

DISCUSSION.

Replying to the interrogatories by Dr. William Dougal, and others, Dr. Paquin said the serum would not kill germs outside the body as a chemic germicide; that the horse from which it was obtained was treated with tuberculin, or the toxins of the germs of tuberculosis, in a manner similar to that followed in producing diphtheria antitoxin. The horses were first kept under observation three or four weeks, and if there were the least indication of illness they were not used. The tuberculin injections in the animals were continued as long as they produced any reaction. It was usually three months before reaction ceased. The subsequent steps taken insured a very clear serum. The living germs of tuberculosis were not injected into the horse. Moreover, the horse was naturally relatively immune to tuberculosis, for out of many attempts to infect the animal he had succeeded only twice in producing even local tuberculosis, and this failed to become generalized. The immunized horse serum injected into tuberculous man did not kill the germs of tuberculosis, but, as with diphtheria antitoxin, simply stimulated the forces within us to neutralize their products. In diphtheria we found germs three or four weeks after the use of antitoxin. It was not at all due to chemic action.

DR. A. M. HAYDEN of Indiana—I have obtained the very best results in eight cases out of ten. The question most important to settle at the present time is, what cases will be benefited, and under what circumstances, and how to distinguish between cases which will be benefited and those which will not, I have been unable at the commencement to decide. A case in mind was that of a patient having an immense cavity in the left lung. Apparently he got no benefit from the treatment the first three weeks, but had the flushed face, disturbance of circulation, and seemed to lose ground for a month. But on examining the sputum we found the tubercle bacilli were diminishing. After thirty days the tubercle bacilli were very much diminished in the sputum, and he began to gain in strength, appetite, flesh, etc. In three months the tubercle bacilli had disappeared from the sputum, although they had been very numerous on the microscopic slide at the first. He had had hundreds of hemorrhages, and could not go out of the house alone. The other lung has cleared up, the chest wall has contracted over the cavity, he is at work and enjoying life. In one or two other cases there was improvement the first two or three weeks. Then it ceased and they lost ground. In 80 per cent. of my cases the results obtained have been better than those I have ever succeeded in getting from any other therapeutic agent. I discontinued all other treatment in these cases in order to give the serum a fair trial. One man whose condition was regarded as hopeless would take no other treatment, and the result was so favorable that I abandoned all other measures while using the serum. The man whose history was sent Dr. Paquin, and who had tuberculosis of the glandular system, coughed, was emaciated, had swollen feet, pulse 140, night sweats and insomnia. Everything else was stopped and he was given the serum. At the end of sixteen days he had improved sufficiently to get out of bed and had gained a number of pounds. The treatment was discontinued ten days or two weeks; he began to feel badly again, and another ounce of serum was sent for; soon afterward his weight increased to 170 pounds, and since then he has gained five pounds more, being heavier than he had ever weighed before. One of my patients who did not improve had mixed infection, and I believe it will be found that such cases are less likely to be benefited than those with purely tubercular infection. The other case which apparently improved at first, but relapsed afterward, was one of laryngeal tuberculosis. It is a peculiar fact that most of the cases in which I got good results did not seem to improve at first, whereas the two which at first showed improvement of appetite and some gain in flesh, afterward relapsed.

DR. RICHARDS and DR. WEBSTER of Illinois, inquired whether the serum had been used in local tuberculosis by injection.

DR. PAQUIN knew of only one case of lupus in which it was used, the report coming from the State of Washington. The physician stated that the disease had disappeared.

DR. WILLIAM DOUGAL of Illinois—It seems to me that by this treatment we are stimulating the natural forces within us to throw off and annihilate tuberculosis within the system.

THE SURGICAL TREATMENT OF UTERINE FIBRO-MYOMATA.

Read before the Minnesota State Medical Society, June 18, 1896.

BY E. C. DUDLEY, M.D.

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CHICAGO.

The object of this paper is not to enlarge upon a great variety of procedures which have become or seem destined to become obsolete, but rather to present briefly the more useful operations for the treatment of fibro-myomata of the uterus. The subject will be divided as follows: 1, palliative operations. 2, radical vaginal operations. 3, radical abdominal operations.

I. PALLIATIVE OPERATIONS.

The palliative operations are, *a*, curettage, *b*, electrolysis, *c*, ligature of the uterine arteries and broad ligaments, *d*, removal of the uterine appendages.

a. Curettage.—The irritating presence of the tumor often gives rise to hemorrhagic endometritis. Curettage is therefore indicated precisely as it would be in hemorrhagic endometritis from any other cause. The operation is generally followed by a degree of relief from the menorrhagia, is seldom permanent in its results and must usually therefore be repeated again and again. It is especially useful in connection with intrauterine gauze tamponade to control hemorrhage until an exhausted patient can gain blood and strength for a more radical operation, or in cases of small tumors until the menopause has passed. Curettage of the myomatous uterus gives increased danger of sepsis, hence the necessity for great antiseptic and aseptic care.

b. Electrolysis, especially electro-puncture, must be taken as a surgical procedure; even the simple intrauterine electrode is powerfully caustic and therefore surgical. Undoubtedly this agent may in a limited number of selected cases be capable of producing a more or less permanent symptomatic cure, and may occasionally result in the disappearance or reduction of the tumor. The earlier promise of its enthusiastic supporters however has not been fulfilled. Its immediate dangers also are considerable. The survival of this method depends chiefly upon the patient's ignorance of its inadequacy and dangers, upon her worship of the mysterious, upon an unreasoning dread of operative measures and upon a desire to grasp any other promising means of relief.

c. Ligature of the Uterine Arteries and Broad Ligaments.—The purpose of these measures is to shut off the blood supply to the uterus and by this means to induce atrophy of the growth. Gottschalk of Berlin reports cases of multiple myoma in which he he ligatured the uterine arteries with good results. Martin ligatures the whole base of the broad ligament so as to include not only the uterine artery but its branches and certain uterine nerves. He even goes so far in desperate cases as to ligature also the ovarian artery on one side. Robinson reports successful cases in which he has ligatured the Fallopian tubes and broad ligaments, including the ovarian and uterine arteries on both sides. The method has hitherto failed to elicit much discussion. Even its authors of late preserve on this subject an ominous silence.

d. Removal of the Uterine Appendages.—This procedure, which suggests the names of Battey, Hegar and Tait, when properly carried out—*i. e.*, when the ligatures are placed close to the uterus so as to include a large part of the broad ligament—usually stops the hemorrhage and reduces the tumor, sometimes even causes it to disappear. Its dangers however, are nearly if not quite as great as those of the more radical operations. This is especially true since the technique of the latter has been perfected. Removal of the uterine appendages for fibro-myomata is becoming an obsolete operation. At least it will be done only in rare cases of small tumors in which for some special reason the hysterectomy and myomectomy are unadvisable.

II. RADICAL VAGINAL OPERATIONS.

The vaginal operation is preferable when the tumor can be readily reached by that route. All cervical fibroids, all intrauterine pedunculated fibroids and some of the more accessible submucous fibroids have usually been removed by the vagina. In their removal the *ecraseur* and galvano-cautery so often used for hemostasis are unnecessary, because hemorrhage is either not feared or can be readily controlled by the uterine gauze tampon. This route has usually been reserved for the smaller tumors of a size not larger than the capacity of the small pelvis. Latterly however the vaginal method has been often and successfully used by certain French surgeons for the removal of much larger tumors. Their removal is accomplished by repeatedly seizing the presenting part of the tumor with vulcellum forceps and cutting away as large a piece as possible with the scissors, one piece after another, until the whole tumor has been removed. I refer to the operation by traction and morcellement. This method, although generally supposed to be of more recent origin, was really described by Dr. T. A. Emmet more than thirty years ago and has been constantly advocated and practiced by him ever since. It is applicable to those cases in which the tumor is accessible through the vagina but too large to be enucleated and delivered entire.

The operation of traction and morcellation when its technique is more generally understood and its advantages more appreciated will undoubtedly become more and more a procedure of election in place of hysterectomy. Many large submucous or mural tumors for which the abdomen is now opened and the uterus sacrificed may be rapidly, safely and effectually managed by this method. One strong contraindication to the vaginal route for large tumors must always be, however, the constant possibility of pus tubes or ovarian abcesses, so often unrecognized or unrecognizable when they occur in connection with large irregular fibro-myomata. Many a fatal result has followed the rupture of an unsuspected small pus tube caused by most careful enucleation or morcellation through the vagina. The vaginal route then should be avoided if there be any reason to suspect purulent disease of the uterine appendages. The tumor is usually made more accessible and its enucleation or morcellation is facilitated either by dilatation or more frequently by deep lateral incisions of the cervix even to the internal os. These incisions having been made, the anterior and posterior lips of the cervix are drawn well down to the vulva and held widely apart by means of strong double-tooth forceps in the hands of an assistant. The operator then seizes the presenting part of the tumor with strong tooth forceps and removes it, either by enucleation or by morcellation. If the tumor be of mural origin it may be necessary to divide the mucous membrane and submucous muscular tissue before commencing the enucleation. This incision should be parallel to the uterine canal.

I now propose a possible improvement upon the two lateral incisions. It is a simple median incision through the anterior wall of the uterus, as follows:

1. Make a circular incision in front of the uterus which shall separate the vaginal wall from the cervix at the utero-vaginal attachment in the line CD, Figure 1.

2. Incise the anterior vaginal wall from the point at the middle of the first incision for a distance of one-half to three-fourths of an inch, line AB, Figure 1, taking care not to invade the bladder and to avoid the ureters on either side.

3. Separate the bladder from the uterus by means of the finger or some other blunt instrument, keeping close to the uterus until the peritoneum is reached but not divided. Then expose with retractors the anterior wall of the uterus. (Figure 2.)

4. Divide the anterior wall of the uterus longitudinally in the median line by means of scissors to whatever extent may be necessary to render the tumor accessible. (Figure 2.) If necessary, the peritoneum may be opened and the incision carried high up into the corpus uteri.

This simple anterior incision would permit wide separation of the lateral fragments of the anterior uterine wall and thereby expose the endometrium and in selected cases would render accessible a myoma in any part of the uterine wall. It would probably have the following advantages over the lateral incisions:

1. Less traumatisms, one incision instead of two.

2. The parametria are not opened and exposed to possible sepsis.

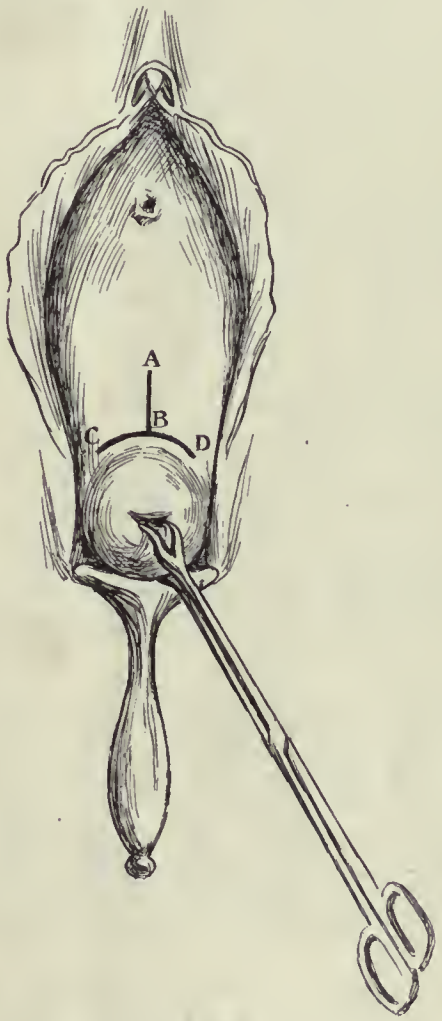


FIGURE 1.

3. The tumor would be more accessible because the anterior uterine wall would be out of the way instead of being between the operator and his field of operation.

4. A much longer incision may be made if necessary, because the broad ligaments are not involved.

5. Less hemorrhage.

6. The pelvic cavity may be easily reached for any accessory operation on the uterine appendages or peritoneum. Even a small pedunculated or subperitoneal tumor could be removed.

III.—RADICAL ABDOMINAL OPERATIONS.

The radical abdominal operation includes the following subjects:

1. The extraperitoneal versus the intraperitoneal treatment of the stump, *i. e.*, the clamp versus the ligature.

2. The removal of the tumor together with the whole or a part of the uterus and its appendages.

3. The removal of the tumor, leaving the uterus and its appendages intact, so as to preserve their reproductive functions.

The question of intraperitoneal versus extraperitoneal hemostasis recalls the old contest between the clamp and the intraperitoneal ligature in the treatment of the pedicle in ovariotomy; a contest which resulted in a complete victory for the ligature and necessarily established the general principle that the extraperitoneal method is relatively dangerous and consequently, whenever perfect hemostasis by the intraperitoneal method is practicable, should be avoided. Undoubtedly this general principle should apply with some force to the removal of other abdominal tumors. Nevertheless the earlier statistics in myomectomy and hysterectomy show that the dangers which necessarily belonged to the clamp were more than balanced by the insufficiency of any means then known of intraperitoneal hemostasis. The advocates of the clamp based their objections to the ligature upon the supposition that the moist soft uterine stump when ligatured and returned to the abdomen would at once become a source of danger from hemorrhage and decomposition, with consequent peritonitis and sepsis. However tightly the ligature was drawn around the uterine stump, however carefully the flaps of the stump were stitched together, however perfect the hemostasis may have appeared upon the completion of the operation, the fact

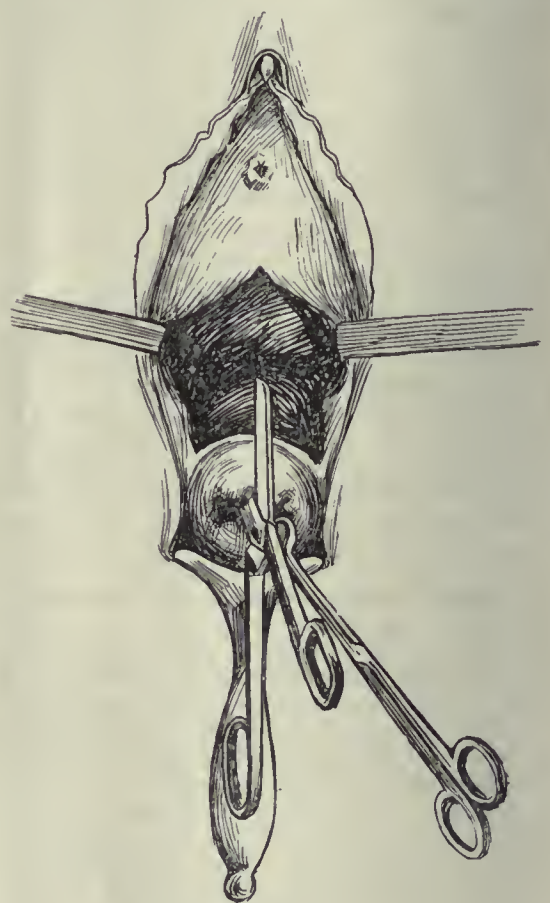


FIGURE 2.

remained that shrinkage of the stump within a few hours with consequent loosening of the ligatures almost invariably occurred from the escape of serum, and fatal hemorrhage or sepsis often followed. The extraperitoneal treatment therefore became for a time almost universal, and with improved technique gave promise of becoming the established method. In the hands of Keith and a few other extraordinary surgeons it gave a singular freedom from mortality; but in the hands of the average operator the mortality was unfortunately too great. This was so because of the extreme difficulty in keeping the stump aseptic. It would suppurate in many cases and become the medium of deep peritoneal infection.

In myomectomy the history of ovariotomy has repeated itself—first, the intraperitoneal treatment of the stump; second, the extraperitoneal treatment, rendered necessary on account of the difficulty of intraperitoneal hemostasis. Now, finally, the intraperitoneal treatment has become the established method in myomectomy.

The great condition hitherto wanting is now supplied by ligaturing the uterine and ovarian vessels, thereby shutting off the blood supply from the field of operation. This not only renders the operation bloodless, but prevents secondary hemorrhage. It now seems extraordinary that the very first men who ever attempted myomectomy did not realize the surgical necessity of first shutting off the blood current by ligaturing these vessels. Instead of using this simple, direct, natural procedure, we have been for a quarter of a century, groping about in the dark, searching in out of the way places for a method by which we could secure intraperitoneal hemostasis. Just as soon as Baer and others began to ligature these vessels the whole procedure became simple. It is the old story of Columbus and the egg over again.

It would be unprofitable here to continue the discussion of the clamp against the ligature in the surgical treatment of uterine fibroids. The subject is rapidly passing out of the field of discussion and becoming a matter of history. There is, however, a limited class of cases in which the very much constricted stump may readily be brought into the abdominal wound, and fixed there by means of the clamp, in a much shorter time than would be required to secure hemostasis by ligature of the uterine and ovarian vessels, and to complete the operation by the intraperitoneal method. In such a case, if the condition of the patient is precarious, the clamp will always be useful, because it will enable the surgeon to complete the removal of the tumor with the minimum of operating. It will then fulfill a most important indication—the saving of time.

Nearly eight years ago I reported to the Chicago Gynecological Society a case[1] operated upon in St. Luke's Hospital, in which the abdomen was opened, the tumor enucleated, and the cavity from which the tumor had been taken stitched into the abdominal wound by means of catgut sutures. By this means the uterine wound made by enucleating the tumor was rendered extraperitoneal. The tumor cavity was then tightly packed with a continuous strip of gauze to control hemmorrhage and to drain through the abdominal wound.

This operation differs from the so-called "peritoneal cuff operation" recently introduced by Dr. Senn somewhat in detail, but not at all in principle. I have recently, however, learned that Dr. Polk, of New York, described substantially the same operation before the New York Obstetrical Society in January, 1888, thus anticipating me by a few months, but he soon abandoned it for hysterectomy. When I first described this operation I regarded it, for selected cases, as a great advance in the surgical treatment of uterine myomata, because it saved the reproductive organs. In about fifty cases it gave me a mortality of only 2 or 3 per cent. Now, however, I would usually prefer one of the modern intraperitoneal operations soon to be outlined.

The grounds upon which the extraperitoneal method, whether by clamp, elastic ligature or suture, should for the most part be discarded, may be given as follows:

1. No greater safety in the extraperitoneal method.
2. Fixation of the whole or a part of the uterus to the anterior abdominal wall is objectionable from an anatomic standpoint, and often gives the patient great inconvenience from traction and from other mechanical causes.
3. Extraperitoneal hemostasis in any form is apt to cause unnecessary adhesions. It usually makes a longer and more tedious convalescence.
4. Greater danger from ventral hernia.

OPERATIONS WITH INTRAPERITONEAL HEMOSTASIS.

To illustrate the various operations which may be performed with intraperitoneal hemostasis, I will briefly present from my note books the histories of three operations performed at St. Luke's Hospital on three consecutive days, Nov. 4, 5 and 6, 1895.

Case 1 was of many years' standing. Electrolysis—electropuncture—had been repeatedly used. This treatment had been followed by extensive, almost fatal pelvic peritonitis, There had been so much inflammation of the tumor itself that it could not be easily shelled out of its capsule. On account of extensive adhesions to the abdominal viscera, the inaccessibility of the field of operation and the bad condition of the patient, the operation presented unusual difficulties. After ligating the uterine and ovarian vessels, the tumor, weighing about ten pounds, and the entire uterus with its diseased appendages, was removed. The operation necessitated great traumatism in the pelvis, and large surfaces were left uncovered by peritoneum. The pelvic cavity was therefore packed with gauze. This gauze was continued into the vagina and left as a capillary drain. The abdominal wound was closed without abdominal drainage.

Case 2.—The next case was very much like the preceding one, but the tumor was somewhat smaller and there were no adhesions. Both tubes were distended with fluid. Each ovary was as large as the double fist. The tumor, the entire uterus and its appendages were removed, as in Case 1. The broad ligament stumps were drawn down into the vagina and held there by sutures. The vaginal and abdominal wounds were both completely closed, the latter with catgut sutures. No drainage.

Case 3.—On the following day the third case presented itself, with a perfectly round, globular tumor as large as the double fist springing from the anterior wall of the uterus. This tumor was removed by an incision through the corpus uteri, precisely such as would be made in a Cæsarean section. Temporary hemostasis was secured by a rubber ligature. This was removed before closing the abdominal wound. The tumor having been enucleated, the cervix dilated and the granulations curetted out of the endometrium, the cavity of the uterus, which communicated with the uterine wound, and the vagina were packed with a gauze drain. The uterine wound from which the tumor had been enucleated was then closed. As in Cæsarean section, the entire uterus was dropped back into the pelvic cavity and the abdominal wound closed without drainage. The Fallopian tubes and ovaries were preserved intact.

The method adopted in this last case is undoubtedly applicable to the treatment of a much larger

[1] Reported before the Chicago Gynecological Society, May, 1889, and published in the Am. Jour. of Obstetrics, September, 1889.

number of tumors than is generally supposed. I desire to emphasize the statement that any surgeon who is constantly alert to enucleate the tumor and preserve the reproductive organs will be surprised at the number of cases in which this is entirely feasible. The mutilating operation of hysterectomy for fibro-myoma is often necessary, but not so often as the statistics of the present time would indicate. In the vast majority of cases the uterine appendages will be found normal, and in a large proportion of this majority the tumor may be enucleated from the uterus and the wound successfully closed precisely as would be required for the removal of such a tumor in any other part of the body. Cases of very large tumors and cases in which many small tumors are scattered through the uterine wall may require hysterectomy. The conservative operation of simple enucleation will apply in many cases when the tumor is even larger than the fetal head, and in cases of multiple myomata when there are not too many tumors.

If the tumor is subperitoneal, and especially if pedunculated, the uterine traumatism is superficial and easily treated with catgut sutures. In mural tumors large numbers of buried catgut sutures may be used in bringing the surfaces of the uterine wound together, and then some modification of the Lembert suture may be used in closing the peritoneal margins. If the tumor is submucous and the uterine cavity is invaded in its removal, the same method of buried suture applies. In these cases it is well to tampon the uterine canal and vagina for drainge with a continuous strip of sterilized gauze. The question has been raised whether the wound made by enucleation of a mural tumor without entering the endometrium should be simply closed with buried catgut sutures and left without drainage into the uterine canal, or whether an opening should be made into the endometrium for that purpose. I have operated several times in both ways, and always with success. I recall one case, however, of large tumor, the enucleation of which made a very large wound in the uterine wall. This was closed with buried catgut sutures without establishing any drainage into the uterine cavity. The patient recovered, but only after a period of high temperature and rapid pulse which lasted for about two weeks. During this time the uterus was enormously swollen and I feared suppuration in the uterine wound. Nothing, however, was done in the way of a secondary operation for drainage. The experience of this case indicates that drainage into the uterine cavity is desirable for large uterine wounds. In the introduction of the gauze tampon I always dilate the uterine canal from the abdominal side, the temporary elastic ligature being in place around the cervix, and then force a continuous strip of gauze three or four inches wide down into the vagina, packing the vagina first and then the uterine cavity. All of the gauze may be removed in forty-eight hours by traction from the vagina. If not removed within two or three days it is apt to produce high temperature and rapid pulse, which usually subside promptly upon its removal.

I have presented these three cases, all of which recovered, to illustrate the fact that there can be no stereotyped operation for uterine myoma. Each case must furnish its own indications for the particular operation which applies to it. Sometimes the entire uterus and its appendages must be sacrificed; often they may all be preserved and their functions restored; sometimes the cervix uteri alone may be left, after the method of Baer. Often, as in Case 1, the injury to the pelvic peritoneum is so great that gauze packing is necessary for drainage and hemostasis. In other cases the injury is so slight that when the ligated stumps are drawn down into the vagina and the vaginal and abdominal wounds are closed there is no peritoneal traumatism save the united wounds, and therefore no need for gauze packing. The modern tendency is properly on the side of the vaginal drain as against drainage through the abdominal wound. When no opening has been made into the vagina in the course of the operation proper, and drainage is necessary, I would favor as a general proposition that such an opening be made there, posterior to the cervix, for the purpose of drainage. The advantages of this are, 1, better drainage; 2, complete closure of the abdominal wound; 3, consequent rapid convalescence; 4, minimum risk of ventral hernia.

In myomectomy the uterus should, if possible, be saved when the tubes and ovaries are healthy. When the appendages have to be removed, the uterus may as well go with them, especially if its removal facilitates drainage or in any way renders the operation more simple. I do not, however, share a certain modern prejudice against the uterus, which would prompt one to remove it simply for the purpose of getting it out of the way.

1617 Indiana Avenue.

NOTES ON TAKA-DIASTASE.

BY T. H. ALLEN, M.D.
NEW YORK.

I have been using taka-diastase recently in a large number of cases, my attention having been called to it some time since by a physician whom I met in consultation.

It has been efficacious in such cases of amylaceous indigestion as are so frequently met with in gynecologic practice, and which seem dependent on irritation of the sympathetic governing digestion. The following case best illustrates its effect:

Mrs. H., aged 38, had chronic ovaritis with intense pain in left inguinal region, flatulency, headache, colic occasionally. The ovaritis had been treated in the usual way, but the intestinal pains depending upon the flatulency and headache, resisted all remedies until I administered the taka-diastase in three grain doses after each meal. The result was remarkable in its promptness; at the end of three days the tympanites and pain had completely disappeared. I continued to use the remedy during two weeks, after which time there was no return of the symptoms. The ovaritis is yet being treated.

Instead of giving in detail a report of the cases in which I have seen so much benefit derived from the use of taka-diastase, I will only mention one other case. Mrs. X., aged 26; fibroid of the uterus. Owing to the continued loss of blood she was very anemic and very much run down generally. She suffered from flatulence and digested starchy foods poorly. The relief of her intestinal symptoms and increase in weight was marked soon after she began to take the remedy.

In treating cases of this kind, where there is an abnormal degree of acidity in the stomach, I have in some cases given a dose of bi-carbonate of soda or lithia immediately before eating, thinking that by

lessening the degree of acidity the digestive properties of the diastase were less apt to be interfered with.

I consider taka-diastase a valuable addition to our newer remedies and do not hesitate to recommend it most cordially for the various forms of amylaceous indigestion. I might add that a very large proportion perhaps more than half, of the cases of indigestion we meet with are of the amylaceous variety, and the reason why we are so often disappointed in the use of pepsin is that we give it in cases needing a ferment to aid in the digestion of starches and not proteids.

52 West Forty-fifth Street.

SOCIETY PROCEEDINGS.

British Medical Association.

Sixty-fourth Annual Meeting held at Carlisle, Eng., July 28–31, 1896, under the Presideney of William Barnes, M.D., F.R.C.S., J.P., of Carlisle.

[Reported for the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.]

The proceedings began with a meeting of the Council, and was followed by a general meeting in the new Public Hall. Subsequently a special service was held in the Cathedral, it being attended by a considerable number of medical men and their friends. The Bishop's sermon was appropriate to the occasion.

At the second general session the report of the Council was presented and adopted. It showed the Association to be in a satisfactory condition, both as to its finances and membership. Last year the number of members on the books was 15,669. During the past year 1,240 had been elected, 145 had died and 442 had resigned, leaving on the books 16,332.

Reports of various committees were also presented and adopted.

DR. CHARLES PARSONS of Dover was elected Treasurer of the Association.

A resolution was introduced and adopted, requesting the Ethical Committee to draw up a Code of Professional Ethics to be submitted to the Association for discussion and ratification.

PRESIDENT BARNES then delivered his address, an abstract of which we give herewith:

THE PRESIDENT'S ADDRESS.

He selected for his subject "The Medical History of Carlisle." At the outset he stated that it was assuredly a distinction of no common kind to be elected President of the British Medical Association, the largest and most powerful medical association which the world has ever known. Having its origin in a small provincial city sixty-four years ago, it had grown and prospered, and now numbered among its members all that was most distinguished and eminent in the profession. When he looked back to the long list of distinguished men who had preceded him in this position, his mind was filled with misgivings, for the list included names of men distinguished alike for their high literary and professional attainments. The only claim which he could advance was that he had worked for the Association for nearly thirty years.

After a brief sketch of the general history of Carlisle, the speaker passed on to matters of medical interest and importance. He spoke of those eminent Cumbrians who had contributed to the advance of medical science, and of the conditions of life which existed at various periods. The question as to whether the Roman armies were provided with medical officers was one which had not received much attention from archeologists. In many of the works on Roman antiquities there was no allusion whatever to it. The practice of medicine was not much encouraged in the early days of Roman power, and its professors were not held in high esteem. The surgical treatment of disabled Greek warriors was minutely described in many parts of the Iliad, and in Xenophon and other Greek writers reference was made to the services rendered by surgeons in times of warfare. But neither in the Roman classics nor among the writings of the Greek physicians who practiced in Rome are there any direct notices relating to the medical and surgical care of the numerous and scattered armies employed by Rome in different parts of the world. Celsus, it is true, lays down very distinct and practical precepts for the extraction of war weapons from the bodies of the wounded; but neither he nor Paulus Ægineta make any allusion to the appointment of physicians and surgeons as a part of the regular army. Bitter military experience, however, proved in ancient times, as it has often done in modern times, the necessity of having an efficient medical staff in connection with the armies in the field, and in no part of the world was this more clearly shown than in this part of Britain. Some modern discoveries in this part of Great Britain and elsewhere have demonstrated that in the time of the Empire, at all events, the armies of Rome were provided with a medical staff. Among the many monumental tablets which have been discovered along the course of the great Roman wall there is surely none more interesting than one which was discovered a few years ago at Houseteads. The inscription shows that it was erected by the first cohort of the Tungrians to the memory of their "medicus ordinarius." This cohort distinguished itself under Agricola at the battte of Mons Grampius, and was afterward engaged in the erection of a portion of the more northern Roman wall of Antoninus.

Another point in connection with the early history of Carlisle is deserving of notice. One of the earliest institutions established for the reception of cases of leprosy in this country was placed just outside the city walls. It is not quite certain at what period leprosy was first introduced into England, but it must have been fairly common before the date of the Norman conquest, as he finds it the subject of legislation in the codes of a Welsh king, Hoela Dha, or Hoel the good, who died about the year 950. In the laws relating to married women, it is enacted that a wife may leave her husband without losing her dower if the husband become a leper. It is reported that Lanfranc, Bishop of Canterbury, who died in 1080, founded two hospitals at Canterbury, one for general diseases and one for leprosy. Some years ago the speaker investigated the records of the leper hospitals connected with the counties of Cumberland and Westmoreland. These were three in number, but the Hospital of St. Nicholas at Carlisle was the wealthiest and most important. The earliest records of which he could find any notice date back to the year 1180. There is a general concurrence of opinion that it had a royal foundation, and some historians believe that it was founded by William Rufus. If this be so, it was one of the earliest institutions of the kind in this country. Leprosy seems to have been a fairly common disease in this part of England, there being several hospitals for lepers in the adjoining counties of Cumberland, Westmoreland and Northumberland, three of which provided accommodation for ninety-one lepers.

At the close of the thirteenth and in the early part of the fourteenth centuries the city of Carlisle was the scene of many events in the history of England. Here within our walls three parliaments were summoned by Edward I, the father of parliaments. Here, in this remote corner of the English kingdom, probably for the first time in the world's history, the question of river pollution was brought under the consideration of a parliament. The Earl of Lincoln came to the Carlisle Parliament to seek redress for the restriction of the channel of the river Thames and its general condition, being so restricted by filth and refuse. The Earl prayed that "the Mayor, Sherifs and discreet Aldermen of London may inspect the river Thames, and restore it to its former condition." The matter having been considerered, orders were given by Parliament that impediments to the course of the river caused by filth and the refuse of barnyards be removed. This early recognition of the evils of river pollution by a parliament met to consider the general business of the country is a striking testimony to the value attached to sanitary legislation by our ancestors, and the prompt action which was taken contrasts strongly with the tardy legislation of modern times.

During the dark period of the Middle Ages there is little medical progress to record in connection with the history of the district. In common with other parts of the country medicine was here under a cloud, and we find abundant evidence of the faith in charms, witchcraft and the miraculous gift of healing supposed to be the special attribute of the reigning monarch. Several persons suffering from the king's evil were certified by the clergy and church wardens, or by the local justices, and sent to obtain the royal touch in order that they might obtain that restoration to health which the physicians of the day were powerless to give. Much of the ordinary medical practice was in the hands of irregular practitioners, and apparently a good deal of domestic doctoring was done by the heads of families. A few extracts from the account books of Sir Daniel Fleming of Rydal, shows the value which attached to

the services of regular and irregular practitioners. Under date of Aug. 10, 1658, there is an entry, "Given unto George Brown of Troutbeck, a bonesetter, when Will was hurt, 00 02 06. August 11. Given unto William Story of Seadgewicke, neare Sighser, bonesetter, for lookeing at Will's thigh, 00 07 06. August 12. Given unto John Rawling, a bonesetter for Will, 00 01 0." The services of these three irregular practitioners do not seem to have been of much avail, for the account book shows that a certain Dr. Dykes obtained "for comeing and laying plasters unto Will, 00 10 0;" and at a later date, "for his plaisters and paines contributed towards the cure of Will, the sum of 05 00 00." The same account books also show the value of the services of a midwife. Under date July 30, 1659, there is this entry: "Given unto Daniel Harrison's wife for being my wife's midwife, 00 05 00."

In the eventful history of Carlisle the visitations of the plague have at times caused serious calamities; occasionally the disease has swept away such multitudes that the living were scarcely sufficient to bury the dead. One of the most notable epidemics was the great plague of 1598, which is alleged to have caused a mortality of 2,260 at Penrith, 2,500 at Kendal, 2,200 at Richmond and 1,196 at Carlisle. These figures, which are taken from an inscription on a stone in the chancel of Penrith Church, have given rise to considerable controversy. The Carlisle parish registers do not go so far back, and the Penrith registers only record the deaths of 583 persons from plague at this period. It is therefore now believed that the numbers refer to the mortality in the rural deaneries bearing the abovementioned names. Another great plague occurred in many parts of the country in 1623, and a third occurred in 1646. Of the former we find evidence in many local parish registers, but of the latter we have few particulars. The historic MSS. of the mayor and corporation of Carlisle, under date 1649, contain the following reference: "It is ordered that John Diffecke, bellman, shall have forthwith paid to him . . . the sume of forty shillings in consideration of his labour and paines during the time the heavy judgement of Plague continued in this place in the year 1646." The circumstances of the town about this period were such as to make an outbreak of the plague exceedingly probable. The citizens had suffered much from wars for a series of years. In July, 1644, it was seized by Royalists, and was besieged by Lesley in October, the siege lasting many months. It had a garrison of about 700. About the end of February all the corn was seized to be served out on short allowance. On June 5 "hempseed, dogs and rats were eaten." All Cumberland was in such a state of destitution that Parliament ordered a collection for its relief; numbers of the poor are said to have died in the highways, and 30,000 families were in want of bread.

In the evolution of its sanitary administration, progress has been somewhat slow in Carlisle. During the Middle Ages, the government of the town was first vested in the free merchants' guild, which in later times became the town council. The Governor or Dormont Book, which bears the date of 1651, contains a code of by-laws for the government of the city, and among them are many useful sanitary edicts. It is ordained that, "If any person or persons hereafter caste any manner of corruption as deyd dogs, catts, nolt hornes, or any other thinge corrupte in any of the common wells of the city, or do place any midden or dunghill towards any of the said wells or within twelve feet thereof, he is to be fined for every offence 6s. 8d. to be levied of his goods, or else to be extremely punished by the Mayr as of the pillorie or otherwise." Swine are not allowed on the common streets; for the first offence the penalty is 6d., for the second 12d., and for the third the swine are to be forfeit to the "Mayr and balif." Penalties are also ordained against inhabitants who fail to keep the forefront clean to the middle of the pavement, and middens and dunghills are to be cleared away within eight days.

The Chamberlain's accounts of the city contain several items of expenditure for cleaning the town dykes, removing dead animals, etc., and during times of pestilence special precautions were taken to prevent the introduction of the disease. The following is the heading of one of the accounts: "Disbursements in attending the gaittes in the time of the seakness being at Newcastle beginning the iii of August, 1603."

In 1874, however, voluntary agencies were superseded and a regular sanitary administration established. A medical officer of health was appointed, who has since published annual reports of the health of the city. From these reports it is possible to judge of the results to some extent of sanitary administration by comparing them with previous periods. The earliest data upon which any reliance can be placed are the bills of mortality drawn up by Dr. Heysham. In the eight years between 1779 and 1787 there were 1,615 deaths, being at the rate of 24.9 per 1,000. In 1788 to 1795 the rate rose to 26 per 1,000, while from 1796 to 1800 it was only 23.3. In the ten years from 1800 to 1810 with the average population at 12,660, the death rate was again 23.3 per 1,000. It was upon these tables that the Carlisle tables of mortality were founded, which afterward became so much used by life insurance offices. The complete tables of the first period are the only ones to which he had access. The most fatal disease in the list is smallpox, which caused 238 deaths. Consumption was the cause of 214 deaths, 204 deaths were due to the weakness of infancy, and 226 are set down to the decay of old age. There were 493 deaths due to what we should now classify as zymotic diseases. Between 1842 and 1848, with an average population of 24,000, the death rate varied from 24.25 to 43.92 per 1,000. Since the publication of the reports of the medical officer of health there has been a steady fall in the death rate. In 1874 it was 32.6; in 1875 it was 29.2; and in 1889 it had fallen to 18.1. In 1874 the zymotic rate was 11.3; last year it was only 0.8.

Dr. Barnes closes by saying that the question of the improvement, training and restriction of midwives was one to which much attention had been devoted, and it was one which called for a speedy settlement on a satisfactory basis as much in the interest of the public as of the medical profession.

The present unsatisfactory state of the law relating to Certificates of death and Coroner's Inquests had often been under consideration and steps must soon be taken for its amendment.

The compulsory registration of stillbirths was another matter of urgent necessity. These were all matters in which the public was as much, or even more concerned, than the profession. Free discussion in meetings like the present would lead to more definite views of public and professional requirements, and he concluded with the hope that the deliberations at this meeting would help to further a settlement of some of these questions.

Sir Dyce Duckworth, M.D., LL.D., F.R.C.P., delivered

THE ADDRESS IN MEDICINE.

He selected for his subject "The Importance of Prognosis of Disease." The first part of the address was largely historic. In recent times the literature relating to prognostics had been far to seek, and the speaker knew of no work purely relating to the subject which had been published in this century. He dwelt at length upon acute specific diseases, after which he discussed chronic infectious diseases.

The prognostics respecting syphilis relate largely to individual peculiarities, habits and environment, to the adequacy of treatment, and the degree and virulence of primary impregnation. It is certain that the greater number of persons so infected ultimately recover satisfactorily if they have been properly treated from the outset. It is equally certain that the character of the primary lesion does not enable us to prognosticate the ultimate evolution of the malady.

Pyemia and septicemia.—If organisms be present in the blood of the patient, and capable of cultivation from it, the prognosis, according to Kanthack, is bad.

Prognosis in relation to tuberculosis is a large question. The factors on which determination has to be made vary greatly with the individual and his environment. Without doubt the prognosis of all disorders of a tuberculous nature admits of a more hopeful view than formerly.

Cancer of the stomach commonly proves fatal within a year from the time a certain diagnosis is made. Those cases last longest and have less suffering in which neither orifice is involved.

In cirrhosis of the liver, if signs of toxemia set in, life will not be prolonged many days. Tapping of ascitic fluid may aggravate the nervous symptoms of such toxemia. If a free collateral circulation is gradually established between the portal and systemic veins, life may be prolonged for some years. A recurrence of either copious hematemesis or melena is generally fatal.

Cancer of the liver is usually fatal within twelve or fifteen months, but rapidly growing tumors sometimes in a few weeks. Cancerous growths of the peritoneum commonly kill within a year.

Gallstones.—The prognosis of cases in which gallstones are believed or proved to exist in the gall bladder is always uncertain. Many may be present for years and give rise to no or few symptoms; or a few may be present and cause serious attacks of biliary colic. Continued irritation from them may induce cancer of the gall duct, the gall bladder and the liver. Obstruction of the small intestine, commonly the ileum, is sometimes a grave complication due to plugging by a biliary calculus. A calculus may be removed from the bowel and the gall bladder emptied of calculi with complete relief of all untoward symptoms. Although unaware of any treatment by diet or by drugs which can cause removal of calculi already formed, their

further formation can certainly be prevented by appropriate medical procedures.

Typhlitis.—Many cases recover under judicious medical treatment. Perityphlitic abscess, if opened carefully about the ninth or tenth day, and the peritoneal cavity escape contamination with its contents, may generally heal favorably. Earlier surgical interference is very apt to lead to a fatal issue by toxic peritonitis. A gangrenous state of the vermiform appendix, if diagnosticated, demands an early operation.

In diseases of the heart the outlook is generally better than it was half a century ago. Pericarditis of rheumatic nature is very rarely fatal *per se*. In Bright's disease pericarditis is commonly fatal, and septic pericarditis is uniformly so. With the practice of aseptic surgery purulent pericarditis is no longer necessarily fatal. Tuberculous pericarditis may be rather protracted, but is beyond recovery. Pneumo-pericardium is commonly fatal within two days. Rupture of the heart is generally promptly fatal, whether from injury or as a result of muscular degeneration. Tachycardia demands a very cautious prognosis. The outlook in Grave's disease is uncertain. One case in three may recover. In the viable class of congenital malformed heart life is rarely prolonged over puberty. A better prognosis for longevity attaches to lesions of the aortic orifice, which are however rarely encountered. Life may be prolonged to the third decade in these cases. Ulcerative endocarditis is almost always fatal.

Aortic aneurysm.—No certain prognostics can be laid down in cases of this disease. Sacculated aneurysms of the ascending part of the thoracic arch, pressing forward, are commonly very chronic and cause least interference with vital structures, but they may vary in the direction they take. In aneurysm of the abdominal aorta the prognosis is always grave.

Arcus senilis is perhaps more generally recognized as a diagnostic than as a prognostic sign of a degenerated vascular system.

Diseases of the blood and ductless glands.—Simple anemia in young women is apt to recur, but most cases will recover if vigorously treated at intervals for three years. Pernicious anemia admits now of less grave prognosis than formerly owing to treatment with arsenic and marrow. Examination of the blood may help us in prognosis. Kanthack considers a steady diminution of leucocytes a bad sign and no less grave is an increase of the nucleated red corpuscles with a progressive diminution of hemoglobin. Leukemia generally proves fatal within two or three years. The pure lymphatic form is the gravest. Hemorrhagic tendency is of evil augury. In Hodgkin's disease recovery is rare, most patients die within two years. A fatal result is usual in Addison's disease within two or three years, but life may be prolonged for six or eight years.

Diseases of the kidneys.—Anuria of the obstructive variety, unless relieved by surgical measures, generally proves fatal within two weeks. The prognosis in respect of albuminuria is only to be framed by full consideration of all the features of each case. Chyluria of the non-parasitic variety may last for many years without disturbance of health. Chronic nephritis, tubal, interstitial or tubulo-interstitial often runs a protracted course. Prognosis can be framed only by a consideration of all the personal and diathetic factors in each case.

Diseases of the nervous system.—Taking the whole group of conditions due to neuritis, we may affirm that our prognosis is guided by consideration of the etiology and personal factors in each case. Early recognition of the nature of the disorder and of the peccant matter which has induced it is no less important than early treatment. The cases often last for years, but the results are quite remarkable if treatment be persisted in.

The prognosis in Ménière's disease is always uncertain. Recovery may occur, but deafness is the most frequent result. The symptoms may persist through life. In torticollis complete recovery is rare. In essential paralysis of children the outlook is certainly less grave than formerly if assiduous electric treatment be long carried out from the outset. In locomotor ataxia no absolute cure is to be expected. Cases setting in violently are often devoid of the characteristic later symptoms, and an arrest of the disease may ensue. This is especially noted after the occurrence of early optic atrophy. In aphasia the prognosis is only hopeful in the young, who may be educated again in the right cerebral hemisphere.

Cerebral apoplexy.—Prognosis in this condition chiefly relates to the particular locality involved and the size of the blood clot. Pontine hemorrhage is uniformly fatal, generally within a few hours, and so is that into the ventricles. The gravest indications are deepening coma, rising temperature two days after the hemorrhage and Cheyne-Stokes respiration.

Chorea.—Cases of this disease admit of a generally favorable prognosis at any age below puberty. At that period, and after, the outlook is much more grave. Chorea insaniens is a very dangerous form. The average duration of the disease is ten weeks and three days.

Epilepsy.—The truth of Hippocrates' aphorism respecting this malady is still attested: "Epilepsy supervening before puberty may undergo a change, those cases arising after the age of 25 for the most part terminate in death."

Roderick Maclaren, M.D., of Carlisle, delivered

THE ADDRESS IN SURGERY.

His subject was "Preventive Surgery." He claimed that it was a product of modern times, the outcome of recent advances in the knowledge of the intimate causes of disease, of the introduction of anesthetics, and of perfected methods of wound treatment.

The conditions which render preventive operations justifiable were next considered at some length. Passing on to anesthetics, the speaker said that surgeons no longer inflicted pain during any operation. This had been a solved question for fifty years; and in this, the jubilee year of anesthesia, he thought it not inappropriate to call attention to a development of surgery which hangs entirely on its use. There are still, however, longings after the perfect anesthetic, which should be as portable, manageable and pleasant to take as chloroform; as capable of long use as either chloroform or ether, and yet as safe and free from after-effects as nitrous oxid.

For miminizing after-pain, much rests with the individual surgeon. If he avoids by direction of incisions all unnecessary injury to nerves, if he manipulates as gently as possible, if he leaves his wound free from tension either by tight sutures or contained blood-clot, secures the most restful position, and ensures for his wounds a normal healing, he may do extensive operations with exceedingly little after-pain.

A large amount of preventive operative surgery has a casual connection with the throat and naso-pharynx—diseased conditions, to which are given different names, branch in various directions from this locality as a common center. They are conditioned by the various tissues and localities they subsequently affect, by their rate of spread and by their surroundings, and they give rise to appearances entirely different and which often seem to be separate diseases till we go back to their essential nature and cause. Under ordinary circumstances the inspired air entering the body is free from organisms by the time it reaches the back of the nose. But when highly charged with impurities this is altered, and as the air there turns at angle and meets with a moist surface organisms and their spores are deposited. There are crypts, gland openings, and channels in which they find a home; if their nature be infective only a delicate and easily injured epithelium separates them from lymphatics and veins, ready to carry them to new fields. Even if this region remains their home they may cause tissue growth in the form of enlarged tonsils and adenoids.

The inflammatory swelling set up by organisms may hinder the exit of natural secretions from cavities, as, for instance, from the Eustachian tubes, giving rise to their distension with fluid and admirably fitting them to promote the further growth of microörganisms. These start a chain of changes which has often grave consequences. With the preventive surgery of this region there is no small risk of overlooking the original cause. Hypertrophied tonsils, adenoid growths, suppurating ears and glands are all so obvious that further investigation is apt to stop, leaving out of consideration the behind cause, though it should be removed as well as the visible lesions attended to.

Enlarged tonsils and adenoid growths produce some slight local discomfort, but the chief evil they do is in checking growth and nutrition. Children who are affected with them are generally small for their age, anemic, and ill-developed; their chests contracted and drawn in along the line of the rib cartilages. It is often striking to see the growth and development which follow the removal of large tonsils and the scraping away of adenoids. The guillotine operation for tonsils is wanting in precision, and very given to miss the lower portion of the tonsil, which may be much hypertrophied just out of sight. It fails moreover in those cases in which the enlarged tonsil is contained and hidden between the pillars of the fauces. The imperfect results which it so often gives have brought the operation into a certain degree of undeserved discredit from the frequency with which the portion left increases again. It is much more satisfactory to give the patient a deep anesthetic and deliberately cut out—or, still better, with a blunt director teaze out—the whole structure, doing an operation of precision.

Adenoid growths in the naso-pharynx produce similar remote effects to those of enlarged tonsils; their nature is presumably the same, and most commonly they exist together. So, generally speaking, the removal of tonsils is not a com-

plete operation without a scraping away of all growths. Few operations give so good results with so little trouble. In the throat is the common starting point of another set of conditions in which preventive surgery has given assured and brilliant results. From diseased and swollen mucous membrane, from secretions bottled up and cultivating organisms powerful for evil, a train of sequences is set up which may ultimately result in brain abscess or purulent meningitis. The middle ear may be converted by the blocking of the Eustachian tube into a full cavity with complicated recesses and chambers. These become the dwelling of many organisms, which set up suppuration and destruction of tissue, the ear drum gives way and opens a new channel of contamination, or it may be that an independent opening to the surface is formed behind the ear, and pus escapes there. Every case of suppurating ear should not be made the subject of operation, for many are amenable to treatment and are permanently cured. With many, however, treatment fails, and everybody who has a chronic suppurating ear goes about in deadly peril. It should be a rule to operate on every discharging ear which does not get right by treatment. The mastoid cavities should be laid open and converted into hollow cones; all diseased bone should be removed, all unwholesome structures scraped away and everything made suitable for speedy healing, not for the sake of the ear as an organ, not even for the sole purpose of removing the local trouble, but for the avoidance of the grave secondary risks which are always present.

He believed the view generally held by surgeons was that so long as hernia could be steadily kept up by a truss, which does not much incommode nor prevent the patient following his occupation, there was no necessity for operative interference. But if trusses fail for any reason to keep up the gut, if the truss is painful to bear and excites repeated inflammations of the sac, or if the patient's occupation requires exceptional activity, the time has come to operate. Perfect results can be got from almost all the present so-called operations. Whatever secures good closure of the rings effects a cure. The peritoneum is of hardly any value in aiding the integrity of the abdominal wall. If left in the ring it is undoubtedly a source of weakness by keeping open a channel and preventing a union of the stronger structures, but in itself it is a mere slack distensile membrane with little resistant capacity. It is on the union of the aponeurotic and tendinous structures, and oblique that we rely for real strength, and the more thoroughly we get these together, and the more they form a uniform sheet the less likely is the rupture to recur.

Among the miseries which may make long life a burden to its possessor there are none greater than those resulting from an enlarged prostate. It is much better to advise early operation than to wait for a desperate state of matters. We have a certain latitude of choice in operations. Supra-pubic cystotomy may be combined with perineal removal of portions of the prostate, or with perineal drainage, and finally we have castration.

Suprapubic cystotomy with removal of enlarged prostate, whether central or lateral, and the establishment of a clean low-level canal into the urethra, is at present the operation to be first considered, though every surgeon should be prepared to deviate from it should local circumstances show that this would be of advantage. The resulting mortality is small, perhaps not more than 1 in 10, and it must be kept in mind that the condition itself is a very fatal one. The mechanic result is that in at least 40 per cent. the bladder recovers its function, and in the remainder suprapubic drainage establishes a state of greatly increased comfort. Within the last three years a new operation has been introduced for enlarged prostate. Relying on the observed fact that atrophy of the organ follows removal of the testes, surgeons have performed castration. The operation is too new and the cases too few to allow of any decided opinion of its merits; the results, however, have been sufficiently good to justify its further employment. Cases in which the urine was offensive and loaded with mucus and requiring removal at frequent intervals are reported as, after operation, passing a healthy urine spontaneously, and as having no detectable enlargement of the prostate. In other cases, though complete cure has not followed, a large improvement has. From one or other method we have the possibility of preventing one of the most prominent terrors of old age.

Twenty or thirty years ago a physician or surgeon attending a patient with an acute condition of distended tympanitic and painful abdomen, a quick and small pulse, and drawn-up legs thought that he had fulfilled the whole duty of man when he had diagnosed peritonitis and excluded perforation of the stomach and obstruction. Who is content with such a diagnosis now? It has gradually become apparent to our minds that peritonitis has almost always its cause in some other lesion and that our investigation is not complete till we have localized that cause. We know also that the origin is very often indeed situated in the appendix vermiformis, that this tube is subject to several morbid states; it may be strictured, and the part distant from the bowel may distend with septic contents; it may ulcerate through; it may be the seat of tuberculous disease; foreign bodies may lie in it or concretions form; the whole thing may go gangrenous. As consequences of these we may have at one end of the scale a mere local disturbance passing away after a few days' discomfort or at the other a general rapid peritonitis followed by death. Between these extremes we find many degrees of severity of attack. Thus if a slow perforation occurs we have an abscess in the peritoneum, but shut off from the general cavity by adhesions. We probably hardly yet know the whole pathology of the appendix, but we know enough to form a good clinical idea in most cases of the essential state of matters.

A general peritonitis following perforation or a local abscess round the appendix demands immediate surgical interference; the stage is past when prevention can come in. The class of cases which falls within the domain of preventive surgery is that in which the appendix has not perforated, but in which it is subject to repeated attacks of distension, in which it inflames from retained concretions; indeed, when from any cause it is the subject of one or more inflammatory attacks of a severity short of immediate danger to life. Three views of surgical duty prevail. Some surgeons hold that the appendix should never be removed; that the probability of a putrid infection of the peritoneum during the necessary manipulations makes it an operation of unjustifiable risk, and that the prospect of natural cure is a more hopeful outlook. He believes this view is held by an ever-narrowing circle.

Another opinion strongly held both here and in America by men whose surgical work entitles their views to the highest possible respect, is that every appendix which has given rise to morbid symptoms should be cut down on and removed when in a quiescent state. The third view is that only after a repeated appendicitis and the failure of careful dieting does there exist the necessity for a preventive operation. The following arguments are adduced in favor of this view: The great majority of attacks are not repeated, after one all clears up, and no further disturbance occurs. Most instances of perforation are first attacks; an evidence that one seizure does not increase the probability of perforation in the case of recurrence and, lastly, that a milk and farinaceous diet and mild aperients are often successful in preventing return.

Another disease holds out the prospect of a wide field for the extension of the preventive principle, namely, carcinoma. There is much to learn about its nature. In the absence of knowledge we may use our reasoning faculties and make some effort to infer the unknown from the known. In cancer of the lip and in Paget's nipple are two instances in which the life-history is well made out.

Let us investigate the small and early changes. If we can find out the antecedent or even the first symptoms of carcinoma, we may then know how to prevent it. The recent developments of surgery in cancer have been in the direction of extensive operations and wide-reaching removal of tissue—wider than we dreamed of some years ago, for we are now aware that the visible disease is but a fraction of the total, and if we have far-spreading disease we must have sweeping removal. He thinks and hopes that there is in the future a preventive surgery founded on fuller knowledge, which will anticipate these great operations by small ones or, it may be, by such preventive measures as will do for cancer what we are steadily doing for so many other diseases—compress it within narrowing limits.

(To be continued.)

SELECTIONS.

Chloroform and Ether in Parturition.—Bukoemsky, of St. Petersburg, in *Monatschrift für Geburtshülfe und Gynekologie*, March, has given comparative research to the use of ether and chloroform in normal labor. He remarks that while many observers have studied the action of chloroform, but comparatively little has been done for ether. Bukoemsky carried out a series of experiments to determine whether ether or chloroform render labor painless and why they do so; what effect they have upon the contractile power of the uterus, upon the strength and frequeney of the pains and the interval between them, upon the dilation of the os, and the abdominal

pressure. He looked also for the irritative symptoms due to ether and chloroform, examining their action upon the kidneys, respiratory function, pulse, temperature and general condition. In the puerperal period he examined the loss of blood, the involution of the uterus, the lochia and the secretion of milk, and finally noted the effects on the child and the frequency and degree of icterus neonatorum. The following conclusions are drawn: 1. Ether undoubtedly diminishes the painfulness of uterine contractions in all cases and generally makes painless the actual birth of the child. Its anesthetic effect is most marked during the expulsion period, if the patient has been already partially under its influence. It does not prolong labor, but on the contrary seems to shorten it about one hour in primiparæ. It increases the force of the uterine contractions as shown by the toko-dynamometer. It does not lessen the length of the pains, but shorten the intervals between. "In respect of the secretion of milk, its effects were not unfavorable; in some cases the quantity seemed to be increased. Even in larger doses ether had no unfavorable effect on the fetus, which was in no case dull or narcotized when born. Icterus was less common and severe and the loss of weight was less during the first week. The best time for the administration of ether seemed to be when the os was dilated to the width of three finger-breadths; it seemed to have no effect upon the early dilation of the os. 2. Chloroform in small doses do not diminish the contractile power of the uterus. In the majority of cases examined the pains were shortened eight seconds, but in a few they were lengthened eight seconds. The intervals between the pains were generally lengthened 13 to 49 seconds. Although chloroform generally protects labor somewhat, it seems to have no ill effect on the mother when given in small doses. It is pleasanter than ether, but in a few cases slight irritative symptoms were noticed at the commencement of chloroform narcosis. It had no unfavorable effect upon the puerperal period, and in no case did hemorrhage occur when it was used in small doses. The children seemed unaffected by it, and a mild icterus occurred in about half the cases. The best time for administration is the same as for ether. In comparing the action of ether and chloroform it seems that ether is generally preferable, because it has less toxic effect upon the organism and does not produce such ill effects as chloroform if it has to be given in a relatively large quantity or for a length of time. Moreover, it shortens labor and has a more favorable effect upon the puerperal period and upon the fetus. As most of these patients were delivered at night, and a common coal-oil lamp was used in the room, there need be no fear of ether taking fire or exploding if ordinary precautions are used. From these observations it seems clear that either anesthetic may be used in ordinary cases of labor, if given carefully and in small doses, without injuring mother or child and without causing hemorrhage during the puerperal period. It is equally certain that chloroform may predispose to hemorrhage and injure both mother and child if given in too large doses or for too long a time. Chloroform should be selected when complete relaxation of the soft parts is required or when there is much spasm to overcome. Ether is preferable when deep anesthesia has to be maintained for some time, or when there is severe cardiac trouble, or when some operation has to be done after the conclusion of labor, such as the repair of perineal laceration or the removal of an adherent placenta. When chloroform has been given for some length of time during labor, the child is apt to be lethargic when born and does not begin to cry without considerable stimulation."

The Strychnia Cure of Alcoholism and Opium Habit.—A certain proportion of the submerged 4,000 who pass yearly through the alcohol wards of Bellevue Hospital distinctly and seriously wish to have a treatment given them which will take away their tendency to periodical sprees. Consequently the use of strychnia and the solanaceæ, with certain adjuvant tonics and moral influences, is employed in these cases. The technique of the treatment as arranged by myself has been carried out most skillfully and improved in its details by my house physician in charge of the alcohol cells, Dr. J. D. Brown. I am greatly indebted to him for the intelligence and faithfulness shown in his work among this class. The drugs selected for use in this "cure" are those which the experience of ten years in the care of these cases has shown me to be most useful. The suggestive and moral influences thrown about the "cure" are borrowed, I freely admit, from the Keeley and other alcohol cures of the country. Selected patients, after having passed through an attack of acute alcoholism, and are convalescent, are allowed to remain two days and take the "cure." The wards of the hospital are not large enough to permit of a longer stay. Only persons who have reasonable intelligence and who show real evidence of sincerity are chosen. The following solutions are used:

I. ℞. Strychnia nitrat . . . . . gr. 1-15.
Atropiæ sulph . . . . . gr. 1-300.
Aquæ distilled . . . . . m. x.
Misce. Sig. Inject t.i.d., first day injection.

II. ℞. Strychnia nitrat . . . . . gr. 1-20.
Atropiæ sulph . . . . . gr. 1-200.
Aquæ . . . . . ℥x.
Misce. Sig. Inject t.i.d., second day injection.

III. ℞. Tinct. cinchon. comp . . . . m. xv.
" capsici . . . . . m. ½ to m i.
" solan. carolineus. . . m. ii.
Vini ferri amari . . . . . ad ℥i.
Misce. Sig. Mistur. stomachic., ℥i t.i.d. Shake.

III. Order: ½ to 1 glass of milk (hot or peptonized), alternating with hot beef tea or broth, every two hours.

IV. First and second nights, if needed.
℞. Potas. bromid . . . . . gr. xxxii.
Chloral hydrat . . . . . gr. xvi.
Tinct. valerian. . . . . ℥i.
Aquæ . . . . . ad ℥iv.
Misce. Sig. ℥i dose, repeated once, if needed.
Shake. Mistur. sedativ.

The patients are given the injections I. and II. and "stomachic," III., three times a day, with abundant nourishment, washing out the stomach if necessary, to help any catarrhal disturbance. The patient, during the treatment, is made to understand distinctly that he is taking a "cure" with all that that implies, but no mystery is made of its character or of the means used. After the second day he is perforce discharged. In most cases his craving is gone, but this generally occurs after a debauch. In fact, the natural history of many cases of periodic alcoholism is that craving ceases after the spree for from one to nine months. On being discharged, the patient is given:

IV. ℞. Tinct. columbo . . . . . ℥i.
" capsici . . . . . m. xv.
" nucis vomic . . . . . ℥i to ℥iss.
Apomorphinæ . . . . . gr. ⅓.
Tinct. cinchon. co . . . . . ad ℥iv.
Misce. Sig. ℥i t.i.d. in water after meals.

The patient is told to take this and report weekly. After a month he reports monthly, and is kept supplied with the bottle, which he is told to take the minute any craving develops, and report at once. By the application of this method to alcoholics, we are able to send out many patients with hope in the future, confidence in themselves, and a staff upon which to lean in this weakness. The same treatment, when applied to patients with the morphin habit, has to be given much longer, and sometimes must be modified by adding bromids or gradually reducing the morphin. Dr. Brown was able in one case to stop imediately the use of morphin taken to the extent of 30 grains a day. The patient did not suffer in the least.—Charles L. Dana, M.D., in *Post-Graduate*, July, 1896.

Operative Treatment of Entropion and Trichiasis.—The lid is split in the ordinary manner along the whole border of the eyelid, or only a short distance if the in-curving of the lashes is but partial. The incision is placed well behind the roots of the cilia and is carried up into the substance of the lid a distance of from 4 to 6 mm. A second incision is then made through the skin on the outer surface of the lid, at a distance of from 2 to 4 mm. from the point of emergence of the lashes. This incision is continued parallel with the edge of the lid so far as the in-curving extends and carried down to meet the other, so that the edge of the lid from which the lashes are growing is then completely detached, except at its ends. But the incision is not taken horizontally backward; it is carried upward and backward, so that it joins the other at an acute angle. We have, then, the portion of lid containing the lashes attached only at its ends, but with its upper margin wedge-shaped. The next step consists in the rotation of this piece so that the edge from which the lashes spring is applied to the upper lip of the skin incision, the lower lip being pushed backward into the wound. This rotation can easily be effected by sutures passed from the lower margin of the detached portion to the upper margin of the skin incision. The sutures are tied and the operation is complete.—James W. Barrelt, M.D., F.R.C.S., in *Ophthalmic Review*, May.

Injections of Gray Oil in the Treatment of Syphilis.—Dr. James Galloway writes in the *Practitioner* that a much greater measure of success has followed the renewed trial of this treatment since an improved technique has been adopted. The preparations made use of are the gray oil and a suspension of calomel, as before; but it has been found advantageous to use vaselin oil in the manufacture of the fluids, in preference to other vehicles. (The gray oil formulæ are mercury, 3; lanolin, 3; olive oil, 4; or, mercury 39; mercurial ointment, 2; vaselin oil, 59. Martindale and Westcott.) But preferably Milliet and Thibierge's formula (*Vide Annal. de Derm. et de Syphil.*, 1894, p. 943, which is itself a modification of that employed by Professor Neisser). Three and a half drops of the gray oil and 1 gram of the calomel oil, containing 0.05 gram of the pure salt, are the doses now used instead of the much larger doses formerly employed. The injections are given weekly over periods of six or eight weeks, or at longer intervals as circumstances direct, and between each course of treatment is a period of repose, according to the rules formulated by Professor Fournier. The fluid is injected deeply into the muscles of the buttock, taking care to avoid the vessels and nerves of this region, and, in order to secure that the injection shall be placed at a sufficient depth, the syringe is armed with a needle of from 5 to 6 centimeters in length. Great care must also be taken to prevent any of the fluid from coming in contact with the skin or subcutaneous tissue of the part. A rigid antisepsis of the fluid, of the apparatus and of the skin is essential. With these precautions, the painful swellings, the abscesses, the severe mercurialism, which formerly gave the treatment "a black eye" are evaded. The advantages claimed for the method are: 1, the certainty and convenience of the treatment, so that, as a rule, the patient's occupation is in no way interfered with. The patient comes once a week for his injection, nothing interferes with his dose, and then he goes about his daily occupation, whether of pleasure or of business. 2. The secrecy which is characteristic of the treatment is much appreciated by patients, and can not be obtained so completely by any other means. 3. Its non-interference with the digestive apparatus and the liver—an important consideration when one recollects the evidence showing that structural alterations are produced not infrequently in the mucous membranes of the stomach and intestine, and in the liver by courses of mercury administered by the mouth. 4. The inability of certain patients to take mercury, owing to the immediate irritation caused in the alimentary tract. 5. Its powerful effect and rapid action when compared with the other methods of administration—a fact of the utmost moment when syphilitic lesions of vital organs have to be treated.

The efficacy of the method has never been in doubt, and now many cases are on record of inveterate syphilis treated and completely cured by these injections, after having resisted all other forms of treatment. We will quote one only, given by M. Thibierge, which has the additional authority of Professor Fournier himself. The patient was a cachectic and chronic syphilitic of eighteen years' standing, and suffered from severe headache associated with the formation of exostoses from the cranial bones. Very little result had been obtained by Fournier with the ordinary methods of treatment, and the patient was sent to Aix-la-Chapelle, where he was subjected to courses of inunction, which had given much pain and inconvenience, but did no good. He then had the good fortune, as Fournier puts it, to consult Thibierge, and was treated by injections of the gray oil; he rapidly lost the headache, and at the same time the exostoses diminished in size, while his health rapidly improved.

As to the relative merits of the gray oil and calomel, it appears that the effect produced by the calomel is more rapid and powerful, while the gray oil acts somewhat more slowly, but causes little or none of the characteristic pain; so that, as Thibierge remarks, in the case of calomel we have a remedy producing its effect *cito*, while the gray oil has the advantage of acting *tuto et jucunde*. The only inconvenience is the pain which seems to be so often the result of the injection. At the actual time of the injection nothing is complained of, but on the third or fourth day a certain amount of pain resembling that caused by a bruise is felt at the spot where the operation has been performed; it reaches its maximum on the fifth or sixth, and subsides by the eighth day. In the majority of cases the pain is not severe, in many it is altogether absent, but in a small proportion it is so acute as to render the method intolerable. Even in the last group of cases the pain does not always occur, and thus it is suggested that the very severe pain is an accidental circumstance, and may in the future be eliminated.

PRACTICAL NOTES.

Cause and Treatment of a Volvulus.—Prioleau states that a frequent cause of volvulus is defecation deferred when the desire is imperious, on account of the conflict between the peristaltic and antiperistaltic movements. Mucous enteritis and sigmoiditis may also produce the same result. The most important diagnostic indications are the absence or tardy appearance of vomiting and a sharp localized pain accompanied by local meteorism. Treatment recommended: Forced injections of 3, 4, or 5 liters, administered with an Esmarch douche, and glycerined water at 100 per cent.; supplemented by puncture of the distended intestine and abdominal massage.—*Bulletin Méd.*, April 26.

Efficacy of Thyroid Treatment for Fibroma of the Uterus.—It was by accident that Jouin discovered the value of this treatment. He had a patient with a voluminous fibroma, and as she was painfully obese he administered thyroid extract to relieve her of her obesity, when he found that the fibroma shrank rapidly to one-quarter of its former size. He reported at the Tunis Congress that he had used it since in twenty-four cases, finding that thyroid medication certainly reduces the fibroid growth, and has also a most favorable effect on the attendant symptoms, local neuralgias, debility and depression, but it is especially valuable for its power to arrest the tendency to hemorrhage. It is very effective in uterine hemorrhages due to the menopause, with or without fibroid growths. He suggested

that as the fibroma is really only a sarcoma in a certain stage, thyroid medication may yet be found useful as a preventive. He suggested also a possible connection between the atrophy of the thyroid gland with increasing adult age, and the atrophy of the genital organs at the menopause, generalizing that lack of function may perhaps be the cause of the tendency of the tissues to return to their original embryonic fibroid state, of which the fibroma is an extreme instance.

Low Temperature Pasteurization of Milk.—Dr. Rowland G. Freeman recommends the Pasteurization at a temperature between 65 and 70 degrees C., for the following reasons: It destroys almost all the ordinary air bacteria which occur in milk. It destroys the bacillus tuberculosis, the bacillus typhosus, the bacillus diphtheria and many other pathogenic bacteria. It causes no change in the taste of the milk and avoids those chemical changes which are produced by higher temperatures.—*Archives of Pedriatrics*, August.

Results from Antidiphtherial Serum at Edinburgh.—In the *Glasgow Medical Journal*, Dr. Ernest L. Marsh publishes a carefully prepared set statistic tables showing the influence of the antitoxin treatment on the cases of diphtheria admitted to the Belvidere Fever Hospital during 1895. The admissions numbered 179, and of these 137 were treated by antidiphtherial serum, the remaining 42 cases were not brought under the treatment, as being mild and not requiring it, or as being moribund on admission. Of the mild cases, the number was 38, and of the moribund there were 4 cases. The fatal cases numbered 25, giving on the admissions a percentage of 14 deaths. In the five years previous to 1895 the cases of diphtheria had never given a less percentage than 35.5 deaths in any one year, so that the improvement is a very impressive one. Of the 179 patients in 1895 tracheotomy was needed in 29, and of these 10 died, giving a mortality of 34.5 per cent. The author draws special attention to these cases and contrasts the low death rate with the high mortality of the tracheotomy cases in previous years, viz., 76.2 per cent. (42 cases) in 1893 and 86.9 per cent. (23 cases) in 1894.

Diphtheritic Laryngeal Stenosis "Cured" with Behring's Serum.—The *Deutsch. Med. Woch.* for July 9 describes a severe case of diphtheritic stenosis in which the parents refused to allow tracheotomy, as they had lost another child previously where it had been performed (non-serum treatment). The physician considered the case hopeless, but still administered a dose of Behring's serum (1,000 immunity units) with the usual local treatment. The case continued growing worse for thirty hours, when a sudden change for the better became apparent, and rapid improvement and recovery ensued. Bornemann adds that if other cases confirm this experience, that serum treatment promptly administered will cure diphtheria in spite of laryngeal stenosis (if it is of short duration and the heart still vigorous), new fame will accrue to its inventor and many children now considered past hope will be saved. All of which, to use use an old phrase, "is important if true."

Tuberculosis of the Lungs in its Incipiency.—The microscope, when it demonstrates the existence of tubercle, confirms the diagnosis of tuberculosis, but its failure to demonstrate their presence does not imply that the disease does not exist, because the germs of consumption appear in the sputum only when the tubercles open and the germs are liberated and this occurs not in the incipiency of the development but in the second, third and fourth stages. Pulmonary tuberculosis may present at first the slightest pigmented catarrhal secretion, which gradually changes to a more yellowish substance, and finally becomes thicker and more profuse. The first discharge may contain no bacilli. This seems to be the result of limited inflammation, provoked by the development of tubercle foci, and not until some of the foci rupture do we find pus in its true nature and germs of consumption. Catarrhal conditions of the lungs then should always be considered suspicious, and only good can result from a treatment based on this ground.—Dr. Paul Paquin in *Medical Herald*, July.

Tic Douloureux.—Dr. Danas's method of treatment consists in the following procedures: 1. Strychnia is given in single daily doses, hypodermically. He usually begins with gr. 1-30, and this is very slowly increased until by the fifteenth or twentieth day gr. 1-6 to 1-4 is given. Most patients can not take over gr. 1-5, an excess being shown by stiffness in jaws and legs, trembling and nervousness. Sometimes the largest doses are not well borne and are not advisable, but this is rare. After receiving the maximum dose it should be continued for a week or ten days and then gradually reduced, so that by the end of five to six weeks the beginning dose is reached. The drug is then stopped and is replaced by others. 2. The patient is now placed on potas. iodid, gr. v, *ter in die* increased to gr. xx; and tincture of iron m. v, increased, if possible, m. xxx, and well diluted. In some cases salicylate of potassium replaces the iodid, or nitroglycerin is added to the iodid or iron. 3. Rest in bed, with light diet and diuretics.—*The Post-Graduate*, July.

Thyroid Medication in Goitre.—Pharm. Institute of Budapest, has been making a special study of this subject. The investigations are described in detail in the *Deutsch. Med. Woch.* for July 9. The results briefly stated are: 1. The goitre in every case decreased in size. 2. The patients lost in weight, some as much as one to two kilograms. 3. The amount of urine increased. 4. The elimination of nitrogen, especially, in the urine, increased. 5. Increased elimination of ClNa and of P_2O_5. 6. The amount of uric acid execreted was much increased, especially in the first days of the treatment. We know that the amount of uric acid excreted increases with increased numbers of leucocytes. The latest researches have established the fact that thyroid medication increases the number of leucocytes, which accounts for the increased amount of uric acid. Until we are better acquainted with the chemic structure of the thyriod gland, it is not sufficient to explain this increase in the amount of uric acid by the assumption that it corresponds to the amount of deterioration of the nuclein bases (xanthin, hypoxanthin) in the thyroid gland. It is interesting to note that Baumann does not consider it settled that the thyroiodin he discovered may not be some product of a nuclein acid.

Operation for Appendicitis.—Dr. A. J. Bloch describes his method of operation, in acute and gangrenous forms, as follows: "An incision four inches long was made in the right linea semilunaris, and the cecum exposed. This was drawn into the abdominal incision and the appendix located. The appendix was detached from the abdominal viscera, to which it was adherent and brought out at the wound, the cavity of the abdomen being shut off with sterilized gauze. With two pairs of long forceps I seized the appendix, placing one pair three-fourths of an inch from the cecum and the other a little nearer the distal end, dividing the appendix between them. Cleansing the surface, two long straight needles threaded with fine silk, were passed, one into the anterior, the other into the posterior lip of the remaining appendix, tied and given to an assistant to hold, the needles and sutures being left in place. The forceps were now removed, a small uterine dilator passed through the lumen of the divided appendix into the cecum, and both dilated to the extent of from one half to three-fourths of an inch. The needles were then both together passed through the dilated lumen of the appendix and cecum, into and out of the cecum at its posterior surface, making but one puncture. Pulling now upon the sutures the appendix became invaginated into the cecum, and healthy tissue approximated, three rows of Lembert sutures were then passed through the cecum, completely closing off the invaginated appendix, the traction sutures

cut and allowed to drop into the bowel, and needle puncture closed by one or two sutures. The abdominal wound was closed with silkworm gut without drainage and sterilized dressings applied.—*New Orleans Med. and Surg. Jour.*, August.

The Technique of Suprapubic Puncture.—In the *Wiener klin. Wochenschrift*, Dr. Von Dittel state that he has tapped the bladder above the pubes considerably more than one hundred times. He washes it out by means of a two-way cannula, and and then introduces a Jacques catheter (No, 8), the caoutchouc of which has the property of swelling up and so effectually preventing any escape of urine. The catheter must be changed at least once in eight days; its stopper is to be removed whenever the necessity for micturition is felt, once at least every four or five hours. When introduced in this way the foreign body seems much less likely to induce vesical catarrh than if inserted *per vias naturales;* this is probably due to the absence of the bacteria of the urethra. The puncture has a great tendency to spontaneous closure, which is a manifest advantage when the indications for its employment have been obviated. Von Dittel has always operated in the mid line, but of late Schopf has conceived the ingenious notion of a lateral puncture, whereby the rectus or pyramidalis is used as sphincter and the permanent catheter done away with. One disadvantage of this method is that the puncture requires keeping open by the nightly passage of a sound or drain. Furthermore, Von Dittel has shown that the depth of the peritoneal pouches inclosed by the urachus, obliterated hypogastric arteries and the epigastric arteries is very variable, so that in some cases but a very small portion of the anterior wall of the bladder is free from peritoneum. In such instances lateral puncture may lead to perforative peritonitis, and of this he records one fatal case. He has therefore abandoned Schopf's procedure, and reverted to his own former method. He has found, however, that the poorness in vessels of the linea alba sometimes leads to necrotic changes round the puncture, and therefore now adopts the plan, particularly in old people, the operating just at the edge of this tendon.

Improper Performance of Caesarean Section.—We are indebted to the *New York Medical Journal* for an analysis of a discussion of the above named operation, that has appeared in the *Centralblatt für Gynäkologie.* It appears that Dr. J. Esser reported a case of that operation, the sole indication of which was an enlarged fetal trunk (the head had been detached by the use of forceps); this distension was later found to be due to the presence of a large quantity of clear fluid in both chest and abdomen. He reported his case in the *Centralblatt* for March 21, defending his employment of Cæsarean section rather than embryotomy. The woman made a good recovery. In the same journal for April 4, however, Dr. F. Ahlfeld criticises Dr. Esser's course very severely. "It may happen, he says, that in the conduct of a case harrowing to both mind and body, in which one resource after another fails, an obstetrician at last loses his head and subjects both mother and child to danger by resorting to a wholly unsuitable procedure, and under the circumstances he may be pardoned, or at least the circumstances may be pleaded in extenuation. But in the whole history of obstetrics it has not been recorded before that a practitioner calling himself 'Frauenarzt, and having a 'Klinik,' presumably, therefore, having served for some time as assistant in a hospital, when called to a well-built woman in labor in the sixth month, has applied and reapplied the forceps, then explored the interior of the uterus up to the fundus on the right and on the left, whereby he has ascertained that the obstacle to delivery lay in abnormal distension of the child's body, and finally sent the woman into his 'Klinik' and performed the Cæsarean operation on her. The climax is capped when Herr Esser has the heart to publish such a case and maintain that his conduct of it was proper. Dr. Ahlfeld goes on to declare that, if Dr. Esser had followed the precepts laid down in the text-books, his course would have been as follows: When an hour or two had elapsed after full dilatation of the os uteri, and the little head, lying deep in the roomy pelvis, failed to advance, he would have suspected at once that the trouble was due to immense distension of the fetal trunk. An examination with four fingers, or at all events with the whole hand, would easily have cleared up the point, and then he would have simply opened the distended trunk with the perforator, after which the child would soon have been expelled without further medical intervention. Dr. Esser has no ground for alleging that his case possessed extraordinary features; on the contrary, that particular cause of dystocia is a typical one, occurs over and over again, and is always to be met in the same way. Ludwig's case, which Esser unjustly adduces, showed real difficulties; the child was gigantic, and a young physician might well have been perplexed as to his choice of resource. But even in this case the Cæsarean operation was unnecessary. Neither case can be regarded as legitimately extending the field of usefulness of the Cæsarean section; on the contrary, each of them should serve as a warning to young physicians."

New Method of Diagnosing Typhoid Fever with Serum from Patient.—Recent investigations by Pfeiffer, Koll and Gruber have shown that the serum of persons convalescing from typhoid fever, the same as the serum of animals immunized against typhoid infection, will produce a distinct and specific reaction when added to a culture of Eberth's bacillus *in vitro.* They found the same phenomena with the cholera spirillum and Escherisch's bacillus. The process is so clearly defined that it promptly differentiates the disease, while it is so simple that it requires nothing but a tube culture of Eberth's bacillus (which keeps for weeks) and a drop of blood to complete it. If a few drops of immunized serum are added to a culture of the coli bacillus they produce a noticeable cloudiness, with decided motility of the microbes. The effect is entirely different if they are added to a tube culture of Eberth's bacillus. There is no cloudiness, but the reverse; the microbes cluster in masses, forming agglomerations and a precipitate at the bottom of the tube, with limpidity instead of cloudiness. This agglutination is the point in differentiating, and the higher the serum is immunized, the more rapid the effect, sometimes occurring as rapidly as a chemic process. Widal announces that he has been testing the serum from patients in various stages of the disease, and has found the reaction unmistakable in each. He drew the blood from the vein in the bend of the elbow, with a syringe, after antiseptic precautions, or from the hand of the patient, hanging over the edge of the bed, after slightly massaging the finger from the root to the point, when a prick with the lancet will draw enough blood (½ to 2 c.c.), which should be caught in a thimble or test tube first passed through a flame. After corking and waiting a few minutes for the serum to separate, add one drop of the serum to ten drops bouillon culture of Eberth's bacillus, and in a very short time the agglomeration commences, if it is a case of typhoid. Between the characteristic agglutinations a few scattered and motile microbes are still to be seen, growing less in number until, in a few hours, they have all been absorbed into the clustered masses. The drop of blood can be drawn directly into the culture, but no time is gained, as the serum has still to separate. Widal also made the test with serum from normal persons and also from numerous patients suffering from different diseases, as well as from persons who had recovered from typhoid fever from one to fourteen years previously. In each of these cases there was none of the specific typhoid reaction, the agglomeration, but the Eberth bacillus kept on the even tenor of its way, isolated and motile.—*Bulletin Médical*, June 28.

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SATURDAY, AUGUST 15, 1896.

THE WICKED HOUSE FLY.

I'll hide my master from the flies as deep as these poor pick-axes can dig.—*Cymbelene.*

At the August season when the summer dog-days are with us, the mighty insect *Diptera,* of the noble family *muscidæ*, particularly the *musca domestica* or the *musca harpya*, commonly mentioned in the vernacular as the house fly, makes his presence seen and felt. From the earliest times, the ancestors of this species were known to be most malicious, and at the same time as a plague most unaccountable.

When the LORD threatened PHARAOH that he would send "swarms of flies upon him," PHARAOH was probably not aware that the mere presence of the fly, insured the planting of plenty of pathogenic microbes, and it is probable that the corruption of the land by reason of the swarm of flies (Psalms cxv. 21), had a great deal to do with the death of the first-born in the plague next succeeding.

"Dead flies cause the ointment of the apothecary to give forth a stinking savor," says the good book (Eccles. x, 1) and it is morally certain that in these bacteriologic days, not only *dead* flies, but flies of all kinds are known to be carriers of contagion.

"The proboscis of the house fly" says one of our popular encyclopedias "is a very interesting object," a remark almost paralleled by that attributed to the late ARTEMUS WARD concerning the kangaroo. "The kangaroo" remarked ARTEMUS reflectively, is an "amoosin cuss." "The proboscis of the fly is the greatly developed 'tonguelet' or lingula, the upper part of the under lip, but with these are combined lancets formed of the metamorphosed maxillæ" (CHAMBERS). Not only may this weapon infect the tiny wound made in the skin, but bacteria themselves develop in the intestinal canal of the insect, and are ejected on every accessible object of food or furniture. This is the well known "fly speck" abhorrent to the good housewife. But the measure of the iniquity of the house fly does not end here. As he has a decided preference for a diet of decaying garbage, putrid sores or rotten carcasses he alights upon them and without stopping to sterilize his feet afterward he flies to madame's kitchen where he dips his feet jauntily into the iced tea, deposits a "speck" or two on cut bread just as it goes to the table, or annoys madame herself by maliciously alighting near the corner of her eye.

It needs no philosopher, no PASTEUR or TYNDALL to show the infinite capability of the fly as a carrier of infection. Bacteriologists have traced the infection carried by flies until there is no longer any question of the fact (see this JOURNAL, June 25, 1892, Vol. xviii, p. 818). LUCIEN HOWE remarked the frequency with which the fly is the most probable source of contagion in the Egyptian ophthalmias. When flies walk over a gelatin culture, bacteria develop in their tracks (see this JOURNAL Sept. 22, 1894, Vol. xxxiii, p. 479). It is proper to say that the constant irritation of the lid produced by fine particles of sand, predisposes to the development of the bacteria when once deposited. The observation of Dr. HOWE, however, is not new, for M. SONNINI, years ago in speaking of Egypt, said: "Of insects there the most troublesome are the flies. Both man and beast are cruelly tormented with them. No idea can be formed of their obstinate rapacity when they wish to fix upon some part of the body. It is in vain to drive them away; they return again in the self-same moment, and their perseverance wears out the most patient spirit. They like to fasten themselves in preference on the corners of the eyes and on the edge of the eyelid. . . . The Egyptians paid a superstitious worship to several sorts of flies and insects. If then such was the superstitious homage of this people, nothing could be more determinate than the judgment brought upon them by Moses. They were punished by the very things they revered, and though they boasted of spells and charms, yet they could not ward off the evil. How intolerable a plague of flies can prove is evident from the fact that whole districts have been laid waste by them. Such was the fate of Myuns in Ionia and of Alarnae. The inhabitants were forced to quit these cities, not being able to stand against the flies and gnats with which they were pestered. TRAJAN was obliged to raise the siege of a city in Arabia, being driven away by the swarms of flies. Hence different peoples had deities whose office it was to

defend them against flies. Among these may be reckoned BAALZEBUB, the fly-god of Ekron, *Hercules Muscarum Abactor*, and hence JUPITER had the titles of *apomnios, muigros, muiochoros*, because he was supposed to expel flies and especially to clear his temples of these insects." [1]

The Hebrews also had the same superstition as appears from JOSEPHUS, who narrates that "AHAZIAH, as he was coming down from the top of his house, fell down from it, and in his sickness sent to the Fly, which was the god of Ekron, for that was this god's name, to inquire about his recovery." [2] A footnote states that the "God of flies seems to have been so called, as was the like god among the Greeks, from his supposed power over flies in driving them away from the flesh of their sacrifices, which otherwise would have been very troublesome to them." In literature the fly has been execrated from time immemorial. Persons who forced themselves into other men's entertainments were called flies, as a term of reproach, and "in PLAUTUS an entertainment free from unwelcome guests is called *hospitium sine muscis*, an entertainment without flies; and in another place of the same author, an inquisitive and busy man, who pries and insinuates himself into the secrets of others, is termed *musca*. We are likewise informed by HORUS APOLLO that in Egypt a fly was the hieroglyphic of an impudent man, because that insect being beaten away still returns again; on which account it is made by HOMER an emblem of courage." [3]

But the wicked fly notwithstanding his demoniac doings has had his defenders, some from pure benevolence, as Tristram Shandy's Uncle Toby: "So," says he, one day at dinner, to an overgrown one which had buzzed about his nose and tormented him cruelly all dinner-time, and which, after indefinite attempts, he caught at last, as it flew by him, "I'll not hurt thee," says my Uncle Toby, rising from his chair and going across the room with the fly in his hand, "I'll not hurt a hair of thy head; go!" says he, lifting up the sash and opening his hand as he spoke, to let it escape. "Go, poor devil, get thee gone, why should I hurt thee? This world, surely, is wide enough to hold both thee and me." [4]

Another defender was OLDYS, whose two stanzas, according to D'ISRAELI,[5] were occasioned by a fly drinking from a cup of ale, the favorite potion of poor OLDYS:

> Busy, curious, thirsty fly!
> Drink with me, and drink as I.
> Freely welcome to my cup
> Couldst thou sip and sip it up;
> Make the most of life you may,
> Life is short and wears away.
>
> Both alike are mine and thine,
> Hastening quick to their decline,
> Thine's a summer. Mine no more,
> Though repeated to three score!
> Three score summers when they're gone
> Will appear as shortas one.

1 Edwards' Encyclopedia of Religious Knowledge, 1852.
2 Josephus' Antiquities of the Jews. Book IX, Chap. II.
3 Potter on the Miscellany Customs of Greece.
4 Sterne: Tristram Shandy, Vol. II, Chap. 12.
5 Curiosities of Literature.

But however sweet and delicate the strain of OLDYS, we can not forget that this is not the age of sentiment, and we must therefore insist in the interest of public health and suffering humanity, that the fly must be excluded from our houses by every possible barrier; he must be kept away from our food supplies by every possible means, and if he persist he must be destroyed with no less sternness than is displayed by

> Boys pursuing summer butterflies
> Or butchers killing flies. CORIOLANUS.

BICYCLING—PRO AND CON.

If every smoothly paved thoroughfare, crowded, especially at night, with men, women and children bestriding a bar suspended between two wheels, were not alone evidence of a *furor populi*, the facts that large establishments exclusively devoted to the supply of bicycles and their numerous appurtenances have sprung into existence in every quarter, that piano stores include among their offerings for sale more varieties of the silent wheel than musical instruments, and that even little narrow "holes in the wall," where thread and needles or candies and newspapers once modestly bid for buyers, now exhibit their half dozen apparatus, betoken a craze that has possessed the people wilder than the magnetic syrup or any other fad of forty years ago or the silver *folie* of to-day.

It is, perhaps, injudiciously soon to cry "halt" to the maddened crowd of riders, and so many physicians, themselves victims, have sanctioned the practice by precept and example, that the criticising medical men, who do not ride, are sought to be discredited because they have not ridden. As for the clerical advocates who have hastened into print with their indorsement of this new sanitary device for developing the muscles and at the same time encouraging innocent diversion at the expense of roof-gardens and rum-shops, MRS. CHARLOTTE SMITH has spiked their guns by suggesting that the grateful recognition of an acceptable gift has unfitted them for unprejudiced judgment.

If medical men and medical journals ought to interest themselves in the every-day affairs of life, there is good reason why they should give most serious consideration to this bicycle question, which has grown to such incredible proportions within so short a time. Its only parallel is the jinriksha of Japan (the two-wheeled buggy with a man between the shafts), which wholly unknown thirty years ago, has now almost completely supplanted all other modes of travel. Inasmuch as no inconsiderable number of the members of the profession themselves bestride the double wheel, the case so far as they are concerned has been prejudged, and it may be assumed that others, whose families and friends have acquired the habit, are in the same category.

Enthusiasts do not kindly brook criticism. If you

have not eaten raw fish with the Japanese or limaçons with the French, you are apt to be challenged with: "What do you know about a diet of uncooked salmon or slimy slugs anyhow?" Admitting the palatability of the dish, it is still possible for the looker-on to argue its wholesomeness. A moment of impartial inquiry, therefore, may be permitted the physician, who is seriously concerned with the welfare of the people among whom he lives.

At the first view, it seems plausible that anything which impels individuals to pass so many hours a day at exercise in the open air should be beneficial, and undoubtedly the abstract statement is incontrovertible. One startling revelation for which the bicycle is responsible is the amazing number of spindle-shanks among the feminine part of the population. Notwithstanding the aid of leather leggins and worsted stockings, the cruel fact is evident to the on-looker that Mary Ann and Eliza Jane, as well as Birdie and Rosie, Maud, Ginevra and plain Susan have unsubstantial understandings that bespeak lack of exercise and poor nutrition, and the pedaling action required to propel the machine ought, *prima facie*, be the indicated means of repairing attenuated calves. It is true that the same amount of exercise afoot would be equally salutary, but the inducements to walk are so much less that the outdoor recreation is not obtained. The mere purpose of improving the health has never been sufficient to impel either young or old to do anything that will accomplish this end, as the admitted fact of downright harmfulness has never deterred even the intelligent, wise and cultured from some gratifying indulgence. The novelty of the bicycle, the delusion that one is sitting down and gliding without personal effort, the element of fashion, the contagiousness of example influence all classes to mount and away, when the suggestion or advice or invitation or command to "put on your hat and take a brisk walk" is resolutely ignored or defiantly opposed.

Granted then, that the congregation of men, women and children in the open air, on broad avenues, upon country roads, in park-ways and by river-banks rather than sitting in crowded, ill-ventilated theaters, saloons, billiard-rooms and beer-gardens is a sanitary gain, shall it be denied that this alone commends the practice? Not—were this the whole truth and nothing but the truth.

Watching the swiftly moving throng on a city boulevard the observer notes the fact that the posture of the majority of male riders involves a curious contortion of the body, by which the head is lowered and the face lifted, thus curving the neck anteriorly, while the back and shoulders are elevated into a hump, the chest and abdomen forming a hollow corresponding to the dorsal convexity. The legs are bent at an acute angle upon the trunk, the whole weight of this being thrown upon that portion of the body which in the normal act of walking is absolutely free from strain and pressure. Medical bicyclists admit that the posture of most wheelmen causes injurious pressure upon the parts around the neck of the bladder, developing irritability of the latter, increased desire to urinate, congestion and hypertrophy of the prostate, narrowing of the canal of the membranous and prostatic urethra, and ultimately atrophy of the testes. The last might not be an unmitigated evil in the conditions of modern civilization. The others are sure to enlarge the clientèle of the genito-urinary specialists of a few years hence. It is fair to say that a minimum only of bicyclists, including, of course, all medical men, sit upright, as upon a horse and are content to amble along with gentle effort. In their case, the ischial tuberosities support the body, provided the saddle is broad and without the anterior horn (pommel), relieving the genital region of the pressure inevitable in the hideous hump-backed caricatures which professional wheelmen and their multitudes of imitators make of themselves.

Great as the physical injury to men, it is small beside that suffered by young women. Surmounted upon the edge of a wedge, their very erect posture forces this wedge up between the tuberosities, the yielding soft parts of the perineum resting upon the narrow rigid fulcrum. The tendency consequently is to diminish the outlet of the plastic pelvis by approximating the ischial extremities instead of spreading them apart as in the normal exercise of walking, when the weight of the body is borne upon the widely separated heads of the femurs. It is a sorry sight to watch the young girl enamoured of her wheel, devoting every hour she can spare to the novel, exhilarating occupation, obtuse to the soreness and pain so many of them experience, bruised and excoriated by the prolonged friction, weary and worn, but with the determination of the ballroom belle who dances when ready to fall from fatigue and blistered feet. There are hygienic seats, in two parts, fitted to receive the tuberosities, but they are not in common use, and the majority bestride the narrow saddle with its prominent anterior horn, which presses into the vulva in resisting the tendency to slide forward, especially in ascents.

The esthetics and morality of bicycling do not come within the professional ken of the physician. A costume and posture which make ninety women in a hundred absurd spectacles, will not long be popular with the thousands and tens of thousands of the fair sex as to-day. Slim legs operating like a steamer's walking-beam, and generous buttocks, whose contour is alarmingly delineated, are not pleasing displays; and we leave to the philanthropic lady who is President of the *Women's Rescue League* to show that the promiscuous commingling of respectable young women on the

same roads with the cocotte class, for whom the wheel has such fascination that all ride who can borrow the money to hire a vehicle, and that the accentuation of the leg as the feature of the girl who has learned to swagger in bloomers or short skirts into crowded public restaurants for the much needed refreshment, can only have a demoralizing effect. It is enough for us to declare that a woman, especially an adolescent girl, can not be suspended on the summit of a wedge without injury to the structures above, and deformation of the pelvis; and that the bruising of the flesh, which some riders unwillingly admit, and the craving for stimulants after a fatiguing ride, ought to restrain the prevailing indiscriminate and intemperate use of the vehicle. If exercise be the object, we commend a pair of sturdy human legs as a motor of unsurpassed fitness for every sanitary purpose. Assuredly, the pedestrian's features will not wear that intently anxious expression, which has already been given the designation of the "bicycle face."

ROENTGEN RAYS IN DIAGNOSIS.

The surgical utility of the ROENTGEN rays is now a well-established fact, and every day adds to the evidence in its favor. Their therapeutic value is, on the other hand, a dubious quantity and, as yet, only a few enthusiasts, mostly outside of the ranks of the regular profession, have seriously expressed their faith in it. Experiments conducted under scientific conditions have so far led at best to only unsatisfactory results.

There is, however, in the latest developments of skiagraphy more or less suggestiveness of possible extra-surgical uses of these rays, and it does not seem altogether unreasonable to look forward to their future employment in medical as well as in surgical diagnosis. The methods have already improved to such an extent that it appears even probable that before long we may be able to detect diseased conditions in the viscera by the fluoroscope and thus throw a light also on various pathologic questions. There is a whole field of research in determining the permeability of the various organic and inorganic compounds in these rays, which has thus far only just been touched upon, here and there, in medical literature, notwithstanding its suggestiveness from a medical point of view.

In the latest issue received in this country of the *Deutsche medicinische Wochenschrift*, that of July 23, there is an important paper by Dr. E. SEHRWALD of Freiburg i. B., on the action of the halogens, chlorin, bromin and iodin, on the ROENTGEN rays. He finds them in a pure state to give an almost complete shadow, and in chemic combination producing a shadow proportional to the percentage of the element contained. Solutions and compounds that are almost or absolutely transparent, like hydrochloric acid and bromoform and chloroform, show this peculiarity very plainly, as they give a shadow as dense as that of the metals. The transparency to these rays of organic substances generally is due to the fact that the four chief component elements, carbon, hydrogen, oxygen and nitrogen, present to them very little, if any, obstruction. The shadows that are cast in a skiagraph by the soft parts of the organism are due to the proportion of iron in the blood and the alkalin metals, but especially to the chlorin contained in the tissues.

Such facts as these and others that will undoubtedly be developed along these lines, will suggestively supplement our existing data in regard to the physiologic and pathologic chemistry of the animal tissues. Their practical value will, of course, remain to be determined by future investigations.

A REGRETTABLE OVERSIGHT.

National medical associations are becoming so numerous that it requires considerable watchfulness to avoid conflict of their several dates of meeting. This has led bodies like the American Academy of Medicine, the Medical College Association, the Association of Medical Examining and Licensing Boards and others, to assemble coincidently with the AMERICAN MEDICAL ASSOCIATION, that as many as possible might be able to attend two or more. The circular issued on July 20 by the Secretary of the Mississippi Valley Medical Association, announcing the change of date of the annual meeting of that body from October 20–23 to September 15–18, is in probably unintentional, but very regrettable, conflict with the date of the next meeting of the American Public Health Association, which long ago announced its forthcoming annual session at Buffalo, N. Y., on these very days. While the latter is not technically a medical body, since any one who is interested in public sanitation may belong to it, its membership is so largely composed of prominent medical men, that it has a quasi-professional character, and the enthusiastic devotion of its members to their work, which has made it the leading sanitary body in the world, is so great that its claims to consideration can not justly be ignored.

While it will be difficult for such as are earnest members of both organizations to decide which to sacrifice, a very little forethought would have obviated any necessity for it. Giving the right of priority to the American Public Health Association, not only on account of its longer existence and greater membership, but because of its antecedent selection of the date, considerations which have operated in the case of the AMERICAN MEDICAL ASSOCIATION and its attendant correlated bodies, the Mississippi Valley Medical Association might readily select the week following the adjournment of the older and larger organization, for its own re-amended date of meeting and we earnestly hope that the president, Dr. H. O. WALKER of Detroit,

in deference to the wishes and convenience of those who belong to both bodies, may authorize this change.

THE BRITISH MEDICAL ASSOCIATION.

The very complete abstract of the annual meeting of the British Medical Association, which we have received from our special correspondent, is too voluminous to publish entire this week. We are sure that our members will be pleased to know that the JOURNAL representative received great courtesy at the hands of Mr. ERNEST HART, the editor of the *British Medical Journal*, and every facility was afforded our correspondent for the accurate abstract of the papers read at the meeting, which we shall present in this and succeeding issues. It will be noticed that the next meeting will be held in Montreal.

CORRESPONDENCE.

The Michigan Medical Legislation League.

DETROIT, MICH., Aug. 10, 1896.

To the Editor:—I hope you will permit me to occupy a little more space in the JOURNAL for a few remarks concerning the Michigan Medical Legislation League. Of course, there is no use of continuing a controversy upon a subject when the participants are so widely apart in their premises; but I can not see wherein the "Regular" members of the League merit any censure! On the contrary, they deserve commendation for their patriotism and liberality of spirit in putting aside, for the moment, special ethical scruples for a broader code of human ethics which embraces the welfare, not only of the craft, but of all their fellow human beings. As already pointed out, the Michigan Medical Legislation League is merely a *political* organization. This controversy illustrates curiously the romance of history. Twenty years ago Dr. Donald Maclean and his colleagues of the Faculty of the Medical Department of Michigan University were arraigned before the State Medical Society and, later, before the AMERICAN MEDICAL ASSOCIATION, for associating with, and assisting in the teaching of, the "*despised*" "homeopath." At that time, I am ashamed to say, I was one of the multitude who shouted at them epithets of derision. They were accused, as this League is now by Dr. Maclean, of degrading our noble profession, assisting in the prostitution of medical science, bringing the quack and the fraud (for as such homeopathists were then denounced) *up to the level* of honorable recognition with scientific medicine. They were called feeble, cowardly, treacherous! Such was our bigotry, then, that even the eloquence of Maclean, Frothingham and Dunster could not broaden our narrow disposition, and we persisted in persecuting the Ann Arbor Faculty with a spirit of intolerance for some time. Their position, however, in the light of a broader intelligence, was right! although we were honest in allowing our action to be governed by a belief born of tradition, instead of reason and benevolence. I am sorry that one of those defenders of righteous expediency and equity, has changed so that to-day he is attacking the principles which he formerly assisted to defend! It is a pity that Dr. Maclean did not bring his objections forward at the meeting which adopted the constitution, and formally organized "The League." He was present at that meeting and took an active part in its proceedings, and if he had thus voiced his sentiments, the regular profession might have been spared the appearance (so ludicrous in the eyes of the laity) of dissension and lack of public spirit on matters of public interest. Personally, I would be glad to turn over the "glory" of my office as President of the League to Dr. Maclean, for I do not enjoy the unpleasant duties of official life, while he unquestionably does. However, I feel that the League is engaged in a highly beneficent undertaking, and hope that its members, one and all, may display a courage and fortitude in the coming battle for humanity, which may equal in glory and results the magnificent campaign against bigotry and intolerance which the Ann Arbor Faculty of 1876 achieved.

Regarding my statement pertaining to the composition of the Executive Committee of the League, I should have explained, had I not supposed that Dr. Maclean was aware of the fact, that the Executive Committee included the officers of the League.

E. L. SHURLY, M.D.

Congress of Leprologists.

NEW YORK, Aug. 4, 1896.

To the Editor:—It has seemed desirable to publish all over the world the fact that the government of Norway will next year probably convoke a congress of leprologists, and delegates from all civilized countries, especially from those which, by the suffering of their own people, are especially interested in the question of leprosy. Hansen, the discoverer of the bacillus, suggested that this congress should be held at Bergen, Norway, and out of compliment to him we suppose that there will be no opposition to this proposition. Dr. Goldschmidt, a Paris physician who has practiced among lepers during twenty-six years in Madeira, has originated the scheme. You will find inclosed my correspondence with this eminent leprologist which I hereby authorize you to publish. The American, Mexican, Japanese and Chinese governments, also all the Republics of South America, who are evidently and considerably interested in the question of the suppression and prevention of leprosy, have been appealed to, to join their efforts in this philanthropic undertaking. Norway and Hawaii have already expressed their willingness to send their delegates. The American, English and French governments will assuredly support the movement. The delegates of the different governments will form an international committee, to be permanently active. Funds will be raised by that committee in all civilized countries, and applied to the support of leper asylums in those countries where either the willingness or the capacity to help those institutions is wanting or insufficient. All problems concerning leprosy will be submitted to that international committee.

It is hoped that by this common and universal effort against the dreadful scourge it may, in a comparatively short time, be wiped off from the surface of the world. It is certainly worth the while to fight some years for such a tremendous result. Mankind certainly at no time of history has fought for a greater object. Such a momentous matter can not help to appeal to the sympathies of so important a medical journal as yours, published in a country which suffers more than even China from the terror, against which we mean to begin this fight.

May we hope that you will use the influence of your paper to obtain an expression of opinion from the principal leprologists of India as to this matter. Should some of them, as we fervently hope, be willing to join our congress, will you ask them to communicate their intentions to me, as now and for a little time to come I shall have the foreign correspondence on my hands.

Yours respectfully,

ALBERT S. ASHMEAD, M.D.

A Crusade of Education.

BURLINGTON, IOWA, Aug 10, 1896.

To the Editor:—The controversy now going on in the JOURNAL between Dr. Maclean and the Michigan Medical Legisla-

tive League reminds some of us of the struggle some years ago to get a medical law in Iowa; and some of us perhaps sympathize with Dr. Maclean even if we have such a law and the Regulars have a majority on the Board.

Specialists in general, and eye and ear men in particular, have not infrequently been accused of tendencies to lax methods in practice; and the specific charge commonly made is that of consulting or desiring to consult with homœopaths, etc. Some of our brethren in New York (and they are not all specialists), on account of their liberal declaration on this subject have been denied fellowship in the AMERICAN MEDICAL ASSOCIATION.

But here in Iowa (and it may have been so in other States) we had the spectacle of a "*joint* legislative committee," composed of committees from the regular, homeopathic and eclectic State Medical Societies, who consulted together, moved unitedly upon our legislature, and secured the law we now have.

To some of us I fear that the consultation with a homeopath or eclectic for the welfare of the individual, and a consultation with the same for the welfare of the State, is a distinction without a difference; and we must be pardoned for holding to the belief that the end no more justifies the means in one case than in the other.

No wonder that, under these circumstances the public disregards our denials that medical legislation is intended to benefit the profession more than the public. The public only sees what it esteems *factions*, always warring against each other on everything else, but all in harmony on just this one point; and the conclusion is inevitable. So what sort of a law on the average, do we get? Is it really worth the time and labor spent upon it by the profession?

The Iowa law does not prevent quackery in Iowa. It makes a great show, but the quack who is not ingenious enough to dodge its provisions is too dull to be dangerous; and the dangerous fellows continue to dodge it successfully—as the records will show.

It may be considered rank heresy to entertain such a thought, but after as complete a survey of the situation as I am capable of making, the question arises—is *law* a proper remedy in the physicians' armamentarium? In other words, would it not be better to wait until public sentiment crystallizes into a demand for a medical practice law, the profession confining itself meanwhile to a *crusade of education* in this direction? Let no physician degrade his time honored title by appearing as a lobbyist.

Truly yours, H. B. Young, M.D.

PUBLIC HEALTH.

Examination of Milk Cows.—Secretary Briggs of the Scranton (Pa.) Board of Health has sent out a circular to wholesale milk dealers requesting them to have their cattle examined for tuberculosis.

Epidemic of Sore Eyes Among Boys at Newark, N. J.—A number of physicians have complained that sore eyes were epidemic among the small boys who bathe at one of the public baths, and it was thought the contamination was carried through the water. A number of the cases have been reported to the board of health by the physicians connected with the eye and ear department of St. Michael's Hospital. Measures for disinfection were taken.

New Jersey Law as to Bread and Bakeries.—Chapter 178 of New Jersey Laws, session of 1896, is an act to regulate the sale of bread, which will take effect Aug. 1, 1896. It provides that bread shall be sold by weight, and that all bread sold shall be free from all impure or foreign substances or any material injurious to health. Chapter 181 is to regulate the manufacture of flour and meal food products. It provides how biscuit, bread or cake bakeries shall be drained, plumbed and ventilated; how rooms for manufacture are to be constructed and what to contain; how flour is to be kept; that there shall be washrooms, and that closets and sleeping places shall be kept separate from the work and storage rooms.

To Prevent Illegal Practice in New York City.—At the request of the New York County Medical Society, Chief of Police Conlin ordered every policeman to take the census of the physicians—not including surgeons—found on his post July 29. The Medical Society has inaugurated a war upon bogus doctors, and the enumeration of the medical men is the first step tending toward a vigorous ousting out of practice of all who are not regularly and legally entitled to recognition.

A Sanitary Examination in England.—Some questions and queer answers are reported as having lately been exchanged at a test-examination lately held in England for itinerary inspectors. A question having been asked about the wilful exposure of a person suffering from an infectious disease, the examinee promptly answered: "He must not ride in any conveyance except a hearse without first informing the driver," while another answered: "A person dying of an infectious disease must give notice to the local authority within twenty-four hours." Another candidate said: "Members of a family where smallpox has broken out must be sent to the hospital and well boiled;" while still another said that milk is the best food for children, because it does not require any chewing; and his notion that food builds up the "waist" of the body would seem an error in spelling rather than in idea.

Consumption and Typhoid Fever.—Prof. V. C. Vaughan lectured to the summer school students at Ann Arbor, Mich., July 28. He talked for the most part on typhoid fever and consumption. Dr. Vaughan ventured the assertion that one out of every seven of those present would die of consumption, that 3,000 die of it every year in Michigan, and that 50,000 people annually die of typhoid fever. Both diseases, he said, were easily prevented. He claims that the medical profession of to-day is fully a century ahead of the politicians and others who are in control over municipalities. In Berlin and Hamburg people are compelled to disinfect their sputa, thus retarding the spread of tuberculosis. The death rate in those cities has decreased rapidly. He believes that in time cities will be held responsible for typhoid fever outbreaks as much as they are for defective sidewalks. To prevent typhoid fever, he says, boil your water. To prevent consumption use a cheap paper cuspidor and burn it twice a day.

Danger of Leprosy from Russian Immigrants.—According to reports from Germany the commissioners of immigration and quarantine physicians of this country should be especially vigilant in the examination of Russians who come to the United States. The famous Berlin physician, Prof. von Bergmann, who was recently consulted by the officials of the German health department, declares that a large number of the Russians who enter Germany with the intention of proceeding to America are afflicted with leprosy. The increase of the loathsome malady in the western provinces of Russia has become so alarming that the German government has ordered the immediate establishment of lazarettos at various points along the Russian frontier.

New Jersey Backs Up Health Codes as to Sewers.—A law was passed in New Jersey in May, 1896, providing that in all cities, townships and other municipalities of that State, wherein there are now or hereafter may be sewers constructed for the purpose of carrying off the sewage of such cities, towns, townships and other municipalities, or in streets or sections of such cities, towns, townships and other municipalities, the owners of property along the line of any such sewers shall be compelled to connect their houses and other buildings therewith, in compliance with the ordinances, rules and regulations of any local

board of health now or hereafter to be made for that purpose. The provisions of this act shall be enforced by the local boards of health, by a fine of $25 against any delinquent who shall not comply with the terms of any such ordinance, by-law or regulation within thirty days after notification to make the prescribed connection or connections by the proper officer of the local boards of health, and an additional fine of $10 for each and every day after such thirty days in which the provisions of this act and of such notice shall not be complied with.

New Departures in the Massachusetts State Board of Health in Diphtheria and Tuberculosis.—The State Board of Health of Massachusetts has recently issued circulars stating that it is prepared to examine cultures taken from the throat for the bacilli of diphtheria, sending out the necessary tubes and swabs, and reporting to the physicians or local boards of health who may send cultures for examination. The circulars explain in detail the proper methods of taking cultures, and explain their value both in the diagnosis of doubtful cases and in determining the length of time the isolation of convalescent cases shall be continued. This circular is accompanied by another which explains in detail the methods of administering the antitoxin furnished by the State Board of Health, and of caring for the syringe, etc. The Board also offers to make examinations of sputum for tubercle bacilli, the object being, as stated in their circular, not so much to enable the physician to make an early diagnosis as to protect the public from manifestly infective sputum. Examinations of cover-glass preparations of blood for the malarial organism will also be made by the Board. The opportunities offered by the Board to physicians and local boards of health for having such examinations made without charge can not fail to be of great value to the promotion of public health by the prevention of infectious diseases, especially in our smaller communities, where absolutely no facilities for having this work done have existed. The State Board of Health furnishes an example well worthy of imitation by other boards in Massachusetts et al., or elsewhere, in the thoroughness and efficiency which they have shown in making available to all who may need them, the best modern scientific methods in the diagnosis, prevention and cure of infectious disease.

Havoc by Measles in London.—The *London Lancet* for July 18 sounds the alarm regarding measles as a form of child murder. It says that the mortality for measles has proportions that call for more attention from sanitary authorities than it receives. There is this most significant difference between this mortality in different classes of the community; in the better sort of practice the mortality from measles is almost *nil*. "Some practitioners with well-to-do patients have possibly never seen a fatal case of measles in their practice, though the disease is often highly pyrexial. But the number of deaths from it now in the large towns of England and Wales and of Scotland exceed greatly the number from scarlet fever or diphtheria, or from both of these put together. This mortality has been described lately by writers in the nineteenth century as a form of murder. It is sufficiently illustrated in our issue of last week. Our monthly analysis of London sickness and mortality gives a mortality in June from scarlet fever of 67 and from diphtheria 173, and from both of 240, whereas the mortality from measles was 412. In thirty-three of the largest English towns during the week ending July 4, of 720 deaths due to the principal zymotic diseases, 175 were from measles and 100 from scarlet fever (36) and diphtheria (64) combined. The case of Scotland is not much better. Of 548 deaths in eight Scotch towns, 109 were caused by the principal zymotic diseases; of these, 38 were referred to measles. Glasgow—whose physicians, notably Dr. Gairdner and Dr. Russell, have directed attention to this infanticidal disease—has a bad prëminence in this respect, and measles is responsible for 33 of the 38 zymotic deaths." Such havoc of infant life can not be much longer continued without scandal and discredit to sanitary authorities. The remedy is not so easy as in the case of the other two diseases, as the infectiousness is greater and has time to act before quite declaring itself. Nevertheless, ways must be found for improving the hygienic environment of the little patients and for anticipating the diagnosis under suspicious circumstances.

New Regulations in New York City Concerning Garbage Collection.—After August 1, the householders of that city will be obliged, under penalty of a fine of $50, to observe the new regulations of the health department directing the separation of kitchen garbage. They can not allege, however, that they have not had timely notice, for on June 23 the Mayor issued a proclamation and the health department sent out these notices: Please take notice that section 95 of the sanitary code, which requires that a suitable and sufficient receptacle be provided on every premises for receiving and holding garbage without leakage, and that a separate receptacle, made of or lined with some suitable metal, shall be provided for ashes, and that ashes and garbage shall not be placed and kept in the same receptacle, will be enforced by the board of health on and after Aug. 1, 1896. The department of street cleaning will collect ashes and garbage in separate carts on and after Aug. 1, 1896, at each house. It has also been decided that householders shall provide a third receptacle for refuse of such a character as would come under the head of broken furniture, bottles, rags, old shoes, clothing, etc. The street cleaning department is not obliged to remove articles of that description from houses, as they do not properly come under the head of garbage, but it does so as a matter of convenience to the householder, and also with a view to the preservation of the public health. The third receptacle may be a basket, box or a similar article. The occupants of flat houses may in some cases seek to avoid complying with the order. In such cases the owner of the building will be held responsible. The police department has been instructed to coöperate with the health and street cleaning departments to secure a thorough enforcement of the law. Twenty-two policemen were detailed by Acting Chief Cortright to assist in the work. Only one collection of garbage will be made daily, and that in the forenoon. The city has entered into a contract with the New York Sanitary Utilization Company, which has established a large plant at Barren Island for the purpose of disposing of garbage. All garbage except ashes will be taken charge of by the company after it has been delivered by the street cleaning department at the dump. The city is considering the advisability of entering into a contract with a contractor who is willing to buy the ashes and use them for filling purposes.

Health Report.—The following reports of mortality from smallpox, yellow fever and cholera have been received in the office of the Supervising Surgeon-General U. S. Marine-Hospital Service:

SMALLPOX—UNITED STATES.

Ohio: Dayton, July 1 to 31, 1 death.
Louisiana: New Orleans, July 25 to August 1, 4 cases, 1 death.
Florida: Key West, August 3, 3 cases, 1 death.
Tennessee: July 1 to 31, Tipton County, 8 cases; Shelby County, 5 cases, 2 deaths.

SMALLPOX—FOREIGN.

St. Petersburg, July 11 to 18, 2 cases, 6 deaths
Gibraltar, July 12 to 19, 1 case.
Licata, July 11 to 18, 2 deaths.
Königsberg, July 18 to 25, 1 case.
Osaka and Hiogo, June 28 to July 4, 45 cases, 12 deaths.
Kanagawa, July 3 to 10, 3 cases.
Madras, July 18 to 25, 1 death.
Odessa, July 11 to 18, 13 cases, 1 death.
Calcutta, June 20 to 27, 3 deaths.
London, July 18 to 25, 37 cases.
Cairo, May 28 to June 3, 7 deaths.

Alexandria, May 28 to June 3, 4 deaths.
Warsaw, July 11 to 18, 4 deaths.
Bologna, July 18 to 25, 2 cases.

CHOLERA.

India: Calcutta, June 10 to 27, 38 deaths.
Egypt: Cairo, May 28 to June 3, 175 deaths; Alexandria, May 28 to June 3, 54 deaths.
Japan: July 2 to 11, Tokio Tu, 12 cases, 1 death; Cheba Ken, 1 case; Tuknoka Ken, 8 cases; Hiogo Ken, 2 cases; Iboraki Ken, 2 cases, 1 death; Kagawa Ken, 1 case; Kanagawa Ken, 2 cases; Migayaki Ken, 1 case, 1 death; Okayama Ken, 3 cases; Shidsuoka Ken, 1 case, 1 death; Tochigi Ken, 1 case; Tamanashi Ken, 2 cases; Jehime Ken, 1 case.

YELLOW FEVER.

Vera Cruz, July 23 to 30, 3 cases.
Matanzas, July 22 to 29, 35 deaths.
Santiago, July 25 to August 1, 21 deaths.
Havana, July 23 to 30, 90 cases, 40 deaths.

NECROLOGY.

DR. JOSEPH MEREDITH TONER, of Washington, D. C., died at Cresson Springs, Pa., August 1. He had practiced medicine in that city over forty years, and his death will be keenly felt in medical and scientific circles. He took an active interest in all public-spirited and charitable institutions and societies for scientific investigation. In 1871 he founded the Toner Lectures by placing the sum of $3,000 in the hands of trustees charged with the duty of securing two lectures annually on some original research. The interest of the fund with the exception of 10 per cent., is paid to the authors of the lectures. The balance is added to the regular fund which has thus been increased to $5,000. In 1875, and for three subsequent years, he offered the Toner medal at Jefferson Medical College for the best thesis on the results of original investigation. In 1882 he gave his library, consisting of 28,000 books and 18,000 pamphlets, to the Congressional Library and this collection is kept separate from the other books. This collection is specially rich in American medical writings prior to 1800. Dr. Toner possessed a large collection of the writings of Washington, which is also deposited in the Congressional Library and will be of great historic value. He was born in Pittsburg, April 30, 1825, and received his academic education at the Western University and the Mount St. Mary's College. His medical studies were pursued at the Vermont Academy of Medicine and at the Jefferson Medical College, from which he was graduated in 1853. He practiced in Summit and Pittsburg, Pa., and Harper's Ferry, Va., and established himself in the city of Washington in 1855. He was president of the AMERICAN MEDICAL ASSOCIATION in 1853, and was subsequently a member of the Board of Trustees. He was a member of the Medical Association and Medical Society of the District of Columbia, and at various times filled leading offices in both organizations; of the American Public Health Association; a delegate to, and one of the vice-presidents of the International Medical Congress at Philadelphia in 1876; an honorary member of the New York and California State Medical Societies, of the Boston Gynecological Society, He was the founder of the "Rocky Mountain Medical Society," an organization composed of members of the AMERICAN MEDICAL ASSOCIATION that attended the meeting at San Francisco, in 1871. Among his many writings may be mentioned: "Abortion in a Medical and Moral Aspect," in 1861; "Arrest of Development of the Cranial Bones; Epilepsy," in 1861; "Maternal Instinct or Love," 1864; "Propriety and Necessity on Compelling Vaccination," 1865; "Anniversary Oration before the Medical Society of the District of Columbia," 1866; "The Portability of Cholera and Necessity of Quarantine," 1866, joint paper with Charles A. Lee, M.D.; "History of Inoculation in Massachusetts," 1867; "Medical Register of the District of Columbia," 1867; "Address at the Dedication of Medical Hall, Washington," 1869; "Statistics of Representation in the AMERICAN MEDICAL ASSOCIATION," 1870; "Necrology of the Physicians of the Late War," 1870; Prepared "Medical Register of the United States," 1871; "Sketch of the Life of Dr. Charles A. Lee," 1872; "Statistics of the Board of Health in the United States," 1873; "Free Parks or Camping Grounds, or Sanitariums for Sick Children of the Poor in Cities," 1873; "Facts of Vital Statistics in the United States, with Diagrams," 1872; "Statistic Sketch of the Medical Profession of the United States," 1873; "Statistics of the Medical Associations and Hospitals of the United States, 1873: "Address as President before the AMERICAN MEDICAL ASSOCIATION," 1874; "Dictionary of Elevations and Climatic Register," 1874; "Annals of Medical Progress and Education in America," 1874; "Contributions to the Study of Yellow Fever in the United States: Its Distribution, with Weather Maps," 1874; "Annual Oration before the Medical and Chirurgical Faculty of Maryland," 1875; "Biographic Sketch of Dr. John D. Jackson," 1876; "Medical Men of the Revolution; an Address before the Alumni of Jefferson Medical College," 1876; "Sketch of the Life of Dr. T. M. Logan," 1876; "Biography of Dr. John Morgan of Philadelphia," 1876; "Address on Biography before the International Medical Congress," 1876; "Water Supply of Cities; Public Health Association," 1876; "Notes on the Burning of Theaters and Public Halls," 1876; etc. During his whole life he was one of the most industrious members of the profession, and as he always verified every quotation, he liked to be known as the "fact hunter." His card indexes were prepared mostly by himself. Socially, Dr. Toner was more prominent than any other member of his profession in Washington, and his influence in shaping scientific and medico-political matters at the capital was very great. His handsome, genial countenance will be greatly missed, and he will have no more sincere mourners than those of his colleagues who have met him at the annual meetings for over a third of a century, and who will remember his fraternal hand grasp and his kindly smile with deep regret at the loss of a faithful friend and colleague.



JOSEPH MEREDITH TONER, M.D.

WILLIAM MORRIS HOLT, M.D., of Anchorage, Ky., died at

the St. Joseph Infirmary, Louisville, Ky., of appendicitis, on the 4th inst. He was operated on the day before he died, but the abscess was general and the operation was too late. Dr. Holt was born fifty-six years ago in Henderson, Ky., and graduated at the Louisville Medical College, beginning practice soon after at Lebanon, Ky., where he remained until about fifteen years ago, when he removed to Anchorage where he enjoyed a large and lucrative practice up to the time of his death. He was of a kind and jovial disposition and his death is a great loss, not only to the profession, but to the community in which he lived.

Lawrence C. Cortelyou, M.D. (Bellevue Hospital Medical College, New York City, 1864) at New York, August 5, aged 50 years.

SOCIETY NEWS.

American Public Health Association.—The Twenty-fourth Annual Meeting of the American Public Health Association will be held at Buffalo, N. Y., Sept, 15-18, 1896. The Executive Committee have selected the following topics for consideration: "The Pollution of Water-Supplies;" "The Disposal of Garbage and Refuse;" "Animal Diseases and Animal Food;" "The Nomenclature of Diseases and Forms of Statistics;" "Protective Inoculations in Infectious Diseases;" "National Health Legislation;" "The Cause and Prevention of Diphtheria;" Causes and Prevention of Infant Mortality;" "Car Sanitation;" "The Prevention of the Spread of Yellow Fever;" "Steamship and Steamboat Sanitation;" "The Transportation and Disposal of the Dead;" "The Use of Alcoholic Drinks from a Sanitary Standpoint;" "The Centennial of Vaccination;" "The Relation of Forestry to Public Health;" "Transportation of Diseased Tissues by Mail;" "River Conservancy Boards of Supervision." Upon all the above subjects special committees have been appointed. Papers will be received upon other sanitary and hygienic subjects.

Officers, 1895-96:—President, Dr. Eduardo Licéaga, Mexico, Mex.; first vice-president, Lieut.-Col. Alfred A. Woodhull, Medical Dept., U. S. A., Denver, Col.; second vice-president, Dr. Henry Sewall, Denver, Col.; secretary, Dr. Irving A. Watson, Concord, N. H.; treasurer, Dr. Henry D. Holton, Brattleboro, Vt.

The Canadian Medical Association.—This Association will hold its twenty-ninth annual meeting at Montreal, Aug. 26-28, 1896. The following papers will be read: "Hemorrhagic Pancreatitis," A. McPhedran, Toronto; Title to be announced, Wm. Osler, Baltimore; "100 cases of Retroversion of the Uterus, treated by Ventro-fixation and Alexander's Operation. with subsequent results," A. Lapthorn Smith, Montreal; "The Influence of Mitral Lesions on the Existence of Pulmonary Tuberculosis," J. E. Graham, Toronto; "A Note on Amputation at the Hip Joint in Tubercular Disease," A. Primrose, Toronto; "Tetanus following Scarlatina," J. B. McConnell, Montreal; "Etiology and Treatment of Acne Vulgaris," A. R. Robinson, New York; "The Foot, its Architecture and Clothing," B. E. McKenzie, Toronto; "Ophthalmia Neonatorum," R. Ferguson, London; "Observations on the Relation between Leuchemia and Pseudo-leuchemia," C. F. Martin, G. H. Matthewson, Montreal; "Thyroidectomy," D. Marcil, St. Eustace, Q.; "Some Observations on the Heredity of Carcinoma," T. T. S. Harrison, Selkirk; "Some Applications of Entomology in Legal Medicine," Wyatt Johnston, George Villeneuve, Montreal; "Physiologic Demonstrations of Interest to Medical Men," Wesley Mills, Montreal; "The Theory of the Eliminative Treatment of Typhoid Fever," W. B. Thistle, Toronto; "Oral Surgery," G. Lenox Curtis, New York; "Vaginal Fixation of the round Ligaments for Backward Displacements of the Uterus," Hiram N. Tineberg, New York; "Clergyman's Sore Throat(?)," J. Price-Brown, Toronto; "Non-malignant Tumors of the Tonsil, with report of a case," H. D. Hamilton, Montreal; "Sinus Thrombosis, associated with acute Suppurative Otitis Media, occurring during Scarlet Fever," J. W. Sterling, Montreal; "(a) Exhibition of an Artificial Nose-bridge, (b) Some cases of Foreign Bodies in the Eye, in which the Electro-magnet was used successfully," F. Buller, Montreal; "Remarks on Cold Air in the Treatment of Pulmonary Tuberculosis," Edward Playter, Ottawa; "Hereditary Cerebellar Ataxia (with patient), D. Campbell Myers, Toronto; "A report of three cases of Abdominal Section for Conditions Comparatively Rare," H. Meek, London; "Early Atrophy of Muscles in Cerebral Disease," Frederick G. Finley, Montreal; Title to be announced, F. J. Shepherd, Montreal; "Electric Baths and Dyspepsia," A. L. de Martigny, Montreal; Title to be announced, J. C. Webster, Edinburgh; "Militia Medical Reorganization," W. Tobin, Halifax;

MISCELLANY.

Name of South Carolina Asylum Changed.—The South Carolina institution formerly known as the "State Lunatic Asylum" has had its name changed by law to the more euphonious one of "State Hospital for the Insane."

Appropriation for Vaccin and Antitoxin.—The Chicago city council has appropriated $25,000 for the purchase of vaccin, antitoxin and the employment of physicians to prevent the spread of smallpox and diphtheria.

Date of Meeting of South Carolina Examiners.—The general assembly of South Carolina has changed the date of the regular meeting of the State board of medical examiners, at Columbia, S. C., from the fourth Tuesday in April to the third Tuesday in May, each year.

Medical Heroes.—A hall has been established in the Val de Grace Hospital in Paris, where the names of French medical men who died in the performance of their duty are inscribed on marble tablets. A list of 143 practitioners has just been placed on its walls, all of whom perished in the yellow fever epidemic in San Domingo, 1801-1803.

The Old "Faculte de Medecine."—This structure has been bought by the city of Paris as a historic monument. There is great rejoicing in medical circles that the municipality has purchased this superb specimen of fifteenth and eighteenth century architecture, around which cluster so many memories, as the "cradle of medicine." It will probably be devoted to a scientific museum.

Age of Consent Advanced in South Carolina.—Section 2460 of the general statutes of South Carolina of 1882, defining the crime of having carnal knowledge of a woman child has been amended by changing the age from ten to fourteen years, and providing that where the woman or child is over ten years of age the jury may recommend mercy and the penalty shall be reduced to imprisonment for a term not exceeding fourteen years.

Fees for Examinations for Life Insurance.—The Equitable Life Insurance Company of New York has issued the following circular to medical examiners: "Please take notice that for medical examinations for new insurance in this society made in the United States, the Canadian provinces and Newfoundland on and after July 1, 1896, compensation will be by the uniform fee of $5 for each case of a completed examination report and opinion of the risk, rendered according to the society's standard blank form for a medical examination report. The cost of an examination for the restoration of a lapsed policy is to be borne by the subject, and not by the society. The fee in such cases is accordingly a matter of private arrangement between the examiner and the examinee."—*Med. Exam.*, July.

Vacancies in South Carolina Boards of Health.—The South Carolina statute approved Jan. 5, 1895, entitled "An act to establish local boards of health in the cities and incorporated towns of the State and to define the powers thereof," has been amended, by act of 1896, providing that in all cases of vacancies on said board occurring from any cause at any time, said

vacancies shall be filled by appointment for the unexpired term or terms. The city as well as town council is also now expressly authorized to impose or collect the $25 fine provided for failure of any member after accepting and being duly elected, to qualify and serve on the board.

Medical Service at the Paris Exposition of 1900.—It is amusing to note in the discussions of this subject that the medical service at our Columbian Exposition seems to be regarded by the Parisians as an unattainable ideal, absolutely beyond realization. Baudouin of the *Progrès Méd.* remarks that he actually had to lie down on one of the beds in the hospital *inside the grounds* at Chicago, to convince himself that he was not dreaming.

To prevent Adulteration of South Carolina Candy.—A law was passed at the recent session of the general assembly of South Carolina prohibiting, under penalty of not less than $50 nor more than 100, the manufacture for sale, knowingly selling, or offering for sale, of any candy adulterated by the admixture of terra alba, barytes, talc, or any other mineral substance, or by poisonous colors or flavors or other ingredients deleterious or detrimental to health. The candy so adulterated shall be forfeited and destroyed under direction of the court.

The "American Suture" the Invention of Chassaignac.—The intradermic suture was much admired by Pozzi as he saw it employed at the Johns Hopkins Hospital in Baltimore on his visit to this country. He introduced it into France, where it has been quite generally adopted, and called the "American suture." It has now been found that it was originally the invention of Chassaignac, and is described by him in full in the *Bulletin de therapeutique* in 1852. Hereafter the French will call it the Chassaignac suture. As the little knots to hold the thread are hard to make, some surgeons use a small piece of lead for the purpose, and others a small roll of iodoform gauze, which is always ready and requires no further sterilization.—*Union Méd.*, July 11.

The Silver Craze.—As a foretaste of what may be a common occurrence, we print the following from one of our advertisers, a very shrewd business man, who writes us a follows: "Referring to the way of advertising which you suggest, I already submitted to our board a proposition of this kind, which you made to me, at the time I had the pleasure of seeing you in Chicago, but they don't like to advertise in this way, and just now, they requested me to limit the advertising expenses as much as possible, because we don't know how the anarchists of the Windy City will turn out in November, at the time of the elections. You will understand quite well, that if we have to pay for our goods in gold and get 53 cents in silver for $1.00 of gold, we will be in such a bad fix that we will have to reduce still more our advertising expenses in order to meet all emergencies. I don't believe that we will do anything new in the way of advertising between now and the end of this year. We are cautious people and we never do anything which we are not sure we can carry out."

Cessation of a Medical Journal in Havana.—The *Revista de Ciencias Medicas*, of Havana, closes its eleventh and last year with the June number. The farewell editorial pathetically states that the management is compelled to this decision by "the circumstances through which the country is passing, the general scarcity of resources, the dispersion of the noble medical family . . . the absence of beloved friends whose coöperation has been so valuable to us, but especially as the immediate cause, by the assessment levied upon a periodical devoted exclusively to the publication of scientific matters. . . . "Stronger and more solid structures have fallen, men of prominence have been overwhelmed, family after family ruined, and happy hearths deserted; the disappearance of the *Revista* is merely an incident in the general ruin and desolation on all sides."

Fees for Postmortem Examinations in South Carolina.—By law passed in 1896, physicians in South Carolina shall be paid the following fees for postmortem examinations and testifying at coroner's inquests: For a postmortem examination and testifying, when no dissection is required $5; when dissection is necessary and the body not interred, if requested, by the coroner's jury, $10; for same after interment for three days or more, $15; for chemic analysis, a sum not exceeding $40 and expenses for such analysis; and when chemic analysis has been made the chemist who makes it must furnish to the county board of commissioners, with his account a full statement of the analysis. The clerk of the county board of commissioners shall verify and file with the clerk of court of general sessions a copy of such statement of analysis and account. Provided, that nothing contained in this act shall apply to counties of Barnwell and Williamsburg. The account of claim for the services herein named shall be certified to by the coroner, and if dissection is made it shall be certified that it was done at the request of the jury.

Progress in the Preventive Treatment of Cholera.—The May number of *Annales Pasteur*, reports another forward stride in our knowledge of cholera, and the methods of preventing it. Roux, Metchnikoff and Taurelli announce that they have established the fact that cholera is an intoxication, and to combat it an *antitoxic* serum is required and not an *antimicrobian* as Pfeiffer asserts. This serum they have succeeded in producing for experimental purposes. Animals injected with it before they are inoculated with the comma bacilli, resist the action of the latter in most cases, while animals inoculated without it almost all succumb. The same favorable results are obtained if the serum is administered simultaneously with the bacilli culture. But the results are negative if it is administered after the inoculation. The serum therefore is not curative, but it is preventive, which is, however a great advance. The experimenters hope to secure better results when they have obtained a stronger serum.—*Annales de la Soc. Méd. Chir. de Liége*, June.

Liquid Salol in Surgery.—Salol becomes liquid at a temperature of 108 degrees and remains fluid for fifteen to twenty minutes. In this state it is slightly syrupy, but much less than glycerin and will pass through a Pravaz syringe without the slightest difficulty. While fluid, different antiseptics can be mixed with it, and as it solidifies the two substances become intimately blended. Salol thus combined with iodoform or aristol has many uses in surgery, especially in cases of osseous cavities from tuberculosis, osteomyelitis, etc. After trephining it can be used in the place of iodoform gauze, with the advantage that the suture can be made directly on the injection, and union by first intention thus secured. It can be prepared at a moment's notice at the bedside, by heating the salol and the other substances together in a test tube over a lamp. It has also proved very effective in tuberculous adenitis. Two or three drops of the iodoform-salol injected into the tumor will either abort it or else render it much more benign in its development.—Reynier in the *Jour. de M. et de C. Prat.* Quoted by the *Annales de la Soc. Méd.-Chir. de Liége*, June.

Sudden Death after Puncture of a Hydatic Cyst.—Chauffard reports a case of almost immediate death with symptoms of a triple reaction, cutaneous, cerebro-spinal and myocardiac, following a simple exploratory puncture with a Pravaz syringe, of the anterior surface of the liver, below the ribs. Ten centimeters of a characteristic limpid fluid were withdrawn, confirming the diagnosis of hydatic cyst. The subject was a vigorous man, 38, with traces of old benign syphilis, malarial attacks in 1887, at which time he was drinking absinthe to excess, but not since. The necropsy showed marked compensation in the liver; the sound lobe weighing 1,205 grams, and the other 1,245. The liver with the cyst weighed 6,500 grams. The

other organs were apparently normal; death occurred in systole, and the heart was found empty. The hydatic fluid was tested both chemically and by inoculating guinea pigs, with negative results. No alkaloids were discovered in it, but there were traces of an albuminoid, apparently belonging to the mucin group. Chauffard attributes the fatal result to the escape of some of the hydatic fluid into the peritoneum, as the puncture had been completed several minutes before the disturbances began. The intense toxic effect can only be due to some individual reaction or idiosyncrasy, "to use the old term which expresses in so many instances, the limits of the knowable." He adds the warning that owing to the possibility of such an idiosyncrasy, which it is impossible to foresee, this operation is one to be approached with caution in cases of hydatic cyst. His report includes a review of the literature on the subject.—*Semaine Médicale*, July 8.

Retirement of Dr. I. N. Love from Marion-Sims College, St. Louis.—Dr. Love, who has been for many years connected with medical college circles of St. Louis, has tendered his resignation, owing to the fact that his private practice and his *Medical Mirror* work require his undivided attention. The *Alienist and Neurologist* of St. Louis for July says: "The resignation of Dr. I. N. Love from the chair of Clinical Medicine and Diseases of Children in Marion-Sims College of Medicine leaves a void in the faculty of this institution that will not be easily filled. Love's lectures are fluent and instructive, and so entertaining as to always hold his class in rapt attention while he speaks, a desideratum in the teaching corps of a medical college too often overlooked. In many medical schools no style of speaking and teaching is considered too dry for the medical student, a plain-speaking knowledge of the English language not always being regarded as requisite. Love taught the science of his chair in entertaining phrase and never made a student tired to listen to him." Dr. Love's large acquaintance and great popularity in the medical profession of America as well as abroad, together with his ability as a teacher, should make his place hard to fill in any college. A special committee appointed by the faculty, composed of Drs. B. M. Hypes, R. C. Atkinson and C. Borck, expressed full appreciation for past services of Dr. Love and kindliest hopes for future pleasure and profit in all his relations.

The Etiology of Appendicitis.—There has been much discussion of Dieulafoy's statement that appendicitis is invariably caused by a calculus or some accumulation of fecal or foreign matters, which obstruct the appendix and transform it into a closed cavity. It is confirmed by Klecki and Roger, who have proved that the bacilli circulating harmlessly through the intestines, acquire extreme virulence when arrested and forced to stagnate in a closed cavity. In this virulent state they soon find their way through the enclosing walls and produce infection, even before there is actual perforation. Dieulafoy ascribes the obstruction of the appendix in many cases to the formation of a calculus and states that the appendix makes a trio with the renal and biliary systems in the formation of calculi. He classes appendicitis with the arthritic family, in which the French include all forms of rheumatism and rheumatic neuralgia, gout, obesity, and the tendency to the formation of biliary and renal calculi, as also asthma and migraine. These diseases are not contagious, but they are all hereditary, that is they can be transmitted from parent to offspring, either directly or by the inheritance of the tendency, so that although the offspring may not inherit the same disease, he is liable to any one of the group, as they are chronic conditions of imperfect chemic or organic transformations in the organism. The Germans are not so fond of grouping diseases as the French, and the arthritic tendency is neither so frequent nor so pronounced with them as in the countries farther west, consequently Dieulafoy's classification has not been accepted in Germany.—*Deutsche Med. Woch.*, July 2.

Etiology of Hysteria.—An article with this title by Sigm. Freud has just been concluded in the *Wien. Klin. Rundsch.*, Nos. 22 to 26. He makes the grave assertion that hysteria, hysteric parasthesia or paraplegia, hysteric sensations, etc., and probably also paranoia, "compulsory ideas" and various psychoses, are all traceable to one cause, viz., conscious or unconscious memories of sexual occurrences in early childhood, and that the character of the neurosis is directly determined by the character of the sexual actions. The hysteria commences with an effort of the will to throw off some haunting idea; this idea is connected either logically or by association with some unconscious memory; this unconscious memory is invariably of one or more sexual occurrences dating perhaps from the earliest childhood. The hysteria usually develops after puberty, but in the severest cases it commences with unfailing regularity at the eighth year. The sexual events that preceded it date therefore, from a still earlier age, in some cases from the fourth, third or even the second year. In the eighth year, the period following the second dentition, the sexual system probably passes into another stage of development, as the same sexual events commencing or continuing after this period, have none of this pathogenic effect. Freud believes that the original instigation always proceeds from an adult. His statements are based on extensive clinical experience, and scrupulously careful investigations. He expects to meet with opposition and incredulity, until the pathogenic power of unconscious memories is more fully recognized than at present.

On the Indecency of Patent Medicine Announcements.—The *Medical and Surgical Reporter* commends the conductors of the *Ladies' Home Journal* for their avoidance of those advertisements, so largely addressed to suffering mankind, and for taking the ground that as the better portion of the medical profession will not advertise, they the conductors of the *Journal* will not cater to those not in good standing in their profession and yet willing to publish their wares. It further says: "The patent medicine monger has recently awakened to the fact that young girls have not been sufficiently instructed in the psychic and physical phenomena of puberty and menstruation. Here, as in modern fiction, the worst sinners are women who first catch the eye of the victim with some such complaint as that "only a woman can understand woman's woes." Frequently we encounter the picture of a miss of 18 writhing with dysmenorrhea, and the latest abomination is a novelette in which some phase of female weakness stands between the heroine and marital bliss, and in which sexual restoration, a vegetable compound, and marriage bells are artistically mingled. *The purpose of such advertisements is manifestly to direct the attention of the young woman to her sexual organs*, to exaggerate the importance of trifling abnormalities incident to civilized life, to awaken the sexual instinct, and at the same time to arouse forebodings as to the existence of some physical obstacle to marriage and reproduction, so that a sale of remedies may be effected. Although actual indecency of phraseology is studiously avoided, the moral and mental tendencies of such literature are decidedly injurious. We grant that the ideal of the last generation of ignorance as innocence was not a wise one, and that the girl should be instructed in the physiology and hygiene of the pelvic organs. But the instructor should be the mother, teacher, or some other intimate and mature female friend, and we would prefer ignorance to the obtaining of knowlege from a mercenary charlatan, while false modesty is better than no modesty at all.

The climax of indecency is reached with the proclamation of the abortifacient nostrum. Pennyroyal seems to be the favorite catch-word, and women are informed that the pill or powder in question is prompt, sure and safe, and this statement is often coupled with the sly intimation that it should not be taken by women who are pregnant, since it will produce abortion. In many, if not most cases, the women who buy these

nostrums desire the discharge of something more than blood from the uterus, and the advertiser, without direct allusion to criminal therapeutics, is calculating not on the patronage of women already in trouble, but on those who will yield more readily to temptation if the danger of pregnancy is eliminated."

A Sneer from Merck's "American Medico-Surgical Bulletin."—The shrinking modesty characteristic of a trade organ, believed to be operated by and for an importing branch of a foreign drug house in New York city, induces it to print the following ill-mannered slur. This is the sheet that has heretofore omitted no opportunity to print unkind and discourteous words of the ASSOCIATION and its membership:

"THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.—Our most esteemed friend in spirit, the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, appears to be having a wofully hard time in selecting a permanent abode. The atmosphere of Chicago does not appear to agree with it, and it thinks a little of testing the National capital. So far no voice seems to have been raised in favor of New York, and yet, since this is the center of medicine, why should it not come to our welcoming arms—JOURNAL, Editor, Code and all. It can fight our very much esteemed contemporary, the *Medical Record*, to better advantage here than from a distance, and we can assure it that it will find the editor of the *Record* a much better and milder and every way more acceptable individual than he appears to be from a distance. We think it might sleep in the same bed with equanimity as that which another great friend of ours occupies—the *New York Medical Journal;* and we are satisfied from personal contact that the *News* (late of Philadelphia and now of New York) is overflowing with the spirit of brotherly love. As for ourselves it would please us greatly to look at this great organ from close quarters, and we may without loss of modesty say that we think we could teach it something along the line of fearless, independent, scientific journalism. Further still, personal contact would make the JOURNAL love the *Bulletin* a little more and a little long, so that from every point of view we trust that our suggestion will prove acceptable, and that New York may become still more the headquarters of peace and good will in medical journalism."

The Proof of Insanity.—In the April number of the *Physician and Surgeon*, Professor Frank T. Lodge of the Michigan College of Medicine, contributes a paper on insanity in its relations to crimes, contracts and wills, inclusive of the spirit of the laws of his State as to the proof of mental alienation. On the latter branch of his subject he writes, "In nearly every case where insanity is set up, physicians are called as witnesses. The law does not recognize expert testimony in these cases as being of any greater value than that of ordinary persons. The credibility of each person's testimony, be it laymen or doctor, is to be weighed and determined by the jury. Nevertheless, if the testimony of a physician, called as an expert witness, is properly given, it must and should have great weight with the jury. As a rule, the physician will be called to testify with reference to the particular person whose sanity is under consideration. His testimony should be based upon a previous examination. The subtle essence of the mind can not be subjected to ocular and visual examination. Its quality must be determined from close observation of the acts and conversation of its owner. Most physicians testify from a short conversation with the person, and we all know how unsatisfactory such an examination is. Nervous persons of perfectly sound mind may appear almost insane under certain conditions, while the wildest lunatic frequently converses for hours rationally and intelligently. In many cases it is only when his particular hobby happens to be touched upon that he manifests his mental bias, and in the absence of previous knowledge, how can the examiner know toward what point to direct his inquiry? In my opinion, the sanity of no person should be decided until he has been under close observation by competent physicians for a considerable period, say from one to two months, under all the circumstances most favorable to the examination. The examiner should be furnished with the life history of the patient, the history of his family for the preceding two or three generations, the mental condition of his ancestors with relation to possible hereditary taints, and the many other details which will readily occur to all of you. Without this opportunity for a careful and thorough examination, there will always be abundant opportunity for punishing innocent persons for crime, for setting clever and unscrupulous scoundrels at large and for depriving imbecile and incapable persons of large property interests by the clever machinations of designing villains."

Birch Agaric in Cancerous and Non-cancerous Gastro-intestinal Disturbances.—The belief is current in Russia that the polyporus betulinus will cure cancer. Smirnow has been testing it and finds that it is highly efficacious in chronic gastro-intestinal troubles accompanying cancer and other inflammatory conditions of the stomach and intestines. The cancer itself continues its course, but great relief is experienced even in a couple of days after imbibing the strong decoction. The pain subsides; the food can be retained and the inflammation heals, if not cancerous.—*Semaine Médicale*, July 8.

A Powerful Emetic.—A foreign contemporay states that Dr. Kraus, privat-docent in the Medical University of Berlin, having been called upon by the faculty to explain why his name appeared in a testimonial of the alleged virtues of a certain soap, "declined to do so, or even to express regret, and when the faculty, justly indignant, inflicted upon him the severest reprimand at its disposal, he threw up his appointment."

Notes on the British Medical Association Meeting.—At a general meeting of the second day, Dr. Robert Saundby of Birmingham, was elected President of the Council for the next three years, and on motion it was resolved to accept an invitation of the Montreal Branch to visit Canada next year and hold the annual meeting at Montreal in August. An amendment in favor of Portsmouth was lost. Professor Roddick, President of the Montreal Branch of the British Medical Association, was appointed President elect. The business part of next year's meeting will be transacted in London, and only the scientific meetings will be held in the Dominion. The British Association will hold its annual meeting in Toronto next year, and it is hoped that arrangements may be made so that members may attend both.

The Council of the Association decided to present a gold medal to Captain Whitchurch for gallantry in connection with the Chitral expedition, and it was presented by Dr. Barnes, the President. This medal is rarely given, and is consequently greatly prized by those who may be considered worthy of it. The same medal was presented to Dr. Ormrod of Workington, who distinguished himself in connection with the St. Helene colliery explosion.

At the meeting of the Association last year, held in London, there were 3,000 members in attendance; at Bristol the year before 897 members were present, while at Carlisle this year, up to Wednesday evening, the second day of the meeting, only 600 had registered, showing a very small attendance in view of the fact that the Association now has a membership of 16,332.

The scientific work of the Association is divided into nine Sections, as follows: Medicine, Surgery, Obstetrics and Gynecology, Public Medicine, Psychology, Pathology and Bacteriology, Ophthalmology, Diseases of Children, and Ethics.

Speeches at the general sessions are limited to ten minutes. At the sectional meetings no paper is allowed to exceed fifteen minutes, and participators in discussions are allowed ten minutes each.

The discussions in the various Sections are not reported stenographically, but each speaker is furnished with a writing pad at the close of his remarks and asked to write them for publication. Neither are the remarks on motions in the general meetings reported *in extenso*. The members of the Association are beginning to see the absolute necessity and importance of having their proceedings taken dawn by an expert shorthand writer, because there is a movement on foot to the effect that a volume of Transactions be published as soon as possible after each annual meeting, giving full or well-condensed reports of all papers prepared for the meeting, with the discussions that followed, and also verbatim reports of the general meetings.

Duty to Sick Passengers.—A girl of 18 was the only passenger on a certain street car. While there, she became sick and, going to the door, she told the conductor that she was sick, and asked him to stop the car, so that she might get off. He told her to sit down, and she would feel better after a while. She sat down, but felt worse all the time. Presently the conductor passed through the car, and she again appealed to him to stop; but he looked at her, smiled, went to the front of the car, and began talking to the motorman. She then felt dizzy and sick at the stomach, became frightened and dazed, got up from her seat, and staggered toward the rear door for the purpose, she said, of seeing whether she could not get some one on the street to stop the car, and fell unconscious through the door, remaining unconscious for several weeks. The car had then 670 feet to go before reaching the end of the electric route, at which point the girl was to be transferred to a horse car for carriage about a mile further, to her destination. An action was brought against the street car company for damages. June 15, 1896, the court of errors and appeals of New Jersey affirmed a judgment for the plaintiff. McCann v. Newark & S. O. Ry. Co. The court says that in view of the plaintiff's youth, her illness, and her mental disorder, it can not say, as matter of law, that she was bound to exercise the same degree of care and forethought as persons of mature years in the full possession of their faculties would ordinarily exercise; and that it was for the jury to determine whether, under the peculiar conditions then existing, she had used such prudence as it was reasonable to require. The court also holds that it was lawful for the jury to find that, when the plaintiff made her second appeal to the conductor, he was apprised of her serious illness, or, at least, should have inquired further as to her condition. The jury also had the right, the court says, to conclude that, on perceiving or informing himself of the extent of her sickness, it became his duty either to stop the car, so that she might alight as she requested, or else to afford her such reasonable attention as would save her from harm in the moving vehicle. He did none of these things, but passed her by heedlessly, and left her utterly uncared for, when there was no other person at hand to render her assistance. Such conduct would not fulfill the duty of the defendant as a carrier of passengers. It is but a corollary from the principle which enjoins upon these carriers reasonable care for the security of their passengers that when, through sudden illness, a passenger becomes less able to look after his own safety, and that fact is made known to the proper agent of the carrier, the latter must exercise toward the passenger a greater degree of care than is demanded in ordinary circumstances.

Louisville.

Pure Water.—The filter tests, a reference to which was made in these columns some time ago, have at last been completed and the reports of the experts will be made to the Water Company in the near future. A year ago the Louisville Water Company invited all representatives of water filters in the country to compete in a test of efficiency, making very liberal propositions in regard to the conduct of the tests. The result was that four companies erected filters on the ground at the pumping station, the water and steam power being furnished by the water company from the pumps at work. The contest has attracted not only local interest but has attracted the attention of the scientific world, and the success of the test means the adoption of the filter by all the principle towns of the Ohio and Mississippi Valley. The question of a wholesome water supply has agitated the minds of the people of this community for some time, for with every freshet and flood the Ohio becomes a rushing stream of mud, carrying along the drainage from five States at least. The public has not as yet benefited by these tests, for the water pumped into the filters has been allowed to run back at once to the river, but we live in hopes that there will be at least one of the filters represented accepted. The water company had as its representative in the laboratory specially erected, Mr. George W. Fuller, from the Lawrence Experimental Station in Massachusetts, a man of ability and experience. Throughout the test the character of the water from the river, filtered and unfiltered, and the action of the filters had to be carefully recorded and the report is a most thorough and exhaustive one. Three of the filters use alum and the fourth is an electric one. The company has been unusually fortunate in having such a protracted muddy spell as they have had while the tests were in progress, for it has not been equaled since 1875.

Smallpox.—Seven cases of smallpox have developed near Paducah, supposed to have been contracted from the pest-house, which is located near one of the most frequented pikes near the city. There has already been a lawsuit in regard to this building, which is regarded as a menace to the community on account of its location.

Medico-Literary Notes.

Guy's Hospital Gazette.—The editors of this journal have, with that energy and acumen which characterizes them, issued a special Festival Number. It gives a full account of the great festival dinner and an interesting sketch of the history of the hospital.

In a recent work published in Paris by the *Société d'Éditions Scientifiques*, Dr. A. Calmette gives in epitome the result of his investigations into the nature of snake poison and the best way of treating envenomed bites. The only drugs he has found beneficial are the hypochlorite of lime and the chlorid of gold, the use of the latter having been recommended by him in 1892; but he maintains that in the serum of immunized horses there exists a perfect antidote against snake poison. The serum is now prepared in a bulk at the Pasteur Institute in Lille, of which Dr. Calmette is the director. The price of the the book is 3 francs.

A Medical Man's Experience at Sedan.—Dr. Charles E. Ryan, now of Glenlara, Ireland, has written quite an elaborate account of his services with an ambulance during the Franco-German War, and his personal experiences and adventures with both of the opposing armies in 1870-1871. This book may be best described as a series of photographs of the tragic side of a most tragic war. A simple record of what the author or his comrades saw, it constitutes nevertheless an impressive word-painting, and affords a painful view of the ghastly scenes which form the background of the romance of battle. Dr. Ryan was a member of an Anglo-American ambulance in the Franco-German War, and by force of circumstances was brought into close contact with both French and Germans. He does not conceal the fact that he felt great enthusiasm for France at the first, and that his sympathies were throughout with her. Yet he is an honest and just man, and did not fail to note the shortcomings of the French and to recognize the merits of the Germans.

The Standard Biography of Dr. O. W. Holmes, "the genial Autocrat," has appeared in admirable form under the title of "Life and Letters of Oliver Wendell Holmes." The

Book News, June, contained the following points of information interesting to the medical profession: "We have before us one of the most delightful biographies ever produced in the United States, in these two volumes. The author, Mr. John T. Morse, Jr., has every qualification for his task, including that of relationship, as he was a nephew of the subject of the book. All the material obtainable in the form of letters and autobiographic notes has been placed at his disposal, but these are less copious than may have been expected. It appears that letter writing was irksome to Dr. Holmes, and consequently his letters were comparatively few. A report has been current that Dr. Holmes for some time before his death was engaged upon an autobiography. It turns out, however, that he left only some disjointed memoranda in which he had not advanced beyond the period of youth, and had not even covered that period consecutively and thoroughly. Instead of weaving these notes into his text, the biographer has thought it better to print most of them collectively in a separate chapter.

MEDICAL JOURNAL ENTERPRISE IN PARIS.—The publishers of one of the medical papers of Paris, it is said, have hired a large shop almost opposite the School of Medicine on the Boulevard St. Germain, and transformed it into a reading room, free to all the physicians and medical students of Paris, to each of whom a card of admission was sent. The front part of the establishment opens directly on the street, and on one side contains notices of anything which may be interesting from a medical point of view, such as courses of lectures, etc.; the other side is devoted to the latest reports from various news agencies. In the rear of the establishment are found numerous desks, paper and ink, and a case containing several hundred medical papers from various parts of the world. The reading room opens into a small garden where the visitor may smoke.—*Boston Med. Journal.*

A CHOLERA TRACT FROM INDIA.—A most useful little pamphlet on "The Cause and Prevention of Cholera" has been written by Mr. E. H. Hankin, chemical examiner and bacteriologist to the Northwest Provinces and Oudh. It is intended for the people of India, showing how they can easily mitigate the prevalence of cholera by strict attention to the purity of their water supply. Mr. Hankin says that twenty-four cholera epidemics, of which he knows, were stopped on the disinfection of the wells with permanganate. He advises that the permanganate should be added at sunset, so that it may have all the night to settle. In this way the sediment has time to fall to the bottom, and on the following morning the water is fit to drink. The theory being that the permanganate removes the organic matter, consequently the microbes cease to thrive.

THE PUBLIC SERVICES.

Army Changes. Official List of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from Aug. 1 to Aug. 7, 1896.

Capt. William D. Crosby, Asst. Surgeon (Ft. Missoula, Mont.), is granted leave of absence for one month.

Major James C. Worthington, Surgeon, leave of absence granted on account of sickness is further extended one month on account of sickness.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending Aug. 8, 1896.

P. A. Surgeon G. H. Barber, detached from the "New York," ordered home and granted two months' leave.

P. A. Surgeon V. C. B. Means, detached from the "Maine" and ordered to the "New York."

Marine-Hospital Changes. Official list of changes of station, and duties of Medical Officers of the U. S. Marine-Hospital Service, for the sixteen days ended July 31, 1896.

Surgeon H. R. Carter, directed to inspect Marine-Hospital Service at Tampa, Fla., July 28, 1896.

P. A. Surgeon C. T. Peckham, directed to report to Surgeon Godfrey, chairman of board for physical examination, July 24, 1896.

P. A. Surgeon B. W. Brown, granted leave of absence for six days, July 23, 1896.

P. A. Surgeon W. J. S. Stewart, granted leave of absence for four days, July 17, 1896.

Asst. Surgeon C. E. Decker, to proceed from Battle Creek, Mich., to St. Louis, Mo., for duty, July 21, 1896.

Asst. Surgeon Emil Prochazka, granted leave of absence for twenty days, July 23, 1896.

BOARD CONVENED.

Board convened to meet at Port Townsend, Wash., for the physical examination of P. A. Surgeon C. T. Peckham; Surgeon John Godfrey, chairman; W. G. Stimpson, recorder, July 24, 1896.

PROMOTION.

P. A. Surgeon C. E. Banks, commissioned as Surgeon, July 27, 1896.

DEATH.

Surgeon C. S. D. Fessenden, died at Salem, Mass., July 23, 1896.

Circular Letter.

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL M.-H. SERVICE,
WASHINGTON, D. C., July 31, 1896.

To the Medical Officers of the U. S. Marine-Hospital Service:—It is with regret that I have to announce to the medical officers of the Service the death, on the 23d inst., from a complication of heart and kidney affections, of Surgeon Charles Stewart Davels Fessenden. Surgeon Fessenden was the senior surgeon of the corps, having served since April 4, 1861—a period of more than thirty-five years. He was born in Portland, Maine, Feb. 23, 1828, and was of a family noted in the annals of his native State and the nation. His father, General Samuel Fessenden, was for many years a leader at the bar of Maine, and his eldest brother, William Pitt Fessenden, was the distinguished senator of that State, and during the administration of President Lincoln became Secretary of the Treasury. Two nephews of Surgeon Fessenden rose to the rank of Brigadier General during the Civil War, and others have been prominent in private life, two of them in the profession of medicine.

Surgeon Fessenden was fitted for college at Portland Academy, and in 1844 entered Harvard University, where he pursued his studies for one year; leaving Harvard he became a student at Bowdoin College, from whence he was graduated in 1848.

He studied medicine under Charles W. Thomas, M.D., of Portland, Maine, and attending medical lectures at the Medical School of Maine and also in New York, was graduated in 1851 from the Medical School of Maine. From 1853 to 1856 he was physician in charge of the Portland City Hospital, after which date he became a private practitioner until his appointment as surgeon in the Marine-Hospital Service in 1861.

During the period of his membership in the corps, he served as commanding officer at the ports of Portland, Maine, New York, N. Y., St. Louis, Mo., Norfolk, Va., Louisville, Ky., and Mobile, Ala. During this period he was also a member of three boards of medical officers convened for the examination of applicants for the Service, and of eight boards convened for the physical examination of candidates for admission to the revenue cutter service, beside serving on various special details as inspector.

On account of the failure of his health in the fall of 1895, he was ordered to appear before a board of medical officers for physical examination, and in accordance with the report of the board was placed on waiting orders Nov. 22, 1895.

During the few months which intervened between this date and his demise, Surgeon Fessenden resided at Salem, Mass., at which place his death occurred.

Respectfully yours,
WALTER WYMAN,
Supervising Surgeon-General, M.-H. S.

Change of Address.

Dunne, A. J., from Springfield to Pittsfield, Mass.

Johnson, C. W., Litchfield, Ill., to 625 Locust Street, St. Louis, Mo.

Kober, G. M., Washington, D. C., to Box 277 Winchester, Va., (care of Mr. Spangler); Klebs, E., from 422 Center Street, to Hotel Majestic Chicago.

Stanley, F. A., from Mobile, Ala., to Julien Hotel, cor. 63d street and Stewart Avenue, Chicago, Ill.

LETTERS RECEIVED

Allen, B. G., Robbins, Tenn.; Ammonial Chem. Co., New York, N. Y.; Asdale, W. J., Pittsburg, Pa.

Brothers, Samuel, New York, N. Y.; Benjamin, D., Camden, N. J.; Battle Creek Sanitarium (2), Battle Creek, Mich.; Burr, C. B., (2) Flint, Mich.; Buehler, Jacob, Indianapolis, Ind.; Blakely, T. J., Avalon, Mo.; Brophy, Truman W., Chicago, Ill.

Cokenower, J. W., Des Moines, Iowa; Coffman, W. H., Georgetown, Ky.

De Courcy, J. O., St. Libory, Ill.

Elliott, J. L., Duluth, Minn.

Fehr, Julius, Hoboken, N. J.; Fairchild Bros., & Foster, New York.

Gihon, A. L., New York, N. Y.; Gundrum, F., Sacramento, Cal.

Howe, Lucien, Buffalo, N. Y.; Henley, A., Fairmount, Ind.; Hodges, J. Allison, Richmond, Va.; Hayne, H. W., (2) Lawrence, Kan.; Hassard, J. G. & Co., New York, N. Y.

Kiernan, Jas. G., Chicago, Ill.; Kearsley, M. J., Austin, Ill.

Loewy, Arthur, Elgin, Ill.

McAlester, Alex., Camden, N. J.; Marchand, Charles, New York, N. Y.; Miller, Irving, Baltimore, Md.; McIntire, Chas., Easton, Pa.; Moore, J. N., Atlantic Mine, Mich.; Mullen, T. R., Marcus, Iowa.

Newell, Mary E., Altoona, Pa.

Prevatt, J. B., Levyville, Fla.

Reed, R., Harvey, Columbus, Ohio; Resinol Chemical Co., Baltimore.

Sattler, Robert, Cincinnati, Ohio; Struch, Carl, Chicago, Ill.; Stengel, Alfred, Philadelphia, Pa.; Sander, Enno M. W., Co., St. Louis, Mo.; Schering & Glatz, New York, N. Y.; Starkey, Horace M., Chicago, Ill.; Smith, H. F., New Troy, Mich.

Tuley, Henry E., Louisville, Ky.

Walker, W. K., Philadelphia Pa.; Walker, A. B., Canton, Ohio; Willard, Wm. G., Chicago, Ill.

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ORIGINAL ARTICLES.

ABSCESS OF THE LUNG, WITH REPORT OF SEVEN CASES.

Read before the Detroit Medical and Library Association and the Cook County Hospital Alumni Association, January and June, 1896.

BY E. FLETCHER INGALS, M.D.

CHICAGO.

The subject to which I invite your attention is one of peculiar interest on account of the difficulties surrounding its diagnosis and the brilliant results that not infrequently follow its proper treatment. Abscesses of this variety are either primary or secondary; primary when the direct result of injury or exposure, as for example the entrance of foreign bodies into the air passages or such exposures as often eventuate in pneumonia; secondary when the direct result of some antecedent disease, as for example tuberculosis, pyemia or embolism.

An abscess of the lung may be described as a circumscribed collection of pus within the pulmonary parenchyma. It is usually characterized by pain at times very severe, by chills and fever, and later by the expectoration of a small amount of blood, followed shortly afterward by a considerable quantity of pus which usually escapes within a few hours. As a result of the inflammation a small or a considerable mass of lung tissue may be destroyed, but usually in the primary abscess the tissues are crowded before the collection of pus, and only a limited part becomes necrotic. Primary abscesses (in which we are chiefly interested), are comparatively rare, but secondary pulmonary abscesses, especially those of tubercular origin, are very frequent; the latter, however, I do not wish to consider at this time, because the symptoms and signs which they produce are quite different from those produced by the primary affection and also because the treatment and the results of treatment are not like those of the primary disease.

Etiology.—Primary abscesses usually result from exposure, from the entrance of foreign bodies into the air passages, from injury and for our present purpose I will say from pneumonia. Secondary abscesses result from pyemia, embolism, syphilis, the pressure of tumors upon the bronchi, suppuration of bronchial glands, and from perforating abscesses below the diaphragm, or within the mediastinum. Although my remarks apply to the secondary abscesses that are not tubercular, and to a limited extent even to the latter, they are mainly applicable to primary abscess and to abscesses resulting from acute pneumonia which present the same symptoms and demand similar treatment.

Symptomatology.—The primary pulmonary abscess usually speedily follows some exposure or accident which causes acute inflammation of the lung, the inception being marked by a chill and fever, very similar to that of croupous pneumonia, though commonly neither are quite so severe as in the latter disease; however, the abscess may not occur until sometime after the acute stage of the pneumonia has subsided. In either case the formation of pus is attended by repeated rigors followed by hectic fever similar to the symptoms indicative of suppuration in other parts of the body. Pain, sometimes very severe, is usually present in the beginning of the disease. The temperature fluctuates two or three degrees during the day corresponding to the irregular chills and fever. In the milder cases although the pulse is rapid the fever is not pronounced; but in most instances the constitutional symptoms are very like these of croupous pneumonia, and they are apt to continue for two or three weeks. In favorable cases spontaneous opening of the abscess and convalescence may be expected within twenty or thirty days and in most of them the pus will escape within ten or twenty days. The abscess may open into the bronchi, mediastinum, pericardium or pleura, or through intervening adhesions may discharge its pus into the abdominal cavity or externally. The discharge of the contents of the abscess is usually preceded by a few drops of blood or bloody pus which is followed by the expectoration of from a few ounces to a pint or more of yellowish or greenish pus. The pus is apt to be brownish when there is considerable necrosis of lung tissue. The contents will escape freely for a short time, or possibly for several hours, until the abscess is emptied, when the opening is liable to close for two or three days; it may then be reopened and give vent to a copious discharge. The pus is not usually offensive except when it has been long retained or gangrene has occurred. The sputum generally contains small yellowish or dark pieces of lung tissue visible to the naked eye that upon microscopic examination are found to consist of elastic lung tissue.

The essential signs of the disease are: dullness with feebleness of respiration or absence of the respiratory murmur over the abscess combined with indistinct râles in the lung tissues immediately about it and sometimes with bronchial breathing. After escape of the pus the well-known signs of a cavity may be present for a short time, though in the primary affection the lung is apt to contract speedily so that cavernous respiration is present for only a few hours; or refilling of the cavity with pus may prevent the respiratory and vocal sounds common over a vomica.

Diagnosis.—The affection is liable to be mistaken for bronchitis, pneumonia and acute or chronic pleurisy. The most important features in the diagnosis are the occurrence of symptoms similar to those of acute croupous pneumonia, but followed by irregular chills and hectic fever indicative of the formation of pus and dullness more or less circumscribed that is apt to be more distinct over a small region than that of pneumonia but less distinct than in pleurisy.

Atypic respiratory and vocal signs unlike those we expect to find either in pneumonia, pleurisy or bronchitis, are a most important element in the diagnosis and finally the sudden expectoration of a considerable quantity of pus containing elastic lung fiber reveals the true nature of the disease.

Bronchitis.—Bronchitis is to be distinguished from pulmonary abscess by absence of the irregular chills and fever common in the latter disease, by the comparatively slight fever in bronchitis; absence of dullness on percussion and the presence of bilateral mucous râles; by frothy and subsequently muco-purulent expectoration instead of the purulent expectoration of abscess, and by the quantity and time of occurrence of this expectoration. The sputum in bronchitis is at first frothy and subsequently gradually becomes muco-purulent; whereas in abscess of the lung there is usually little or no expectoration at first, but finally a large quantity of pus preceded by a few drops or drams of blood.

Pneumonia.—In pneumonia the symptoms and signs are much like those of pulmonary abscess, indeed this disease is very liable to obscure the signs of abscess, but a careful review of the symptoms and signs will generally enable us to make a correct diagnosis, except in cases where the abscess results from a primary croupous inflammation. In the beginning of pneumonia we have a severe chill instead of the irregular chills and fever indicating suppuration; yet abscess of the lung may have been preceded for a few days by all the symptoms of pneumonia. In pneumonia there is usually more or less distinct dullness over the greater portion of one lobe or more, of one lung, slight in the beginning but well marked later on. In abscess of the lung the dullness is apt to be circumscribed at the middle or upper part of the lower lobe and the area smaller than in croupous pneumonia. The dullness may be more pronounced than in pneumonia, when the abscess is close to the surface, or scarcely discernible when the collection of pus is deeply seated and a considerable quantity of healthy lung tissue intervenes between it and the chest wall; but in most cases of abscess the dullness eventually becomes pronounced and distinctly circumscribed and it is liable to be surrounded in every direction by fair pulmonary resonance.

Upon auscultation in pneumonia, distinct crepitant râles are heard in the beginning, distinct bronchial breathing later on and still later the subcrepitant râles of resolution; but in pulmonary abscess the respiratory sounds are atypic and commonly very confusing. At first over the abscess there may be no sign excepting a feeble respiratory murmur, though if the abscess is near the surface there may be entire absence of respiratory sounds due to occlusion of the air vesicles and smaller bronchi, by compression. Usually, however, there are a few subcrepitant and larger bronchial râles in a zone two or three inches wide about the abscess and there may also be a few crepitant râles; but these signs are much less numerous and less distinct than in typical pneumonia. It will be readily understood that location of the abscess near the surface, or deeply seated would necessarily change the character of the respiratory sounds over it.

To me the most important elements in the diagnosis of this affection consist of the indistinctness of the respiratory murmur and the irregularity and confusing character of the râles all of which are very different from the typical signs of pneumonia or pleurisy. The signs are such that the physician, even though an expert, after having made a thorough physical examination is inclined to admit (to himself at least) that he does not know what is the matter. A careful consideration of the history of such a case including all predisposing and exciting causes together with a study of the early symptoms, taken in connection with the atypic signs will generally lead to a correct diagnosis.

Acute Pleurisy.—In pleurisy as in abscess of the lungs there are apt to be irregular chills and fever, but the chills and fever of pleurisy occur in the beginning and are not followed after three or four days by rigors, and hectic indicative of suppuration. In pleurisy the discovery of friction sounds and fremitus in the beginning is important in differentiating it from abscess, but frequently these signs are not very different from the irregular râles which are heard in the latter disease. After the effusion of fluid in an acute pleurisy the dullness necessarily extends to the lower limit of the pleura and becomes more pronounced than in an abscess. There is also a change in the level of the fluid on changes in the patient's position, and absence of vocal fremitus when the patient speaks; signs which do not occur in abscess. Contrary to the usual teaching, the respiratory and vocal signs though feeble, are not entirely lost over the upper part of a pleuritic effusion, but they are usually less distinct than over an abscess. In acute pleurisy the fever commonly subsides from the third to the fifth day and after this time we do not have irregular chills and hectic fever such as indicate the formation of pus. In pleurisy the displacement of the heart to the opposite side is an important sign which does not occur in the abscess of the lung. In acute pleurisy we do not get the expectoration characteristic of the disease under consideration.

Chronic Pleurisy.—In this disease we are apt to find a very different history from that of pulmonary abscess. Empyema, when involving a large part of the pleural cavity may be easily distinguished from abscess of the lung by the well-known signs of a pleuritic effusion, but when circumscribed the signs are not characteristic. In a case coming to us several weeks after the inception of the disease a physical examination may reveal only a limited area of distinctly circumscribed dullness; the cavity may have opened into a bronchus and the patient may be raising large quantities of pus so that neither by the physical signs nor symptoms could we distinguish between the two affections with accuracy. In such cases a microscopic examination of the pus may reveal the true nature of the disease by discovering elastic pulmonary fiber in the case of abscess, but none in empyema.

Prognosis.—Pulmonary abscess may prove fatal within four or five days, but usually even fatal cases extend over two or three weeks or sometimes many months. When an abscess opens spontaneously it usually does so within three weeks. In unfavorable cases, especially of secondary abscesses, many of the patients die of exhaustion or as the result of infection of some other part, and others succumbed to repeated inflammation of the lung tissue about the pus cavity. Abscesses of the lung resulting from pyemia, gangrene, tuberculosis, embolism or the infectious diseases are necessarily very grave. Those that we have classed as primary are much more likely to recover.

Treatment.—The treatment of abscess of the lungs

when of secondary origin must be that appropriate for the primary disease with such tonics and stimulants as appear necessary and ample nourishment. The early treatment of primary pulmonary abscess is very similar to that of lobar pneumonia. In practically all cases the expectant form of treatment is the best in the beginning, but when an abscess can be distinctly located, especially if near the chest wall, the question of surgical interference must be considered. Remembering the natural tendency of this disease and the possible dangers of an operation, I believe that the greatest good to by far the greatest number of patients will be obtained by pursuing the expectant plan for at least three or four weeks. I know that some cases may be shortened by an earlier opening, but I am satisfied that some lives would be lost by this procedure which might be saved by waiting. After three or four weeks if the abscess does not open spontaneously and an accurate diagnosis can be made surgical measures should be adopted. The comparative safety with which surgical operations may be made under antiseptic precautions and the glamour surrounding extensive and showy operations strongly tempt the surgeon to cut down at once, resect one or more ribs and perforate the lung to allow the escape of pus. That this operation is proper and desirable, in certain cases we do not deny but that it should be held as a dernier ressort seems to me to have been demonstrated by common experience and by the records of a few cases in my own practice, brief histories of which I will presently give.

Aspiration alone is competent to effect a cure in many cases where necrosis of lung tissue is small, even though the collection of pus may be large. Aspiration combined with washing out of the cavity by disinfectant solutions would be effective in others, but where there is a considerable necrosis of lung tissue or where aspiration has been tried and failed, the more radical operation of cutting down and resecting a rib and then perforating the lung by the thermocautery should be adopted. When we have decided that an abscess of the lung is present, or when after a thorough examination by a competent diagnostitian we are led to believe that one exists, exploration to discover the pus should be made, in several places if necessary, with a fine clean needle at least three inches in length. Having in this way located the abscess, aspiration may be done by any of the common instruments and a comparatively large needle. It has always been my custom to disinfect the aspirator needle by dipping it into a solution of equal parts of carbolic acid and olive oil or oil of almonds, and it has seemed to me that this strong solution is especially beneficial in cauterizing the tract of the wound and thus preventing absorption of purulent matter. The pus cavity should be emptied by the aspirator and the operation repeated at the end of five or ten days if it refills, and again and again if necessary. The question of washing out the abscess will have to be determined by the indididual operator; but usually it is not best unless the pus is very offensive, when there is reason for believing that a considerable mass of gangrenous lung tissue is present within the abscess cavity.

When an abscess results from gangrene or from any other cause that leads us to believe free drainage necessary, and after aspiration has been tried and failed we should resect a rib in the ordinary method. If the pulmonary pleura is found adherent to the costal pleura we may at once open the lung with the thermo-cautery; if not, the two should be stitched together and fifteen or twenty-four hours allowed for adhesion to take place before the lung is opened, in order to prevent the escape of pus into the pleural sac. Preliminary aspirations as already recommended will usually excite adhesive inflammation if the latter has not already occurred in the natural course of the disease so that the stitching will be unnecessary. Having made a free opening and secured adhesion of the two pleural surfaces it only remains to open through the lung tissue and introduce a large sized drainage tube, or tubes, after which it is managed in the same manner as other large abscess cavities, the patient being supported by tonics and nutritious diet.

In illustration, I have to record briefly a few cases that have come under my own observation in private practice. Of the first case I have no notes, of the second a brief record, of the third case I have complete notes regarding the laryngeal condition, but only a very concise history of the pulmonary abscess though it occurred so recently that I have the features of the case clearly in my mind. Of the fourth case I have no notes, of the last three I have good records.

Case 1.—About ten years ago I was called to see a physician between 50 and 60 years of age, who had been hunting a few days previously and returned with the symptoms of acute pneumonia. Upon examination of the chest I found signs suggestive of pulmonary abscess, but a positive diagnosis was not made until a few days later when the abscess opened spontaneously and the pus was evacuated. In this case the cavity rapidly contracted and the man made a speedy recovery; the whole duration of the disease probably not occupying more than four weeks.

Case 2.—Mrs. D. F., aged about 40. This patient I first saw in July, 1894. She presented obscure symptoms pointing to inflammation in the region of the diaphragm involving the liver and later apparently involving the pleura and lung. She had suffered from the disease for many months when I first saw her, and was in a low condition when she came under my constant care a few weeks later. It was impossible to make a positive diagnosis, but about six weeks later I became satisfied there was an abscess in the lower outer corner of the right mammary region; this I aspirated and withdrew a few ounces of pus; subsequently it refilled, and eventually a small quantity of pus continually escaped from the wound made by the needle. She had been expectorating purulent material at times, and every few days had been evacuating several drams of pus from the bowels. Early in November, I resected portions of two ribs, and penetrating about half an inch of lung tissue came upon a pulmonary abscess which communicated through the diaphragm with an abscess cavity of the liver, and by an obscure opening with the bronchial tubes. Large drainage tubes were inserted and the wound treated in the most approved manner; but she failed more rapidly after the operation and died in about three weeks. What the result in this case would have been if the operation had been made sooner can never be known, but from the patient's history and symptoms I believe that had the abscess been opened earlier death would have been correspondingly early.

Case 3.—Mrs. W. G., aged 28, came under my care March 17, 1894, suffering from stenosis of the larynx. She had great difficulty in breathing and was much emaciated. The history and appearance of the larynx convinced me that the obstruction was due to the contraction of syphilitic cicatrices. The cords were adherent nearly to their posterior extremities and the caliber of the glottis was reduced 80 per cent. I opened the glottis with Whistler's cutting dilator and subsequently kept it dilated with O'Dwyer's large tubes until healing had occurred. The patient improved greatly in flesh and general condition, and was about to be discharged when I was sent for to visit her at her lodgings. I found her suffering with severe pain in the right side and dyspnea, with all the symptoms of a sharp attack of acute pleurisy. The room was cold and conditions were such that a careful examination of the chest could not be made without too much exposure, therefore I contented myself with a diagnosis of acute pleurisy and prescribed accordingly. The pain was relieved by

anodynes; but four days later the abscess ruptured and the patient expectorated large quantities of offensive pus with a little blood. The pus was also aspirated into the surrounding bronchi and greatly increased the dyspnea; secondary infection and inflammation speedily followed so that she rapidly failed and succumbed to the disease about thirty-six hours after the opening of the abscess. This case illustrates a syphilitic origin and a rapidly fatal course.

Case 4.—Mr. X., about 22 years of age, was seen by me in consultation some three years ago. I found him with what might be called typical signs of pulmonary abscess, because they were so much like, yet not typical of, pneumonia or pleurisy. There was dullness on percussion, and a feeble respiratory murmur with indeterminate râles over and about the abscess. I found a valvular lesion of the heart that explained the origin of the disease. The history showed that the inflammation had come on suddenly and that after a few days the pus had escaped, but the abscess cavity had subsequently closed to reopen again in about forty-eight hours. This opening and closing continued for some days, but the man eventually died. This case illustrates the origin, course and termination of embolic abscesses.

Case 5.—S. J., aged 36, came under my care Jan. 8, 1884. He stated that eight months previously he had an acute attack of inflammation in the left lung and that thirteen days later he had expectorated about a quart of offensive matter. With the attack he was confined to his bed about four months, since that time he had been expectorating pus at irregular intervals. He had formerly weighed 168, but had lost 44 pounds. At the time of my first examination the pulse was 110 and irregular, but the temperature normal; the appetite was poor and the digestion imperfect. He suffered very much from dyspnea upon exertion, had a spasmodic morning and evening cough and said that he expectorated about a pint of purulent offensive matter daily. About ten weeks previously on two occasions after a particularly hard coughing spell he had expectorated a few drops of blood. A careful physical examination revealed a little flatness in the left infra clavicular region. The left side measured sixteen and one-half inches, the right sixteen and three-fourths to seventeen and one-half just below the nipple. The heart was in its normal position. The respiratory sounds were feeble at the upper part of the left lung and lost below, but there was slight vocal fremitus. The right side was normal. I introduced an aspirator needle between the seventh and eighth ribs near the angle and drew off four ounces of very offensive pus; as the last of it came away he felt like coughing and the pus became bloody. That night he slept all night which was the first time since the beginning of his illness. Six days later it was noted that he had coughed about as much the preceding night as before the aspiration. Another aspiration was made, but at this time only about one ounce of pus escaped followed by blood. Fourteen days later the aspirator needle was again introduced but no pus was obtained. He was given tonics consisting of iron, quinin and strychnia and also the chlorid of calcium. One month after the first operation he had gained eleven pounds, and ten days later it was noted that he weighed twenty-five pounds more than at the first operation. He continued to improve rapidly in weight though he was still annoyed by a cough for several weeks. The dullness over the lung subsided slowly, and I did not consider him perfectly well until about four months after he first visited me. He is still living in good health and has had no recurrence of the pulmonary trouble or any indication of tuberculosis.

Case 6.—Mr. W. W. G., aged 19, came under my care first in Sept. 1888, complaining of cough and loss of strength. Four months previously he had suffered from an attack of what appeared to be pneumonia from which he had recovered except that the lung did not fully clear up. About four weeks before I saw him he began to feel ill again, having slight chills and fever which continued for about twenty days. He had been better for some ten days just before I saw him, and the fever had mostly disappeared, but the cough was very troublesome. Physical examination revealed circumscribed dullness over the lower part of the right lung. I aspirated and withdrew twelve ounces of pus which was not offensive in odor. Five days later I aspirated again and withdrew ten ounces of pus when it became necessary to desist because of cough and pain. About a week later I again aspirated and withdrew a smaller quantity of pus. Three weeks later the dullness over the lung continuing, I thought it would be necessary to introduce drainage tubes, but making explorations in several places no pus was discovered. The young man continued to improve and shortly after went to Colorado where he has remained since. About a year later, happening in Colorado Springs, I made a careful examination of his lungs and found them in perfect condition except a scar from the old disease. He still continues in perfect health. In this instance there was apparently abscess of the lung as a sequel to pneumonia. There was at first some question as to the diagonsis in this case, but the pus was so distinctly circumscribed and so deeply seated, and the respiratory murmur in other portions of the lung was so distinct that after aspirating I felt confident that it was an abscess though I did not make microscopic examination.

Case 7.—C. A., aged 16, came to me in July, 1895. His history showed that the previous April he had suffered from inflammation of the lung and that subsequently he had frequent chills and fevers, with cough and free expectoration of pus. The boy was pale and sallow, and had lost considerable flesh, but he had no fever at the time I first saw him, although his pulse was 132 per minute. Physical examination showed the heart in normal position and revealed considerable dullness at the lower part of the right lung, more pronounced over a limited area a little below the spine of the right scapula. A feeble respiratory murmur could be heard about this spot, vocal resonance was diminished and vocal fremitus absent over some parts of the lung in the vicinity, but the signs could not be satisfactorily accounted for by the hypothesis of either pneumonia or pleurisy. This case was first examined by my associate, Dr. John Edwin Rhodes, who pronounced it empyema. He introduced a hypodermic needle in the region indicated just below the angle of the right scapula, and withdrew a small quantity of pus, and sent the patient to me for operation. When the boy came to me I could easily see the point of puncture that had been made with the hypodermic needle. Having Dr. Rhodes' letter before me, without careful examination, I introduced the aspirator needle at the same point and withdrew about twelve ounces of pus. The boy was sent to his home, a few miles distant, and a few days later I saw him again in consultation with his former physician. At this time I explored the chest in two or three places about an inch from the former point of puncture, but was unable to find pus. I found also that the respiratory and vocal sounds were distinct over portions of the lung, above, below and laterally of the area of dullness. Finally, upon entering my needle at the site of the old puncture and passing it in about an inch and a half, I again found the abscess and withdrew ten or twelve ounces of bloody pus. At the first operation I supposed I had to deal with a circumscribed empyema, but after obtaining a more definite history of the boy's case from the physician who had him first in charge, and after my explorations and deep aspiration, I became convinced that it was an abscess of the lung following pneumonia. I left word with the doctor that in case the cavity refilled it should be again aspirated, but a recent letter from him informs me that the boy continues to improve and has gained twenty pounds in weight. The cough did not return and the abscess did not refill.

These last three cases all resulted from pneumonia, they were all deep seated and chronic in character. In each there were distinct signs of a collection of fluid and a preliminary diagnosis of empyema, but in every case the pus was so sharply circumscribed and deeply seated that I feel sure of the diagnosis, even though I did not use the microscope to detect elastic lung fiber. These last cases are of special interest in showing what may be accomplished by simple aspiration in chronic, deeply seated abscesses of simple inflammatory origin.

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DISCUSSION.

DR. MCARTHUR—In reviewing the literature of the subject I have been greatly surprised that men of such wide-spread experience and acuteness of observation as Trousseau or Chomel had in twenty-five years experience seen but two cases each of pulmonary abscess. It has been my fortune to see at least ten or a dozen, most of which have been operated upon. The large proportion of cases occurring subsequent to a pneumonia, is striking and worthy of emphasis. In these cases the consolidation instead of liquefying and being absorbed or expectorated, breaks down into pus, together with the pulmonary tissues involved. This frequently does so at the time when termination of the pneumonia should occur, but does not. A diagnosis of pulmonary abscess being made (and in addition to the physical and microscopic examination we might recall with advantage the fact that the pus being expectorated from a

pulmonary abscess if shaken up with water will separate, on standing, into three layers; the *upper* mucous, *middle* water, *lower* pus, as in purulent urine), I believe the general plan a good one to empty them surgically; though Dr. Ingals has had such good results by the conservative treatment in selected cases. Dr. Fenger has emphasized: 1, the point that if we desire to determine the presence or absence of adhesions, that this can best be done by inserting a hypodermic needle deeply, when if the surface of the lung be not adherent the needle will move with each respiration; 2, that thickened, diseased lung tissues bear surgical interferences very well, and do *not retract* as do the healthy lungs. In the absence of adhesions in the lower portion of the pleural cavity (three hepatic abscess cases) I have been able to protect the pleura against a septic pleurisy by simply packing off with iodoform gauze strips the small area necessary for perforation of the diaphragm, and since in this situation it was possible in one very putrid echinococcus cyst. I have no doubt the same means might be employed to advantage in pulmonary abscess without adhesions, thus obviating the extremely difficult though sometimes successful suture of parietal and pulmonary pleuræ.

Dr. Frank Billings—I agree fully with Drs. Ingals and McArthur, that the most common cause of abscess of the lung is croupous pneumonia. Of the cases I have seen, pneumonia preceded the abscess in all but three. In one case, an ordinary copper cent lodged in the right bronchus and caused abscess of the lung near the foreign body. A postmortem revealed the abscess and the cause. In two cases, stricture of the esophagus was the cause; in both carcinoma of the esophagus near the cardia, with consequent dilatation and perforation of the esophagus above the stricture, allowed infection of the tissues and abscess of the lung. Postmortem examination was made in these cases also. In one cases of chronic abscess of the right lung which was successfully operated upon at Mercy Hospital there was a history of pneumonia, which occurred two years before. Cough continued after the pneumonia, with the expectoration of decomposing pus. The abscess cavity was reached by resection of a piece of rib just below the scapula, and after a needle exploration, by cutting through the lung and pleural adhesions, the operation was made simple. Thorough drainage resulted in a cure. This case returned to the hospital a month ago, more than a year after the operation, suffering with cerebral syphilis. A full history of syphilitic infection several years before the occurrence of the pneumonia was obtained. It is therefore possible that syphilis had some causative relation to the abscess of the lung in this case. In my experience, abscess of the lung following pneumonia, occurs most often in the lower lobes, contrary to what the books state. In abscess following pneumonia the crisis may occur and the temperature fall to normal. If the temperature falls it will rise again in what seems a prolonged convalescence. Hectic usually occurs. The physical signs of consolidation of a part of the lung remain with, however, as a rule, diminished respiratory sounds. I think it is not possible to make a positive diagnosis until the presence of pus is shown by aspiration or by spontaneous rupture of the abscess into a bronchus or other outlet. The differentiation of circumscribed or encysted empyema from abscess of lung would be difficult without the discovery of lung tissue in the pus aspirated or discharged. From an empyema involving the whole pleural cavity, the usual signs of fluid in a pleural cavity and especially the displacement, by pressure, of neighboring organs would make a diagnosis easy. The diagnosis, therefore, in abscess of lung must depend, I think, upon the visible presence of pus, usually containing formed elements from the lung. The clinical history and physical signs furnish rational or presumptive evidence only. The treatment resolves itself into palliative, expectant medical treatment and curative surgical measures. If in an acute case, the patient is anemic and emaciated as a result of pneumonia or other causative disease, operative interference should be postponed until the patient may be strengthened by restorative iron and other tonics, good food, etc. One may cause a cavity to drain by placing the patient in a position to allow the pus to run into a communicating bronchus. I have had patients hung, head downward, over the bed for a few minutes at a time, a few times a day, or in certain cases a recumbent posture, on one side, or the back or face, for a time. A cavity may be so drained that recovery will take place without surgical interference. In acute cases, when drainage by posture can not be obtained, and in all chronic abscesses, chronic because drainage has not been good, surgical interference is indicated.

Dr. Shurly—It is often exceedingly difficult to make out abscesses of the lung when deeply seated. This seems to be one of the things over which we fail. A great many of these cases presenting obscure physical signs are abscess of the lung following pleuro-pneumonia. Some of them, however, present so little constitutional disturbance that we are apt to let nature alone. Others present such constitutional symptoms that our attention and aid are required at once. I have had three cases in which inflammation of the brain came on after the development of abscess in the lung and chest. I might have saved these patients perhaps if I had operated early. Even in cases of ordinary empyema it is not uncommon, whether they have been operated upon or not, for an attack of meningitis to follow, the exact cause of which we are unable to determine even under our modern doctrines. I think many cases where only the pleura seems to be involved are really cases of abscess of the lung thus presenting the most complex features to us, and requiring the most careful treatment. If the contents of the cavity be so imprisoned by fibrous walls that there be little absorption we may have little or no temperature or other constitutional disturbance; but if these barriers break away a sudden infection of surrounding pulmonary tissues takes place and we have septicemia, which may end life in a few days. Some of the most virulent cases of septicemia follow upon abscess of the lung. Sometimes making an openieg will not avert it; for in the cases I opened, the abscess of the lung all died of septicemia. It was probably because I opened two inches of lung to reach the abscess. I am not surprised at the result, for I thus exposed a field of capillaries and lymph spaces such as does not exist anywhere else in the body outside of the generative organs. It is a wonder that one does not observe septicemia in every case. I have thus been warned from sad experience to refrain from cutting into lung abscesses which are deep seated, unless I can see some sign of invasion of some other part of the body, and if the cases seem to be improving ever so little I content myself with waiting. I have two cases on hand now which are recovering slowly of abscess of the lung, in which I did not feel warranted in attempting any operation. We should be extremely cautious if we can not positively distinguish the location of the abscess. A few years ago I had a case of abscess of the lung, following croupous pneumonia, sent to me for operation. The man was in a very low condition, his temperature fluctuating between 105 and 97 degrees. I thought the operation must be done at once and advised the man accordingly, but a brother telegraphed requesting that nothing should be done until his arrival. As he persistently refused to have it done we were forced to wait and when the brother came the man was somewhat better. Later in consultation with his physicians we concluded that we would be justified in continued waiting, and the result was that the man finally recoved without an operation. If I had operated he might have died.

Dr. Samson—I have had the opportunity within the last twenty-four hours of seeing one of the most interesting cases of abscess of the lung in existence at the present time. The

patient six years ago swallowed a boring of maple. He began to suffer in health and was sent to Denver and other health resorts. Specialists tried to reach the abscess by passing a trocar in some distance below the scapula. They did not find any pus. Just now the case is a typical one of abscess of the lung, coughing up fully a pint of pus every day. Very much can be done in a surgical way for the relief of this trouble, and I believe we should operate in all cases where we are able to make a correct diagnosis.

DR. FLINTERMAN—I would like to inquire of author if where there was a pulmonary abscess was there not sometimes a pleuritic effusion in the pleural cavity?

DR. INGALS—I have not seen the condition referred to by the last speaker. I was much interested in the statement made by Dr. Shurly, that inflammation of the brain was a common occurrence with abscess of the lung. Dr. Shurly's experience seems to correspond with my impression, viz., that as a rule the earlier we operate the sooner the funeral. The early evacuation of a pulmonary abscess does not seem to me as safe as tentative treatment, at least for a few weeks.

PURE WATER.

Read in the Section on State Medicine, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

BY FRANK W. EPLEY, M.D.
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In the beginning God created the Heavens and the Earth, and he filled the Earth with pure water and surrounded it with pure air.

Then he made man and put him on the earth. And for a time he also was pure. Then he began to be restless and to invent. He has sought out many inventions.

The Allwise Creator provided means whereby all filth should be purified and resolved into its ultimate elements. Man has sought out many cunning devices for defeating God's plan of purification. The most potent purifying agents are heat, light and air. The most potent factors in the development of poisonous germs and gases are warmth, moisture and darkness. The offal of all living things except man is deposited upon the *surface* of the earth. The bird deposits his while flying through the air; the ox and horse upon the dry grass, or in the dry dust. The dog is wont to place his upon the top of a stump or stone, and all are left in the best possible condition for the action of nature's disintegrating elements heat, light, air, etc. Man alone, whom God made upright and in the image of Himself, has invented a *hole*. Two holes in the earth; nearly always close together, at least relatively, so that both shall be convenient. One he makes comparatively shallow but deep enough to accommodate himself and family for many years. In this he deposits his offal both liquid and solid and says, "Soul take thine ease," in this hole thou shalt lay up much goods for many years, "eat, drink and be merry," and if thou hast any other unclean thing which offends thy sight or smell, cast that also into this *hole* and it shall sink away into the earth out of our sight. Even so the rain falls upon the surface of the earth and sinks away out of sight, finding its way into the other hole which man has invented, and from this he supplies his family with pure (?) water.

If he, this Lord of creation, lives in a modern city which is embellished with all the improvements of our advanced civilization (?) he has a much handier method. He has a bottomless bowl, or one having one side wanting and with a small quantity of water in the bottom into which his offal is deposited and which is washed away by a dash of water; *most* of it, out of his sight and into a tube which leads down into a subterranean passage, this passage communicating with a like tube from his neighbor's bath room and receiving the contents of tubes leading to thousands of other bath rooms until the filth of the whole city is coursing through it and is finally deposited into a pond of pure (?) water just without the city; or what is more likely, within the city.

I said *most* of the offal was washed off the smooth polished surface of the bowl in his bath room; some small quantity, however, frequently requires a vigorous rub to be displaced. When it reaches the inner surface of the tube below, it does not get this vigorous rub and remains stuck to the sides until the whole tube is, many times, full. From this a gas is found to arise finding its way in six out of ten cases directly into the living apartments, and when it has any odor, is very frequently termed the "smell of aristocracy." But pardon this digression, we were to speak of pure (?) water. However, we were very close to it when we left the end of the tube leading down from the bath rooms into the pond. We have now only to go a short distance further out into this pond to obtain an abundance of pure (?) water. Then we lay another tube along side of the first one, which leads up to the kitchen faucet. Will any one attempt to give us the chemic formula for the water obtained from this faucet? It is H_2 offal+ contemplation. Can we reasonably expect to obtain pure water to drink from our abundant natural resources when we resort to such civilized (?), shall we say such outrageous, systematic methods of wholesale pollution. Can we while we do this lay any reasonable claims to rationality? I say "no."

Gentlemen of the AMERICAN MEDICAL ASSOCIATION: We are the logical keepers of the public health. We all know these two systems of disposal of filth are abominable. Shall we sit quietly down, fold our white clean hands, and say, this is too dirty a subject to handle? They are wrong, but they are old established customs and it is too great a task to undertake such a revolution. For shame! There is no task too great for Saxons to undertake.

There is no wrong, however grievous, too great for Americans to try at least to rectify.

The *death knell* of our American vault and sewage systems should be sounded, and it is incumbent upon *this* ASSOCIATION to hurl the fatal shaft.

DISCUSSION.

DR. HIBBERD—I desire only to call attention to the inference that I think might be drawn from the verbiage of the paper—that man made all that is bad on the earth in spite of the Beneficent Providence, which created it pure and good in the early arrangement of the universe. All I want to say is, so far as my knowledge concerns, everything of the kind takes place in the world as precisely according to the laws of the Creator, as though they were made in the beginning; therefore, man did not invent them, and if they are not salutary in their effect, it is simply because there is a lack of observation of what is good, as the Creator intended. I think God is good, and that He has made the world good. I think the laws by which we grow, and progress are all good, and if we fail in recognizing what we should do to maintain the operation of these laws in a sanitary direction it is a failure, but not on the part of the Creator. All I want to do is to raise the idea that God is Supreme and has made everything good primarily; and that if we do not obey

His laws and receive the benefits which He intended us to derive, then we are at fault and should not throw the blame on Him.

Dr. McIntyre—Of course we can not all see the value of the paper and appreciate the ideas brought forth therein regarding pure water; and while there may be mistakes contained in it I will simply speak on the line suggested by the author, rather than suggest any corrections. It seems hard to suggest anything that will take the place of our present sewage system, or exactly meet the requirements; but will the correction of the evil be found in purification? I think that is being done. I think the demands of modern civilization require two things: First, thorough purification of sewage before it contaminates the streams and lakes, and secondly, thorough purification of the water itself before it is pumped into the mains to be distributed into the city. The manner in which this is done at Lawrence, Mass., has demonstrated that as the solution of the difficulty. The experiments tried in the last cholera epidemic at Hamburg show the difference between filtered and unfiltered water. These experiments all show that this can be done and at the same time that the sewage of the city can be cared for in the convenient manner in which it is generally disposed of. And then, by proper ventilation, there is no odor in the house, and the water in the house is kept clean.

Dr. Jerome Cochran, Montgomery, Ala.—Having something to do with practical sanitation, I am naturally interested in it. Filth, doubtless, is a very undesirable thing to have about a place, and it is especially undesirable to have it in the water supply; but I would like to emphasize that there is a great deal of filth that is offensive to the senses that is not detrimental to health. I would insist that that filth which is detrimental is a sort that is not offensive to the sight or taste. The things which produce diseases in water supplies are bacteria. We have disclosed the filth so far without reference to its organism. The fecal matter in itself, when it is not filled with the bacilli of typhoid fever, is perfectly innocuous to health. I think the remedy is to purify the sewage before it enters the waters, and purify the water after it is taken away from the lakes; fortunately for us nature has shown us how to purify water. The great method of purification is by filtration. That is the way nature purifies water, but there are practical difficulties in the way of getting rid of those pyogenic organisms that do not seem to have attracted the attention of sanitarians. The city of Lawrence, Mass., has made a study of the filtration of water, but you find that all the bacteria are not eliminated in that way nor all the organic matter. It is this matter going to any water—these pyogenic bacteria already taken out of it that will soon multiply again. You can not thoroughly purify by filtration. It is in a very much better condition than before so that if you want to get water that is practically free from bacteria there is only one way, and that is to re-filter it.

Dr. Epley—I only hinted at the subject to call attention to the disposition of filth and the obtaining of what is termed "pure water."

We have all of us recognized the difficulty in the disposition of human offal. As I said, man has invented a hole, and for that reason I have for many years been endeavoring to create a disposition among people where they have no sewerage to dispose of offal in a dry condition. But they say "I have dug a vault, and it will last me a great many years. I shall never have any more trouble." I have for years advocated the keeping the human offal dry and letting the water fall off on the top of the ground. It is very easy to do that when a system of closets are used. I have seen them used for eighteen years without any trouble at all. I have encouraged their use in the community where I live, where they had no sewerage. In fact I have encouraged it where they have sewerage. The sewerage system has many faults, and it must sometime be corrected. We have no right as intelligent beings to deposit our offal in all conditions, whether benign in its character or filled with diseased germs, into running water, our pure sources of running water that we must have for our sustenance. So far as the purification of water before it reaches our streams is concerned, I am not conversant with any system which promises anything substantial or reliable in this line that can purify water that is one-third or one-fourth or 10 per cent., or 5 per cent. fecal matter, while it is still in the sewer and before it reaches the water course. It seems to me to be an impracticable plan. I do not understand how it can be done.

Dr. McIntyre—It is done by filtration at sewage farms, by the use of the lime and iron process.

Dr. Epley—It is purified, but at what expense? The disposition of it as a fertilizer is right, and should be used, but at the same time it is truly impracticable to attempt to dispose of offal in the current of water and have so much more to destroy; it is much harder to destroy a quantity of water that is one-half or a very large percentage solid matter, than it is to have the solid matter and the water separate. But this process would not exclude sewer gas; and if I understand the gentleman who spoke of sewer gas correctly, he said proper ventilation would prevent it from entering the house. I was investigating this matter in Milwaukee a few days ago, and I asked an inspector, who was testing for sewer gas (and his test responded beautifully, in a large percentage of houses in Milwaukee, a well ventilated and well sewered city) what percentage of houses would respond to that test, and he said nine out of ten. The gas was entirely without smell, but it was deletrious in its effect upon the inmates of the household.

The method of filtration is satisfactory, if it is executed as it should be; but what I state is that to keep the solid matter separate from the liquid matter is much easier and can be done with much less expense than purifying the whole mass after it has become thoroughly mixed.

Dr. Kober—I would like to ask how he considers it feasible in a large city. The plan he speaks of is very applicable to small communities and is, perhaps, the best method of disposition; but the dry earth system is scarcely applicable to a town of over twenty-five thousand inhabitants. Indeed, it has been considered quite expensive in every way, and if he has any data on the subject I would be glad to hear it read.

Dr. Epley—I have not a thoroughly matured plan, indeed, I do not profess to be an inventor or civil engineer; but I believe that it is an evil to which our inventors and civil engineers should turn their attention, and I have no doubt but that a system can be provided whereby this solid matter can be kept from the lake by a system of dry closets, or keeping the offal dry in some way.

Dr. McIntyre—I think, in parts of Birmingham and Glasgow there is no sewage system. There are places where the pail system prevails. My impression is that the cost per capita of removing the pails in this way is larger than the system of purification. It is in small towns where it has been used on a small scale.

Dr. Epley—You have not disposed of the sewer gas.

Dr. McIntyre—I refer you to the report of the committee appointed by the London Commissioners of General Works on the air of sewers, where it is shown that the air of the sewer is better than the outside air.

New Jersey County Hospital Law Amendment.—The law passed in New Jersey in 1886, entitled "An act to enable counties which have no free county hospital to assist in maintaining hospitals located in such county," was amended in May, 1896, making it lawful for the board of chosen freeholders of any such county to make an appropriation therefor of a sum not exceeding $8,000 a year, instead of $1,000 as heretofore, and providing that the act shall not apply to counties of the first class.

EVIL RESULTS OF OVERSTUDY IN THE YOUNG.

Read in the Section on State Medicine, at the Forty-seventh Annual Meeting of the American Medical Association at Atlanta, Ga., May 5-8, 1896.

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In the early days of our Republic, it was the unwritten law that the youth must work first, and study afterward.

The children of the wealthy could be sent to school or college, but for the average American book learning formed a small part of life.

The picture of Abraham Lincoln lying on his stomach, in front of the open fire, with a piece of charcoal ciphering on a broad wooden shovel, represents the man who afterward became President of the United States. This is not an extraordinary picture in early American life. Garfield, as well as hundreds of other prominent men, won his education by a struggle. And up to the present moment, there are countless young men throughout our country who are earning their way through college, just as there are many other young men who are squandering their way through. These two classes suffer from the evil effects of overstudy; the former being obliged to work with the mind when the body is weary, the latter recklessly wasting time in pleasure and dissipation, struggle in the process of cramming to make up for lost time in order that they may retain their class membership.

The American public school has been the pride and glory of American institutions, not because the standard of learning is any higher, but because it represents liberty, equality, fraternity. In this nation of ours, the humblest can, if he will, acquire a good education. We are inclined as a nation to have a rather exalted opinion of ourselves in everyway. Our waterfalls are the biggest, and everything else is in noticeable proportion. The recent rumors of war illustrate the fact that we are becoming rather reckless. The victory of the American athletes in the recent Olympian games, is likely to create a popular idea that our students are the strongest in the world, and that our educational system is therefore all right.

A recent paper by T. S. Waters, D.D.S., in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, concerning "The Public School, and its Defects in Relation to Health," is particularly instructive in this connection. The writer being a dentist emphasizes the fact that inferior teeth demonstrate the existence of abnormal constitutional conditions. He says: "School crowding and cramming impairs the health and lessens the appetite, which causes imperfect nutrition, bad assimilation of food and of ideas. This therefore lessens appropriations of good amounts of food which should consist of a proper amount of phosphates, with lime salts for the growing child, the very want of which retards and impairs the development of the second growth of teeth, of hair, nails and bones." This is the sum and substance of the matter in a nutshell. The overtaxed student immediately suffers from physical as well as mental harm. We often hear it said that some young cripple possesses an extraordinary amount of brain to compensate for the weakness of body. I believe that physiologists are quite agreed that during our sleeping hours there is less blood in the brain than during our waking moments. It is unreasonable to suppose that because a man's circulatory fluid is diminished in quantity, he will be able to compete mentally with a man whose mental and physical vigor is as near normal as possible. But it is reasonable to suppose that the student who is mentally and physically overworked, and who does not receive suitable nourishment, who is deprived of needed rest and sleep, and whose circulatory fluid is below par, is not in a fit condition for physical or mental work. He is unable to stand the pressure. Unusual mental activity is apt to result in speedy bodily derangement amounting to more or less serious illness. The illness may be so profound that the nervous system is permanently disabled, and this injury may range all the way from simple nervousness to hopeless insanity.

I will quote from a paper which I have published in the March number of the *Dietetic and Hygienic Gazette:* "The nervous strain laid upon our young students is inexcusably wrong. Generally speaking they are too young to understand the full meaning of the condition which this youthful rush, miscalled energy, inflicts upon them. Later on in adult life, if they survive the terrible strain, they recognize the injury they have sustained when it is practically too late to undo the harm which has resulted. The strain of study and the effort to acquire a high standing in the class is encouraged by the teachers and directors. The tension of modern schooling must necessarily create nervous disorders, of which heart disease is one of the most easily recognized manifestations. The trouble is present in the rudimentary errors of modern life, which we can see all about us, and which to the onlooker appear very much like morbid restlessness. The loads we place upon the shoulders of our children should shame us. We would never place physical loads in proportion to the mental burdens we force them to assume, because if we did public justice would cry out against us. The physical burdens are not so injurious or far reaching in harmful influence as the mental strain. Our children go to school and labor mentally to please us, as well as to gratify their own ambition. We stand by and witness this outrage on our own flesh and blood without making any active effort to save them."

It is not intended that these remarks shall apply to our young men only; unfortunately the outlook for our young women in this respect is even more serious.

Dr. Waters, and other writers, have called attention to the nervous injuries which overstudy inflicts upon our girls. "Neurasthenia saps the nervous energy that should be devoted toward fitting her for motherhood within the next few years, when her greatest development in mind and body should be perfected. Hysteria is the most prolific source of domestic infelicity."

The new woman craze endeavors to teach the daughters of Eve that they can study as well as men, and can accomplish as much if they endeavor to do so. There is a partial confession that, although physically inferior in strength and not suited for war, agriculture, or mining, in every other respect they are man's equal, and it is essential that the girl of thirteen should go to school with the boy of the same age and continue her studies by his side. The fact that she is about to ripen into young womanhood, that every twenty-eight days she should menstruate regularly, seems to suggest no mitigation of the amount of toil which is placed upon her. She bravely attends to

household duties at home, hurries off to school whether head or back aches or whether she should be in bed, and tries to keep up in the unequal contest with the boys. That she appears to win and graduates with higher honors, gives us little idea of what the struggle has cost her, and of what the sum and substance of the struggles of all these girls will cost our nation later on. These little misses ought to be at home learning from their mothers, if their mothers know enough to teach them, lessons in domesticity. The noble women who had so much to do in shaping the fortunes of this Republic in its early days would be disappointed in their descendants, in spite of the incongruous cap and gown, of this fin-de-siecle age.

This interesting, artificial young creature so unlike the women of a century ago, abnormal in her bodily functions and very much given to neurasthenia and hysteria, intends to marry some day; but many of them do not intend to have children if they can prevent it, and if they survive the birth of one child, it is doubtful if they could properly nourish it. When a little school girl, clothing was given her irrationally made; it mattered not if it pressed on the breasts and retarded their growth, or if its pressure on the pelvic organs pushed them out of their natural position until pelvic disease was almost a certainty. The object of her existence seemed to be that she hold her own with the boys of her age; that would be her glory! The fact that such artificial women are likely to know something of divorce laws later on makes no difference, she must be educated no matter what happens. The result of all this is most excellently shown in an editorial in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION of April 25. "The Despised Office of Motherhood.".

The fault therefore in American student life is to be charged to the educators and to the parents of children, rather than to the youths themselves. In an article published in the December number of the *Dietetic and Hygienic Gazette:* "Most parents think that the studies of their sons and daughters at high school are altogether too numerous and too severe. We are apt to suppose that it is the particular high school to which our young people go that is at fault; but a little inquiry shows that our neighboring academies are just as bad, or even worse, in this respect. Who are to blame for this? Certainly not the parents? The teachers disclaim the responsibility, and many of them even regret it. Therefore in our municipality at least, we are forced to conclude that it must be either the supervisors or else that august body of irresponsible, tyrannical solons called the *school committee.* We desire no worse punishment for such supervisors and committees than that they should be obliged to swallow the mental food which they have prescribed for the young people. This would give them a mental dyspepsia for the remainder of their days that would surely keep them from doing any more harm of this kind."

Dr. Dujardin-Beaumetz has also called attention to these evil effects of overstudy. He says: "These students are badly developed, pale blooded, exhibiting an excitability of the nervous system which results from mental overwork depriving them of sleep." Insufficient sleep is one of the most noticeable evils of modern civilization; the nervous system, as well as the brain, suffers severely from this want of sleep. Both mind and body are seriously and oftentimes permanently injured. Mental exhaustion, irritability, and brain fag are the result, the sleeplessness causing neurasthenia. So many of our students are ignorant concerning the requirements of health, or if not ignorant, are forced to continue their studies far into the night, reserving only four or five hours for sleep when they should have eight or nine. These hours of repose should be passed in rooms where the best sanitary conditions obtain, and this is what almost never happens. One of the most frequent causes of heart disease, is the want of proper rest. There are many influences provocative of heart disease in the young, which we can readily understand if we give the matter attention.

With the bars of our ancient puritanic austerity thrown down, in an age of the sharpest competition, and when great things are expected in every department of life, it is no wonder that the sands are strewn with many a noble wreck. In the rush of student life, the meals are eaten with too much haste, the quality is apt to be inferior, mastication improperly performed, and indigestion the invariable result. These diseases of the nervous system, of the heart and the digestive apparatus, are the exciting cause of melancholia. Our daily papers chronicle from time to time the extraordinary suicides of our youths. This fact alone should call for a radical reform in our educational system.

A very grave responsibility rests upon the managers of our institutions of learning. They desire to satisfy the public as to their faithfulness; the public demands that these educators shall exhibit a good showing for the large sums of money invested; and all this great burden rests at last upon the shoulders of our children. The manly vigor of the Republic is robbed of its strength for the sake of creating an artificial condition which does not contain the elements of future national prosperity.

THE PREVENTION OF INFECTIOUS DISEASES.

Read in the Section on State Medicine, at the Forty-seventh Annual Meeting of the American Medical Association held at Atlanta, Ga., May 5-8, 1896.

BY J. M. G. CARTER, M.D., Sc.D., PH.D.

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WAUKEGAN, ILL.

Perhaps no branch of medicine occupies so much of the thought of the medical profession to-day as infectious diseases. The manner of dealing with these has undergone great changes during the last few years.

The treatment is more satisfactory, and the prophylactic and preventive phases of treatment are most prominent. Since Jenner discovered the importance of vaccination as a preventive measure against smallpox the belief has prevailed in many minds, and hope in all, that some means might be discovered to reduce the terrors if not prevent the prevalence of all the diseases commonly known as infectious. Under improved hygienic precautions and more scientific methods of treatment this hope is beginning to be realized. Typhoid and malarial fevers are almost conquered, the specters of tuberculosis and diphtheria are beginning to pale and show evidences of vanishing, the terrible cases of scarlet fever are not so frequent, measles *et al.* are not so frightful.

The object of this paper is to offer some sugges-

tions upon certain points in this field of medicine, but a full discussion can not be undertaken in the brief time allowed to this subject.

The most successful methods in bringing about these results in the past are the means which should be pushed under wise supervision in the future until they assist us in conquering all these diseases or discover better methods which will help us to attain this end. The principles upon which these methods as practiced at present are based may be given as: 1. Systematic cleanliness. 2. Prevention of individual contact. 3. Fortifying the system against an invasion of the disease.

1. Systematic cleanliness is of the utmost importance and includes the whole field of asepsis and antisepsis, a subject which can nat be discussed in this paper.

2. The prevention of individual contact with persons who have an infectious disease, or who have been exposed to one, has been attempted ever since the infectious and contagious nature of certain affections was discovered. These attempts have been conducted in various ways, however, and frequently with very meager knowledge of what is required to make them efficacious.

Without stopping to explain the terms infectious and contagion I will observe that the only difference between them is one of degree, not of kind; that all bacterial diseases are conveyed from one person to another chiefly through the medium of the atmosphere, or water and other liquids; that those cases occurring from the immediate application of the poison, as in instances where particles of diphtheritic membrane have been coughed into the mouth or eyes of attendants, or scarlet fever has been carried by fomites, are not exceptions to this statement. The virulency of the poison depends upon its degree of attenuation. A few of the bacteria which produce a given disease may not infect a person while an invasion by a large number may be irresistible. The atmosphere and water (liquids) while serving as media for the conveyance of these disease germs, at the same time cause an attenuation of the poison by dilution. There is a difference in resisting force to this dilution manifested by different bacteria which helps some to remain concentrated while others are rapidly separated. This enables us to explain the well-known fact that whooping-cough, diphtheria, measles, etc., are conveyed only by an immediate or almost an immediate contact usually; as soon as the germs reach the atmosphere they are in most instances widely and rapidly diffused, concentration is quickly overcome, and their virulence soon destroyed. The bacteria of scarlet fever and typhoid are more resistant to diffusion, perhaps their poison is more malignant or possibly they are more tenacious of life; hence these bacteria may be conveyed through air or water (liquids) to a greater distance. Still other diseases, like influenza and cholera, are caused by bacilli which are not so much affected by separation in the atmosphere, in fact frequently seem to have greater opportunities for growth by such diffusion under certain favorable conditions of moisture and temperature. In all these cases, however, sufficient attenuation of the poison by atmospheric dilution will destroy the virulency of the bacteria and put an end to the spread of the disease. This principle is the basis of judicious efforts at isolation, segregation and quarantine; but it will also convince us that these means alone may prove futile in many instances.

It is well known that bacteria inhabit the soil in large numbers, non-pathogenic in the superficial and pathogenic in the lower layers. More air is found in the superficial than in the lower layers; so that the principle of atmospheric attenuation seems to apply here also. Water which filters through the soil and enters a well may poison the water with pathogenic bacteria. In like manner ground water which enters a cellar may fill the space with the germs of some infectious disease. It is to the latter point that I desire to direct especial attention. In order to avoid some of the dangers and prevent the occurrence of infectious diseases in houses otherwise in good hygienic condition it is necessary to have good ventilation of the cellar or basement. Where this precaution is not taken even in homes otherwise above reproach, frequently ravaging outbreaks of measles, scarlatina, diphtheria and the like are held to be mysterious dealings of an inscrutable Providence, when it is but the misdoings or shortcomings of unwise men, and one of the least mysterious matters in preventive medicine. If such disastrous results may be experienced in houses of the well-to-do and of the rich, what shall we say of those farm, village and city houses of the poor where, to keep out the cold, the entire foundation is banked with dirt or manure, thus preventing any access of fresh air under the floor during a long winter? The effect of such exclusion of the air is to make a favorable culture medium for the bacteria of diphtheria and scarlatina, and it is the experience of many practitioners that their most frightful cases are met under such circumstances. Architects and officials should direct especial attention to this matter and prevent the erection of buildings which can not be easily and thoroughly ventilated from cellar to garret.

3. Fortifying the system against the invasion of these diseases is a legitimate undertaking and although some of the methods which have been adopted may be of doubtful efficacy, every earnest effort in this line should be encouraged. Vaccination and inoculation have been resorted to with such satisfactory results that in smallpox and hydrophobia they may be said to have passed beyond the stage of discussion. Serum therapy has promised brilliant results and the most hopeful have great confidence in this new form of attempting to strengthen the cells of the body to enable them to destroy, or at least resist, the evil influences of pathogenic bacteria.

The condition of immunity which is said to be established by these antitoxins is subject to variations in the time limit, and in some instances the influence seems to be negative. A friend and neighboring practitioner who had immunized many cases told me lately that of the cases in which he had given the injections of Behring's serum for immunizing purposes some of the patients had suffered from diphtheria in three or four days after exposure to the disease and the administration of the immunizing agent. The time limit of immunity varies after vaccination also, but the virus has a more prolonged effect than the serum upon the human system. It must be remembered, however, that the serum treatment is scarcely fully understood yet, while the value of vaccination has been firmly established. We may ardently hope that this new method may lead to discoveries of means which will enable us to rescue humanity from the blight of infectious diseases. While we are waiting for the realization of this hope

many will still prescribe belladonna to prevent scarlet fever and iron to ward off diphtheria; but I wish to emphasize what I consider a more rational process, particularly with diphtheria, typhoid fever and other exhausting diseases. It is known as a physiologic fact that certain fluids of the body, as blood, serum and the gastric juice, when in a normal condition are germicides. They kill bacteria. For our present purpose it does not matter how they accomplish this result. Such being the case, whatever helps to keep these fluids in a healthy condition will serve to fortify the system against the bacterial or infectious diseases. In view of the fact that the human body has the power within itself to battle with these enemies it may be suggested that most if not all cases of infectious diseases are results of neglect of some hygienic law or of the transgression of some other. The individual should not reduce his vitality or derange his digestion by eating too much or too little, or by submitting to fear or excitement, or any other condition which will diminish the normal resisting power. He should not permit work, pleasure nor social relations to interfere with his physical well being. He should be well clothed as well as properly fed and comfortably housed. This opens up a question which is too broad for just consideration in this paper, a social and political question. It is our duty, however, to call sufficient attention to this phase of our subject to make it a matter of thought. It is a cardinal fact that infectious diseases are prone to prey upon if not to originate among the poorer classes of society. To avoid this occurrence, to prevent these diseases from arising thus, requires that the poor should be well housed, well clothed, well fed, well bathed and properly exercised. How is this to be done? I do not discuss the method, I only desire to suggest whose duty it is to remove the condition. The poor can not do it. No man so thoroughly realizes as the physician that he is to a degree his brother's keeper. If a man has no right to do anything which may bring disaster to his neighbor, he has no right to go dirty, to live slovenly, to breed disease. If children are unable to accomplish results, to perform duties, which the rights of men lay upon them, the father's duty to aid them is paramount. We, and the poor with us, are but children of the State. The question then remains with us, how shall we as physicians, humanitarians, socialists, politicians, statesmen, provide the unfortunate with proper food, proper clothing, comfortable houses, opportunities for bathing and sufficient work to help them keep the grim monster from threatening our doors by invading the homes of the poor in the form of an infectious disease? Until something can be done in this direction, infectious diseases will still dwell in our land, although improved prophylactic or preventive agents may reduce their mortality.

Believing that the plan of supporting the ultimate tissues of the body by general hygienic procedures and proper feeding is the best means given to us for preventing the group of infectious diseases, it may be admitted that some good may be accomplished by the administration of certain drugs. If belladonna is of any value as a preventive of scarlet fever, it must be so because it has some modifying effect upon the cells of the body, not because it produces a rash. So far as I am aware no experiments have determined this point. Still I use this remedy for the purpose here suggested and in many instances have thought it seemed to have some virtues as a preventive. The use of iron to prevent diphtheria is in direct accord with the ideas advanced in this paper, and without doubt serves an excellent purpose. Hydralactin, protonuclein and other proprietary preparations like the antitoxins have not enough reliable evidence in their favor to make their use as preventives general, but we are encouraged to hope that further reports and improved methods of production and administration will justify the high expectations which have been excited by the introduction of these agents, especially the antitoxins. A remarkable claim has lately been made for a specific action for jaborandi or its alkaloid, pilocarpin, upon the white blood cells. It is said to increase their phagocytic power or function. If this should be confirmed pilocarpin will be of great value in the treatment, as well as in the prevention, of all bacterial diseases. In two cases of tuberculosis in the earlier stages I have observed a favorable modification of the symptoms when administering this remedy and in several cases of chronic bronchitis the improvement has been marked. I shall conclude this paper with the following résumé:

1. Systematic cleanliness should be practiced, (a) by thorough disinfection of the patient, the sick room, all instruments, vessels, and other apparatus or clothing in use; (b) by allowing no unclean or infected fabric or vessel to be taken from the room until rendered aseptic.

2. Prevent individual contact (a) by isolation, segregation or quarantine; (b) by prohibiting communication between the infected and uninfected except under strict surveillance of the physician or in accordance with his explicit directions.

3. Provide thorough and systematic ventilation of cellars and basements as well as all other rooms in houses used for dwellings, and give free access of air under floors of houses which have no cellars or basements, and supply complete drainage.

4. Fortify the system against pathogenic bacteria (a) by abundant and suitable nourishment; (b) by insisting upon the observance of the laws of hygiene relating to clothing, eating, exercise and bathing; (c) by the administration of certain drugs, among which belladonna, iron and pilocarpine are prominent; (d) by the conservative use of vaccination, inoculation, the serums or antitoxins and perhaps protonuclein.

5. The State or city should see that the poor have work, food, clothing, good shelter, public baths and fresh air.

6. Health inspection officers should keep their wards in good sanitary condition, and see that the water and food supplies are uncontaminated.

PHYSICIANS AS PAUPERIZING AGENTS.

Read in the Section on State Medicine at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

BY DOUGLAS H. STEWART, M.D.

NEW YORK.

The writer has no desire to indorse any doctrine of socialism, communism or the like, but he wishes to call attention to two axioms which, though trite in themselves, are ever new in their application and abuses: 1, capital requires labor; 2, competition compels capital to lower wages. Without labor, capital may neither be accumulated nor maintained. Any sum of money must be dissipated eventually unless it brings interest, and interest, directly or indi-

rectly, means the earnings of hand workers. The fundamental laws of progress, and of animal life itself, seem to begin at toil with the hand or its substitute. Thus we see large communities of brainless beings, and the descending scale brings us to the jelly-fish which presents only a stomach and tentacles—a perfect type of absorption and acoumulation. The brain may be essential to civilization, but without the hand existence would be impossible.

Lower wages may be obtained by reduction, regardless of employes or their needs. Business is without sentiment, and this direct method has been tried and has called forth the denunciations of organized unions from Maine to Calfornia. United labor has become capable of such independence and reckless readiness in asserting real or fancied rights that capital is cautious of unnecessarily antagonizing it. Constant attempts at making the hire unworthy the laborer arouse feelings quite different from the plaintive protests of a few individual sufferers, and if persisted in could only end in a chaotic condition of society. The Government Reports for the last seven years show a total loss to the community from strikes of $64,000,000; fully 25 per cent. being due solely to attempted reduction of wages. Another method of decreasing compensation would be the importation of men under contract for a remuneration which may seem fair in Italy but, owing to the radical difference in the purchasing power of money, is starvation's limit here. Hordes of such immigrants would glut the market and force the American to compete with foreigners who can and do exist on food found in the garbage barrels. This danger was dissipated by labor's voting power and its effect on the legislative bodies. Laws were passed cutting off the contract-labor supply from too economical employers, and the capitalist is now between two fires—the stubborn resistance of labor and keen competition, with a possible removal of protective duties. From a business standpoint he can not be condemned for managing any industrial investment with the sole idea of "product as low and market as high" as circumstances will permit. Economical machinery has enabled one man to do the work of ten, and quality is made secondary to quantity. But despite all this, the element of expense in the cultivation, collection and conversion of raw material remains the price of labor.

The laborer will not adopt a cheaper mode of life without a protracted struggle; therefore, if his earnings are to be lessened, his living expenses must be cut down and his money made to go farther. The leading items of his disbursements are rent, clothing, food and professional services. Overcrowding will lower the value of rent and clothes, but labor is united on the plan of: "One for all, all for one," and the packed tenement and the "sweaters'" pittance press hardest on the poor toiler. This objection, backed by solid votes, has caused a law to be passed forbidding the "double-decker" house and the erection of any structure occupying more than 65 per cent. of the lot. The present "sweat-shop" investigation is presumably only preliminary to prohibitory legislation.

Food, mostly farm products, can go no lower. Many farmers are now abandoning the farms and seeking a livelihood in the city. Those who do remain in the country are organizing for protection from ruin.

Professional services are rendered by the lawyer, the clergyman and the physician. The lawyer may be called perhaps but once in a lifetime. He does no public charity work and all attempts at starting legal dispensaries have come to naught. He can be a help if employed or a hindrance if opposed. He is in command of the legal machinery from the White House to the "Tombs" prison. He and his professional brethren are so united in their interests that a malpractice suit against him must fail for lack of expert testimony. Capital can not reduce his fees, for he is a most dangerous adversary when attacked through the pocket.

The sums paid to church and clergy may be great or small, but an attempt to diminish them would cause such an upheaval as has not been since the Crusaders. The owners of wealth are growing old. The grave and the chances of a leveling process beyond make awkward thoughts for quiet hours. Capital sleeps lightly and if a millionaire is timid a multi-millionaire is often hysterical. Conscience does make cowards and the man of the cloth is let alone. He even receives "offerings" instead of fees, but he uses his influence for what he mistakenly believes is a good cause, and has collections in his church for charity falsely so called.

The doctor is an urgent necessity to the workingman. Exposure incident to toil, low vitality from lack of sunshine and from malaria and other diseases consequent upon meagre air space and indifferent plumbing—all these make the physician a frequent visitor upon the tenement families. The doctor's charity toward laymen is unlimited, but toward his colleagues he holds the simple faith of "Holy Willie" in Robert Burn's satire: "God bless me and damn my neighbors."

The farmer and the physician are ground very fine—but with this difference, the farmer is organizing but the physician is disorganizing. The workman does not yet realize that the cheapening process means lower wages later on. It is not sufficient to give the work people free medical attendance, but everyone must be furnished as well, so that the shopkeeper can decrease the pay of his employes, as the banker can his bookkeeper's salary. To lower the cost of living everybody but the very rich must become paupers—so far as the medical man is concerned.

What must we think of any citizen quietly submitting to such imposition and becoming part of a great wedge which is to split up the manhood and self-esteem of our whole community? Is any one willing to inculcate the doctrine of non-payment for value received? Is this not the very teaching most opposed to all political economy, and the plan of action which makes the counterfeiter the most dangerous foe to the Government? There is such a man. He comes to the city a student, advertised for and welcomed by the medical colleges. They extend promises, either real or implied, of a livelihood after his diploma is secured. The demand and depend upon high fees and have many extras. The advertised multitude of patients available for teaching purposes is a very tempting bait. The victim does not appreciate the fact that if one institution attends 10 per cent. of the whole population there are, within a mile, ten other dispensaries all depending on a portion of the remaining 90 per cent. He may at this stage of his life have fine ideas of elevating the poor and of the dignity of charity, and has not yet learned that pauperizing processes are not conducive to high

mindedness and that charity is not the "benevolence business." He goes through his whole course, supported by hope and a fund contributed by the self-denial of his whole family, till he gives his graduation fee of $30, and exits from college life in a blaze of gas and glory. He becomes a practitioner, puts up his sign and finds himself penniless. He discovers that he has been deceived—that his most pitiless enemy is the alma mater who received him so smilingly and relieved him of his last $30 with the ease and grace of a confidence queen. He realizes now that of the 10 per cent. of the population wrongfully under free treatment, two out of three individuals might pay him a small fee and one in three could recompense him handsomely. This year he learns that the clinic is to attend all the students of Columbia University in their own homes. Some of these pupils are the sons of wealthy parents and neither deserve nor need alms. The question of deserving poor or alms-receiving rich does not enter into the plans of the dispensary. The whole population must be able to save at the expense of the doctor in order that labor shall be cheap. So the young man becomes a member of the dispensary staff in order that he may obtain a few dollars by clandestinely sending patients from the "free" classes to his office—thus, by his aid in perpetuating the evil, the medical profession finds its charities, the viper warmed in its bosom which is stinging it again and again. The charitable and the taxpayer pay the expense. No medical union, on the plan of the laborers is contemplated. Personal jealousies are fostered by interested outsiders—the very governing boards actually think they do a physician a great service by allowing him to work for nothing. No position of trust is open to him; even the office of president of the health board is closed by law. He is not wanted as a commissioner of charity, yet the whole public service must cease without his gratuitous services in the hospitals. Membership upon the trustee boards of both hospital and the dispensary is denied him. The trustees themselves endeavor to arouse enmity between the specialist and general practitioner and are primarily responsible for the fact that worthless patients so crowd the institution that, for lack of time, the worthy can not receive proper attention. They promulgate the doctrine that the specialist has created the hospital and dispensary because he must have material to study and experiment upon. This is plausible reasoning, but its casuistry is made evident by the fact that any man can learn more from ten cases carefully mastered than from a hundred cases crowded in so fast that the most superficial diagnosis is all that is possible. The woeful daily mistakes resulting from such snap-shot methods is a significant proof of this.

The large sums spent out of public taxes for private institutions are wasteful and unnecessary. One-half this expenditure placed in the hands of a powerful charity organization society, could do all the work required and perhaps leave a surplus, simply by the exclusion of unworthy objects of charity, which deplete the treasury and burden the taxpayer. All private contributions for medical charity are superfluous if the thronging of public and private clinics by would-be paupers was stopped. At present the city is giving $1,500,000 per annum to establishments not under its control, and private persons in mistaken kindness are donating a great deal more. Including the excise fund of more than $60,000 a month and the four and a half millions requested by the Charity Commissioners, the city of New York, at a rough estimate, expends $5 per capita per year for charity alone.

What is the local effect of promiscuous beneficence? "a prostituting charity." John Stuart Mill expresses the idea thus: "A charity which makes twenty beggars while pretending to relieve one is a condition of affairs which makes it possible for some one to grow rich by administering the funds for the poor." We all know a neighborhood where the people were thrifty and contented before a medical college and its appurtenances appeared on the scene and initiated free treatment for all comers. The laborers, especially the younger ones, have become idlers; policy shops and loan offices have been opened; gamblers, dissolute women and opium "fiends" have appeared in such numbers that the locality is now named the "New Tenderloin." I have asked those addicted to morphin and loose women why they congregated near the dispensary, and their answers are appalling. The first say they can always "procure a jab" (hypodermic) when out of money. The second reply, "the female department is so crowded and the gynecologist so rushed that they can fool him and 'get a free abortion on tap.'" The speaker claimed personal experience; whether this be true or false, it is evident that the self-respect of the entire community has been undermined and the decent element is moving elsewhere. *Post hoc* if not *propter hoc*. The druggists know the status of the people and every apothecary can name many who are shameless in their abuses of charity. All classes are drifting to the dispensary, even the agricultural population. The country doctors inform me that only their richest patients can afford the time and money to take the journey to the city and stop at a hotel while obtaining free advice at the clinic. Surely the efforts at pauper-making may be said to be very successful.

The two parties most to blame are the millionaire and the medical man. The first enters the benevolence business for what it is worth to him; he may even think his contributions are doing good, though the smallest investigation by disinterested parties would prove the incalculable harm he is working to the very class he believes himself relieving. The medical attendants are only flies in the spider's web. They are engaged without salary and discharged without a hearing. On the first of November the visiting boards of six or eight hospitals were removed without any charges being preferred, and "reorganized" by a man who was "not impressed" by maggots in the patients' food.

You can not compel the capitalist to cease his donations, you can not obtain his ear against those who flatter his soul and place his name in the prospectus; the only remedy lies in the profession. That should demand that the poor should be treated like men and not like "clinical material."

In the public mind the doctors are all "good fellows," who are to give much and to get what they can. This is characteristic, as there is no human being lower in the social scale than the good fellow. The good fellow of the saloon "treats the crowd" and spends money for liquor that should buy his children's clothing, while his whole family depends in sickness upon the dispensary. The good fellow is the prey of the gambler and blackmailer. Goodness and weakness seem to be synonymous, and the final end of all good

fellows is they are cast into outer darkness after giving their best to the bad fellows; their course and termination is the same with the saloon hero, the Wall Street lamb, the card sharper's prey, and the physician at the hands of the trustee boards of the dispensary and of the commissioner of charity. The saloon, the gambling hell and the hospital can get plenty more good fellows to fill the places of those who now attend.

The people who formerly went to a consultant's office, now have a plain dispensary dress and consult him at a charitable institution. I have myself sent patients to well-known men, and have received an opinion written on a dispensary blank—the gratuitous advice having been obtained by deception. A certain specialist charges $10 for an office fee; sometimes the patient demurs and is sent at once to the dispensary, regardless of the fact that many a younger man in the same line, and possibly a more careful worker, would be glad to obtain $5 for the same case.

The public can not believe that the profession is so imbecile as to seek positions which pay nothing, and consider that the places are sought for advertising purposes and for self-protection.

The fees for the specialist come, in most instances, from the general practitioner, but the practitioner is fast becoming an all-round specialist. Thus, through unquestioning charity, the specialist crushes the general man and he retaliates by sending cases to the dispensary rather than have a consultation. In the Manhattan Eye and Ear Hospital this is a common occurrence, and if an outrageous case is turned away, he proceeds immediately to the Vanderbilt, where no question as to length of pocket-book appears to be asked.

There is honor even among thieves—but the specialist and the practitioner, by suicidal and foolish bickerings, seem determined to prove that honor has fled from the grandest profession that ever shed luster on humanity. The medical "pirate" and the dishonest consultant appear with the lofty brow and amiable mien of the true philosopher, while they do deeds and participate in actions that even a bunco steerer would blush to contemplate toward his pals. The code is no longer the "Golden Rule," it has become the commandment of the Golden Calf. It is not "do as you would be done by," but "do or you will be done." Is it not evident that the whole profession is a most applicable tool, when pauperization is the work?

What is the remedy? The present condition is unjust to the tax-payer, and if the physician is a decent citizen he will stop enlarging our tramp class. In London I found many who would not work, because physicans and the charitable had made it easier for the pauper than for the laborer. Is it wonderful that the unemployed exceed a million in that city? In New York the dispensaries make it comfortable for those who wish to save the doctor's fee and spend it in the grog shop. I am now studying the transformation of men from clerks to rum soakers and then to tramps and I know that some of these men took their first step in pauperism in the clinics. I am convinced that some might be good citizens to-day had they not known the influence of such a family physician as came to my father's house when I was a lad. The institution crowds are maddening and confusing; they are only "clinical material" to the attendant, who becomes a doctor of medicine and not of humanity. He may say hastily to some miserable wreck, "you are a bum" or some equally helpful remark, but the words are very different in effect from a man-to-man statement, "your heart is damaged; if you do not stop whisky you are a dead man." All physicians know that the hospital builders are no friends to the poor, that the service as now conducted is no more charity than stone is bread. If the money required to found these great places was meant for the benefit of the laborer it would have been spent for better homes and hygienic tenement houses and then the workingman's medical requirements would have been very few.

Let the physicians resolve not to attend undeserving dispensary cases, the trustees will ask for resignation, let the outside members of the profession refuse to fill vacancies produced by removals without cause; the matter will be remedied. To the honor of Philadelphia be it spoken that a position vacated by such a condition of affairs was not filled, and the trustees became humble. In New York a whole hospital staff was dismissed without a notification of charges or discharges. The nominating committees of three medical colleges, the Mayor and the Commissioners were written to and a hearing requested by a committee representing 1,000 physicians; not one of those written to had the courtesy to reply. This is mentioned to show how little the authorities care for any stand the medical profession may take, short of a point-blank refusal to fill the vacancies.

Boston has adopted a system of cards which requires some investigation into the qualifications of each applicant for free treatment. Some physicians have started their own dispensaries under the hope that they can reduce the material of the teaching clinics, so as to bring them to reason and give the physician a chance to say who shall or shall not be paupers. Some of the brightest young minds in the profession are seriously contemplating entering on an advertising career, arguing that the hospital attendants only hold their positions for advertising purposes, and printers' ink is much quicker. The physicians of New York can have all the institutions put under the care of the Charity Organization Society; they could have the powers of that body enlarged to those of the "Gerry" and "Berg" corporations, and make the *sine qua non* of free service that every dispensary should be under the supervision of a capable and disinterested investigating body. A committee sent to the Legislature with a petition signed by the majority of those practicing under the laws of the State of New York could obtain all the power necessary.

The profession has a duty to the public of our city, and as no medical man has ever been deaf to the cry of "Give, give," let him not stop his ears to the demand of "Withhold." Let him always help "God's poor and the poor devils," but let him stop making or unmaking the "devil's poor." And let him ever set his face against any and all means used for increasing the awful burden of pauperism which our city is already called upon to bear.

POINTS BROUGHT OUT IN DISCUSSION.

The writer of the essay has not suffered by the action of the Commissioners and colleges and is simply interested as anyone might be in an act of contemptible injustice toward the profession of which he is a member.

The Commissioners pretend to have consulted only

the interests of patients; if so why did they not secure the best physicians by making the hospitals over to the Civil Service Board and fill vacancies by competitive examinations?

Were the Commissioners legally justified in turning public hospitals over to three close corporations, *i. e.*, the colleges?

Is the medical profession at large "riff raff," in contradistinction to about one hundred men connected with the teaching faculties?

Had there been a medical union as firm in resisting injustice as the Hod-Carriers' Assembly, would the Commissioners have dared to ignore its request for a hearing?

Why were homeopaths not molested? For political reasons and pull?

Was not the whole so-called "hospital deal" a transaction by which an ex-commissioner was to be re-appointed by the influence of certain men, to whom he turned over all the hospitals of the department of Public Charities of New York City?

THE TURKISH BATH IN MENTAL DISORDERS.

Read in the Section on State Medicine, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5-8, 1896.

BY L. FORBES WINSLOW,

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The treatment of disease at the present day is not based on "guesses" or "surmises" whatever might have been the case many years ago. This is the language of the empiric, not that of the man of science. There are intelligent men in our profession at the present time, who are now able to diagnose with extraordinary accuracy the pathologic changes going on in the brain, so wonderful has this knowledge become that it is not to be wondered at that we should gradually, but surely progress in the investigation of the treatment of those complaints. We learn from our experience that by opening the flood-gates of the skin from time to time, and submitting ourselves to the manipulation of the shampooer, in the oriental fashion, we may attain unblemished health under certain circumstances, both in mental and bodily complaints. During a long experience in diseases of the brain and nervous system I have had frequently to resort to the use of the Turkish bath as a remedial agent. I allude especially to cases of what is known as "brain fag." Where the victim to that complaint is reduced to a very low degree of vitality, I have found that after a systematic course of Turkish baths, that in many instances the mind recovers its wonted conditions and the brain exhaustion from which the patient suffers has diminished, if not entirely disappeared. The use of cold shower baths in the treatment of mental disorders has been known to the profession for a great many years. I have also found the Turkish bath beneficial in the treatment of some cases of acute mania. A patient is brought to the asylum in a state verging on cerebritis, and exhibiting all the well-recognized symptoms of sanguinous congestion of the brain. He is wildly delirious, the scalp burning hot, the skin dry and parched, the conjunctivæ injected, the pulse rapid; it has been found in such a case that material improvement has taken place, even after the first Turkish bath has been used; but in such a case I would not advise a prolonged one, but of short duration, each alternate bath to be of increasing length in gradations. In the treatment of acute brain disease I would suggest that the whole process should not exceed half an hour for the first bath.

"Without principles," says the great Dr. Cullen, "deduced from analytical reasoning, experience is a useless and a blind guide." Appreciating the truth of this *dictum* we are naturally led to ask ourselves the question as to the rationale of this treatment in acute brain diseases; the answer plainly is the gradual and general lowering of the vital powers causing a certain nervous prostration, by means of which the cerebral vessels become relieved, and the system calm and quieted. In insanity, the *vis vitæ* is often reduced to the lowest possible condition. In the great mass of acute cases of disordered mind which the physician is called upon to treat, particularly in our public institutions, the nervous system is in a state of positive exhaustion and debility.

The furor, the violence, the maniacal excitement; the muscular resistance, so often associated with insanity, are generally symptomatic of profound nervous and vascular depression. The excitement of the insane is an excitement without power, and it must be left to the discretion and experience of the physician versed in the practical use of the Turkish bath to discriminate as to in what acute cases it may be used beneficially, for we must recognize this important pathologic fact that in some cases it is our duty to conserve and husband the flagging and ebbing vitality of the patient until the mind recovers its equilibrium. If in the treatment of acute brain diseases the Turkish bath is prolonged in the first instance fatal results may follow; of this there is abundance of proof; therefore in its use, in such acute diseases, much discretion must be used. Insanity does not result from active inflammation of the brain, and if such were its origin no physician would be justified in attempting to prostrate the system of those mentally disordered. In cases of profound cerebral excitement, the patient often recovers under the combined influence of a tonic and stimulant treatment. I have known violent mental perturbation considerably mitigated and often cured by the administration of stimulants combined with iron and quinin. Here is an instance where it would not do to prostrate the patient but to stimulate him; so in dealing with the use of the Turkish bath in such cases it becomes the imperative duty to consult one versed in its use. I wish seriously to draw your attention to what I have just stated, and also to further say than an excited patient may be made manageable and docile for the time being, but it will be quietness and docility gained at the expense of his reason and perhaps of his life, if the inexperienced in its use allow its adoption to be prolonged in such mental cases as I have just described.

Treatment of insanity by baths of various description has long been in vogue in various countries. Esquirol, the first to find fault with and denounce many of the abuses found in the treatment of the insane, freely used the cold douche shower bath in the treatment of insanity and to the use of which he attributed the cure of many of his patients. In his "Maladies Mentales" he records cases where the cold affusion was followed by tranquility in the first instance and a repetition of it by a complete recovery. A second case is mentioned where the use of the bath

was followed by shivering, and a slow weak pulse and ultimately by sleep. The latter lasted for four hours during which period copious sweating took place but on awakening the delirium had passed away and reason had returned. Esquirol concludes from his experiments. "That the douche on the head has a sedative physical action, on account of the cold and a moral action as a means of repression. The generality of convalescents declare that they have experienced benefit from its use and some patients ask for it; *il ne faut fas en abuser.*"

The danger, however, of too frequent use of the cold shower bath came to be recognized, and to prevent a misuse of it, the Commissioners of Lunacy in England framed a series of laws to regulate its use. It is now but rarely made use of except in neurasthenia and in hysteric subjects, in both of which cases it exercises good beneficial results, especially when it has been preserved in, and in some cases of melancholia the duration of the bath lasting from fifteen seconds to half a minute. The warm bath is a wonderful remedial agent in tranquilizing the nervous system and acts frequently as a powerful soporific and allays mental irritation.

The Turkish bath has also been used in alcoholic cravings, and with a certain amount of success. The functions of the skin are two-fold, that of secretion and absorption; by it we perspire and by it we may be said to breathe. It is a well known physiologic fact that the oxygen absorbed by the skin through its seven millions of pores has the same effect as that taken in by the lungs, the purification of the blood, and the supply of caloric to the body. The Turkish bath causing profuse perspiration, and so opening and cleaning the seven millions of pores renders them permeable in an increased degree to the oxygen which burns off the effete matter left by the stimulants; increased vigor and vitality are thus given to the system and the alcoholic craving is diminished.

The Turkish bath may be used beneficially in certain cases of melancholia of a recent nature, without any possible risk ensuing; it often calms the nervous system and often reduces the mental depression. Also in cases of threatened recurrent mania, it sometimes cuts short the attack if used immediately the symptoms are returning. At one epoch in medical science depletion was freely used in cases of insanity; this then for a time disappeared altogether but it is now coming into use again with some physicians. The idea used to be that the depressing, lowering and overpowering plan of treatment of the insane was most disastrous in its results. It was then considered by all practical and sagacious psychologists experienced in the care of the insane that in the morbid affections of the mind a condition of brain existed which would not tolerate a depressing and prostrating mode of treatment. There is a vast difference between the use of the cold shower bath in the treatment of insanity and the use of the Turkish bath. In the former there is an immediate depression and prostation of all the vital energies and the effects sometimes prove rapidly fatal. Consider for one moment what would be the effect of using a prolonged shower bath in the treatment of delirium tremens, or in a case of puerperal mania, or the insanity following such a condition. In this class of cases we often witness extreme excitement and violence associated with profound vascular and nervous depression. How dangerous then must be the cold shower bath in such a condition, entirely overlooking the pathologic state of the patient. If the treatment of the insane be a rapid reduction of the physical and mental powers of the patient to the minimum standard; if it be all important to make a noisy, excited, destructive lunatic tractable and quiet so as to preclude the necessity for the use of mechanical restraint, then continue the shower bath; but if it be the intention to carry out a proper curative mode of treatment by some form of ablution then the Turkish bath has proved itself to be the remedy needed in such a case. I have known many instances of death resulting from the unwise use of the prolonged cold shower bath in the treatment of mental disorders, but I know of no instance where such has resulted from the Turkish bath.

Let us ask ourselves what would be the result on a patient suffering from a depressing and exhausting disease, and insanity is especially of this type, on whose head was allowed to fall a continuous volume of cold water for a period varying from a quarter to half an hour, as was formerly practiced in some large asylums. He emerges from such a bath with the powers of life reduced to the *minimum.* I have records of thirty-two cases of acute insanity treated by the prolonged use of the cold shower bath, with the following results: Fourteen recoveries, one death, the others remaining in the asylum. I might mention that in these cases it was used periodically, as occasion required, and was prolonged for the time I have previously mentioned. It is specially fatal in the earliest stage of acute mania and may be called an heroic treatment. In many cases it was apparently made use of in instances of insubordination as a means of quieting the patient and with effect. The plunge bath was formerly and sometimes is now substituted for the cold shower bath. But this appears to me to be the old story of *Scylla and Charybdis.* I do not know whether any of my audience can realize exactly what I mean by a plunge bath in the sense I am now using it. A violent and excited patient is forcibly taken by his legs and plunged head foremost into an ordinary swimming bath. He is not permitted the use of his limbs when in the water, but is detained there, or taken out and plunged again into the bath, until the required effect of tranquility is produced.

Quietness, submission to authority, docility and freedom from excitement and violence are the natural consequences of this gentle soothing treatment. I say most emphatically that both the prolonged cold shower bath and the cold plunge bath, if used at all, are generally made use of for obstructive patients, and not as a remedial agency. In cases of neurasthenia or hysteria such a treatment is often very beneficial, but not in dealing with insanity pure and simple, especially in chronic violent cases.

Now the Turkish bath is used entirely as a remedial agency, not a means of unwarrantably controlling the individual. Its use has been generally adopted in England since 1861, when it was first introduced into my country and used extensively but Dr. Lockhart Robertson, the late Lord Chancellor's Visitor of Lunatics in England, and Dr. Power of Cork, were the two first to introduce the Turkish bath into the treatment of insanity. The first asylum for lunatics where a Turkish bath was constructed, was the Devon County Asylum. It was here found useful in certain cases of melancholia, where the skin was hard and dry, and in some cases of dementia. At the time of

which I speak the use of it was in its infancy. I was requested at the opening of the second series of Turkish baths in London to preside as chairman; this was about twenty-five years ago. While in your country last year I derived much pleasure from a visit to Dr. Shepard's Turkish baths at Brooklyn; I found them in every way perfect and quite up to date in every possible requirement. When the Turkish bath was first introduced into my own country it was said by some that so long as we diligently and regularly had resource to the Oriental bath neither malaria nor miasma nor infection nor the poison of fever could find a lodgment in us. All that was hurtful would be swept away in the health-giving, health-preserving perspiration which streams forth. The mind and the brain, nay the whole of the nervous system, central and peripheral, would hold their own against the deteriorating influences which haunt our daily life. Man may indeed confront the world, armed in proof at all points against every danger which may assail his frame, whether wholly or in detail, from morbific agencies, if he can only be persuaded to habituate himself to the use of the Turkish bath. Its chief action is depuration by the skin, but it also acts by diuresis and its effects as a narcotic and tonic are well known. It may be considered, in fact, to be a complete materia medica in itself. I think that all those physicians who have advocated its use in the treatment of disease and especially of insanity, will never regret so doing. It has been left, however, to the wisdom of the nineteenth century to unveil the therapeutic use of the Turkish bath, and I trust that the few remarks I have to-day made may further its continous use for the benefit of humanity in general.

THE THERAPEUTIC ACTION OF THE TURKISH BATH.

Read in the Section on State Medicine at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

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My long experience with the Turkish bath prompts me as most essential, before going into the therapeutic aspect of the question, to make you first acquainted with the tools with which you have to work in order to obtain good results. All Turkish baths do not correspond to the requirements of modern science and vary so greatly in this respect that many of them now in existence should cease to exist on this ground. We doctors try to do the best we can for the public and ought to direct the patients only to baths which we have ourselves examined so that we can recommend them conscientiously for curative purposes. But, alas, how many bathers do consult doctors, and how many doctors have taken the trouble of studying balneologic details; hence bathers go to any Turkish bath they hear of without any previous or proper instruction. From my experience of the Turkish bath, I must greatly impress upon your consciences as doctors the necessity of going and examining personally each Turkish bath and better still to have personal experience of the bath before advising your patient. I acquired this knowledge theoretically and practically when I rebuilt in 1883, with my good friend Mr. Thomas Duarans, the eminent architect in London, the Turkish bath at the Royal York Bath, York Terrace, London, N. W. We studied together the subject of building a Turkish bath according to the requirements of modern scientific principles. When we considered the architectural plans, we based them first on sanitary principles, and adopted the beautiful Moorish architecture for secondary reasons; but the drainage system and the ventilation claimed our first attention. We gave the drainage a good fall for the rapid off-flow of the water and erected the plunge bath that holds over 5,000 gallons of water at the end of the whole drainage system, so that a thorough washing out of all the pipes is obtained by giving the necessary speed and power to the stream and therefore cleanliness and freedom from all dirt and bad smells. A fall of 1 foot in 15 feet within the length of 120 feet between the plunge and the sewers was adopted. The diameter of pipes six inches. Equidistant manholes enable us to open the entire system for the inspection at any time with convenience and to brush the pipes out in case of stoppage by accident and to observe if the sediment pass down. This is essential. At the deepest manhole, and that nearest to the sewers in the street, an air-shaft is built to admit the fresh air which is drawn through the pipes by means of exhaust shafts at the top end of the drains. Thus, the air flows in the reverse direction to that of the water. The waste pipes from the bath and the rain pipes are separated from the main pipe-drains discharging into a side inlet gulley which has an open gridiron top for the admission of fresh air and passage of the cleansing brushes or rods.

The next point was the ventilation of the suite of rooms of the Turkish bath. This was attained by building a tunnel 75 feet in length, 5 feet in width and 7 feet in height tapering toward the furthest end where the furnace is situated beneath the hottest room. In this way the fresh outside air is forced toward and into the space around the convoluted iron furnace, and with such a velocity that the draught on the candle flame visibly indicates the constant current of fresh air to be heated and finally enters the hottest room above through the open grating. In this room which is a vault of glazed white bricks with an ornamental colored skylight in the roof, a temperature of 250 to 300 degrees Fahrenheit can be obtained as required, but 230 or even 210 degrees are sufficient to produce perspiration with ease in the shortest time possible in the habitual bather. The second hot room is between 170 and 180 deg. F., and the communicating first hot room is about 130 F., and the next communicating shampooing room is 110 F., and the douche room 90 F. and so on. The plunge room and the cooling room are about 65 F. All these rooms have large colored skylights to admit sunshine or daylight, and when dark gas-burners within large white and ornamental globes of 20 inches diameter, are arranged so that the products of combustion do not mix with the air of the rooms. At the bottom of the seats around the rooms are "hit and miss" exhaust grates by which the vitiated air, from perspiration and exhalation being heavier in specific gravity and accumulating nearest the floor, is drawn off through upcast shafts outside the roof. This principle of ventilation ensures a constant stream of hot air through all the rooms, and so great is its effect on the Mosaic floor, through the created friction caused by its uninterrupted flow from above downward and out through the upcast shafts, that the floor appears to a new-comer

to be heated from underneath; slippers are required when walking on the floor, and sheets when lying down on the marble plates around the walls. I need not describe the shampooing methods, nor need I speak of the shampooers who work according to my system, and make use of the soap and brush, showers, needle-bath, douches, etc.; but this description I think will show you sufficiently in an abstract way, that the first essentials of a good Turkish bath are a free circulation of pure air with plenty of oxygen, sufficient heat and good light. The dryness of the air in the hot rooms is most strikingly proved in a foggy London day, when the bather enjoys this beautiful change of pure air, free of mist, and feels contented in this clear, hot atmosphere within the Turkish bath as nowhere else. It is evident that this artificial dry, hot air is a happy imitation and substitution for the natural hot dry climatic resorts where patients are sent to by their medical advisers, like Madeira, Egypt, Algeria, Australia, India, etc., especially for lung and kidney complaints. Under certain conditions and circumstances many patients are unable to leave their homes and are bound to remain in this country and do the best they can for their health. For these the Turkish bath proves a great boon, and you will understand with what safety you can recommend your patients to avail themselves of what constitutes a good sanitary Turkish bath. Oxygen is the great want in a hot air bath, particularly for weak people or weak lungs. It is true we have also in England excellent places for consumptives at the South Sea Coast and the Channel Islands; but when patients have to return to their homes in sooty, foggy towns, it is frequently the case, that their improvement vanishes, the air being too polluted; for these the Turkish baths are a delightful change. Advanced cases, to be sure, ought not to be sent away to distant countries, which deprives them of the comforts of their home, their friends, their relatives, their native language. I have made it my principle not to send patients away unless they are wealthy enough to procure for themselves the utmost comforts possible, and when they have improved in health I do not allow them to leave the security of their new homes for the risks they run in a wet and cold climate.

The literature on the Turkish bath is not very great, particularly by men of science and learning. On the physiology of these baths we find besides Urquart and Sir Erasmus Wilson only exceptional papers like those of Dr. Bucknill in the *Lancet* of 1876, of Dr. Cameron in 1877 and of Dr. W. J. Fleming, Lecturer on Physiology, Glasgow, 1879; the latter investigated the effects of immersion in hot dry air, and his conclusions are:

1. That a very large quantity of material can be eliminated from the body in a comparatively short time and, although the greater part of this is water, still solids are present in quantity sufficient to render this a valuable emunctory process.

2. The temperature of the body and 3, the pulse rate are markedly raised.

4. The respiration falls at first but afterward is less influenced.

5. The urine is increased in density and deprived of a large portion of its chlorids, while, if anything, an increase in the amount of urea is produced.

6. The sweat was found to have an average specific gravity of 1006.3; faintly alkalin, or neutral; the collection of the sweat, its determination and analysis require further experiments.

7. The principal effect upon the arterial tension seems to be an increase produced by the greater rapidity of the heart's action combined with a dilated, we may almost say, gorged condition of the capillary circulation.

Dr. Fleming's deductions from these conclusions as to the use of the Turkish bath in medicine are: Its most important effect is the stimulation of the emunctory action of the skin. By this means we are enabled to wash, as it were, the solid and fluid tissues, and especially the blood and skin by passing water through them from within outward. Hence, in practice, one of the most essential requisites is copious drinking of water during the sweating. Persons of sedentary habit or suffering from disease interfering with fluid excretion will, therefore, benefit very greatly by the use of these baths which produce such a reaction of the skin, and by its means considerable elimination of morbid matter may also be brought about. On this point there is but one opinion of all the writers, who also agree that sweating in these baths relieves the internal congestion on the same principle and with much greater certainty than the usual diaphoretics; besides it softens the skin, relaxes the muscles and permits more readily of passive movements called rubbing or shampooing, which follows systematically and enhances the process of perspiration during the manipulations. The shampooers who work so many hours a day in this hot air perspire very freely and enjoy the best of health, although they constantly pass from hot into cold and vice versa. So every one can harden his skin and accustom it to these changes by taking a Turkish bath twice a week; it will then be difficult for people to "catch a cold." Should a shampooer get one he will cure it by the next following copious perspiration followed by a shower of cold water or a cold douche. This may appear alarming to the inexperienced, but in practice it proves grateful to the sensations and is wholly free from even a shadow of danger. In fact, immunity from colds is thus acquired by persevering in Turkish bathing; the triple faculty of preservation of health, of prevention of disease and of curing the same is thus exercised by the action of the skin, which repels the depressing effects of cold by its intrinsic power of generating heat, and it also expels miasmatic poisons by its emunctory power. The malaria is eliminated from the body in this simple way; the chill passes into heat and the hot fit is transformed into perspiration. Gouty and rheumatic poison in the form of uric acid and urea is constantly eliminated by perspiration in the Turkish bath, and a man who has taken too much alcohol can with proper care expel it rapidly by the lungs and skin during the stay in the bath. What is eliminated by the Turkish bath is the excess of effete matter, which the weak body or degenerate organs can not excrete and which if retained by the inefficient action of the skin, liver and kidneys, is the prime cause of chronic disease. It is, however, not only the action of dry heat in the bath, but of hot, dry oxygenated air in the internal organs through the lungs and circulation, as well as on the skin which is so beneficial. The bath not only cleanses the skin, but purifies the whole circulation and blood, effecting a thorough cleansing of the system. A deficiency of oxygen and an excess of carbonic acid gas is the first cause of bad health, whatever form the symptoms may take. Ignorant people, and I am sorry to say many medical men, have an idea that the

Turkish bath is weakening or that its only immediate effect is "to bring down fat." Sweating, it is true, under abnormal conditions—in the fetid workshop or crowded assembly rooms for instance—is weakening, but it is far different when perspiration is naturally and beneficially induced in and by a thermo-oxygenated atmosphere. Here the life-giving oxygen replaces during the action of the bath the impurities of the blood. People who suffer from eruptions of the skin which indicate the too rich or too poor blood, or in fact, an impurity of the blood, by appearing on the surfnce of the skin in the form of pimples, boils, carbuncles and abscesses, eczema, herpes, etc., see these unpleasant and painful manifestations disappear after the first Turkish bath. They may expect if they persistently use this purifying process twice or three times a week that they will never see these complaints return again. In the Turkish bath we learn to distinguish by the eye and the touch the weak and the strong, the healthy and the unhealthy skin. In the bath there are no wrinkles and no decrepid age; the skin becomes firm and elastic, recovers color and smoothness and even upon the scalp of the bald, I have seen the hair return. The skin may have a deficient and imperfect circulation of the blood and a deteriorated sensibility, a defective cell-formation and secretion, and exhausted tone and vigor, but you may take it for granted that the habit of the bath will reverse these unnatural conditions. I remember how greatly it impressed me when taking my first Turkish bath. I placed my quickly heated hand on any part of my skin and felt a sensation of coldness; soon, however, the whole skin became warm and dry, then moist and soft, and finally I saw the pores opening, the humidity on the chest and arms gathering into drops like the dew on flowers or grass when garnished with crystal beads; the beads running into little rills, and the rills trickling down in small streams so that the whole body admitted of being washed by means of the water that issues from the blood.

Believe me, the bath is a preservative of health, a prevention of disease, and it will cure most chronic diseases when persevered with. How many cases could I describe from my practice that have lost their chronic bronchitis, their asthma, their inclination to catching cold in the nose, the pharynx, the Eustachian tubes, their larynx and vocal cords, who had crackling in their joints when moving them, even in the jaw joints so that bystanders could hear the masticating movements. All this rheumatic, gouty, scrofulous and other constitutional dyscrasias which so easily cause local deposits, show their evil existence and manifestation of sufferings in headache, earaches, neuralgias, giddiness, deafness, singing in the ears, etc.; all these inherited or acquired weaknesses of constitution and illness are curable and preventable, but the baths must be persevered with during the time you are apparently free from disease. I mean you must not only take the baths when you are ill or suffering but during the intervals when you are seemingly well and healthy; then you will preserve your health and prevent any development of a cold, because it is the first cold that has the tendency to localize somewhere and produce mischief of longer duration. Shampooers always enjoy remarkable health because they at once cure their cold. If you want to know what regular perspiration in a Turkish bath can do, you must watch others and watch yourself most scrupulously and you will soon learn how true it is that perspiration in hot and well oxygenated air with all the manipulations of the Turkish bath will prevent congestion of the internal organs like the brain, spine and nerves as well as the organs lying in the thoracic and abdominal cavities. These congestions and inflammations from colds in certain constitutions with proclivities and inclinations of localizing in the periosteum, the muscles, the fibers, mucous, serous and all other tissues of our body may become very serious and dangerous, but the perspiration drives the blood from the internal parts to the peripheries or skin and frees the internal organs. When cold has chilled the skin, driven the blood inwardly producing shivering, headaches, etc., a weak spot exists *locus minoris resistentiæ*. To drive it out again you must go to the Turkish bath at once and get rid of the first attack; then you prevent disease and cure it at once at its start. It represents the whole principle of balneology and should be had recourse to by everyone, immediately he is seized with disease whenever and wherever possible. It is useless merely to treat a cold when it appears; the proper and effectual way is to persevere with the bath, even when in apparent health. It is very curious to hear how often you find the Turkish bath praised, by doctors, for its effect in reducing the bulk of fat people, and how difficult it is to bring them to acknowledge how wonderful Turkish baths are in restoring, for instance, a weak heart and circulation to strength. The heart is naturally a very powerful muscle which does an enormous amount of work in twenty-four hours, in order to pump the blood by each pulsation into all the arteries of the body. The innervation of the heart is frequently disturbed and its muscular power impeded so that the blood vessels of the skin do not sufficiently dilate and keep the circulation free. Most nervous complaints produce palpitations, but indigestion is frequently the first cause. Through overfeeding fatty degeneration is induced as well as through alcoholic intemperance. I advise abstinence, regular walking exercise and a Turkish bath in such cases with excellent results. They stimulate the skin, depurate the blood, relieve internal organs of congestion, relax spasms, improve digestion and assimilation and restore vigor to the body even when exhausted by bodily or mental labor. The hot-air bath has a quieting effect on the heart, especially, as all shock is avoided in undergoing the sweating process. Patients suffering from disease of the heart obtain instant relief in the bath, although the number of pulsations is increased. The more the pores are opened and the perspiration enhanced, the greater is the relief and the gradual improvement in the health of the patient. Cool ablutions and drinking of pure water must not be neglected. Persons can avail themselves of the benefits of the Turkish bath with less risk than attends ordinary medicinal treatment in nearly all forms of heart disease, because the skin becomes very inactive in heart disease, and the oppression in breathing increases; immediately, however, the skin becomes moist and active, the oppression subsides and the patient is relieved. A hot drink before entering the bath, and deep quiet breathing when extended on the back, or reclining in the chair accelerates perspiration and soothes nervous irritability, giving a happy feeling of relief. Directly the skin is active the internal conditions are relieved and the improved condition of the circulation through the body is reëstablished. It is simply marvelous how in this way the

action of heat affects beneficially all organic complaints not only of the heart, but also of the liver, the lungs, etc., immediately the skin acts. Thus, even in incurable complaints, the Turkish bath proves a source of comfort when all other means have failed, as in dropsy, anasarca, edema, etc.; the intelligent administration of the Turkish bath is the great desideratum if it is to be used as a medicinal or curative agent and not merely for nettoyage. The competency of the people who have the direction of the Turkish bath establishment is a *conditio sine quâ non* and doctors should sometimes take the first bath or two together with their patients to give them confidence; but notwithstanding all the blundering managements in Turkish baths without doctors, there have been fewer accidents and more good results from their use than one would reasonably expect under such conditions. People with hypertrophy of the heart and a very powerful pulse have to be careful in taking the Turkish bath and must follow special advice, particularly if giddiness and headaches complicate the complaint; but people of what we call an "apoplectic" build will do well to take the Turkish bath regularly, and to accustom themselves to the change of hot air and cold ablutions. In very hot summers when apoplectic fits are frequent, habitual Turkish bathers will not be likely to stand in fear of these but will find a great advantage and comfort when leaving the bath to find that 80 degrees F. in the shade feels agreeable. We never hear of a death from syncope in a Turkish bath. Sunstroke never occurs in people who perspire copiously from the head and neck. Cold hands and feet, biliousness, stitches in the sides, lumbago, sciaticas and neuralgias of all kinds are indications for habitual Turkish bathing. Predisposition to fainting, palpitation, sinking feeling give way entirely to the gradual use of the Turkish bath. People who can endure a heat of 200 degrees F. with comfort and afterward take a plunge of 60 degrees F. or less are sure to remain in a strong and good condition of health. unless they commit excesses in eating and drinking, or contract influenza or malaria, etc.

I know bathers who have been living now comfortably for over twenty years with symptoms of softening of the brain, chronic alcoholic poisoning or nervous tremor, and constantly speaking of themselves as improving, and others who complained of restlessness and sleeplessness at night were entirely cured and slept as well as ever after every Turkish bath. The supposed danger of a Turkish bath to elderly people is quite a fallacy. Physiologically, pure air and exercise are as necessary in old people to keep up health as in young ones. Indeed, they want these more to restore a certain amount of lost vitality. In fact, the bath is of great value in prolonging life in the aged as well as in the diseased, and I know many old gentlemen between 65 and 85 who keep in vigor by taking their Turkish bath regularly once a week.

As to our brains and nerves, the close connection and reaction between the mind and body are indisputable proofs that the right action of the mind greatly depends upon the health of the body and consequently of the senses, for they are inseparable in life while the nerves are capable of their functions. If we possess pure blood disease is baffled, blood being the material out of which all the organs repair themselves its deficiency in quality and quantity lessens the energy of the brain's functions. A stimulant—be it alcohol, tea or coffee—accelerates the circulation and increases the vascular supply. I always recommend a stimulant in a weak heart before the bath for weak persons until they can do without. I never recommend it after the bath; rest and a good meal must take its place after the Turkish bath. One writer fears the bad reaction of the stimulant; I have never observed it in practice; but I always try as soon as the patient is accustomed to the Turkish bathing to recommend cold water in place of the stimulants in the bath. Another writer uses stimulants and says people require a stimulant before they feel "fit," I suppose, for brainwork. Now, before I used the Turkish bath for sleeplessness I always had a good result from a stimulant for sleeplessness in people with a weak circulation and with mental worry and over-fatigue, and the dose must be a full one, for a small dose would produce mental excitement. To excite rapidity and intensity of thought one writer recommends the Turkish bath, "If," he says, "I require to think out a knotty point, I take a Turkish bath; my mind is clear, my judgment more keen and my loftiest and purest thoughts come to me during the process of blood arterialization."

There is not the slightest doubt that for the brain, the spine and the nerves the Turkish bath is excellent, and even noises in the ears and head may be cured or mitigated; but should the complaint want additional help in order to rectify and bring it to normal conditions of health, I always give the preference to the natural means of treatment, among which massage and electricity form the principal ones.

I have cured several cases of deafness which were given up as incurable by specialists. One of them, Mr. R. A., had to retire and take his pension—half-pay—at the Trinity House, when nine years later I unexpectedly restored his hearing by massage and Turkish and electric baths. "What a pity," the patient then said, "had I known of you before I spent all my money with specialists on the continent and in England, I would still have been in office to-day with full pay." However, let us hope that others will profit by this experience. He is now 74 and takes his Turkish bath frequently, being mentally very active, and, I am happy to say, useful to his family and to society.

I have not said anything about febrile diseases with high temperature, nor have I given opinions about treatment of hydrophobia by Turkish and vapor baths, the paper being already too long, but I repeat my warning, that a Turkish bath establishment which does not invite the doctors and the public to inspect their drainage and ventilation systems, or which refuses to show these must be looked upon with great diffidence and had better be avoided; there can be no mystery-pleading in these things, and the public has a right to see all. Therefore, allow me to impress, let the public constitute themselves their own inspectors and fearlessly demand of each Turkish bath proprietor a display of the ventilating arrangements before entering the bath.

Military Hospitals Thrown Open to the Civilian.—The German authorities have decided that civilians residing near military hospitals can be received and tended in them whenever the physician considers that transport to another hospital might be injurious. A decree in France also opens the military hospital in places without hotel accomodations, to civilians who apply to the chief of the department. The prices are to be the same in both countries as for the lower military ranks. The *Bulletin Méd.* July 12, strongly deprecates this transformation of the little hospitals in the colonies into boarding houses.

PUBLIC TURKISH BATHS NEEDED.

Read in the Section on State Medicine, at the forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5-8, 1896.

BY CHAS. H. SHEPARD, M.D.

BROOKLYN, N. Y.

The action of the New York Board of Health in appropriating $30,000 for applying the discovery of antitoxin in the treatment of diphtheria, encourages the hope that in the near future the public mind may be quickened to recognize its opportunities and its necessities in other and broader fields. It is time to appreciate the fact that we are our "brother's keeper," and that whatever works harm to him reacts upon ourselves. This action of the Health Board also indicates a growth in public sentiment that will encourage and sustain important measures for the public welfare. It is a moral duty as well as a principle of public polity, in all civilized countries, to protect the people from the invasion of infectious disease, and it would be very short-sighted to stop at mere infection. The use of antitoxin is only to supply a temporary exigency. It does not purify the homes of the people or teach them to take better care of their bodies or sanitary surroundings. We need something to uproot the cause of the disease, and when this is secured, it will be found that many other diseases have disappeared.

The Romans understood and perfected public sanitary works on a most stupendous scale, as is witnessed, among other things, by their aqueducts for bringing pure water to the city of Rome. Magnificent ruins of many of them are standing to-day, and some of them are in use at the present time.

It is known that in India, the home of cholera, the city of Calcutta is now protected from epidemics of that fearful scourge by the supply of comparatively pure water that has recently been furnished the city.

When the community can be assured of pure water to drink and pure food to eat, with proper bathing facilities, the enjoyment of life will be much enhanced and its length prolonged.

In a recent report of the Committee on National Quarantine of the New York Academy of Medicine, it was stated that "the most certain protection of this or any other country against the ravages of infectious disease, lay in the practice of internal sanitation." What is true of the State is also true of the individual. The more cleanly a man's habits, and the purer his food and drink, the less liable he is to disease, because his body is thereby rendered naturally immune to disease. Whatever our theories as to prophylactic measures in the prevention of disease, the production of a barren soil for the growth and development of pathogenic germs is of greater importance than the destruction of the germs themselves, though efforts should be made in every direction for the elimination of all diseases. Various theories have been offered by different authorities concerning the processes and changes that take place in the body in consequence of artificial immunization, but the scientific controversy regarding it has not yet been settled. Suffice it to say, that the more pure and active the fluids of the normal living body, the more powerful are the bactericidal properties thereof.

There is at present a revival of a favorite practice of the ancients, and that is their system of bathing. The old Roman baths, which are identical with the Turkish baths of the present day, were prominent features of the daily life of the Romans and were counted among their choicest privileges, and so continued during the period of their greatest prosperity. They were then carried to a scale of perfection never surpassed. The baths of Diocletian, which were the largest ever built in the world, were capable of accommodating 18,000 bathers at one time.

We have heretofore maintained, and would reiterate, that as one of the great sanitary necessities of the day, it is most desirable that large public Turkish baths, as a preventive of disease, should be established throughout our cities at public expense, placed under medical supervision, with admission at nominal rates, so that the poorest individual could partake of their advantages with a feeling of self-respect in paying something for the help and comfort to be derived therefrom. They should be made attractive, and thus draw people from demoralizing enjoyments. This would react on the social life of the community, and by purifying the people would purify their homes.

We support public schools, and compel our children to attend them. With more propriety could we furnish public Turkish baths, and insist upon every man, woman and child availing themselves of their luxuries at least once a week. The physical is of greater importance than the mental; indeed, it is of the first importance to the State.

Herein would wealth have a royal opportunity to consecrate itself to the service of mankind. The endowment of public baths was among the most noble actions of the Roman Emperors. Eight hundred of those institutions adorned the capital of the empire, and they supplied, during many eventful years, almost the only medicine to a people distinguished for their corporeal and mental vigor.

Among the important results that are brought about by the use of the Turkish bath may be mentioned: 1, a perfect cleansing of the external body, and relief from any undesirable odor, replacing therefor the beauty and fragrance of health; 2, a purification of the blood by the elimination of its impurities through the surface of the body; 3, an equalization of the circulation and perfect distribution to and through every organ and tissue of the body, however remote; 4, the speedy elimination of blood poison, laying the foundation for; 5, increased nutritive changes throughout the whole body; 6, a relaxation by heat of the tissues of the body, and thereby relief of congestion, whether located in the lungs, bowels or other organs of the body, or in the muscular tissues, as shown in the relief from rheumatism, malaria, etc.; 7, absorption of exudates and inflammatory products; 8, better ventilation of the lungs, and the placing of climatic treatment on a scientific basis; 9, greater activity of the secretions and excretions; 10, the prevention and the eradication of the predisposition to disease; 11, strengthening of every vital organ, and therefore an increase of vital capacity.

The arguments in favor of public Turkish baths are both manifold and important. To enumerate but a few of them:

They would be comparatively inexpensive.

They would lessen the cost of medication.

They would prevent the spread of epidemics.

They would render extinct many classes of diseases.

They would lessen the demand for stimulants of every kind and render the police force less necessary.

They would be more powerful than any law of prohibition, because they would be more attractive than the saloons.

They would reduce the expenses of hospitals and asylums.

They would shorten the time necessary for patients to remain in such institutions.

They would reduce the demand for hospitals, so that what are already built would be sufficient for a generation to come.

They would help toward the refinement of the community.

They would vastly prolong the average of the life of the people.

They would add to the enjoyment of life, by making everybody healthier and happier.

They would tend to render the cities that adopted the bath preëminent among all the cities of the world, and be an example for all other cities to follow.

They would redound to the honor, and conduce to the growth of such cities, and continually increase the numbers of the better elements of their citizens.

They would uplift the community and tend to develop a superior race of mankind, as handsome as were the Greek models, and as powerful as ever were the Romans.

To the individual the Turkish bath is the perfection of sanitary science, and to the nation it is the coming blessing.

These few reasons but imperfectly state the great need and many advantages that would accrue to the community adopting the practice of public Turkish baths.

DISCUSSION.

DR. KELLOGG—This subject is one of very great importance. I am sure that there is nothing so valuable, as a health measure, as public baths. In different parts of Europe I have noticed that where there are public baths the cities possess a superior class of people. On the streets of Stockholm I saw some very fine looking men, stalwart and ruddy-faced. There you can get a public bath for five cents. There are several in the city; for twenty-five to fifty cents you can get a better bath. There are different grades, so that all classes are accommodated. Connected with these baths are laundries also, so that poor women can wash their clothing.

Three years ago I attempted some missionary work in the way of establishing free baths in Chicago. I wanted to find the wickedest men in the city. For this purpose I consulted the chief of police, who told me which was the worst place in the city. There I put in fourteen free baths. There was a gospel mission next door. I asked the superintendent of the mission what he thought of the idea. He did not think it amounted to much, but I nevertheless determined to proceed with it. There was but one place where a man could get a bath without paying for it, and that was by falling into the lake, and there was a law against that. Two or three weeks afterward this same gentleman came to me and said that he wanted to shake my hand; that the baths had changed the complexion of many of the people as well as of the community. The baths were patronized by men who were so black you could not tell to what race they belonged. I was astonished to see how anxious the lower classes were to be clean. I spent Sunday there until within the last three years; I found one December morning, when the temperature was a little below zero, 180 men in line, the nearest one against the door, waiting to wash their bodies and clothes. There was not a man who had an overcoat or gloves. Their collars were turned up and they were shivering in the cold. They had been there since 6 o'clock in the morning. It was really a pathetic sight. It is the rule to find a line like that there now every morning. Sometimes 200 men come and wait their turn in line. I was glad to see that the city authorities, two years later, established as a memorial of the Mayor, Mr. Harrison, their own free baths.

THE CHAIRMAN—Were your baths entirely free?

DR. KELLOGG—Yes sir, entirely free; we are still carrying it on. We find the men are still ever ready to patronize these baths. I think it is a means of free grace that is better than preaching.

Another thing I have noticed, in studying this question, is that those people who give attention to public cleanliness, are the most advanced in civilization. To illustrate that, I remember an anecdote that I heard at the expense of Spain. An Englishman was traveling in Spain some time ago. He went to a hotel and called for a bath. The proprietor was astonished, and could not fully understand what was wanted. Finally the traveler learned that his host did not possess such a thing as a tub. After considerable delay he brought two large butcher's trays, and the traveler was enabled to take his bath, presenting the appearance of a miniature Colossus of Rhodes. The result was that the water leaked through the floor upon the people below, which caused the traveler considerable trouble.

I think what is called bogus Christianity is chargeable with the degeneration of the baths. One of the first things the Christians did in Rome was to try to tear down the baths and convert them into unnecessary churches. You will find in Rome at the present time scarcely such a thing as a public bath, only two or three floating arrangements, but several hundred unnecessary churches. They have been built almost entirely from unused public baths. The baths have been torn down and to-day serve as churches or convents.

I was reading regarding one of the early fathers who was supposed to be very eminent in piety and canonized because of his little regard of appearances. He was filthy and had three hundred patches on his pantaloons, and was canonized because it was believed that the purest souls were found in the dirtiest bodies. What this country needs is the promulgation of the gospel of life, and I do not know of anything more conducive to pure minds than ample facilities for personal cleanliness. The Turkish bath is one of the best ways by which it can be promulgated.

A celebrated doctor in Vienna called attention to the fact that a hot, followed by a cold, shower bath caused the blood corpuscles to be increased in number from 35 to nearly 50 per cent. That seems unreasonable, but I have repeated his experiments, and while I have found no instance in which the increase was so great as 50 per cent., I have frequently found an increase of from 10 to 20 per cent. But that is considerable when we have an area of nearly two thousand square yards in the body.

I think we must consider this bath as one of great value. It is not that the corpuscles are originated, but simply brought out of their lurking places. They accumulate in the spleen, viscera and liver, whereas by the circulation they are brought into the stream of the blood, whereas before they were stagnating. So that the Turkish bath becomes the means of increasing the general vitality, and at the same time preserves the corpuscles from destruction. I do not think anything can be of greater benefit than the Turkish bath.

MASSAGE IN CASE OF APPENDICITIS.

Read before the Scandinavian Society of Teachers of Gymnastics, Stockholm.[1]

BY ASLEY LEVIN, M.D.

All authors on internal medicine whom I have studied on this subject (Niemeyer, Eichhorst, Strümpell, Kunze, etc.) regard it unanimously to be the first rule in the treatment of appendicitis, to let

[1] Translated by Hugo Oldenborg, Central Music Hall, Chicago.

the patient have complete immobilily, not even allowing examination with palpation. In all the papers on gymnastics which I have perused, I have not found a single word mentioning the benefit or even the possibility of a gymnastic treatment for the disease in question. As far as I know, the only publication on the subject to be found is in the report from the Swedish Medical Congress in Norrköping, 1887, where Dr. A. Wide reports about four cases which he has treated. During the last years some masseurs have made use of massage in this disease, regarding the treatment as often very serviceable, although always more or less dangerous. I wish to present my experience on the subject. It may first be necessary to distinguish the meaning of the word appendicitis.

Authors on medicine speak of three different diseases, all of which may be included under the name of appendicitis. They are typhlitis, perityphlitis, and paratyphlitis. Typhlitis is an inflammation of the intestinal wall; perityphlitis of its serous membrane, and paratyphlitis means an inflammation of the porous connective tissue behind the appendix, between that and the rear abdominal wall. The difference between these three is often difficult to determine, especially as they often pass into each other and may be found simultaneously.

The disease usually commences as a typhlitis or a perityphlitis and may remain in this stage, or later on develop into paratyphlitis. During the course of the disease we can plainly distinguish two stages. The first stage, the acute, is characterized by fever, pain and great soreness. The second begins when the fever has subsided, the pain decreased and the bowels moved. The most marked symptom is soreness, localized in a circumscribed place. It is observed when the patient makes a stronger contraction of the muscles of the abdomen or of the lower extremities. It is also felt on pressure.

The treatment is quite different during the different stages. In the acute stage complete immobility, ice, opium, etc., are prescribed, and only in the second stage of the disease has massage, as far as I know, been applied by some masseurs.

In the manual method of treatment the rule is, and in some respects even more than when treating the disease by medicines, *tentare licet* (hasten slowly). Without trying something new, without testing the adaptability of the method on new regions of the body, we would here, no more than elsewhere, not be able to make any progress. Furthermore, with the means which one has, literally speaking, in one's own hand, there is less danger attached to experimentation than with many other methods. All of us have been happy to witness how the therapeutic gymnastics continually enlarges its field of work and takes possession of additional diseases for treatment. May I then be permitted to describe the method I have followed, and which may be an example of many other methods that are pursued by other masseurs.

Case 1.—A man, 40 years of age, who was treated by me in 1884. Seven years previously he had suffered from appendicitis, having had fourteen relapses, several of which were quite serious. Seven or eight months have intervened since the last attack. The patient consulted me for a stubborn constipation, which had followed as a result of the disease, and probably the constipation was the cause of the many relapses. There was also a moderate soreness in the fossa ileo-cecalis. I started the treatment with much cautiousness and a feeling of respect for the dreaded disease. The treatment consisted of bowel-massage, given in the beginning with great precaution, on the right side; but as the soreness gradually disappeared the strength of the treatment was increased, and finally all the soreness having gone, this side was especially worked upon. The stools became more and more regular, and there was no need of any more treatment. The patient had then been treated during four or five months. Perhaps the function of the intestines varied after that and occasionally required repeated treatment, but in the mean time there has been an absence of relapses. The last effect of the treatment was, so to say, added to the bargain, because it was not expected from the beginning, as I could hardly have hoped to obtain such a result.

Case 2.—Encouraged by the result secured in the first case, I eagerly started in with my second case in 1885. Mrs. K., of 20 and some years, was taken ill with appendicitis (typhlitis, peri- and paratyphlitis) after a cold. She was attended by a colleague here, and after consultation with him I commenced the treatment about five weeks after the disease had set in, and three weeks after the patient had left the bed. There still remained a rather considerable resistancy along the cecum with moderate soreness, except on one single spot, the size of a finger tip, located about the middle between the navel and the right anterior superior spine of the ilium, which point was very sore. The treatment now consisted of gentle massage of the resistant part, avoiding the tender spot. After a couple of months there was nothing to be found of the resistancy. The circumscribed soreness, however, still remained, although it had somewhat decreased in severity. The stools were always normal.

These two cases are to be regarded only as results from the appendicitis, or, at least, as such cases in which the acute stage has already passed. All of the cases treated by other masseurs have been similar.

Case 3.—Contemporary with the above mentioned case, I received a third one for treatment. The patient was a man, 37 years old, who accidentally slipped down on his right leg from the last step of a staircase, and landed on the heel with straight knee. He felt a sudden pain in the right side of his abdomen, and eight days later noticed soreness in the side. On the eleventh or twelfth day I was called and found the patient suffering from pains and great soreness over the lower part of the right side of the abdomen. Constipation had been present for three days, and there was slight fever. The usual treatment was carried out, immobility, ice and opium. The pains soon subsided; the soreness disappeared, and the temperature became normal. On the ninth day I tried to effect evacuation by means of an injection, but did not succeed. I ordered another injection for the evening and returned the following day in company with a colleague. No stools. Two great injections did not have any effect, but as there was no soreness I gave a common bowel-kneeding, beginning with great care, but by and by, as no pain was felt and gases began to leave the patient, a matter that had not occurred before, I increased the vigor of the treatment. The patient soon felt an inclination to move the bowels, and a small injection had the desired effect. As the patient lived some six miles distant from me out in the country, I was only able to treat him irregularly with massage during one month. The soreness in his right side disappeared, however, entirely during this time; the stools became normal, and since then he has had no relapses.

In this case the treatment was begun nearer the acute stage; but all fever having disappeared and the soreness already much reduced, we considered the acute stage as being passed, although the patient had not yet had any stools, when the treatment was started.

During the winter 1887 I spent a month in London in order to pursue at the very place the so much spoken of "method" of Mr. G. H. Kellgren. In my opinion it does not decidedly differ from the method of Ling, upon which method it was admitted to have been based; but in some cases it was carried out quite differently. For instance, a couple of manipulations were used, already mentioned by Ling, and also in our gymnastic institutes. Kellgren, however, practiced them a good deal more and had technically improved them. These were nerve-friction (our nerve pressure) and vibration (a very slight and fine shaking or trembling motion). Beside that, the whole gymnastic treatment was given during a much

longer time and with more energy than is generally the case here.

The above mentioned manipulations were also used in several acute diseases, such as fevers, etc., which generally have been regarded as unsuitable for mechano-therapeutics. I am sorry to say I had not the opportunity of following up such a case, but judging by from what I heard and regarding the splendid technique that was displayed and which I also tried to practically learn, I decided to try this kind of treatment as soon as an opportunity presented itself. I thought especially of the appendicitis which Kellgren said he had treated during the acute stage and with good results.

Case 4.—It was not before 1888 that I had an opportunity of trying the method on a more acute case. It was when the same lady whom I had treated before (Case 2) had a relapse. I started treatment on the fourth day, while there was still a great deal of soreness and fever (38 to 39 degrees C.) existed. It consisted then of extremely fine vibrations just over the most sore place. I argued like this: Here is a stasis; if I were now able to produce a motion which on one side is strong enough to cause an excitation of the debilitated tissues, especially in the vessels, but, on the other hand, is not so vigorous as to tear possibly existing adhesions, the effects must be beneficial. I regarded the vibrations to be such movements, if they were carried out, that the trembling of the arm and hand is transferred to the underlying parts without so great a motion being produced, that no rubbing or dislodgment of adjacent tissues could take place. I would not, even now, begin the very first day. The treatment with ice and opium was resorted to as before. The exceedingly sore abdomen could not only stand my treatment, but the patient felt relieved; it had even a soothing effect upon her. The first day the treatment only lasted for five minutes; the second it was increased to fifteen and it then relieved the pain and decreased the pressure in the abdomen by causing gases to escape for the first time. So also the following day and when on the seventh the fever had disappeared and an injection of water was given with good result, the attack was over. Massage and vibrations were then continued. One week later all resistancy was gone, but the old sore point still remained.

Case 5.—In the summer of the same year, 1888, there came to the watering place of Bie, a 17 year girl, Miss A. In the spring of 1887 she had a slight attack in the ileo-cecal region, which, however, by her physician was not regarded as a real inflammation, until the patient in the spring of 1888 had a strongly marked appendicitis, leaving a soreness in a small place, also the one localized about midway between the navel and spine of the ilium, anterior superior dextra. There were also found so-called cellulites (infiltrations) in the subcutaneous connective tissues of the abdomen, which possibly started after the long lasting cold compressions that were used during the attack in the spring. There was no resistancy to be observed except in the sore spot, the size of a finger tip. The treatment consisted of general abdominal massage, directed partly against the subcutaneous infiltrations, partly against the slowly acting intestines, and especially against the sore point. The patient was getting along all right, when one day I saw her in a running race down a long steep hill. Being below, I immediately stopped her, but it was too late. The following morning I received notice that she had been taken ill during the night with pains in the right side and very much increased soreness, slight aching, but no fever. The patient, as well as her mother, who was along with her, were convinced that it was a relapse, because the previous attack had begun under the very same circumstances and with the same symptoms. Treatment was immediately commenced, and as the usual massage could by no means be endured, I resorted to vibrations during half an hour and repeated this treatment twice the same day with a constant diminution of the pain. There was slight fever in the evening. The following morning no fever was present; the pain had nearly disappeared, and the soreness decreased. After the first treatment this day the patient felt entirely well and wanted to leave the bed. She remained in bed that day, however, received one more treatment, and felt completely well the next day. The massage treatment was continued with the result that the patient did not feel anything but a little soreness on pressure at the above mentioned point.

In December of the same year she came back again in order to get this soreness, which had now somewhat increased, worked away. I had hardly treated the patient a week before she happened to slip on the floor and fell, and, as she expressed it, sprained her right side. She immediately felt pain again in the old place. The pain and soreness increased, so that at my visit the following day they were pretty severe and did not permit of the usual kind of massage. I took up the vibrations at once and after half an hour of treatment the pain disappeared, and the soreness was not worse than before. The following day the condition was as usual. After that, I treated the patient occasionally without being able to entirely remove the soreness in the above mentioned point.

Case 6.—The same year I had at the Central Gymnastic Institute another patient with recurrent appendicitis. Miss T. was 19 years of age. She suffered in February, 1886, from appendicitis. In May, the same year she had a relapse after an improvement. Since that time she has had soreness in the ileo-cecal region, which later spread over the groin and the whole hip, with pain in the small of the back and the whole right leg, attended with increased difficulty in walking. Nov. 22, 1888, she came to me for treatment at the Central Gymnastic Institute. During the first month her condition was unchanged, with considerable pain in the small of her back, right hip and groin, and a great deal of hardship in walking. Great soreness in the ileo-cecal region, with the resistancy spreading in the right side of the abdomen. During the stop at Christmas time the patient had a relapse without known cause, Jan. 9, 1889. I was called the 10th, when the patient had pain in her right side which had considerably increased in severity, accompanied with soreness and slight fever (38 to 39 degrees C.). I immediately gave the treatment with vibrations and afterward ordered ice and morphin. The treatment was repeated two or three times this day, also the following day for from fifteen to twenty minutes each time. As the patient felt greatly relieved and pain and soreness had materially decreased after every treatment, ice, as well as morphin, was discontinued after the second day. On the 15th the temperature was normal; an injection was given with the desired result. A couple of days later she was up, and after a fortnight more she appeared again at the Institute, to which place she had quite a distance to walk. This case showed what a different effect the treatment has when the vibrations are properly given. As my time in the beginning of the term was so much occupied that I could not possibly visit the patient more than once a day, I desired to let some of the pupils from the Institute (now in their second year) try the treatment in such a delicate case. Consequently I let the pupil which had previously treated the patient at the Institute, who had given very good movements, and when giving the abdominal massage to the patient (which she had done for a month previously) displayed marked ability in moderating the strength of the movements, again accompany me and give treatment with vibrations. The patient, however, had marked soreness during the whole treatment which lasted quite a while after the treatment was discontinued. Treatment was again tried, but with the same result. My own treatment gave, as before, relief. I did not dare let this pupil continue the treatment, but took another, whom I had found previously to give the best vibrations, although she had not before treated this patient, and had not even had a case resembling it. Her treatment was tolerated very well from the start and afforded relief. I might remark here that the patient did not like to change the masseuse she once had become accustomed to. When she returned to the Institute she was treated once daily with massage and light passive movements. As the soreness passed away the strength of the movements was increased, with the result that when the patient stopped May 15, the soreness was very nearly gone, and the resistancy could hardly be felt. She could walk without any trouble, and her bowels moved regularly, daily. Since that time she has had no relapse.

Case 7.—Mrs. D., 33 years of age, came April 1, 1889, to the Central Gymnastic Institute. She had had perityphlitis December, 1883, a relapse during the summer, 1884, since which time there was soreness in the right side. The patient felt "tired and weak"; the slightest exertion produced additional soreness and even pain for a couple of days. She suffered from another relapse in January, 1889. During the last two weeks she has been treated with massage by a colleague in this city and has improved. Now she gave evidence of slight pain, a great deal of soreness on pressure in the cecal region, especially at a point a little below the middle between the navel and the right superior spine of the ilium; pain in the sore region when bending or turning the trunk; also in case of longer and more rapid walks. Stools fairly regular. After a month of treatment with massage and light movements, her strength was considerably increased; there was no pain experienced

while walking or in moving the body. The soreness on pressure remained, though very slight. Her bowles moved regularly.

Case 8.—In April, 1889, Mrs. Y. (See cases 2 and 4) had another relapse. This time, as before, she suddenly complained of pain and great soreness which came on at once; later a high fever developed (38.3 to 40.1 C.). The same colleague was called who treated her before and the treatment consisted of ice, morphin and opium. I began the following day to give vibrations and my colleague, who had been very doubtful as to the benefit of this treatment, had to acknowledge its good effect. It gave more relief than the ice. The treatment was given twice a day, and at the end of seven days the attack subsided. The after-treatment, which was continued for some time, could not even now remove the soreness in the old place.

Case 9.—In October of the same year another relapse occurred in the same patient, which was just as sudden and severe. This time I had the opportunity of giving two treatments the first day, which afforded so much relief that neither ice nor opium was used. The temperature ranged from 38 to 39 degrees C.

A brother of Director Kellgren in London, Dr. Arvid Kellgren (also from London), who happened to be in the city, was kind enough, at my request, to accompany me the following day and give the treatment, which in manner was the same as I had previously given, but in execution undoubtedly much better, as his technique was exceptionally good. After his first treatment, which was kept up for half an hour, the pain decreased very much. We then both continued the treatment for half an hour each daily until the fifth day, when the patient was able to leave the bed. After that I gave a long after treatment, following which she felt less of her sore spot than ever after the first attack. But the soreness did not disappear entirely. This lady was pregnant in 1887 and 1888 which condition normally progressed without any influence upon the soreness in her right side. During none of the relapses was there any soreness to be found in the pelvic regions, which were always examined.

My opinion as to the use of therapeutic gymnastics in the treatment of the above-mentioned disease, judging from the experience I have had, and what I have found out from other masseurs, is that the indications are quite different in different stages of the disease. My opinion is decided about the later stage, the so-called "after stage," which, as above mentioned, has hitherto been the only stage where mechano-therapeutics have been used. I regard the treatment in this stage, as a rule, both useful and beneficial. The anatomic alterations consist in most cases of effects that are left after the inflammation has subsided. These effects consist sometimes of adhesion between the cecum and the surrounding tissues, as the abdominal wall, other intestines, etc., resulting from the inflammation of the serous membrane of the intestine. It is very natural that in proportion to the degree that these adhesions are short and broad, they will obstruct and limit the peristaltic action and to the same degree, when they are lengthened, this hindrance will decrease. A strong bowel kneading which will make the intestines move about each other, helps to extend and lengthen those adhesions, without tearing the intestinal walls, because of the now well organized condition of the results of the inflammation. Such a movement must consequently be very beneficial and there is no reason to suspect any danger.

Another effect depending upon the inflammatory process in the intestinal wall is a remaining edema, which renders the intestinal wall thicker, its muscles less powerful, and consequently the whole action of the intestine is lessened. From this there results an inclination for constipation, and the constipation on its side is generally the cause of the relapse. It is, of course, analogous to the effect of the kneading upon any other part of the body, that the direct kneading of the intestine will promote the circulation, remove the products of the disease, and consequently bring the tissues back to their normal stage. If there are no other changes in the intestinal wall we can not suppose that such a kneading would be of any danger. Had there been paratyphlitis, that is, an exudation of pus behind the cecum, the amount of pus would regulate our action. If the amount is rather limited, an infiltration, it is often absorbed without any interference from the outside. Careful massage or, perhaps better, vibrations will then increase the tissues' power of resorption, distribute the pus, and prevent it from accumulating and forming an abscess. If, on the other hand, the amount of pus is so great that an abscess really exists there, it is very doubtful if any kind of manual treatment would be beneficial. It might be a source of danger in producing a rupture and, above all, we can sometimes do more harm than good by this kind of treatment, by deferring what in such a case would be more beneficial—a surgical operation.

In still other cases (cases of real typhlitis) a sore may be developed in the intestinal wall and perforation thus threatened. Such cases are frequent when the disease begins in the vermiform appendix. In most cases such a perforation is prevented by a previously circumscribed peritonitis which solders the threatened place together with the adjacent part of the peritoneum. In this way an adhesion will be developed, which will always be in great danger of breaking before the intestinal wall has healed up again.

All manual treatment during this stage is, of course, dangerous and as the benefit it might produce in promoting resorption does not exceed the danger to which we subject the patient, we must say that this kind of treatment under such circumstances is decidedly contraindicated. If pus is encapsulated somewhere we must think of the possibility that by manipulating the same we might cause an acute inflammation, which will be followed by perforation.

With reference to the acute stage, our experience as yet is so little regarding the treatment, that we would hardly dare pronounce an opinion. So much might be said, however, that the treatment seems to give the patient relief without causing any annoyance or danger; so consequently we are justified in continuing the experiments, observing the greatest caution and possessing as complete a knowledge as possible about the case. It is not advisable for any masseur to try such treatment without being closely controlled by a physician.

In case of relapse I regard it of great benefit to immediately make use of the treatment, because we might be able to abort the attacks in some cases, a matter which, will always be difficult to prove.

Finally, I would again call attention to the fact that the manner in which the movement is given is of the greatest importance, and should be given in such a manner that the hand of the masseur will not injure, but rather have a decidedly beneficial effect. Any other movement would really do harm. Only a good operator in consultation with an expert diagnostician ought to try the manual method of treatment. In

the same degree as more practitioners try this method, our experience will be proportionately increased, and then I hope better methods will be devised and more decided indications given.

ENCHONDROSIS.

Read by Title in the Section on Surgery at the Forty-seventh Annual Meeting of the American Medical Association held at Atlanta, Ga., May 5-8, 1896.

BY MERRILL RICKETTS, PH.B., M.D.
CINCINNATI, OHIO.

While this disease is one of the rarest affecting the human skeleton, it has many interesting features and causes. The literature pertaining to it is indeed scarce, but few cases being reported, and those by Berg of Stockholm within the last year.

The principal causes assigned in the twenty-one cases referred to were syphilis, tuberculosis, typhoid fever and trauma. When once the cartilage becomes diseased there seems to be no remedy but complete removal and also a portion of its bony attachment.



FIGURE 1.—H. McK. Aged 37 years. Injured June 29, 1895. Abscess apon. Opening Sept. 29, 1895. October 19, curetted. November 1, removed two inches seventh cartilage. December 1 curetted sternum and removed part of cartilage of seventh, eighth and ninth. February 4, removed part of cartilage of seventh, eighth and ninth cartilage. March 11, 1896, removed cartilage and three-quarters of an inch of bone of the sixth, seventh, eighth, ninth and tenth; also curetted sternum and removed double pedunculated flap from left side to cover entire granulating surface. Recovery. "Traumatic chondritis."

The accompanying report of a case of traumatic enchondrosis illustrates the amount of destruction which may result from an injury to the perichondrium: H. M., age 37, white, American, received an injury to the right seventh costal cartilage on June 7, 1895. An indurated mass appeared about one and a half inches to the right of the median line over the seventh costal cartilage. An abscess appeared which was opened on the 20th day of September following; this continued to discharge pus until October 19, when he was brought to my office by Dr. J. K. Brammer, his attending physician. Cocain was injected and an incision made about two and a half inches long. It was found that the cartilage was diseased, necessitating a thorough curetting. He returned November 1, no improvement having taken place. Two inches of the seventh cartilage was removed at this time. On December 1 the sternum was thoroughly curetted and a portion of the seventh, eighth and ninth cartilages removed. Still there was no improvement, the disease gradually extending. Feb. 4, 1896, another portion of the seventh, eighth and ninth cartilages on the left side, allowing the space from which it was taken to granulate. A drainage tube was passed beneath the entire flap. He made a rapid and uninterrupted recovery and is now able to perform work of any kind.

In conclusion I would offer the following suggestions:



FIGURE 2.

1. None but the most radical operations should be made at the onset of the disease.
2. At least one half inch of the bony attachment of the cartilages should be removed.
3. Great care should be exercised to prevent puncturing the pleura.
4. Surgical anesthesia should always be resorted to, as it is difficult to determine the extent of the disease before operating.
5. If the sternum be diseased a portion of the normal should be removed with the diseased tissue.
6. Unless bone is removed with the cartilages, the wound should be allowed to heal by granulation and not by flaps, as fistulæ indicate the diseased tissue.
7. Flaps should be resorted to when possible.
8. There is no evidence that medication is of any avail.

The Trinidad, 415 Broadway.

REPORT OF FIVE HUNDRED CASES OF INTUBATION OF THE LARYNX.

Read before the Colorado State Medical Society, June 17, 1896.

BY F. E. WAXHAM, M.D.

PROFESSOR OF DISEASES OF THE CHEST, LARYNGOLOGY AND RHINOLOGY, GROSS MEDICAL COLLEGE; ATTENDING PHYSICIAN NOSE, THROAT AND CHEST DEPARTMENT, ST. JOSEPH'S HOSPITAL. DENVER, COLO.

It has been my pleasure to have reported, on a previous occasion, 466 cases of intubation. To this number I can now add 37, making a total of 503. Of these thirty-seven cases there were seventeen recoveries, or 46.64 per cent. Many of these cases were beyond all hope when the operation was performed. Several were complicated with scarlet fever and some with measles, and in these cases the operation was simply performed for euthanasia, much to the detriment of a good record. In nine cases antitoxin was administered with six recoveries, or 66.66 per cent. In order to complete the record I desire to publish the following cases:

Case 467.—Diphtheria of pharynx and larynx; age 6 years. Wore tube seven days; complete recovery.

Case 468.—Diphtheria of nasal cavities, pharynx and larynx; age 18 months; patient died within thirty-six hours.

Case 469.—A case of malignant diphtheria with larynx involved. Great relief from dyspnea afforded by the operation, but patient died within twenty-four hours from exhaustion; age 7 years.

Case 470.—Semi-malignant diphtheria of nasal cavities, pharynx and larynx; patient died three days after the operation from exhaustion; age 3 years.

Case 471.—The case was considered to be one of membranous croup, as no membrane was visible in nasal cavities or pharynx. Patient wore tube nine days, making a good recovery; age 3 years; other children in the family developed pharyngeal diphtheria.

Case 472.—Patient died on third day after operation from extension of membrane to the finer bronchi; age 4 years.

Case 473.—Diphtheria of nasal cavities, pharynx and larynx; wore tube ten days; complete recovery; age 16 months.

Case 474.—Patient dying from suffocation when operation was performed; wore the tube four days; perfect recovery; age 20 months.

Case 475.—A case of laryngeal obstruction complicating measles. Operation gave relief to the urgent dyspnea, but patient died from exhaustion within twenty-four hours; age 20 months.

Case 476.—A case of laryngeal diphtheria. Operation gave relief for twenty-four hours, when obstruction occurred below the tube which could not be expelled on removal of the tube. Tracheotomy was done and a membranous cast of trachea and larger bronchial tubes was removed. Patient died forty-eight hours later from bronchial obstruction due to the reformation and extension of the membrane. Age 13 years.

Case 477.—Diphtheria of pharynx and larynx; wore tube four days; uneventful recovery; age 3 years.

Case 478.—A bad case of diphtheria involving the larynx; wore the tube ten days before it could be dispensed with. General paralysis occurred, involving muscles of throat; necessary to feed through stomach tube; slow but complete recovery; age 3 years.

Case 479.—Operation gave relief, but patient died twenty-four hours later from extension of membrane. Age 5 years.

Case 480.—Operation gave relief for forty-eight hours, when obstruction occurred below the tube. The tube was removed, but the patient was unable to expel the offending membrane and immediately became asphyxiated. Tracheotomy was quickly done after respiration had ceased and the patient resuscitated. A membranous cast of trachea and bronchial tubes was removed. The case did well for thirty-six hours, when reformation and extension of the membrane occurred and the patient died; age 5 years.

Case 481.—A case of malignant diphtheria terminating fatally twenty-four hours after operation; age 3 years.

Case 482.—A sister of the previous case; malignant and fatal within twenty-four hours; age 4 years.

Case 483.—Diphtheritic case; wore tube four days; recovery; age 4 years.

Case 484.—Wore tube five days; recovery; age 3 years.

Case 485.—Diphtheritic; died three days after operation from extension of membrane to the finer bronchi; age 11 mos.

Case 486.—Wore tube five days; uneventful recovery; age 8 years.

Case 487.—A diphtheritic case; prompt relief was given, but case terminated fatally within thirty-six hours from extension of membrane; age 12 years.

Case 488.—The case was one of edema of the larynx associated with very severe form of scarlet fever. The patient died from edema of the lungs within twenty-four hours after the operation; age 17 years.

Case 489.—A case of scarlet fever attended with laryngeal obstruction. The case was hopeless when operated upon and died within twenty-four hours; age 3 years.

Case 490.—Wore the tube six days; uneventful recovery; age 5 years.

Case 491.—Wore tube six days; antitoxin administered; good recovery, although slow; a secondary attack of pharyngeal diphtheria occurring within three weeks; age 3 years.

Case 492.—Wore the tube nine days, making a good recovery; age 7 years.

Case 493.—Patient very low with scarlet fever accompanied with laryngeal obstruction. There was but little relief from the operation and the child died within a few hours; age 2½ years.

Case 494.—The patient was very feeble and died within thirty-six hours; age 3 years.

Case 495.—Antitoxin used: patient nearly moribund from asphyxiation; wore the tube four days; recovery.

Case 496.—Patient died within twenty-four hours after the operation; age 3 years.

Case 497.—Diphtheritic case; patient greatly exhausted from difficulty of respiration; antitoxin employed; wore tube five days; good recovery; age 2 years.

Case 498.—Wore tube nine days before it could be dispensed with; antitoxin used; recovery; age 3 years.

Case 499.—A very bad diphtheritic case; patient nearly dead and lower trachea and bronchial tubes already invaded; intubation gave no relief on account of obstruction in trachea and bronchial tubes which could not be expelled; tracheotomy performed and patient died within twenty-four hours; age 2 years.

Case 500.—A bad diphtheritic case, nose, throat and larynx being involved; four other bad cases of diphtheria in the family; antitoxin used; wore tube five days; recovery; age 2 years.

Case 501.—A case of pharyngeal and laryngeal diphtheria and patient greatly exhausted from long continued dyspnea; antitoxin used; wore tube five days; recovery; age 3 years.

Case 502.—A case of laryngeal diphtheria, no membrane being visible in pharynx; child suffering from intense dyspnea; case terminated fatally within thirty-six hours from extension of membrane; age 7 years.

Case 503.—The patient did well for four days, when the tube was removed. Within a few hours the stenosis returned and before reaching the patient death had occurred from suffocation; antitoxin used; age 3 years.

In conclusion, arranging my cases in series of 100 consecutive cases the record to date is as follows:

FIRST ONE HUNDRED CASES.

Age.	No. Cases.	Recoveries.	Percentage.
Under 1 year	5	1	20.00
1 year	13	2	15.38
2 "	22	4	18.18
3 "	17	2	17.76
4 "	15	7	46.66
5 "	9	3	33.33
6 "	5	2	40.00
7 "	8	2	25.00
8 "	4	3	75.00
9 "	1	1	100.00
10 "	1	0	00.00
Total	100	27	27.00

SECOND ONE HUNDRED CASES.

1 year	17	5	29.41
2 years	15	2	13.33
3 "	14	4	28.56
4 "	22	7	31.81
5 "	9	6	66.56
6 "	8	3	37.50
7 "	6	4	66.66
8 "	1	1	100.00
9 "	3	2	66.60
10 "	1	0	00.00
12 "	2	0	00.00
13 "	0	0	00.00
14 "	0	0	00.00
Total	100	34	34.00

THIRD ONE HUNDRED CASES.

Under 1 year	5	2	40.00
1 year	11	2	18.18
2 years	13	5	38.46
3 "	19	11	57.72
4 "	22	9	40.90
5 "	10	5	50.00
6 "	7	1	14.28
7 "	6	3	50.00
8 "	2	0	00
9 "	2	0	00
10 "	1	1	100.00
20 "	1	0	00
43 "	1	1	100.00
Total	100	40	40.00

FOURTH ONE HUNDRED CASES.

Under 1 year	2	1	50.00
1 year	11	3	27.27
2 years	20	7	35.00
3 "	19	10	52 63
4 "	20	7	35.00
5 "	11	4	36.36
6 "	5	1	20.00
7 "	5	1	20.00
8 "	3	2	66.66
10 "	2	1	50.00
11 "	1	1	100.00
60 "	1	0	00
Total	100	38	38.00

LAST ONE HUNDRED AND THREE CASES.

Under 1 year	2	0	00
1 year	14	3	21.42
2 years	16	10	62.50
3 "	29	11	37.93
4 "	14	6	42.85
5 "	7	2	28.56
6 "	2	1	50.00
7 "	7	1	14.28
8 "	4	3	75.00
9 "	1	0	00
10 "	2	1	50.00
12 "	2	0	00
13 "	1	0	00
17 "	1	0	00
36 "	1	1	100.00
Total	103	39	38.83

TOTAL NUMBER OF CASES.

Under 1 year	15	4	26.66
1 year	76	16	21.05
2 years	97	35	36.08
3 "	114	43	37.89
4 "	104	41	39.42
5 "	50	21	42.00
6 "	28	8	28.57
7 "	36	11	30.55
8 "	17	11	64.70
9 "	8	3	37.50
10 "	9	4	33.33
11 "	1	1	100 00
12 "	5	0	00
13 "	2	0	00
14 "	1	0	00
17 "	1	0	00
20 "	1	0	00
36 "	1	1	100.00
43 "	1	0	00
60 "	1	0	00
Total	503	178	35.38

I can not close this paper without emphasizing the importance of the use of antitoxin in cases of laryngeal diphtheria. I am fully convinced that antitoxin limits the extension of diphtheritic exudation as does no other remedy that we possess and as the danger lies chiefly in the extension of this membrane it is apparent that the remedy should be employed early before the membrane has extended to the lower trachea and to the bronchial tubes. In a case of diphtheria, the very moment that it is evident from the slightly embarrassed respiration and croupy cough, that the larynx has become invaded the remedy should be used. By the early use of antitoxin in these cases not only will many operations be avoided but many cases requiring operation will be saved that would otherwise perish. In corroboration of this statement I would say that since the general use of this remedy in Denver I have been called much less frequently by my *confrères* to operate than formerly, and in those cases operated upon a much larger percentage have been saved.

THE EMINENTLY SCIENTIFIC NATURE OF OUR PATENT AND COPYRIGHT LAWS.

THE KLEBS ANTIPHTHISIN CASE.

BY F. E. STEWART, M.D., PH.G.
DETROIT, MICH.

For the purpose of promoting progress in science and the useful arts the Constitution of the United States gives Congress the power to grant to authors and inventors for limited times the exclusive use of their respective writings and discoveries. On the clause in the Constitution referred to, our patent and copyright laws are based. The question at issue is the right to copy. The copy right law refers to the right to copy the writings of others; while the patent laws refer to the right to copy the inventions of others. Now I propose to show that it is just as equitable for the medical profession to endorse the patent as applied to medicine, as it is to endorse the copyright as applied to literature. At the same time I hope to make it clear that so-called "Patent" medicine business is a misnomer; and I hope to show that what is generally known as the "Proprietary" medicine business possesses no property in medicines whatever, and is a misnomer likewise.

All will admit that the promotion of science and the useful arts is of great benefit to society at large, and any fair minded man will agree that capital invested in business should be properly protected. If, therefore, there is a law which will protect both science and commerce at the same time such a law must be truly beneficent. Such exists in our patent law, which, if properly applied is capable of effecting that most desirable end.

"A patent is a contract between the inventor and the government representing the public at large. The consideration moving from the inventor is the production of a new and useful thing, and the giving to the public a full knowledge thereof by means of a proper application for a patent, whereby the public is enabled to practice the invention when the patent expires. The consideration moving from the government is the grant of an exclusive right for a limited time, and this grant the government protects and enforces through its courts." Simond's Manual of Patent Law, p. 11.

The patent office at Washington is a great bureau of archives representing progress in science and the arts in the United States. Any one who wishes to post himself in regard to inventions in any special line of work can obtain full knowledge of everything patented in that line by applying at the patent office. Models, drawings, descriptions, working formulas, are all there for inspection; and he can secure, at small cost, copies if he so desire.

Many useful arts of the ancients have been lost to the world for lack of publication which would have been preserved if patent laws similar to those devised by our law makers had been in force. The necessity of securing the publication of the art of manufacture of every medicine must be apparent to every one. In case of a *patented* medicine such publication is secured. Moreover, the inventor, to whom the world is indebted for the discovery of a new and useful thing receives well merited reward for his labor.

The patent law provides "That any person who has invented or discovered any new and useful art,

machine, manufacture, or composition of matter, or any new and useful improvement thereof, not known or used by others in this country, and not patented or described in any printed publication in this or any foreign country, before his invention or discovery thereof, and not in public use or on sale for more than two years prior to his application, unless the same is proved to have been abandoned, may upon payment of the duty required by law, and other due proceedings had, obtain a patent therefor." Sect. 24, Act of July 8, 1870.

It may be observed, first, that an invention for which a patent is sought must be original with the applicant; second, it must be new and useful; third, full knowledge of it must be filed at the patent office; fourth, the grant is limited to a term of years at the end of which the monoply ceases, and the invention becomes common property.

If all these requirements are not complied with the patent is invalid, even if granted, and the courts owe it to the public not to protect inventions when the demands of the patent law are ignored. Now I contend that the enforcement of these demands, when patents for medicines are applied for, would do much to correct the abuses which are throwing our laws into disrepute in their relation to medicinal preparations.

The inventions specified as patentable are:

1. An art or an improvement of an art.
2. A machine or an improvement of a machine.
3. A manufacture or an improvement of a manufacture.
4. A composition of matter or an improvement thereof.

To define what constitutes a new art, machine or manufacture, or an improvement thereof is sometimes a difficult task. But it is far more difficult for courts to define what constitutes new and useful compositions of matter or compositions thereof. The law requires that an invention to be patentable, must be "*new* and *useful*." To define what are new and useful compositions of matter may require the most profound knowledge of chemistry; and when referred to therapeutic inventions, a score of expert physicians and chemists might be required to settle it. Yet patents have been granted without any attempt being made worthy of the name to ascertain whether the alleged inventions conformed to the demands of the patent law or not. More care should be taken to carry out the wise provisions of the Constitution in this connection, so that the patent law shall promote and not hinder progress in the science of therapy and pharmacy. Surely no patents should be granted for medical compounds unless the applications are first submitted to a commission of physicians and chemists to pass thereon; and the courts should not attempt to decide questions of infringement without first consulting such a commission.

Another point of great importance in the application of patent law to medicine is the question of naming new compositions of matter. Mistaking the nature of the patent privilege some inventors have registered the names of their inventions as trademarks for the purpose of continuing the monopoly after the patents expire, and thereby defeating the patent law. Now it is cerainly true that if the only name by which a compound is known may be legally used as a trade mark, it is equally true that its use as a trade mark may be continued indefinitely after the patent has expired, so that the trade mark law may render the patent law ineffective so far as promoting progress in science and the arts is concerned. But when the patent expires the article, according to the contract between the inventor and the government, becomes common property. Surely, under the contract, it is not fair to permit the inventor to exercise a perpetual control over the name of the article and thus exclude the public from an equal chance in its manufacture and sale. Moreover, the name by use becomes descriptive of the article, and it is an axiom of law that a descriptive name can not be made a trade mark.

Mr. George H. Lothrop of Detroit, one of the most eminent patent lawyers in America, in a conversation recently used an illustration which seems to make clear the absurdity of claiming the only name of an article as a trade mark. He said: "When a baby is born into the world, a name is given it. Does the name of the baby belong to the baby or to the one who gave the baby its name?" Every new thing born into the world must have a name; and that name belongs to the thing, not to the one who named it. While the patent is in force the use of the name is restricted to the patentee along with the invention, but when the patent expires both should, and I hold that they do, become common property.

Now, as we have no law in this country granting the exclusive use of articles of trade to individuals except the patent law, and as every article not patented in which the world is trading is free to the public to manufacture and sell, it follows that there is no property in a medicine unless it is patented. The majority of medicinal compounds on the market are not patented. The reasons for this are various. First, only a few of them are patentable, being mere aggregations of old and well-known drugs. Next, the manufacturers had rather rely on secrecy and semi-secrecy for protection than expose their trade secrets by an application for a patent. Then the monopoly permitted by the patent law is limited, and it is possible to monopolize a medicinal compound indefinitely by secrecy as to its true or working formula. But it is hardly a correct definition to call these unpatented compounds proprietary medicines, for it inculcates the idea that there is property in them (which there is not), and that any one except the introducer who may desire to manufacture and sell them is guilty of piracy. As well might every manufacturer of pens, ink, paper, silk and woolen goods, and of every article of commerce not patented be called a pirate. Competition is the life of trade, and it is this mistaken idea that every manufacturer of unpatented articles except the introducers are pirates, imitators and infringers of the rights of others that is throttling the entire manufacturing interests of the United States as far as medicine is concerned.

If the medical profession and the pharmacists of this country would combine on this one thing and demand that every medicinal composition shall be published and provided with a name under which it may be manufactured and sold by all, it would do more than anything else to blot out that great misnomer, the so-called "patent medicine" business. It is a wise and just policy that rewards the inventor of a new and useful composition of matter with a patent. But let no patents be granted for medicines unless there are reasonable grounds for believing that they are new and useful inventions, and then see to it that the scientific and beneficent ends of the patent law

are carried into practice. The protection of labels' trade marks and packages is indispensable to the existence of trade and a great protection to the public, but let it be known that there is no legal warrant in the use of the only name of an article as a trade mark. Such a use of it creates a perpetual monopoly, protects secrecy, kills all competition and is an open door to fraud.

Another very important point in this connection is the right possessed by the government representing the public at large to refuse a patent to an inventor when public policy demands it. The granting of a patent that will hinder progress in science and useful arts is contrary to the policy of the patent law. "The policy of the patent law is, primarily, a selfish one on the part of the public, and only secondarily intended for the benefit of inventors, and then as a means to an end only." Simond's Manual. The same author states that the United States Supreme Court has, twice at least, decided that a principle can not be patented, "and this in one instance when one of the most important of all inventions of all ages was under consideration—that of the electric telegraph." The Government thought that by giving the inventor a monopoly it would delay the development of that most useful discovery, and so refused the application. In the same manner the government has a right to refuse a patent upon a chemical, such as *phenacetin*, for example. A patent on a process or machinery for making the chemical might not be objectionable, but the granting of a patent upon the chemical itself, and thus cutting off all opportunity for developing new and improved methods for its production does not seem wise public policy and compatible with the end in view, viz., the promotion of progress in science and the arts. Especially does the policy seem a foolish one when the manufacture of the chemical is conducted in Germany, and results in the enrichment of a foreign corporation. Still more foolish does it seem when it is considered that Germany will grant no such privileges to American inventors manufacturing in this country and exporting to Germany. But the height of unfairness is reached when our laws are so construed that *phenacetin* is protected in this country so that it costs at wholesale $16 a pound, when, according to the *Chemist and Druggist*, it can be purchased under its chemical name (paraacetphenetidin) in England for about $1.25 per pound.

Now for the practical application of all this to the "Antiphthisin" case. Dr. C. P. Ambler, Associate Medical Director and Laryngologist, Winyah Sanitarium, Ashville, N. C., an institution where that preparation is being exploited, asked the privilege of reading a paper on the subject of "Antiphthisin" before the Section on Materia Medica, Pharmacy and Therapeutics of the AMERICAN MEDICAL ASSOCIATION. As chairman of the Section I gave my consent. This I was justified in doing, as "Antiphthisin" is the invention of the famous scientist, Klebs, of Klebs-Löffler bacillus fame, and Prof. Klebs was present in person to discuss the subject. In the discussion it developed that the product known as "Antiphthisin" is patented in Germany and a patent applied for it in this country. The name "Antiphthisin" is also registered as a trade mark in the Patent Office at Washington. "Antiphthisin" will not be made in this country, but will bear a stamp "Made in Germany." As the Code of Ethics of the AMERICAN MEDICAL ASSOCIATION forbids physicians prescribing patented medicines it is not surprising that there were members present who seriously objected to permitting Dr. Ambler's paper to go unchallenged. Accordingly a resolution was passed and referred to the Business Committee of the ASSOCIATION in condemnation of "Antiphthisin." The Business Committee is composed of conservative gentlemen who will doubtless decide the question on its merits, yet it would be a very unfair thing to affix any serious penalty on Dr. Ambler for reading his paper, or to take any action under the circumstances that might injure the good name and reputation of Dr. Klebs.

When it is considered that probably 25 per cent. of the medicines prescribed by the members of the AMERICAN MEDICAL ASSOCIATION are claimed as proprietary by their manufacturers is it any wonder that Dr. Klebs considered the rule against proprietary medicines of no binding force, even if he knew of its existence? Was it any more objectionable for Dr. Ambler to read a paper before the Section on "Antiphthisin" than it would have been if he had made the subject "The Comparative Merits of *Phenacetin*, *Antipyrin* and *Salol*"? All these substances are patented, and their names are registered as trade marks.

Now is the time for the AMERICAN MEDICAL ASSOCIATION to take definite action in relation to the subject of patented medicines. Something must be done. The ASSOCIATION will not be satisfied with any compromise measures. The patenting of medicines is right or it is wrong. Personally I believe it is right if the scientific demands of the patent law are complied with. Now that the matter is brought clearly before the ASSOCIATION by the Klebs case let the matter be carefully considered, and acted on in a manner fair to all concerned. If the Code is to be sustained in this instance then let it be enforced all along the line and dismiss every member of the ASSOCIATION who prescribes *phenacetin*, *antipyrin* and *salol*. The Code can not be enforced in this matter. What then shall we do? Shall we indorse the use of patented medicines without qualification, and thereby indorse the nostrum trade *in toto*, to the utter ruin of scientific pharmacy? Shall we repudiate those manufacturing houses who have sacrificed many opportunities of making money by standing by the profession and throw our influence in favor of those who leave no stone unturned to throw the profession into disrepute by advertising to cure incurable diseases and jeering at the medical profession because of its admitted impotence in such cases? These are serious questions that demand an answer and the nostrum trade will not be slow to seize the opportunity to use it for the advancement of the nostrum business unless we answer these questions in such a manner that it will leave no doubt in the minds of the public in regard to our true position. We can not afford to fight the patent law, founded as it is on the Constitution of the United States, as it is eminently scientific and just, but we can demand that it shall be so enforced as to promote progress in the science of medicine and the useful arts of pharmacy and therapy, and not be a hinderance to all progress by patenting principles, protecting secrecy, killing competition and throttling trade under the guise of law.

Ichthyol in Orchitis.—Dr. Leedom Sharp recommends enveloping the inflamed testicle and cord in a 30 per cent. ichthyol ointment.—*Univ. Med. Mag.*, August.

A CASE OF SUPPURATING MASTOIDITIS CURED WITHOUT CHISELING.

BY ALFRED HINDE, M.D.

SENIOR SURGEON EYE AND EAR DEPARTMENT, CENTRAL FREE DISPENSARY; OPHTHALMOLOGIST TO THE NEUROLOGIC CLINIC IN RUSH MEDICAL COLLEGE.

CHICAGO, ILL.

N. McG., a robust Irish girl aged 17, about ten days in the United States, applied on May 8, 1891, for treatment on account of a severe earache of the right ear that had commenced twenty-four hours before and had become progressively worse since its onset. She gave a history of "catching cold" about three weeks previously, adding to it during the voyage across the Atlantic and on the cars to Chicago. On examination marked tenderness was elicited on pressure over the tragus and downward behind the ramus as far as the angle of the inferior maxilla. The drum membrane was intensely reddened, thickened, and its landmarks buried. The adjacent soft parts of the external auditory canal were swollen and injected, especially those of upper posterior wall. The mucous membrane of the nasal cavities was hypertrophic, and it and that of the naso-pharynx was still inflamed and discharging. The Eustachian openings were red and swollen. The ear disease was evidently an extension of the naso-pharyngeal catarrh, and the grade of the inflammation was such that an accumulation of pus was expected in the tympanum as soon as sufficient time had elapsed for its formation. The symptomatic treatment consisted in syringing with hot boric acid solution in large amount, and in a continuous stream into the external auditory canal; hot fomentations of the same solution applied to the region of the affected ear. In the absence of leeches, a fly blister was applied over the tragus. Saline derivatives to move the bowels were advised, and for the usually increased nocturnal pain pills of camphor and opium were ordered to be taken one every four hours as needed. Nasal cleansing with warm salt solution was ordered. The nose and naso-pharynx were daily sprayed with Dobell's solution and an eucalyptol-menthol-vaselin mixture. Beside every second day, after cleansing the naso-pharynx, a dram solution of nitrate of silver to the ounce was applied. Gentle inflation of the Eustachian tube was resorted to after a few days.

Ear pain continued, deafness increased, and a profuse serum-like discharge appeared at the external meatus; then the sufferings ceased. The discharge became muco-purulent and lastly purulent and lessened in amount under the above treatment, and the perforation of the drum-membrane decreased in size. The membrana flaccida was now seen to be bulging and of yellowish-red color and on this, the thirteenth day of the disease, it was freely opened under cocain, but the pain produced by its incision was so severe that the patient did not return for treatment for sixteen days following. During the latter time no treatment was had. She returned, however, with a complete relapse of all the inflammatory ear symptoms and a slight ear discharge. Beside, there was some headache on the right side, and slight tenderness on firm pressure over the right mastoid.

A free incision of the membrana tympani was advised, and a crucial incision was made in its posterior half and much sanguinous pus was evacuated, and a thorough cleansing, with the peroxid of hydrogen and the other solutions, was resorted to. At this period of the disease the Eustachian tube could not be opened by any means whatever. The urgent symptoms decreased rapidly and the case did well for eight days, when another relapse occurred.

The patient became pale and looked sick, the ear discharge continued, the headache and mastoid tenderness returned and increased. A slight edema and redness of the soft parts over the mastoid appeared and a Wilde's incision was suggested but objected to, so that the foregoing treatment was continued. The symptoms increased in severity. The mastoid tissues became more swollen and painful and pyrexia (101 degrees F.) supervened, upon which latter quinin had little effect. She sickened still further and was unable to attend to her domestic duties. During two days she vomited at intervals and was nauseated all the time, and could not eat or sleep. An incision of the mastoid process was urged, but permission was only given to cut through the soft tissues and this was done freely, close to the pinna, through the periosteum, and an inch in length. A small amount of thick, creamy pus was evacuated from beneath the edematous tissues, the wound was irrigated, and the bone was found to be sound and without any opening into it, and permission to open it was positively refused by the patient and her friends. The drum membrane was again incised and the parts thoroughly irrigated. After this the symptoms rapidly decreased and the patient was quite comfortable again for a week. The mastoid swelling and tenderness disappeared so long as the wound remained open, but when it had almost closed she again became ill with a complete recurrence of all the ear, mastoid, head and stomach symptoms and fever. An opening into the affected mastoid was urgently advised but more positively refused. A second incision through the soft tissues over the mastoid was done and a slight amount of pus again let out. The bone was not osteo-porotic but perfectly healthy. No sinus was visible in the exposed field, but after a protracted search in all possible directions with a No. 6 Bowman's probe the latter sunk into the bone through a normal canal to the depth of three-quarters of an inch, and in the upper posterior part of the mastoid process. The incision through the soft parts was now made to expose this opening into the bone. The bone was laid bare and found to be perfectly normal, and undoubtedly the passage-way was a physiologic canal giving exit most probably to an emissary mastoidal vein (the emissarium mastoideum of Santorini). The membrana tympani was again freely incised. Into the newly found opening in the mastoid was inserted the tip of a finely-pointed, tightly-tied medicine dropper whose point diameter was one-sixteenth of an inch. It snugly fitted the entrance and through it was injected a dropper full of sterilized water—the drum perforation being watched at the same time—and pus was seen to ooze from the tympanum into the external auditory canal as the water disappeared from the large bulb of the medicine dropper under extreme pressure into the mastoid cavity.

This was repeated until the external auditory canal was filled with a watery pus and the patient felt fluid running into the throat and coughed it out. An open way was thus demonstrated between the mastoid process and the tympanum and through the Eustachian tube, and seeing that we had no choice, we decided to try and drain the abscess through existent openings. Irrigation was continued until clear water escaped from the ear. The relief of symptoms was almost

immediate and the patient slept well the first night and next day was much improved in appearance, and said she felt almost well—the head and stomach symptoms were all gone. The ear was discharging freely, and we injected a solution of peroxid of hydrogen and watched the bubbles escape through the perforated drum membrame, and the entire external canal became filled with the same, and the patient coughed the froth out of her throat and blew it out of her nose. Afterward a one-half per cent. warm solution of carbolic acid was injected and last of all an alcoholic solution of boric acid was used and the latter caused considerable temporary pain. The mastoid wound was dressed in the usual way and the nose and throat treatment was continued. So rapid and marked an improvement resulted from the daily treatments that at the end of four days the ear discharge had almost ceased and what little was still present was thin, pale and watery, and seen only in the neighborhood of the perforation in the drum membrane. At the end of one week from the initial injection of the mastoid a mere speck of watery moisture at the site of the drum perforation was mopped up on cotton, and on examination, per microscope, was seen to consist of detritus, with a few granular, breaking down, and fissured pus cells. Ear treatment was now discontinued. A plug of cotton was kept in the external auditory canal, and the mastoidal wound was allowed to close. In another week the tympanic perforation and the wound of the mastoid had healed and the case was dismissed with the request that the nasal douchings be continued. The cure was complete, and it proved to be permanent as no relapse has since occurred. One year later the hearing distance for the watch was 11-40, whereas for the left ear it was 40-40, and the tuning fork was heard in all positions, better in the right ear. In all, the diseased process had lasted about fifty-eight days in the right ear, but a complete and thorough drainage and antisepsis of the infected cavities had been instituted for only four to seven days before a perfect and permanent cure resulted. This is the indication in all suppurative processes, but it is notably difficult to accomplish in aural surgery without opening up freely the suppurating cavities. This case shows, however, that, even as dangerous as conservative surgery is in such ominous cases, very occasionally a cure may result from simple methods.

16 Laflin Street, Chicago, Ill.

THE CHURCH OF ROME AND THE LEPERS OF COLOMBIA.

BY ALBERT S. ASHMEAD, M.D.
NEW YORK.

I send you an appeal of the order of St. Lazarus for help to the unfortunate lepers of Colombia. Formerly the grand master of this order had to be a leper himself. His Grace, the Archbishop of New York, informs me that this manner of qualification for the grandmastership was abolished by the Holy See in 1253.

LECTURE.

Lecture given by the Reverend Father (Salesian) Evasio Rabagliati, in the Solemn Session of the Society of St. Lazarus (Bogota, Colombia) on July 7, 1895. (Exordio—Et occurrerunt ei decem viri leprosi, qui steterunt a longe et levaiverunt vocem suam dicentes: Jesu preceptor, miserere nostri—and there met him ten men that were lepers, which stood afar off; and they lifted up their voice and said: "Jesus, Master, have mercy on us.")[1]

The first thing we should observe in this story is the great and exquisite kindness of Jesus, etc. . .

Brethren, not far from here, not one, not ten, lepers lift their voices, there are many more. In Agua de Dios there are 850, in Contratacion (Santander) I left, a few months ago, 700 and more; and all these lift their voices, in order that you may hear them. And what do they say? What is their plea? The same as that of the gospel, *miserere nostri*, have pity on us. . . .

Until to-day, according to data gathered in a private manner, I believed that the number of lepers of Colombia did not exceed 15,000 or 16,000. Now, I see that I was mistaken. Before I ascended this pulpit one of our physicians, Dr. Carlos E. Putnam, member of the Academy of Medicine, Bogota, assured me that I was; for he, after asking from all the departments the precise number of the patients, obtained this result: That the number of lepers in the whole Republic of Colombia on July 6, 1895, amounts to 27,250! Is there an error in this account? Who knows? For my part, I will admit an exaggeration; I will suppose that there is an error in the figures; I will try to believe that the number does not reach 20,000, even less; that there are not more than 15,000. Do you think that if we can abate a few thousands of the official account, this is an argument that ought to quiet us? Even thus, do you not believe that the calamity is great, and that the consequences for the future would be serious and baneful. . . . . .

During fifteen years which I passed in the Argentine Republic, in Uruguay and in Chili, I did not see one leper. If anyone should take the time and patience to gather precise data on this subject, "Leprosy in the World," the result would be, that the Republic of Colombia alone has more people attacked by leprosy in its different manifestations than all the other nations of the universe. Really such a thing is amazing and terrible. . . . Let us ask the men of science, the physicians; they all, unanimously, will tell us that the principal causes of this disease are heredity and contagion. As to heredity, there is not the least doubt; the Lazarinos themselves acknowledge that either the children or the grandchildren inherit the disease; the germ remains. Who is able to say what enormous proportions the disease must assume through this cause? As to the contagiousness, not being competent I shall give no opinion. All the Lazarinos say that the disease is not contagious. Almost all the physicians say that it is; and I have said almost all because in the medical congress held at Bogota about two years ago, of more than one hundred physicians called upon to give an opinion on the matter, only two said, No. All the others answered in the affirmative. Who was mistaken? The two or the ninety-eight? But I give my opinion, whatever its value. I believe there are climates unfavorable to the disease, and that others favor it. In the first place there will be no contagion, or it will be very slight; in the other case there will

[1] And it came to pass, as he went to Jerusalem, that he passed through the midst of Samaria and Galilee. And as he entered into a certain village, there met him ten men that were lepers, which stood afar off. And they lifted up their voices and said: "Jesus, Master, have mercy on us." And when he saw them, he said unto them: "Go show yourselves unto the priests." And it came to pass that as they went they were cleansed. And one of them when he saw that he was healed turned back, and with a loud voice glorified God. And fell down on his face at his feet, giving him thanks; and he was a Samaritan. And Jesus answering, said: "Were there not ten cleansed, but where are the nine? There are not found that returned to give glory to God save this stranger." And he said unto him: "Arise, go thy way, thy faith hath made thee whole." St. Luke, xvii: 11-19.

be contagion and it will manifest itself rapidly and energetically. . . . . .

One fact most evident is that the evil increases every year. In the year 1888, according to the statistics of the Lazarinos of the Department of Santander, which were made conscientiously by one of the most distinguished physicians of that Department, the number of patients in that year did not reach 1,500; in October of the next year, I think, I met from 5,000 to 6,000; I have since heard from persons of competent authority that I had been very much mistaken, for in the department in question there are not less than 10,000 lepers. There is another fact which is evident. A few years ago this disease was totally unknown in Antioquia; now it is frequently seen there. In the Cauca we hear the same story; the number of the lepers can not be very small, when we consider that the authorities of that department have decided to establish a lazaretto for their exclusive use. . . .

Allow me to speak with entire frankness. The public in general believe that isolation exists, because we have a large lazaretto a few leagues from the capital, in Agua de Dios, and another lazaretto in Santander. That is true; but these lazarettos have only the name of a hospital, and I may say without the least exaggeration there might be written over the entrance of both, "Fabrication of Lazarines." I can tell you, even now, that in both these leper houses the healthy are much more numerous than the diseased; two healthy ones to one sick; this is the proportion of the population of the lazarettos. But what are the healthy people doing there? Some, the smaller number, probably attend to the patients; it is the healthy daughter who accompanies and attends her mother, or *vice versa*; it is a brother, some relative who does not want to forsake a sick brother or relative; to that there is nothing to say, it is a laudable act of charity which these healthy persons are performing, and God will not leave this work of love without reward. But, on the other hand, there are other healthy persons, the greater number, probably, who are there for other reasons. Some for the purpose of doing business, others with the infamous object of exploiting the poor lepers. On this subject, I have been told in the Lazaretto of Contratacion of incidents that were really scandalous. Moreover, in both lazarettos he enters who will, and remains as long as he likes; he may even establish his residence there if the whim takes him to do so, without anyone having the right to interfere. . . . The attendants are generally healthy persons, who have to live in intimate contact with the diseased, eat at the same table, perhaps from the same plate, sleep under the same roof, use the same garments. . . . . .

And now, tell me frankly your opinion, are these lazarettos just as we see them, places of danger, or are they not? You must consider, that from these houses the lepers may go to other places and establish themselves in the villages with the greatest facility. Any pretext is good; if there is none, one is invented. It is not the President of the Republic who gives these permissions, not even the alcalde of Tocaima, which is the nearest place to the lazaretto. They may be given simply by the administrator or a person delegated for that purpose. . . . . .

We recognize the necessity for a large and unique lazaretto; but where? The prospect of the island of Coiba, in the Pacific ocean, as a place of isolation has entirely failed for many reasons; and the most forcible of these, in my opinion, was the obstinate resistance of the lepers. They have told me over and over again, on all occasions, "We shall flee to the woods, Father, we shall hide in the mountain caves, we prefer starving here; but to the island we shall not go." I have consulted reliable persons on this matter, and they have pointed out to me the plains of Casanare, or of San Martin. The idea of taking Casanare could not be considered, because it is a region very little adapted; 1, because these plains have a large population; 2, because the inundations are frequent during many months of the year. In San Martin it is very different; the rivers are not so numerous nor so rapid; we can find with exceptionably favorable conditions, a great plain, surrounded by the Meta and Nare Rivers, which form a very beautiful peninsula several leagues in extent, the elevation rendering flooding impossible, however rainy the winter may be; and it has other advantages not necessary to enumerate here. As to population we may say it has none; it is a desert pure and simple. . . . . .

The successor of Don Bosco, the present superior of the Salesian order, Don Miguel Rua, long ago solemnly promised the representative of Colombia in Rome, the most excellent Dr. D. Joaquin Vélez, to send as many monks to Colombia as was necessary to execute this project. In one of his last letters, dated from Bogota, he approved and blessed it and encouraged us to begin to execute that great idea. The friend and father of the Lazarines, Father Miguel Unia, also approved the project, and thinks it feasible; he, who is speaking to you, has received from his superiors of Turin all the means necessary to consecrate himslf exclusively to this mission, and after the feasts of Our Lady of Carmen he will be entirely at the disposition of the public. He will fulfill his promise and begin his journey from place to place through the whole extent of the republic to ask for the mite of Colombian charity; if this shall be the decision of this conference. I wish before starting, to speak to you again; in order to further elucidate these ideas, and answer the objections which may be made. In the meanwhile, to the intelligent, distinguished and charitable people of the capital, I intrust the project. To all, without distinction of opinion, either religious or political, I recommend it most seriously; study it, discuss it, amend it also, if you see fit. What is important to all is to arrive at satisfactory and feasible solution. Especially do I intrust it to you, men of science and of arts, to the physicians and publicists; adopt this project, make it your own, and let your valuable opinion be spread to the last confines of the republic, in order to fill with hope the heart of all lepers, and with charity and generosity the hearts of all Colombians.

My last word is for you, virtuous and devoted Sisters of the Society of San Lazaro. May God bless you for all the good you have done during the four years of existence of your beloved society. Forward, with perseverance, you have done much; but there remains immeasurably more to do; enlarge the sphere of your activity, increase your ranks; every Colombian whose heart beats with love of religion and fatherland must enter them. Your work is a work of redemption above all others. Do not be discouraged by the difficulties which you will meet; remember that every great and holy work must bear the seal divine, the seal of contradiction and struggle. Once passed through the crucible, the work will prosper

and triumph. God certainly has blessed and is blessing us now, for his Vicar on earth, the Sovereign Pontiff Leo XIII, has blessed you and blesses you now. You find the proof of that in the treasure of indulgences, partial and plenary, which he sent you last year. Be ye all enthusiastic propagandists for the project which I have announced; and with your fervent and constant prayers help the work which we undertake.

In the name of God, in the name of your wards, the lepers of Agua de Dios, in the name of religion and fatherland, I send you the most sincere thanks. And for all you have done, and all you may do in the future, all the glory will be solely for God and the salvation of souls.

Ad Majorem Dei Gloriam. I have said.

PASTORAL.

We, Bernardo Herrera Restrepo, by the grace of God and of the Holy Apostolic See, Archbishop of Bogota, to the clergy and to the faithful of the Archdiocese:

All the good sons of Colombia who are animated with Christian charity toward their fellow men, are deeply concerned by the sad situation in which are placed so many of our brethren, who suffer this terrible disease of leprosy and its painful and inevitable consequences of isolation and perhaps of abandonment and utter want.

The church could not do less than take part in that general solicitude; and, therefore, if in other times and in similar circumstances, men especially called to help the poor diseased arose from among her ministers, now, too, by means of the sons of Don Bosco,[2] she gives examples of love for the unfortunate lepers. They with the spirit of sacrifice which is above all praise, live among these unfortunates, nursing them as a father would, and offering them in life and death the consolations of religion.

Now the great work of the founding of the national lazaretto having been begun with the object of insuring to the lepers habitation and means of subsistence to make their lives less bitter and of opposing the spread of the contagion, the Salesian Fathers will announce and propagate this grand work in the whole republic. With that object, the Reverend Father Evasio Rabagliati prepares to journey about in the republic in order to persuade all to coöperate according to their means and to contribute with their alms and voluntary donations.

It is our duty to support this holy and charitable enterprise; and for that purpose, we appeal to the clergy and to the people of the republic, and especially of the city of the archdiocese entrusted to us, and we request everyone to give a hearing to the Christian sentiments of his heart, and to contribute as largely as he can to the founding of the national lazaretto, delivering into the hands of the Rev. Father D. Evasio Rabagliati the alms which he destines for that purpose.

Our Lord, God, will reward all those who help in this work of Christian love which we recommend; they will return an hundred-fold to the giver the goods which will be offered for the relief of those who cry like Job:[3] "Have pity upon me, have pity upon me, O ye, my friends; for the hand of God hath touched me."

This pastoral shall be read twice in all the churches in the archdiocese. Given in Bogota, Aug. 4, 1895.

BERNARDO,
SALUSTIANO GÓMEZ RIAÑO, Archbishop of Bogota.
Canonical Secretary.

CONGENITAL ABSENCE OF THE ESOPHAGUS.

BY DANIEL LICHTY, M.D.
MEMBER OF THE AMERICAN MEDICAL ASSOCIATION.
ROCKFORD, ILL.

A writer in a late issue of the JOURNAL, in an article on a subject remote from this, made the statement that "malformations of the *internal* organs of the fetus are still more rare than the various orthopedic lesions of the exterior body." In confirmation of this, a case of the above title came to my notice, whose rarity then impressed me, and it is here given to add to the peculiarities and mysteries of tissue growth in pre-natal life. If those who have the Index Medicus can find similar cases recorded in it, it would be interesting to know of them.

There was born in Rockford Hospital July 24, 1895, after a quite natural and easy labor, of a healthy Swedish mother aged 25, her third child, a male weighing six and three-fourths pounds, well formed and fully developed in all its external parts. After birth there was some of the obstructive mucous respiration often observed, which usually passes away after wiping the mouth, a drink of water, inverting the child and such like procedure. In this case, however, it persisted from day to day; it could nurse and seemingly swallow. There was nasal regurgitation, though the hard and soft palate and pharynx were perfectly normal; the gurgling respiration continued in spite of all efforts to relieve it, and on the eighth day the child died of inanition.

The privilege of a postmortem examination was obtained from the grieved but sensible parents. Exploration began by removing the sternum, dissecting through the thyroid isthmus, exposing and inspecting the larynx and trachea, which were each found normal except being filled with the ingested milk; a soft catheter was passed into the pharynx and esophagus which met obstruction that resisted further advance. Deeper dissection brought to light the esophagus ending in a distinct cul-de-sac, in which the tip of the catheter was engaged at the second dorsal vertebra. The lumen of the gullet was normal to this abrupt terminal, being about one centimeter in diameter, easily admitting a No. 12 catheter. Two centimeters below this and a little to the left, as would follow the normal course of the esophagus, began a fibrous impermeable cord one millimeter in diameter, very gradually increasing in size, in its passage through the diaphragm, until the natural dilatation of the stomach was attained, where its permeability was reëstablished, and the remainder of the alimentary tract was of normal form and function throughout. No other malformation was discovered.

[2] Brothers of the White Frock.
[3] Job xix, 21.

Minnesota Coroner's Fees.—Where the coroner on the same day makes two separate examinations of two different dead bodies, or holds an inquest on one body and makes an examination of the other, the supreme court of Minnesota holds, in Kistler vs. Board of Commissioners of Hennepin County, decided June 24, 1896, that, under section 5554, General Statutes 1894, he is not entitled to a fee of five dollars for each examination and each inquest, or to anything more than five dollars per day "for the time actually spent."

SOCIETY PROCEEDINGS.

British Medical Association.

Sixty-fourth Annual Meeting held at Carlisle, Eng., July 28–31, 1896, under the Presidency of William Barnes, M.D., F.R.C.S., J.P., of Carlisle.

(*Continued from page 378.*)

[Reported for the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.]

Dr. W. F. ROBERTSON, of Edinburgh, gave in the Section on Psychology, a microscopic demonstration upon the pathology of hematoma auris. The sections illustrated the various stages of the degenerated lesion in the ear cartilage, which, as had already been contended by Fischer, Pareidt and others, prepared the way for the occurrence of the hemorrhage. Typically this took place from new vessels in the wall of an intra-cartilaginous cyst. It was shown that these vessels were specially prone to a degenerative change, which must render them liable to rupture from slight violence, or even spontaneously. The blood was slowly effused into the cyst, which tended gradually to enlarge by separation of the perichondrium.

In the same section, Dr. A. Robertson of Glasgow read a paper on "The Treatment of Mental and Nervous Diseases by Animal Extracts." He first drew attention to other special methods of treatment which he had used in his practice, before considering the group of therapeutic agents which were the subject of the paper. These special methods were:

1. Heat and cold to the head at graduated temperatures. In some cases of insanity recovery was at least largely due to this mode of treatment.

2. Mechanical stimulation of the brain and membranes by percussion of the skull. This has conduced to the recovery of some patients.

3. By electrization of the brain through the medulla. One electrode passed along the floor of the nostril, rests on the cervical spine, the other is moved slowly over the convexity of the head. He had not yet used it in the insane, but is now recording a case of diabetes insipidus cured under this mode of application.

4. Psychical, combined emotion and suggestion. The rapid recovery of a patient after mental shock is referred to, and the fact that it has been tried by the writer as a mode of treatment is mentioned.

5. Hypnotism should not be discarded. Its power over the nervous system is illustrated by the intermediate and confirmed recovery of a patient recently in the Royal Infirmary suffering from hemianesthesia, after other treatment had failed.

He then proceeded to record his experience with organic extracts, and also his impressions of their value. He had made observations on the effects of the following preparations: The fresh brain of the sheep; cerebrinin, an extract of the cortex; thyroid extract; Brown-Séquard's testicular liquid; the thymus gland. These preparations were then discussed in their order.

The author closed with the remark, that in the thyroid and cerebral extracts, as well as the other special methods of treatment referred to at the outset, we have additional remedial measures, and it is the duty of the physician in charge of the insane to have recourse to them in suitable cases.

Dr. RUTHERFORD MACPHAIL made some remarks on

POST-INFLUENZA INSANITY.

In which he presented an analysis of twenty cases admitted under his care into the Derby Borough Asylum in the five years ending Dec. 31, 1895. He included only cases among the recent admissions whose insanity was attributed to influenza, or who were reported to have had an attack of influenza a few months previously. This represented 4.8 per cent. of the admissions.

Of the twenty cases, nine were men and eleven women. The youngest patient was a lad aged 18, the oldest a man aged 71. The average ages were, for men, 37.6; for women 39.2. The largest number of cases (eight) occurred in the fifth decade. Hereditary predisposition to insanity was admitted in six of the twenty cases. In all except two the attack of insanity was an initial one. As to the form of mental disease, melancholia occurred in the cases of three men and seven women, mania in five men and four women, and one man was a general paralytic. Fifty per cent. of the cases were therefore melancholics, a larger proportion of melancholia than usual, for the records of the asylum during the five years in question show only a percentage of twenty melancholics to all admissions. The type of melancholia varied from simple depression to the acute forms, with well-marked delusions. The delusions most common in the maniacal cases were those of suspicion and of poisoning. Four of the cases were actively suicidal and had made attempts on their lives at home.

The results were as follows: Among the men, four recovered, two were relieved, one died and two are still under treatment and are chronic. Of the women, eight recovered, one died and two have become chronic. All the melancholics recovered except one woman who died. The average residence in the asylum of those who recovered was three months for men and four months for women. These numbers are too small to permit of any definite conclusions, and accordingly no attempt was made to dogmatize. It was, however, worthy of note that in the cases under review the average percentage of recoveries to the total admissions was higher than usually obtains in public asylums, while the average period of asylum residence was considerably lower.

In the section on public medicine Mr. GORDON SHARP, of Leeds, contributed a paper entitled:

THE SOIL IN RELATION TO DIPHTHERIA AND ITS ORGANISM.

He drew the following conclusions:

1. Diphtheria would appear to be endemic in certain districts. Soils organically laden are dangerous, but much may depend on the nature of the subsoil. Where the subsoil is porous a neighborhood may be free. Where the subsoil is impervious the surface at certain seasons of the year may be a favorable breeding ground.

2. I think I am justified in deducing that soils which would otherwise be sources of the spread of diphtheria are rendered innocuous by deep drainage.

3. The presence of a large quantity of air in the surface soil appears to be salutary and the contrary holds. However, this may be an accidental circumstance.

The close connection between enteric fever, scarlatina and diphtheria has often been remarked, and Bond has especially called attention to the close relationship between scarlatina and diphtheria, and formerly the connection seems to have been even more marked. Thorne has called attention to the fact that as authorities have improved their water supply, enteric fever has declined in frequency, while under the same conditions and with improved sewerage systems diphtheria has increased. Immersion in water for a short time seems fatal to the microbe of diphtheria, while the contrary holds with regard to the organism of enteric fever; both seem to live in sewage. A moist rather than a water-laden soil seems to be the home of the organism of diphtheria.

Mr. JAMES NIVEN, of Manchester, followed with a contribution entitled:

THE PUBLIC HEALTH ASPECTS OF TUBERCULOUS DISEASES.

He said that preventive action in this affection should take something like the following shape:

1. Information as to the precautions needed to be taken should be distributed to every home from time to time, until a sufficient body of opinion was created on the subject.

2. Tuberculosis, attended with discharge, should be made a notifiable disease. This would entail additions to the sanitary staff, including probably a qualified medical assistant. The objects of notification would be: (1) To gather precise clinical knowledge as to the various conditions under which individuals contract tuberculosis. During such an inquiry in Oldham in 1889 I found that more than half the deaths from tuberculosis investigated were of people who had previously been in intimate and prolonged intercourse with previous cases. (2) To ascertain and remove insanitary conditions about the house as speedily as possible, so as to give a chance to the patient of recovery, and so as to diminish the risk to the other members of the household. (3) To distribute printed information on the preventive measures required, and to bring about an understanding with medical practitioners as to their giving systematic personal instruction to the patient and attendant.

3. Hospitals for consumptives are at present foci whence a practical knowledge of preventive measures radiates. It may be doubted whether the time is rife for the establishment of such hospitals at the public expense. If this becomes possible, such hospitals would greatly aid in reducing the amount of infective material in circulation.

4. To prevent the milk from tuberculous cows remaining the source of danger which it now is we require a systematic examination of in all cowsheds by competent veterinary inspectors. Two assistant veterinary surgeons have recently been appointed in Manchester for this purpose, and already five cows have been slaughtered as tuberculous and found to be so. This appointment is one which I have had much at heart. The milk of suspected cows will also be examined bacteriologically where the grounds for condemnation are otherwise not perfectly clear. The veterinary surgeon is now authorized by the corporation to examine suspicious cows with tuberculin. Under new reg-

ulations an effort will be made to bring the cowsheds into a tolerably sanitary condition—at least those which can be so amended. If the cowsheds are cleansed with water twice a day and the cows kept clean, and if in addition the cowsheds are kept well lighted and well ventilated, then there will not be much risk of infection between cows and human beings or from cow to cow.

5. All meat and pork should be thoroughly examined; hence no meat should be taken direct from a private slaughterhouse for sale. The presence of tuberculous glands in meat or pork should suffice to condemn it. In the case of animals killed at the public abattoir this criterion is not required. It is the more necessary that it should be rigorously applied in other cases.

6. Cats certainly, and fowls possibly, are a serious source of danger. More attention should be given to the diseases of which cats have died—and, indeed, the cause of death of all our domestic animals should be fully investigated.

DR. F. A. DIXEY of Oxford, read an interesting paper on

VITAL STATISTICS OF DIPHTHERIA IN LONDON.

The most interesting question in the paper was that of the effect of the antitoxin treatment of this affection. On this point the general conclusion reached by the author in a former paper was fully maintained, and he asserted that the diphtheria mortality of the metropolis had received a considerable check which it was difficult to attribute to any other cause than the introduction of the serum treatment. We quote *verbatim* from the paper the following:

"Comparing together the average weekly number of deaths for the last five years, we find that after rising from 26.2 in 1891 to 36.2 in 1892 and 62.8 in 1893, it fell to 51.4 in 1894 and 44.5 in 1895. It is true that the opening months of 1895 promised a greater diminution than that exhibited by the figures for the whole year, and that the intensity of the rise last autumn seems to show that some other factor than the antitoxin treatment must have been concerned in the diminished mortality at the end of 1894; but notwithstanding these facts, which are freely admitted, it would seem that the general run even of these figures suggests a conclusion favorable to the efficacy of the treatment. This conclusion becomes strengthened if, in place of the actual number of deaths, we consider what is of course a truer test of the matter at issue—namely, the case mortality, or relation of deaths to notifications. Under this head the main facts are as follows: The number of cases notified during 1893 was 13,694; of deaths during the same year 3,264; giving a case mortality of 23.8 per cent. In 1894 the corresponding figures were 11,190 and 2,674; the case mortality stood, therefore, at 23.9. In 1895, however, while the notifications rose to 11,229, the number of fatal cases fell to 2,289, and the case mortality was therefore only 20.4 per cent., the lowest rate for the whole year yet recorded. The numbers for the first half of the present year are respectively 6,193 cases notified, and 1,239 deaths, which work out to a case mortality of 20.2 per cent. In view of the fact that quite irrespective of the number of cases, the case mortality of the last half of the year is invariably below that of the first, it may fairly be anticipated that by the end of 1896 the year's case mortality will for the first time on record have sunk below 20 per cent. This diminution in case mortality, which appears to be still in progress, represents the annual saving of some hundreds of lives, and I may be allowed, in conclusion, once more to repeat that it is difficult to see what cause can have been at work during the last two years in producing so marked a result, unless it be the treatment by antitoxin."

DR. A. SHERIDAN DELEPINE of Manchester, in his opening address as chairman of the Section of Pathology, dwelt on the place of pathology in medical education, saying that it formed such an important part of medical science that any question touching medical education necessarily concerns teachers of pathology, who should do their utmost to make their subject useful and not a stumbling block to the medical student. This is all the more important as pathology has only of late been recognized in our universities or colleges as a subject worthy of a special chair.

To quote Professor Hamilton's words: "It will, I think, be granted that the pathology of to-day is not delimitable merely as a matter of pure morbid anatomy, pathologic histology, pathologic physiology, pathologic chemistry or clinical medicine, but that these are simply the members of a great body, and that they are indissolubly bound together."

He first considered how the subject is taught in schools thus:

1. Under the name of clinical medicine, that part of pathology which deals with symptoms, diagnosis, prognosis, is taught at the bedside with applied therapeutics.

2. The same subjects are also usually dealt with in systematic lectures on medicine and surgery, lectures which are also very often made to cover a considerable portion of other branches of pathology.

3. Pathologic anatomy is taught in systematic lectures and demonstrations, and practically in the postmortem room.

4. Pathologic chemistry and histology are taught by means of lectures and demonstrations, and of practical classes.

5. Etiology and pathogenesis are taught by means of lectures, which are sometimes complemented by a practical course in bacteriology.

6. Experimental pathology is reserved for advanced students, and does not form a regular part of any curriculum.

If all these subjects were taught by the same man, he would certainly not require to say in systematic lectures what he had already clearly explained at the bedside or in the postmortem room, or in the laboratory; he would as much as possible try to save his own time as well as that of his pupils by not repeating himself. He would reserve for lectures those subjects that can not be easily and better taught by actual demonstration.

Is it possible for three or four men teaching the various branches of the same subject so to combine their efforts as to give students the benefit of advantages which they would derive from being taught by a single man? He believes that, within certain limits, such a thing is possible on condition that the following principles be kept in mind by all teachers:

1. Every fact capable of simple actual demonstration should be taught by means of demonstration whenever this method does not involve excessive loss of time, considerable expense, wanton cruelty or a knowledge of methods unknown to the student.

2. In each department the teacher should, as much as is compatible with clearness, confine his teaching to the demonstration and exposition of those facts which fall within the natural sphere and the actual work of his department.

3. It seemed to him also important that the time devoted to the study of each branch of medicine should be proportional to the relative importance of the facts and principles taught, rather than to the number of details which have erroneously been thought to be necessary elements of certain studies. And in determining the relative value of scientific courses from an educational point of view, he would feel inclined to give the preference to those in which it is possible to make the student see and judge for himself. Lectures should be reduced to the smallest number compatible with a clear exposition of those principles which would otherwise have to be constantly repeated in the course of practical demonstrations, or to those subjects which are not capable of demonstration at all.

In order to give a more concrete form to his ideas, he asked the members to suppose that they follow a student desirous of gaining personal knowledge in his study of cases, medical or surgical.

1. In the wards of the hospital he is shown how to recognize the presence of certain symptoms, and from this to establish a diagnosis; he then sees various modes of treatment, surgical or medical, applied, and is made to note the course of events that follow, being thus initiated to the art of prognosis. Here the only means he has to test the accuracy of the views expressed to him by his teachers are the effects of treatment and the correctness of the prognosis.

2. In the postmortem room he has an opportunity to see for himself what gross lesions correspond to some of the symptoms to which his attention has been attracted during life. The meaning of the appearances due to alteration of size, shape, color, etc., have to be explained to him as far as it is safe to do so from a naked-eye examination. The teaching in the postmortem room can not go further, and is necessarily fragmentary.

3. It must therefore be supplemented by demonstrations of museum specimens by which complete series of lesions, some of which occur rarely in the postmortem room can be made to illustrate the coarse anatomic changes produced in the body by disease. Such specimens being provided with short clinic histories, there should be as little room for speculation as possible regarding the nature of the symptoms associated with the lesions. This general study of morbid anatomy is specially useful in directing the mind to the parts of the body which are most generally affected by disease, and to the way in which certain symptoms are mechanically produced. Naked-eye anatomy, however, gives very little information regarding the nature of the reactions of the organism to morbific agents; it seldom gives the means of finding the actual cause of diseases, and it must be admitted that many of the naked-eye appearances are so ambiguous that even an experienced morbid

anatomist is often mistaken as to the meaning of lesions observed in the postmortem room or in the museum.

4. In the histologic laboratory the student sees the changes of structure which give rise to the appearances observed in the postmortem room, and here he begins to be on firmer ground and better able to acquire a knowledge which will depend less on an extensive practical experience than on well-trained powers of observation. The reasons for this are: 1, that all the organs of the body are composed of a few elementary tissues; 2, that these tissues are composed of cells which have many properties in common: 3, that the morphologic changes indicating the reaction of these cells to pathogenic agents are very comparatively few. It is, therefore, possible for a teacher to impart within a limited space of time and by means of actual demonstrations a tolerably complete and accurate notion of the anatomic changes produced in the organism by disease. It is to these advantages and not to any special fancy for microscopic work that pathologic histology has taken such a leading part in the study of disease.

5. We now come to the most difficult part of pathology. So far, we have had to deal only with the objective parts of the subject, with facts which necessitated chiefly powers of accurate observation, and which could all be easily demonstrated. When we come to deal with causes of disease and with the way in which lesions are produced we must necessarily introduce into our work induction, deduction and experimentation. When a number of facts seem to indicate that two or more phenomena are correlated and due to the action of a certain cause, we feel generally, when dealing with biologic problems, that we may have overlooked many factors, and therefore we have to test our views by experimentation. Experimentation is not, however, always guided by direct observation, for it often happens that the causation of certain lesions is inferred from what we know of the causation of other more or less analogous lesions.

The conclusion which the speaker drew from the above considerations was that students could obtain a more useful knowledge of medicine if they had fewer lectures and more practical courses. They should be made to attend thorough practical courses on: 1, pathologic anatomy, histology and chemistry; 2, bacteriology as applied to the study of infectious diseases; 3, general clinical medicine and surgery, with special courses in special branches of clinical work, such as diseases of women and obstetrics, diseases of children, infectious diseases, mental diseases, diseases of the eye, of the ear, of the throat, etc.

Systematic lectures should be confined to courses on: 1, etiology of disease and pathogenesis; 2, general considerations regarding the practice of medicine and surgery. These courses should be as short as is compatible with a clear exposition of those principles which but very few students would be able to formulate for themselves from the study of facts.

Sir Joseph Ewart of Brighton in opening the public medical section, delivered an address upon the lowering of the general death rate. He said that in time typhoid fever, consumption, scarlet fever and many other diseases would come to be prevented with as much success as had attended the warfare against scurvy, the plague, leprosy, cholera, etc., and to assist in securing that end our scientific machinery should be perfected.

One of the subjects discussed in the section was vaccination and revaccination, and a resolution was passed that it is desirable that calf lymph should be made universally available by the State.

The section on ethics discussed the abuse of the out-patient system in hospitals. Mr. Loch, secretary of the Charity Organization Society, read a paper in which he said, that while there were 87,000 in-patients in London hospitals, there were over a million and a quarter out-patients. Millions of out-patients at hospitals must mean large numbers of patients withdrawn from the general practitioner. He suggested that the number of out-patients should be limited to as many as could be fully and fairly dealt with in the allotted time, and that there should be a well-trained almoner at a hospital able to make proper inquiry or insure its being made.

Dr. Nelson Hardy challenged anyone to say that the out-patient departments were carried on by assistant physicians out of charity and benevolence. The appointments were accepted by them with a view to their own advancement and ultimate profit.

Dr. G. H. Broadbent of Manchester read a paper on "Provident Dispensaries," cautioning medical men against such institutions.

Dr. Major Greenwood of London said the cheapening of medical services through the outdoor departments of hospitals was doing an appalling amount of mischief to the medical profession, and the time had come to secure radical reform. Other members spoke on the same line.

Dr. Alex. Ogston of Aberdeen presided over the Section of Surgery.

An interesting discussion on

PROSTATIC HYPERTROPHY

was opened by Dr. David MacEwen of Dundee, who said that as long ago as 1856 Mercier had suggested the operative treatment of an enlarged prostate which was causing obstruction to the outflow of urine. The method proposed was to remove part of the enlarged gland through the urethra—in other words, to perform urethral prostatectomy. Following Mercier, Sir Henry Thompson and Reginald Harrison had urged perineal section and drainage. Later, Dr. Wm. T. Belfield of Chicago employed the "combined method," as did also Dr. Nicoll of Glasgow and Dr. Alexander of New York. But whatever form of prostatectomy was employed, the mortality was still high, and even now reached 20 per cent. In 1893, Dr. J. W. White of Philadelphia suggested that the testes had an influence on the nutrition of the prostate similar to that exercised by the ovaries on the uterus, and that just as oöphorectomy leads to a diminution in size of the fibroids of the uterus, so would castration lead to atrophy of an hypertrophied prostate. In May, 1895, White reported the results of 111 cases in which orchectomy had been performed for the purpose of causing atrophy of an hypertrophied prostate. Of this number, in 82 per cent. rapid atrophy is said to have taken place, in 52 per cent. cystitis had either disappeared or had been materially lessened, in 66 per cent. there was a return of vesical contractility, in 83 per cent. there was marked amelioration of troublesome symptoms, and in 46.4 per cent. there was a return to the normal conditions. Dr. MacEwen said he had collected fifty-two cases of orchectomy operated on since White read his paper; of these forty-two were said to have resulted more or less successfully; of the ten unsuccessful cases, in four there was no improvement, and six died. The speaker had himself operated in five cases. Of these, three were treated by double orchectomy, and two by resection of the vas deferens. Orchectomy is sometimes followed by marked mental disturbance, but this is never seen when the testis is removed for disease. The essayist had had no experience with unilateral orchectomy. The results of resection of the vas deferens are divergent. He had done it twice. The first patient died within a week from uræmia. The second case was 65 years of age and for seven years had been troubled with micturition. Dr. MacEwen drew the following conclusions:

1. In many cases castration causes more or less atrophy of the prostate.
2. Atrophy occurs most commonly when the prostate is soft.
3. It is of most value when the enlargement is general.
4. Cystitis may be relieved or cured.
5. In marked cystitis drainage is better.
6. It may do away with the necessity of the use of the catheter.
7. Or the catheter may be required less frequently.
8. Resection of the vas deferens acts more slowly, but the effect is similar.

Mr. Reginald Harrison of London, read a paper on

VASECTOMY, OR DIVISION OF THE VAS DEFERENS FOR PROSTATIC HYPERTROPHY.

He stated that cases of vasectomy could be divided into two groups: 1, where only one vas has been divided; and 2, where both have been operated upon. He had performed unilateral vasectomy in twelve cases. Of these seven obtained permanent benefit, and in five negative results were secured or the patient could not be traced.

One patient was 69 years old. He had a large prostate. Micturition occurred hourly, but no catheter was necessary. The right lobe was distinctly larger than the left. The right vas was divided, the patient was able to retain urine much longer, and the right lobe atrophied. In the second group of cases there were ten; of these, five were much benefited. In two cases there was no improvement, two disappeared, and one is too recent to be considered a success. This case was that of a man 70 years of age, who had a suprapubic fistula after lithotomy. Micturition was attended with considerable difficulty. Double vasectomy was performed, and he was able to abandon the use of the catheter. In the five successful cases the points gained were diminished frequency of urination, improved condition of urine and less suffering from vesical spasm. No fatal cases, and no cases with mental disturbance.

Lastly, both by castration and by resection much good could be done. It should be remembered, however, that some cases were not benefited by either method.

Mr. C. Mansell Moullin, of London, looked upon statistics as almost valueless, and said he relied on his individual experience. He would include prostatectomy as one of the methods

of treatment of enlargement of the prostate; while the mortality was very high, it had of late been materially reduced. For instance, of eleven cases reported by Mayo Robson, there was only one death, and Mr. Moullin himself had operated on five cases with no deaths. He urged the importance of operating on cases before the urine was ammoniacal and before cystitis and pyelonephritis had supervened. The operations of castration and vasectomy should be reserved for cases unsuited for prostatectomy. In eleven cases he had done bilateral orchectomy, but he did not think any benefit would follow from the unilateral operation. Of the eleven cases, three died. In six of the eight cases which survived the relief was great.

PROF. JOHN CHIENE of Edinburgh, held that castration should only be performed when all other means had failed to afford relief in prostatic enlargement. Suprapubic cystotomy should be first tried in cases in which an operation was needed, and then if there was enlargement of the third lobe, and if the urine was aseptic, the third lobe might be removed. In case the urine was septic, the surgeon should wait for six weeks, if no relief occurred even then perineal drainage should be tried, and a tube inserted, which might be worn with comfort for years.

MR. F. A. SOUTHAM of Manchester, took the ground that an operation was required in only a limited number of cases. He urged the early use of the catheter. If the urine is septic, the bladder should be washed out and antiseptics, such as salol given by the mouth. These failing, suprapubic cystotomy should be done. In some cases in which he had resorted to double orchectomy, a complete cure had resulted.

MR. C. A. MORTON of Bristol, had done double orchectomy in one case, the man being 70 years of age, who had much enlargement of the prostate, and frequent micturition. Atrophy followed gradually, but the patient had improved.

PROFESSOR I. H. CAMERON of Toronto, had done double orchectomy in twenty cases, with one death from suppression of urine.

DR. MACEWEN, in closing, said he did not wish to be understood as implying in his previous remarks that orchectomy should sepersede prostatectomy. He should try resection of the vas deferens, after listening to the remarks of Mr. Reginald Harrison. Intra-vesical growths should be treated by prostatectomy, but that general enlargement of the prostate requires orchectomy. Drainage was simply palliative and may be used in very weak or aged patients.

THE GENERAL MEDICAL COUNCIL.

The probability of an animated discussion in reference to the General Medical Council—which, as is well known, is a Government institution created by the medical act of 1858—attracted an unusually large number of medical men to the section of Ethics. Nor were they disappointed for the discussion, though one-sided, was certainly vigorous. The attack was lead by DR. A. G. WELSFORD, who opened with a very outspoken criticism of the General Medical Council. "The history of the Council," said Dr. Welsford, "is one long story of wasted opportunities and neglected duties. Although by pressure from without it has been forced into a semblance of activity, the work has been done unwillingly, and when possible, difficulties have been created. The Council is a great stumbling block to reform. Its failure is mainly due to its non-representative character, which places it beyond the control of the medical profession. The Council is mainly composed of nominees of universities and colleges, and the net result is that whether the Council originally was intended to protect the public or the profession, it actually is concerned only with the interests of these bodies. The General Medical Council is an anachronism. It is out of date in the nineteenth century. Its very constitution embodies the opposite of the principle 'No taxation without representation.' The medical profession has to pay for a governing council which it does not elect, over which it has no control, but which has arbitary and absolute power of legislation upon matters affecting general practice of which the members of the Council are profoundly ignorant. A new spirit has appeared in our profession. We long ago lost respect for the impotent and vacillating coterie of university and corporation nominees, called the General Medical Council.

"We recognize its callous indifference to all other interests than its own, and we object to contiuue to pay for the maintenance of this nineteenth century medievalism. When we obtain a new medical act, as we shall succeed in doing by union and organization, a new council will be created, and this council must be one representative of the profession. Combined attack is being made on all sides upon institutions which maintain and protect vested interests, and the Council will not escape deserved censure. Apologists may assert that the Council is the best possible in this best of all possible worlds, may whittle down these duties to vanishing point, and then claim that the Council performs these duties most ably, but the medical profession can not any longer be hoodwinked as to the real nature of the General Medical Council and will with united voice demand reform."

PROF. VICTOR HORSLEY of London pointed out the great danger to which the profession is liable in consequence of the standing orders of the General Medical Council in regard to "condemnation of infamous conduct" and "the protection of the honest practitioner from exploitations of quackery." He complained, among other things, that the president of the council was endowed with a degree of autocracy which was dangerous to the safety, honor and welfare of the members of the profession. The profession ought to memorialize the Council to appoint a president who was capable and scrupulous, and to actively urge reform upon its very imperfect procedure.

DR. LOVELL DRAGE of London agreed that the great fault of the General Medical Council was that the president had absolute power under the standing orders, which should be radically reformed. The medical profession, he said, was given over to the hands of its enemies, and it was exceedingly difficult for the five direct representatives to use moral suasion. What could five votes do against twenty-five when those twenty-five were the votes of men who had common interests and common monopolies to defend? The cornerstone of the whole edifice of reform must be an increase in the direct representation.

It happened that a member of the General Medical Council was present in the Section. DR. GLOVER of London, who is a "direct representative" on the censured body, but is not a member of the British Medical Association, was invited to say a word in defense of the General Medical Council. Dr. Glover admitted that there was great force in the complaints that had been made as to the way in which the disciplinary work of the Council had been carried on and as to the powers of the Penal Committee. At the last meeting of the Medical Council there was a strong feeling that a change was necessary in the conduct of penal cases and in the way in which evidence was to be laid before the Committee and the Council, and he thought he could encourage them to believe that in the future the investigations and the evidence would be much more complete than it had been in the past. He hoped this Association would not lend its sanction to the idea of relieving the qualifying bodies of their disciplinary functions, for it was explicitly stated in their charters that they should not only qualify men but take note of their conduct.

DR. W. DOUGLAS (Leamington Spa) considered that Dr. Glover had only confirmed the very unfavorable view entertained with regard to the General Medical Council. It was difficult to move that Council, and he suggested that instead of going to them they present a petition to Parliament, showing how inefficiently the Council peformed their duty, keeping neither the spirit nor the letter of the laws which they had to administer. If by that means they did not get a new Act which would give better representation to the profession on the General Medical Council, they would, at least, bring such pressure to bear on the Council as would compel them to act in the interests of the profession.

Much merriment was provoked by the suggestion of DR. BROADBENT of Manchester that a new element in "moral suasion" might be introduced by appointing on the General Medical Council a lady doctor, who might have some power over the gentlemen in that body.

DR. JAMES MYRTLE of Harrogate believed the root of the whole difficulty was that the Council was an antique and insufficient body. He agreed that if they could put pressure upon their representatives in Parliament they would secure an alteration of the Council and a greater share of direct representation.

SELECTIONS.

The Curative Serum of Hydrotherapy.—It is a fact long since known that the pathogenic microörganisms and their products possess poisonous properties. Experiments and observations have taught us that the system reacts against these poisons by producing antipoisons and other preventatives which are only known to us to a minor degree. From the endeavor to antagonize the poisonous products of infection by their antipoisons, serum therapy has emanated. Like every other organic func-

tion the resisting power which the system possesses in order to keep off injurious influences, can be strengthened by methodic rote. As we can gradually make ourselves unsusceptible to mineral and vegetable poisons, like arsenic and morphin, we can also to those poisons produced by microörganisms.

Upon such a systematic strengthening of the natural resisting powers of the system against a certain poison immunization seems to be based. It is now said that the blood serum of the immunized animal contains those antitoxins which, when injected into a person who is afflicted with the same injection are able to assist the patient in overcoming the disease.

As, however, the sovereign antitoxin for any and every injection has not yet been discovered, a certain serum must be prepared for every species of disease. After the readily prepared antitoxins have been injected into the blood, they must be converted by the system in such a way as the healing process requires.

Yet it is doubtful, if the serum injected is equivalent to the one produced by the diseased system itself; it is also doubtful, if the entire process of reaction against the disease consists exclusively in the serum and the antitoxins. It is more likely that the whole system and all its functions participate in the process of reaction, that in the cells themselves and their assimilation, in the nervous system, etc., auxiliary powers are put in motion. We must also consider that the injection of the blood serum of one animal into the blood of another species undoubtedly involves dangers. Serum therapy tends to substitute in an artificial way a substance which the system is unable to produce, at least not to a sufficient amount. It may not be timely to criticize the new treatment, still we must admit that we know but very little of the biology of so-called internal secretion and that the substitution of living or morbid tissue or serum can not at all be held for an actual substitution of the missing or imperfect function. The various physiologic and pathologic proceedings can be explained by physic and chemic laws only partially, which is the reason diseases can not always be treated in the same way and why equally competent physicians often disagree entirely as to the same remedy. From quite a different standpoint I believe in antitoxic powers of the living organism and in the more or less complete substitution of a missing function by the system itself, or in other words, I believe in an "autoserum" and "autoorgano-therapy" and in the possibility to improve this "autotreatment" by physic agents. It is no longer doubtful that numerous infectious diseases, often the most severe and dangerous types, convalesce without any medical aid whatever. If, therefore, the power of the system to overcome the infection, intoxication or autointoxication, consists in the blood and its serum, as is supposed to-day, the system itself must produce the antitoxins required to defeat the infection. "Gradually," says Buchner, "we have come to the conclusion, and this has since been proven by experimental investigations, that the system is possessed of natural auxiliaries against the producers of disease." I have occasionally controverted the belief that this conclusion is of a late date. Since Hippocrates and since there are medical schools, the physicians were forced to come to this conclusion from the observation of the undisturbed course of various diseases.

Could we now prove that there are agents by which we are able to improve or even call in action the natural powers of the system to resist the producers of disease, or in other words, to assist the system in its fight against the injurious influences, we would have to call this treatment a rational and physiologic one. And we would have to consider, if such a treatment which is based upon the action and functions of the system, was not less dangerous, and yet, not less efficacious than any other artificial treatment. It would lead me too far to prove this for the effects of all physic agents. This has been done repeatedly by numerous investigators, also by myself, and it has been shown that there is no function of any organ or any system of organs which can not be altered, invigorated or labefied by thermic and mechanic agents. As to hydrotherapy, I only want to say that it is first of all a therapy of oxidation, as is shown by Pospichil's and my own investigations on respiration, and by Strasser's and others' investigations on the chemism under thermic influences; it is a therapy which increases internal oxidation, leucocytosis and the alkalescence of the blood. We not only command the distribution and circulation of the blood by thermic agents, but also its morphologic and chemic composition, as I have shown years ago. In the first place, I found, at the same time as Rovighi did—that upon the employment of cold, leucocytosis sets in, a fact which is of fundamental importance for the explanation of the effects of thermic applications in infectious diseases. I knew long ago, and have mentioned this repeatedly, that the decrease of temperature could only partially explain the favorable effects of the water treatment in infectious diseases. We have long been familiar with the favorable symptomatic effects which an improvement of innervation, circulation and tonus of blood vessels and tissue caused by the water treatment has upon the feverish process. But we could not explain how the treatment could affect the pathogenic microörganisms and their toxins. If, however, the leucocytes are the real phagocytes in the meaning of Metschnikoff and, as Buchner says, the transporters of the alexins, the destroyers of the toxins, we understand why we can affect the infection by means of hydriatics which enable us to produce leucocytosis at any time we desire. Further investigations taught us that under the cold water treatment, also the red blood corpuscles, the specific weight of the blood and the amount of hemoglobin increase considerably. If we further consider that we can stimulate or modify the circulation in the whole body and the locus morbi by hydriatics, we have a good explanation for the value of the water treatment in infectious diseases.

Further we must consider that numerous secretions and excretions can be affected considerably by hydriatics. I called attention to their diuretic effect in infectious diseases long ago, a fact of great value in regard to prognosis. Rogue and Weil saw the urotoxic coefficient of the urin increase in typhoid fever under the hydriatic treatment, and proved that under this treatment six to eight times as many toxins were eliminated as under any other treatment. Thus we know also that the elimination of the noxæ and their products by the kidneys, the skin, the bowels, the salivary glands and probably most of the excretions belong to the reaction of the system against the infection, which reaction can be greatly invigorated by hydrotherapy.

Even the chemic composition of the blood can be changed by cold applications, as has been shown by Strasser's investigations. The alkalin blood is of great importance not only as a vehicle of the phagocytes, but also because of its chemic condition. Numerous investigators observed that the alkalin reaction of the blood decreased considerably in infections diseases. Tassinari found from experiments on rabbits, that upon a septic infection the index of alkalinity decreased from 3.6 to 1.58 within two days. It could hardly be doubted any more that the intensity of the bactericide power of the blood and, probably also the neutralization of various acid products of the microörganisms, depend upon the degree of the alkalescence of the blood. Strasser by his investigations has made this presumption a certainty, and has shown that cold baths increase the alkalinity of the blood. This fact forms an exact basis for Buchner's presumption that "the cold water treatment very probably acts as a direct destroyer of the producers of infection."

Thus we can call the hydriatric treatment a true autoserum, and autoorgano-therapy by which the blood and its serum obtain a stronger bactericide power and by which we have a perfect control of the circulation of the blood in the whole system, at

large, and in the locus morbi, in special. It is a treatment by which the functions of all organs and also the internal oxidations are increased and improved considerably, and which is a natural stimulus to vital energy.—PROF. W. WINTERNITZ, Vienna. Translated by Dr. Carl Strueh, Chicago.

Organ Extract Therapeutics of Female Genital Organs.—The *Therap. Woch.* of July 12 contains an article by Bell of Glasgow, describing his success in the treatment of carcinomas, fibromas, etc., of the female genital organs with extracts of the thyroid, parotid and lacteal glands. The parotid gland seems to have an important effect on ovarian troubles, and the lacteal on uterine. He describes fourteen cases taken at random. The patients applied to have the neoplasms extirpated, but this soon became unnecessary after taking a teaspoonful three times a day of one of these extracts, with ichthyol or iodophenol tampons applied locally. The neoplasm rapidly diminished in size, while the general health improved, and the patients were dismissed practically cured, with no further pains or discomforts, and in some cases no trace left of the neoplasm after a few months of this treatment. Knauer has succeeded in implanting an ovary in the uterus of four rabbits, which became incorporated with the tissues and resumed their functions, reproduction of ova. Mainzer reports various climacteric troubles cured by two 5 gram pastilles a day of freshly dried ovarian tissue, increasing the dose to three pastilles a day, returning to a smaller dose as the troubles disappeared. In two cases menstruation was produced in women who had never menstruated before. The most favorable results were obtained in troubles of a vasomotor nature; next came primary or secondary amenorrhea, while purely nervous or hysteric patients were not affected by it except suggestively. These facts may be found useful in differentiating. Jayle has successfully treated the troubles consequent to castration with dry ovarian extract or an ovarian fluid prepared in the same way as the Brown-Séquard extracts. He considers himself justified in advocating ovarian therapy in amenorrhea or dysmenorrhea caused by ovarian disorders, as it may render castration unnecessary.

Gymnastics in Heart Disease.—The *Boston Medical and Surgical Journal*, June 18, contains an elaborate report of the discussion, before the Society for Medical Improvement, of the above subject. Some interesting observations by Dr. Folsom were the following:

"When I was in Munich in 1879 I had considerable talk with Ziemssen about the treatment of organic heart disease by muscular exercise, to which Oertel had called the attention of the profession several years before. Ziemssen was using it pretty generally in his practice, and I asked him to see an American gentleman who had seen a number of specialists in this country and in London and had been advised not to take vigorous exercise. Ziemssen immediately put him on Oertel's treatment, and that very afternoon this gentlemen walked a number of miles over the hills in the vicinity of Munich. He has kept up that treatment, more or less, under suitable guidance. He now walks, rows, walks over hills, rides horseback and has absolutely no symptoms so far as his heart is concerned. The valvular murmur is pronounced and the heart is larger than it was then. The compensation is perfect, and it seemed to me an extremely good result. It was not one of the cases to which allusion has been made, of beef-eating, beer-drinking Englishmen. He was very temperate in all respects, and did not materially change his course of life. Five or six years ago a highly accomplished Swedish medical gymnast came to this country. She had a large practice after graduation, and was so proficient in her work that she had been the assistant of the professor in charge in Stockholm, She came into the wards in my service at the City Hospital and did some work to show me what she could do. Since then I have used gymnastic exercise very largely in my practice. . . . There were three things with regard to the Swedish medical gymnastics which struck me: In the first place, the very complicated system; secondly, their apparent simplicity, and thirdly, their great power for good or for evil according to the judgment and skill of the operator. I think in the whole system which Ling introduced there are something like one thousand different movements. I was also struck with the extreme simplicity of them. One would hardly think their physiologic effect would amount to so much. As regards the very great power of these movements, the movements to correct slight scoliosis may defer menstruation one, two, three or four weeks. On the other hand, in the absence of menstruation it can be brought on with great rapidity. It is the most efficient means of correcting metrorrhagia without organic trouble that I have seen. I have had a number of cases of organic disease of the heart treated in this way. I have four at present. One is a lady who five years ago had valvular disease of the heart, dilated heart, weak, irregular, intermittent pulse, and had had complete hemiplegia of one side, including the face. She has continued that treatment more or less all this time, and it has constituted one of the chief means of treatment. The pulse is regular, a little above seventy. She considers herself in perfect health. Another is a lady with a marked arterio-sclerosis and dilated heart. She has been under my care about two years, and that has been the chief method of treatment. The benefit in that case has been striking. . . . My belief is that the best way of using physical exercise, if the person is able to do it, is some out-of-door, regular, general exercise. Of course a very large number of patients can not do that, and the medical gymnastics which would be required in valvular disease of the heart where there is compensation or hypertrophy, would be entirely different from the movements which would be required in a dilated heart where the walls are weak, and especially where there is arterio-sclerosis. It seems to me that while there are people in this community who are sufficiently accomplished and can be trusted in these cases, and who have demonstrated the very great value of this treatment, there is also a large number who call themselves Swedish medical gymnasts who have certificates or diplomas of varying value, and whose knowledge is so imperfect that they are dangerous persons to set to work on any important or difficult case."

PRACTICAL NOTES.

Eliminative Treatment of Typhoid Fever.—M. Gottman, M.D., gives the following synopsis of the treatment: 1. Eliminate the poison by the free use of salin cathartics, as they are best and safest. 2. Give baths of ten or twenty minutes' duration, beginning with the temperature of the patient, for their tonic and sedative effect, as well as their eliminative action. 3. Dilute the poison freely by imbibing largely of good, cold water. 4. Avoid food, unless peptonized (and sometimes even this will not agree), until you know it can be digested, and this applies especially to milk and lime water. The mental and physical condition of the patient is the best index to the exhibition of food.—*Memphis Med Mo.*, August.

Bekarewitsch Treatment of Varicose Ulcers.—After the spot is thoroughly disinfected, a piece of gauze smeared with a 10 per cent. boric vaselin is laid over it, through which it is delicately massaged for five to ten minutes, and then more energetically. It is then dried and dusted with iodoform and wrapped in an antiseptic bandage covered with the following: Zinc oxid and gelatin equal parts; glycerin and dist. water, four times the quantity, equal parts. The whole is then enclosed in a starch bandage and left undisturbed for two or three days, during which time the patient can go about and do light work.—*Therap. Woch.*, July 12 from *Wratsch*, No. 1.

Improved Method of Narcosis.—Gräfe has found that the sensitiveness of the nasal membrane is of far more importance in terminating narcosis than is generally supposed, owing to its reflex action on the vagus region. If the nose can be kept closed, the narcosis proceeds far more readily and rapidly, and lasts much longer, with less of the anesthetic required. He has therefore invented a light spring pad with which he stops the nostrils before the operation, and does not remove it until the patient is completely aroused. (Schütz, Leipsic, Windmuhlenstrasse, 30.) It has rendered surprising service in the narcosis of persons with pronounced heart troubles, with the minimum of after effects.—*Cbl. f. Chir.*, July 18.

Somatose Increases the Lacteal Secretions and Improves the Blood.—Drews reports from his experience in twenty-five cases that somatose has a direct specific effect on the lacteal glands, promptly and efficiently increasing their secretions. He urges its use in all cases of deficient or decreasing lacteal supply, recommending one teaspoonful three to four times a day, in a cup of warm milk, soup, cocoa, etc. Owing to its tastelessness, the use of it can be kept up indefinitely as long as it may be needed (*Cbl. f. inn. Med.* No. 23). Sconamiglio has been making a study of the blood of patients taking it with no other medication. He found that the erythroblasts gradually increased in number, while the microcytes and poikylocytes decreased. The amount of hemoglobin was increased from 8.9 per cent. to normal, 13.5 to 14.5 per cent.—*Therap. Woch.*, July 12.

Chronic Otorrhea Permanently Cured with Trichloracetic Acid.—Halasz confirms Okuneff's announcement of the value of this treatment, and recommends the following modus operandi: As the pain is severe, five to eight drops of a 10 per cent. solution of cocain should be held in the ear for three minutes. During this time a syringe of tepid water should be used to melt the crystals of the acid on the specially constructed sound. The inner ear is then lighted and the sound introduced into the middle ear through a rubber ear speculum. Every spot to be cauterized should then be touched lightly but effectively with the acid, especially the edges of the perforation and the mucous membrane of the middle ear. The ear should then be rapidly rinsed out with one or two syringes of water and after it is dry, dusted with aristol or powdered borax blown in. The operation should be rapid and repeated once or twice a week, when the otorrhea soon disappears, the perforation in the drum closes, and the hearing is completely restored.—*Therap. Woch.* July 1 from *Orvosi Hetil.* No. 17.

Sodium Hyposulphite Antidote for Malonic Nitrite.—Heymans of Ghent reports that "nitrite malonique" (dinitrite malonique, CN, CH_2, CN) is fatal at a dose of .006 milligram per kilogram (rabbit), with symptoms resembling intoxication by hydrocyanic acid. Animal succumbing to this intoxication can be recalled to life at any moment, even when in convulsions, by an intravenous injection of sodium hyposulphite, and if the latter is injected at the same time as the nitrite there are no toxic accidents. The interesting point is that the antidote follows and neutralizes the poison in the inmost nerve cells, instead of its action being restricted to the poison in the blood or the alimentary canal.—*Bulletin de l'Académie de Méd.*, July 22.

Lewaschew Method of Substituting Salt Solution for the Effusion in Pleurisy.—Requests have been received by the JOURNAL for further information in regard to this method. We refer those interested to the *Deutsche Med. Wochenschrift*, No. 52, 1890 (G. Thieme, Leipsic, Seeburgstrasse, 31), and to the *Therap. Woch.* of June 28 (Vienna, XIX, Döblinger Haupstrasse 36). Lewaschew states in the former: "I first, with extreme care and very slowly, withdraw a certain amount of the effusion from the pleural cavity, stopping at the first indication of pain. Then with a syringe I very carefully introduce the same amount or a trifle less of the 7 to 10 per cent. sterilized chlorinated soda solution, warmed to about 86 degrees. Again I withdraw the effusion from the cavity until slight pain is experienced, when I stop and again introduce a corresponding amount of the salt solution. I repeat this procedure from two to six times as may be necessary, which depends upon the character of the effusion and the peculiarites of individual cases." (See this JOURNAL, page 214, July 25.)

Early and Intensive Method of Curing Syphilis.—Manino reports the highly successful results of eight years' experience with this treatment (*Giorn. It. delle Mal. Ven.*, p. 50). Instead of waiting for the usual symptoms to appear, the initial chancre is excised or thermo-cauterized and calomel injected every fortnight for ten to twelve months (10 centigrams calomel to 1 gram glycerin and one drop water). After this the injections are made every twenty days for three or four months; then one in sixty days for two months more, when potassium iodid is administered for two months; then two months more of mercury injections, this time the sublimate. The patient then rests for a couple of months, when the iodid is recommenced for a while, followed by a protoiodid, which is kept up till the end of the second year. The initial chancre soon subsides, and no secondary or tertiary phenomena have appeared in any of the cases treated during the eight years. The inconveniences of this treatment, the painful injections, the temporary loss of appetite and weight, are far more than compensated by the victory over the disease, which is arrested before it becomes constitutional.—*Bulletin Méd.*, July 22.

The New Celluloid Mull Bandage.—It has been found that celluloid will dissolve in acetone into a thick gelatin, which can be used for casts, as it hardens sufficiently in an hour and a half, and becomes absolutely solid in three to four hours. The sheet of celluloid is cut with a pair of scissors into scraps and placed in a wide-mouthed bottle, filling it a quarter full. The rest of the bottle is then filled with the acetone and the contents stirred with a stick occasionally. When rubbed on the mull bandage it forms the cleanest, hardest, and by far the lightest substance known for this purpose, while it is not affected by the secretions of the body. It has been used at Strasburg with great success, and is warmly recommended as a most valuable bandage on account of its cheapness, durability, solidity and elasticity, especially for use in policlinics. It is not necessary to have as many layers of the bandage as with other substances, and the celluloid rubbed in for the outer layer forms a handsome finish. As it is very sticky and can only be dissolved with acetone, it is best to wear leather gloves while handling it. It is especially adapted for permanent removable casts, with or without splints. In some cases a cast or model of the limb or part has to be made, and the celluloid cast modelled on this.—*Cbl. f. Chir.* July 18.

Oxycyanid of Mercury; Ophthalmia Neonatorum.—Von Sicherer, in the *Münchener Med. Wochenschrift*, recommends the use of mercury in the treatment of ophthalmia neonatorum. The advantages of this drug were first brought to the attention of ophthalmologists by Schlosser in 1893, at the meeting of the Ophthalmological Society in Heidelberg. Schlosser demonstrated that this preparation presented antiseptic properties equal to those of the bichlorid of mercury, but caused much less local irritation and much less power of coagulating the albumin than the corrosive sublimate. Generally in acute affections of the conjunctiva 1 or 2 per cent. solutions were used. In ophthalmia neonatorum a solution of 1 to 500 has proved most effectual, and has been used exclusively in this affection in the University clinic for several years past. The application is extremely simple: After eversion of the lids they are rinsed thoroughly with this solution, and in such a manner that every fold of the conjunctiva is freed from the secretions. This should be done daily. Instruction should be given for the constant use of ice compresses. The nurse should be cautioned against removing the secretion, for, unless the greatest care is exercised, injury is done to the superficial layers of the cornea with subsequent ulceration. If the cornea is not already affected when this treatment is begun, a favorable termination can be absolutely guaranteed, which is by no means the case with other methods of treatment. Even when slight infiltrations of the cornea exist, by this means they can usually be made to subside, and it is only in extensive ulcerations and in prolapsus of the iris that this and other means of

treatment are of no avail. If the results of the ordinary method of treating this affection—namely, brushing with a 2 per cent. solution of nitrate of silver and neutralizing with a solution of sodium chlorid—be compared with those obtained by simply rinsing with the oxycyanid, the preference would be unhesitatingly given to the latter method. An efficient remedy for combating a disease which causes 41 per cent. of the cases of total blindness should be welcomed by all.

Delayed Paralysis after the Use of the Antidiphtheritic Serum.—Filiatre in the *Gazette Hebdomadaire de Med. et de Chir.*, June 4, has reported the case of a child 3 years old, presenting symptoms of laryngeal obstruction which proved on bacteriologic examination to be of diphtheritic origin. An injection of 15 c.c. of antitoxic serum was at once made into the right flank, and forty-eight hours later a second injection of 10 c.c. into the left flank. In the course of twelve hours the false membrane had completely disappeared, the child breathed easier, the pulse was normal, the fever had disappeared, and only the submaxillary adenopathy remained. The child continued well for more than a month, when it was observed to speak through the nose. A day later speech was almost unintelligible, and saliva dribbled from the mouth. In the course of several days more, the head could not be held up, the chin falling upon the chest. Deglutition also became difficult. The knee-jerks, as well as the pupillary reflexes, were preserved. Sensibility was intact. The muscles especially enfeebled were the extensors of the neck, the rotators of the head, excepting the sterno-mastoid, the supraspinous and the elevators and abductors of the scapulæ. The fascial muscles also were largely affected, as well as the recti abdominis. Under electric treatment, improvement rapidly set in, and soon proceeded to final recovery.

Herpes Zoster.—Dr. A. H. Ohmann-Dumesnil recommends the following in treatment:

℞ Acidi arseniosi 003
Pulv. piperis nigris. 16
Extract gentian. . . . . q. s.
Misce. Fiat pilula No. 1. Sig. To be taken thrice daily after meals.

Externally, campho-phenique powder liberally sprinkled upon absorbent cotton and applied to the eruption, or the following:

℞ Pulv. camphoræ. 8.0
Bismuthi subnitrat. 16.0
Cretæ preparat. 32.0
Misce. Sig. Apply twice a day.

—*St. Louis Med. and Surg. Journal*, August.

Local Applications in Pharyngitis.—The following combination is an antiseptic stimulant and protective:

℞ Oil Scotch pine 2.0
Oil eucalyptus. 4.0
Oil cassia 2.0
Menthol. 1.3
Ext. balm gilead, fld. q. s., ad. 128.0
Sig. Spray on pharynx.

One of the best combinations to be used as a spray in the simple acute form of the disease is the following:

℞ Cocain. 0.5
Oil cassia 2.0
Menthol,
Gum Camphor. . . . . ãã 4.0
Albolene, q. s., ad. 128.0

—Dr. Lewis M. Somers, in the *Laryngoscope*, August.

Chrobak's Use of Ovarian Extract.—A post-operation treatment in ovarian cases has been adopted by Professor Chrobak in order to obviate, if possible, the symptoms that often annoy the surgeon; and also to mitigate the disturbances peculiar to the menopause, and is recorded by him in the *Centralblatt für Gynäkologie*. He was led to administer ovarian tissue and to practice ovarian grafting. He accordingly had prepared an extract of the ovaries of sexually active and healthy cows, and had undertaken experiments to determine the practicability of ovarian grafting. The extract was employed in six cases in which the ovaries had been removed and in one of which, with perfectly normal genitalia, the climacteric molimina were severe. In three of the cases of the first group, in which the treatment had covered a period sufficiently long as well as in the remaining case, distinct improvement followed. The results of the transplantation experiments are detailed by Knauer. It was found that not only did ovaries grafted between folds of the peritoneum, or between fascia and muscle retain for a time at least, their integrity, but that they also continue to exercise their functional activity, as indicated by the maturation ovisacs.

Palliative Treatment of Uterine Cancer with Chlorate of Sodium.—This treatment, recommended by Brissaud for cancer of the stomach, has been found very effectual in arresting the pains, hemorrhages and discharges in cancer of the uterus, improving the appetite and digestion and the health of the patient in general and prolonging life, although it fails to stop the final progress of the disease. One patient treated by Boucher lived three years a "very supportable existence," although the inoperable cancer in the uterus and vagina was accompanied by a cancerous lesion of the stomach. He administers it internally in two to eight teaspoonfuls a day of the following mixture: Chlor. sod., 20 grams; orange flower syrup, 30 grams; acq. dest., 100 grams. It is also applied on a tampon to the neck of the uterus in a powder composed of equal parts of chlorate of sodium and subnitrate of bismuth with half the quantity of iodoform. If the latter produces symptoms of intoxication, viz., a coated tongue, bad taste in the mouth and the iodoform reaction in the saliva with calomel, it can be replaced by a tampon of salolized cotton dipped in a 20 per cent. solution of chlor. sod. In addition, a daily vaginal injection of 10 grams in a liter of boiled water is also given.—*Semaine Méd.*, July 15.

Pruritus Ani.—Dr. Charles G. Cumston says that patients suffering from pruritus ani are usually either arthritic or nervous. For local application the following are recommended:

℞ Menthol. 4.0
Alcholis. 30.0
Aq. dest. 60.0
Acid acetic, dil 150.0
Misce. S. For external use only.

℞ Acid, carbolic. 5.0
Kalii hydrat 2.0
Ol. lini sem. 30.0
Ol. bergamot. 9.5
Misce. S. Apply at bedtime.

In very severe cases deep cauterization of the parts with nitrate of silver or the thermocautery had been employed. Section of the nerves gave good results in pruritus of the anus, vulva and scrotum when the affection was very intense.—*Am. Gyn. and Ped.*, August.

Prolapsus Ani.—Dr. Platt resorted to the following procedure in the case of a child operated on in vain by other methods: At the junction of the skin and mucous membrane, just beneath the latter, a curved needle is inserted in the median line below, and a silk thread is carried half way around the anus and out again, in the median line above, reinserted in the same opening and brought out at the first puncture, making a purse-string suture. The little finger is then put in the anus and the string tied snugly around it. Apparently this would cause suppuration, and possibly a fistula. It does nothing of the kind, nor does it cause any pain afterward. The child has his stools in the recumbent position. If the feces are at all hard, injections are given to soften them. After three weeks the suture is withdrawn when it heals immediately with no return of the prolapsus. By this method the bowel is kept in place long enough to contract adhesions.—*Johns Hopkins Hospital Bulletin*, July.

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It would greatly facilitate the prompt delivery of the JOURNAL to those members of the ASSOCIATION living in large cities, if they would kindly furnish this office with their street address in those cases where it is omitted from the wrapper of their JOURNAL, as we have been notified by the postmasters of the larger cities that second-class mail matter not having street address, would be placed in the general delivery to await call.

SATURDAY, AUGUST 22, 1896.

"MEDICAL DEFENSE."

It seems that of thirty-eight local branches of the British Medical Association, twenty-seven have written in favor of such alterations in law and practice as shall make the Association capable of acting in its corporate capacity for the defense of its members in case of lawsuits, etc. The meeting at Birmingham has adopted a resolution that may be considered as the preliminary step of the plan. This naturally brings into view certain criticisms—especially of those not unduly loving the Association or its managers—that the Association will find itself incapable of acting in this capacity, that it will prove expensive, that it is too huge and unweildy a body to act promptly and justly, etc., and lastly that it will lessen the respect of the general lay-world for the profession, and lead to a reversal of the esteem in which it has heretofore been held as a body of men not bent on self-aggrandizement or defense, but solely determined to alleviate the sufferings of humanity without thought of self.

To all of which criticism we would humbly answer, bosh! The esteem of the public for the profession may be most aptly synonymized by the word disesteem. And this disesteem is very largely due to the fact that the profession has heretofore shown little or no *esprit de corps*, and has been inexcusably weak in permitting the contempt of the world to stand as a confession of just judgment. By no means would we adopt the creed of ethics of the world, an eye for an eye, etc., but just as little should we longer hold our cheeks out for unjust and indiscriminate smiting. Self-defense is the first law of nature and when consciousness reaches anything like adult development it instinctively guards itself against injustice and unauthorized dictation. More than this the cause of the medical profession taken in its best sense is the cause of society and humanity. If they but knew it no one is more interested in encouraging the feeling of self-respect and honor among medical men than non-medical men. The evils of quackery exist because we are not united in crushing them out of existence, and in the estimation of the public our failure to do this is due to the fact that we are half-quacks ourselves, with but a faint-hearted belief in the therapeutic value or scientific quality of our own "science." It is one of the strangest facts of modern sociology that so large a body of men as we have no professional unity, that we present no united front to the enemies of our guild or to the public influences prejudicial to public health. Every other calling or occupation bands itself together and seeks to influence legislation or popular feeling by a hundred instrumentalities while we are content not only to do little or nothing and what little we do sporadically and by individual imitation and energy, but we allow our thousand enemies to deride us and "walk over us" by their unanimous and organized opposition. We trust the British Association may not listen to its critics so much as to prevent it from entering upon the proposed work, and that its success may inspire the American profession to undertake functions furthering our professional honor and importance, and the work we all have at heart.

MEDICAL CHARITY ABUSE IN ENGLAND—AND ELSEWHERE.

At last the British lay public is becoming aroused to the existence of what an editorial writer in *The Saturday Review* justly calls "an intolerable national scandal"—namely, the abuse of medical charities, and such being the case, we may hope for some abatement of the evil. From or through the medical profession we may apparently hope little or nothing at all. There are a hundred reasons for this, many of which have often enough been iterated and reiterated, and the fact is deplorable—but fact it is. It is true that there is a committee of the British Medical Association on medical charities, and the last report of its subcommittee through its chairman, Mr. THOMAS BRIDGWATER, concerning certain London hospitals (*Brit. Med. Jour.*, July 18, 1896, p. 139) is interesting reading—interesting from the positive proof it gives of the failure of "Reform within the Party," and also from the indirect evidence of the huge sin of omission left untouched by this or any other committee. The hospitals visited by the subcommittee were as follows: Charing Cross, Guy's, King's College,

London, Middlesex, Soho, Westminster, Westminster Ophthalmic, St. George's, St. Mary's, University, West London, Chelsea for Women. In six of these no attempt is evidently made to exclude those able to pay for medical attendance, and the notices to patients (that the institution is intended for those unable) recommended to be displayed in the waiting rooms, were not to be found. In only two or three was any thorough-going system of inquiry and exclusion in operation. The committee give examples of abuse they found, of people of property and even of wealth using the "charity" instituted for the poor. The report adds: "The painful fact is revealed that the wider the inquiry, the broader and deeper are the evidences of abuse of charity, not only in the metropolis, but through the country generally."

In his presidential address at the annual meeting of the Birmingham and Midland Counties Branch of the British Medical Association held last June, Mr. MESSITER devoted a portion of his time to this important question. The population of Birmingham is in round numbers 500,000. In 1885, in five hospitals there were treated 127,852 patients, and in 1895 the number had risen to 167,160.[1] "Can anybody pretend," said the lecturer, "that this system does not pauperize the public at the expense of the profession?" "How is to be remedied?" he asks. Acknowledging that the responsibility lies largely or entirely with medical men, he argues that the cure must come from them, but cites only two elements of relief—the return to "their own medical attendants" of first-aid cases after one treatment and the establishment of provident dispensaries, to relieve the hospitals, and where some small fee, tax or coöperative support shall be carried out. The cure is certainly homeopathic in "the thirtieth," or even a higher "potency"; Hahnemann might think it sufficiently high to suit him, and denominate it a cure by "olfaction."

The *Saturday Review* commends the recommendation of the 1890 Special Committee—a Central Hospital Board "empowered to receive and publish hospital accounts, to advise upon new schemes and to act generally as the authorized representatives of the public in the way of observing, appreciating and criticising hospital management and work," but also strikes at the heart of the matter in further urging outright governmental control. We suppose the writer to mean by this the local and not the supreme or central government. But whether local or general, we believe at least for England (if we as foreigners may hazard such an opinion) that there will be no adequate remedy found except in this way. The abuse has become so deep seated, the habit so inveterate that only by this means can thorough reform be brought about. As illustrating the extent to which this "craze" has gone, it may be mentioned that in a number of cases some hospitals spend as much as 25 per cent., 50 per cent., and even more, of what they receive in contributions and subscriptions in advertising and appeals. Is it possible to have a more perfect and flagrant *reductio ad absurdum* than this? Let it increase only a little more and longer and the advertisements for patients and contributions will equal in cost the income, and then perhaps there will come some attempt at separation of the sheep and the goats, and exclusion of the unworthy. This is, perhaps, a method of "reform" not intended or expected. And if it should come about, can any one doubt that it will be precisely the very poorest, those most needing the charity, and those *ex hypothesi* for whom it exists, who will be the excluded? Because—and this is the essence of the whole trouble—every person now treated gratuitously who is at all able to pay some fee (insufficient or not, matters not) by the very fact itself, excludes the worthy poor from receiving the aid intended for them and not for the hypocrites. Many hospitals and dispensaries now are compelled to limit the number presenting to a certain maximum in order that the work may be got through with at all by the overworked staff. And when one thinks of one or two men attempting to scientifically diagnose and correctly treat in one hour or so the diseases of this maximum the absurdity grows to disgust. In such a mess has the profession got itself! Financially and therapeutically stultifying itself and committing the double suicide with its eyes wide open and supposedly in its right mind!

Are we in the United States any better off? By only so much as we are a younger people and that our institutions have not yet crystallized their abuses into such set systems and inveterate habits. Perhaps also there is not the same hypocritic desire to deceive on the part of the lay public. But we can teach them to be hypocrites fast enough, and beyond all doubt we are hard at the job. It would be interesting to know the proportion of subscriptions for treating the poor spent by American hospitals in riotously profuse illustrations and pictures of the hospitals thus advertising for money and patients. Every room is photographed, the water-closets, views, grounds, etc., and one wonders whence in all the world come the hothouse plants. the evidences of luxury everywhere displayed with confident and exulting pride. We have seen street-car and poster advertisements of hospitals, their advantages, number of beds—and, in big "caps," the names of all their visiting and consulting physicians. We strongly suspect that this latter display as much as the desire for patients (*to treat gratuitously*) was the hidden motive that begat the device.

One indirect result of all this unseemly rivalry, but one of the most important, one moreover confirmatory of our maxim, is the fact of the influence it has on the

[1] In 1890 in the London hospitals there were treated gratuitously 2,429,219 out-patients, while in 1894 the number had risen to 4,108,039.

character of the over-worked members of the staff, and on the kind of treatment the patients receive. When there is a lively competition for patients, then, like over-affable storekeepers, there is over-treatment of the few patients in order to attract more—"I was most beautifully treated there, the doctor was so agreeable and nice, etc.—go there!" But this soon becomes tiresome and useless, and at least at the engorged and popular places the very reverse plan becomes operative. Are hospital manners improving or not? Besides this, it is positively known to us that in those hospitals in which no inquiry into the patient's financial ability or social standing is permitted (and from one reason or another this is very frequently so, though usually adroitly hidden) certain of the assistants or of the staff, feeling the shame of treating gratis those with better incomes than themselves, deliberately *mistreat* such with the (laudable?) intention of driving them finally to the private office. We mean by the word, that in minor ailments a painstaking diagnosis is consciously shirked, and slipshod treatment and placebos or what-not instituted. Are we as a profession equally with our British confrères unable to cope with the disgrace? Surely we are fast going the same road to the same institutionalism and habitualization of abuse that they have reached. Shall we proceed recklessly without any attempt to haul up? It is not only a question of "where we are at," but where we shall be at in a few years if, at the present rate, we continue our *facilis decensus*.

A MALPRACTICE CASE OF EXTRAORDINARY AND UNUSUAL CHARACTER.

That is the way RICHARDS v. WILLARD, which was decided July 15, 1896, struck the supreme court of Pennsylvania, and it did not hesitate to say so. The plaintiff claimed damages against the defendant for negligent surgical treatment for an injury to his leg. He alleged that he had sustained a fracture of both bones of his leg at a short distance above the ankle joint, and was treated, not for a fracture but for a sprain, and was thereby greatly injured. If there were no fracture the plaintiff had no case, for he did not contend that the treatment he received was improper treatment for a sprain. The defendant denied most positively that there was a fracture.

The singularity of the case arose upon the character of the testimony, and the conflict developed as to the great leading fact. Two surgical witnesses testifying from actual examination, declared that there was an actual compound fracture, one of both bones of the leg, and the other of the tibia. Against this, three surgical witnesses for the defendant testifying also, from an earlier and more complete and thorough examination, several times repeated, declared most positively and emphatically that there was no fracture whatever of either bone. Then, two experts, who examined the leg a year or more later, testified that, in their opinion, there had been a fracture. And again, on the other hand, nine experts who also made examinations at a later date, declared that, in their opinion, there was not and never had been a fracture.

A verdict for the plaintiff for $12,000 was returned by the jury. After a painstaking, careful and minute study of the testimony the supreme court felt constrained to say that it regarded that verdict as an outrage upon the administration of justice. Coupled with this is the suggestion that it must not be overlooked that the medical and surgical service rendered by the defendant to the plaintiff was entirely gratuitous. For many years he had been rendering such service to the hospital to which the plaintiff was brought after receiving his injury. If such gentlemen are to be harassed with actions for damages when they do not happen to cure a patient, and are to incur the hazard of having their estates swept away from them by the verdicts of irresponsible juries, who, caring nothing for law, nothing for evidence, nothing for justice, nothing for the plain teachings of common sense, choose to gratify their prejudices or their passions by plundering their fellow citizens in the forms of law, the court rightly further states that it may well be doubted whether our hospitals and other charitable institutions will be able to obtain the gratuitous and valuable service of, as it calls them, these unselfish and charitable men.

The trial judge showed his appreciation of the verdict by promptly striking down two-thirds of its amount, but the supreme court says that he might with still greater propriety have set the verdict aside altogether, because of its being against the law and the evidence, and grossly excessive in amount.

The plain truth, adds the supreme court, is that the plaintiff was probably afflicted with a tendency to tuberculosis, and when he received his injury that tendency became developed in the bones of his leg, and the disease called "tuberculosis of the bone" fastened upon him at the seat of the injury.

For these reasons, and on account of certain other errors in the trial, the supreme court reversed the judgment for $4,000 that was entered for the plaintiff.

Of the points of law of special interest established by this decision, it is to be noted that the supreme court holds that as the fate of the case in the hands of the jury depended upon the surgical testimony, there should have been, which there were not, instructions as to how the jury should reconcile the contradictions if they could, or, if they could not, then how they should regard it, or act in relation to it. They should also have been told just what the issue was, or the matter of fact upon which the case turned, as that it was whether there was a fracture or not, and whether the treatment administered was in

accordance with the usual and ordinary treatment practiced by competent surgeons in such cases.

As the actual fracture was not seen, it was only a matter of opinion whether it existed at all, and consequently the value of the particular testimony, the court holds, depended upon the competency of the witness to form a reliable opinion, upon the extent and character of the examination he made, upon the reasons given by him in support of his opinion, and upon the judgment of the jury as to the weight and character of the testimony submitted on both sides in support of the respective contentions, all of which should have been explained to the jury, with suitable comments.

Furthermore, it seemed probable that if the plaintiff had been content to remain at the hospital a week or two longer, he would have been cured of his hurt, and because he would not submit to such a reasonable detention, but chose to take the risk of leaving, which apparently brought upon him all his subsequent sufferings, the court says that he must take the consequences himself. And it being impossible to know what would have been the result of the treatment if the plaintiff had remained at the hospital, and this impossibility resulting from his own action, the court holds it would not be proper to attempt to separate the consequences of alleged negligent treatment prior to his leaving from the ulterior consequences resulting from his contributory negligence, after he left, in traveling and omitting to have medical treatment.

NO FULL DRESS UNIFORM.

It has been decided by the military authorities of the country, including Surgeon-General STERNBERG, at whose suggestion the action was taken, that there shall be no full dress uniform for the members of the hospital corps. The pomp and pride and panoply of war, the nodding plumes of grand parades and glittering military pageants are not for them. Although they may be *in* these parades and pageants hereafter, they will not be *of* them. When they are there they are there not for show but for business—in their fatigue suits, with their hand litters handy and their hospital corps pouches ready to furnish whatever is needful for the emergency. The process of trimming to fit their equipment to their duty has been going on gradually, and the present administration of the medical department is to be commended for the common sense which has dictated these changes. A cut was made in the right direction, when the useless sword was cut from the side of the hospital steward, and it was an equally good cut which relieved the men from the weight of the huge knife which they wore so long on their left side, and which was useful, so far as the ordinary observer could see, only in demonstrating how itself and its sheath could be utilized as extemporized splints for a broken humerus during some fancy drill for the popularization of "first aid." The hospital corps man may be considered now to be in full dress when he has his sling on his shoulders, his pouch by his side and his litter at the "carry." This is a great improvement. He has one less suit of clothes to purchase out of his allowance for clothing and to keep from getting moth-eaten during his enlistment; and as his clothing allowance has not been cut down correspondingly, he can now provide himself with white suits for hospital wear without having to invest some part of his small monthly stipend on this account.

And this leads us to consider what is and what ought to be the full dress uniform of the soldier. The medical department has solved this question for itself as regards the sanitary soldier. May we be permitted, from our professional standpoint, to suggest that the military authorities might profit by the example. Is the full dress uniform of the soldier that in which he is ready for any duty that may be required of him, or that which his care keeps from getting moth-eaten so that it may be on hand for special occasions of ceremony? Is it the uniform best suited to show off the mobility, gracefulness and power of the human figure? The officer who can not bring his hand to the salute without risk of dislodging his shoulder knot, can hardly say so, nor can the soldier who, from heat exhaustion or sunstroke, sinks, before the parade is half over, into the hands of the hospital corps to have his full dress coat unbuttoned as the first step of the first aid they have been taught in such cases. Military officers recognize the rigidity of the helmet, the stiffness of the padded coat and the general unsuitability of the full dress uniform to the active duties of the soldier; but they fear that in abandoning it there would be a risk of developing in the carriage of the men, we will not say a tendency to slouchiness, but some loss of that dignity or stateliness which is usually considered to be a visible manifestation of the reserve power of the individual. But this is a poor argument against a desirable reform. Troops that require to be splinted into a military set-up are not those that will win the battles of the future. The erect figure and martial bearing of the soldier should be the development of graded gymnastics and athletic games, and should ask nothing from the uniform except freedom of movement for every muscle in the well-developed physique.

The soldier's leathern stock died hard more than a generation ago. Is it not time to consider and reject what remains of the stiffness of antiquity about the full dress uniform? This may not be a consideration of national importance as concerns the uniform of our small regular army, but it becomes so when we consider the larger number of our State troops and the tendencies manifested in uniforming the various schools, public and private, of the country.

CORRESPONDENCE.

The Michigan Legislation League.

OPEN LETTER No. 3, TO THE MEMBERS OF THE MEDICAL PROFESSION (REGULAR) IN MICHIGAN.

DETROIT, MICH., Aug. 10, 1896.

To the Profession in Michigan:

The letter of Dr. Shurly in the JOURNAL of last week is surely a most astonishing document. He begins by saying that "of course there is no use of continuing a controversy" and then he proceeds to "*continue.*" In so doing the writer plunges head foremost into ancient history and appears to revel in confessing the iniquities and follies committed by himself and friends in former times. In that respect we are perfectly in accord with every word. The confessions have our sincere and cordial endorsement. But when Dr. Shurly presumes to accuse me and my friends of the crime of emulating the horrible example set by him and his friends twenty years ago, I have no choice but to charge Dr. Shurly with a degree of inaccuracy utterly unworthy of the man who occupies the exalted position of President of the Michigan Medical Legislation League!

Twenty years ago the medical faculty of the Michigan University found themselves face to face with a most trying dilemma. We had to choose whether we would stand by regular medicine and defend its good name against all comers and protect the university from the evils of sectarianism in medical teaching, or whether we would accept peace and popularity for ourselves by handing over the whole institution to the enemies of science and honest medicine. Dr. Shurly and his friends, by his own confession, cruelly and bitterly urged the latter alternative, but we preferred the former, and the time soon came when the profession and the public, with wonderful unanimity, applauded our course. The eloquence sneered at by Dr. Shurly certainly proved effective with the profession and the public although he admits that so far as he and his friends were concerned it was "*pearls before swine.*" In other and perhaps plainer terms I hereby solemnly declare that Dr. Shurly and his friends, in the emergency to which he refers to proclaimed with intense bitterness their ambition to secure the engrafting of homeopathy on to the great State institution of Michigan in the hope that thereby the University Medical School, with all its honorable record, might be crushed and disgraced and the embryo weakling, the Detroit College of Medicine built up on its ruins. At that time the scheme was to deliver the university into the power of irregulars. The scheme now is to hand over the whole profession of the State into the same hands!

Through all that painful and discreditable controversy, Dr. Shurly and everyone else knows full well that I and my associates in the faculty and in the profession never for a moment entered into any association or compromise with the homeopathic sect. On the contrary, in the medical societies and in the medical journals, in season and out of season, we consistently and persistently denounced them and all their pretentious claims to respect and public recognition as unfounded and fraudulent. We never justified or approved the graduation of a single homeopathic doctor. We never signed a single homeopathic diploma. Our utmost efforts were used at all times to convince everyone of the folly and iniquity of that peculiar form of mental and moral aberration called "*homeopathy.*" We opposed by all the means in our power, the crime of introducing sectarianism into the medical department. With calm, cool dignity we stood entirely aloof from the homeopathic department in the university, never condescending to contend with or notice them in any way, except when grossly attacked to defend ourselves. Consequently we enjoyed the privilege of seeing their institution pass through one long interrupted series of internal squabbles and scandals and failures until now it has got to be a by-word and a reproach among the educational institutions of the State and the nation, repudiated even by its own followers.

When Dr. Shurly ventures to draw a parallel between the admittedly shameful conduct and policy of himself and friends in that old controversy and our attitude toward his Michigan Medical Legislation League, he is as illogical and ridiculous as he would be if he propounded the following problem: "If a barrel of pork cost $10, how much would a gold mine in Nevada cost."

Even Dr. Shurly justifies now our course in the old homeopathic controversy, but I defy him and all his league to justify or defend their associations with the whole army of quacks and imposters for the purpose of obtaining legislative action, the aim and object of which, by their own published avowal, is to "protect the new beginner by limiting competition."

From the best information which we have been able to obtain, there would seem to be well-founded expectations that the "Michigan Medical Legislation League" is causing painful apprehensions as to its "viability." Its nearest and dearest friends, as we are informed, are seriously alarmed for it, and the hopeless term "stillborn" seems quite likely to sum up its whole unfortunate and discreditable career, suggesting the oft-quoted and pathetic couplet: "If I am so soon done for, I wonder what I was begun for." It seems pretty certain that the "League" is, to say the least, a "dead issue." In these circumstances it seems to be incumbent upon all right thinking members of the profession to bestir themselves and in the true spirit of professional honor and wisdom endeavor to evolve some plan by which the best interests of humanity and of science may be sufficiently provided for in the matter of medical legislation in the State of Michigan. It is inconceivable that this must of necessity prove to be a hopeless task. If approached in a proper spirit it ought to be, if not an easy, still a practicable, undertaking, to construct a policy and perfect a program by which, while granting reasonable and just recognition to all parties and pathies outside the pale of regular medicine, the honor and the good name of the latter shall still be preserved safe from charges or insinuations of weakness, evil association and cowardice. If it should ultimately appear that the time is not yet ripe for the accomplishment of such a program surely the regular profession is the one party which is strong enough to maintain itself unaided in the future, as it has in the past, and while regretting for the sake of the sick and the suffering the unfortunate condition of affairs in Michigan, we as a school, or party, can best afford to go steadily forward in our honest endeavors to promote the interests of science and humanity. We of all others can afford to wait and hope for the time to come when the clouds of ignorance and quackery shall pass away and justice be done to science and humanity so far as the practice of medicine in our State is concerned. We take this opportunity to suggest to those who may feel an interest in the subject a careful study of the medical law of the State of Pennsylvania.

Without being in any degree prejudiced in favor of any individual law at present in operation, and while we stand ready now and always to do all in our power to secure a sound and satisfactory solution of this problem, no matter what source or quarter the idea may spring from, we feel free to say the Pennsylvania law would seem to contain many valuable and practical features. But in any event we are more than willing to coöperate with any man or set of men (so long as they are fit for gentlemen to recognize and associate with) for the purpose of accomplishing or in any way advancing the matter of medical legislation for the suppression of quackery with all its distressing accompaniments of cruelty and robbery, and at the same time conferring increased honor and power upon all those who are honestly and sincerely devoting their lives and labors to the

relief of suffering and the extension of science and art in medical practice.

We will be glad to communicate with all persons whose views are in accord with those set forth in these "open letters," or to listen respectfully to those who differ with them, if any such there be.

In conclusion, I am perfectly willing to accept and endorse the suggestion of Dr. H. B. Young of Burlington, Iowa, in his letter to our JOURNAL this week. There seems to me to be something of a professional wisdom and dignity in his plan which is a great deal more than anyone can claim on behalf of the avowed policy of the Michigan Medical Legislation League.

Here must end this correspondence so far as I am concerned.

DONALD MACLEAN, M.D.

Professor Klebs Repudiates an Attempt to Place Him in a False Light.

CHICAGO, ILL., Aug. 14, 1896.

To the Editor:—The enclosed is a copy of a letter which I have this day sent to the President and Secretary of the Harvard Evening Medical College and Hospital of Chicago.

I never authorized the use of my name in any capacity, in connection with said institution, and their using it in an Announcement, is entirely without a shadow of right.

Respectfully yours, EDWIN KLEBS, M.D.

"CHICAGO, ILL., Aug. 14, 1896.

"A. H. Tagert, M.D., President, and Walter M. Fitch, M.D., Secretary, Harvard Evening Medical College and Hospital, Chicago, Ill.:

"*Gentlemen:*—I have received a copy of your Announcement for the session of 1896 and 1897, and have to express my astonishment that you put me down as 'Professor of Morbid Anatomy, Bacteriology and Original Research' in your institution.

"I never consented to accept any such position in your school, and you are hereby notified that, unless you immediately suppress these Announcements, I will be compelled to take legal measures to compel you to do so. I have also made public announcement of the fact that I have no connection whatever with your school.

"Respectfully yours, EDWIN KLEBS, M.D."

It was Pernicious Fever.

NEW HAVEN, CONN., Aug. 13, 1896.

To the Editor:—Replying to yours of the 11th inst., would say, the case you allude to was probably one of malarial poisoning in a severe form, but the symptoms taken in connection with a recent visit to New York, Brooklyn and Newark, fully justified the suspicion of yellow fever. Her first symptoms were great lassitude and supra-orbital pain. She had a very severe chill lasting several hours, which was followed by high fever and nausea and vomiting. Temperature 106 degrees, followed by collapse. At one time the vomit was blackish. She had only one paroxysm terminating in collapse and death. An intense and rapidly developed jaundice, shortly before death. Some uterine hemorrhage.

The New York health authorities say however, that no source of infection is known to exist in that vicinity, either now or recently. No autopsy was made. The present opinion is that the case was one of pernicious or congestive fever.

Respectfully yours, C. A. LINDSLEY,
Secretary, Connecticut State Board of Health.

Another Diploma Mill in Wisconsin.

MADISON, WIS., August, 17, 1896.

The Attorney-General of the State of Wisconsin, Hon. W. H. Mylrea, has filed the following petition. Any of our readers having circulars or letters relating to this institution will confer a favor by sending them to this office.

In the matter of the application of the Attorney General for leave to bring suit to dissolve the corporation known under the name of the Milwaukee University (Medical and Dental College), to the Supreme Court of the State of Wisconsin.

The Attorney General of the State of Wisconsin respectfully shows:

That on or about the 24th day of February, 1896, there was formally organized under the laws of this State, by Dr. Samuel Shorer, Dr. Theodore Walther and Dr. Oscar Abert, a corporation to be known under the style and name of the Milwaukee University. That said corporation was formed without capital stock "for the purpose of teaching students the science of medicine and dental surgery, and preparing and educating them to practice as physicians and dentists, and conferring upon them, upon examination, and they having succeeded in passing such examination as to their knowledge of such sciences, the Degree of Doctor of Medicine or Doctor of Dental Surgery, or such other degree which may be proper, according to their knowledge exhibited on such examination.

Your petitioner further shows that heretofore he has been credibly informed that said corporation in breach of its trust has knowingly and wilfully abused the powers conferred upon it by its articles of association and certificate of incorporation, and also has knowingly failed to exercise its powers so conferred, and still wilfully neglects to exercise its powers and trusts as provided by law.

That after receiving said information and within a few days last past, your petitioner visited the city of Milwaukee, being the city in which said corporation is located, and visited its alleged college, located at the corner of Eighth and Chestnut streets, in said city and state. That your petitioner there met and interviewed said Dr. Oscar Abert, who claimed to be the secretary and treasurer of said corporation, as well as the dean of the dental faculty thereof. That at said time and place said Dr. Oscar Abert admitted that so far as he knew no records had been kept of the meetings of the board of directors, and that no by-laws had been adopted, or any means whatever taken to preserve the records of any of the acts or doings of said corporation, contrary to the statutes in such case made and provided. Said Dr. Abert stated to your petitioner that possibly such records had been made by the president thereof or by the dean of the medical faculty, Dr. Theodore Walther, but that no such records were kept in the University. That your petitioner visited the alleged office of said Dr. Theodore Walther and found that he was absent from the city of Milwaukee, and State of Wisconsin, and that no definite information as to his return could be obtained. That the office of said Dr. Theodore Walther was in a small building, the lower part of which was occupied as a saloon. That the keeper thereof informed your petitioner that said Dr. Theodore Walther might return to the city of Milwaukee on the following day and might not for some time. That the building of said college was formerly a residence, and later a small private hospital, and as your petitioner is informed, is not owned by said corporation. That the said Dr. Oscar Abert further admitted to your petitioner that all the college library in use in said building was two small bound volumes, printed in the German language, and a few pamphlets. That the said Milwaukee University does not own or possess the necessary appliances for the successful teaching of medicine, surgery and dentistry. That the University owns and possesses only one skull and a few bones of the human skeleton, and is not supplied with any of the ordinary parsphenalia used in teaching the sciences before mentioned.

Your petitioner further alleges upon information and belief that said college was formed without capital stock and that it does not even possess sufficient medical and surgical instruments as would be used by an ordinary member of the profession in every day practice. That no salaries have ever been paid to any teachers. That the only resident of the college building or person in charge thereof is said Dr. Oscar Abert.

That said Milwaukee University publishes a prospectus from which it appears that one Dr. Shorer is president thereof. That said Dr. Shorer is a resident at No. 571 Mitchell Street, Milwaukee, Wisconsin, and is engaged in the private practice of medicine. That one Dr. Carl Wagner is also a director of said corporation and resides at the city of Chicago, and that he has never visited or given any instruction in said college. That the vice-president of said college is one Dr. E. Schoene, a resident of Fredonia Station, Washington County, Wisconsin.

That your petitioner has been informed and verily believes it to be true that said Milwaukee University has issued a large number of diplomas conferring the degree of Doctor of Medicine or Doctor of Dental Surgery upon persons who have never even visited the city of Milwaukee. That said Dr. Oscar Abert admitted to your petitioner that quite a large number of such diplomas had been issued to parties residing in Germany, and that the sum received for each diploma issued was two hundred dollars ($200.00), and in addition the notary fees necessary to furnish the party with a certified copy of the articles of association and certificate of incorporation. That said diplomas, as your petitioner is informed and verily believe, were fraudulently issued to persons utterly unqualified to practice medicine, and who had never pursued a proper course of study, and who fraudulently intended to procure these diplomas for the purpose of enabling them to practice medicine and surgery, the same as the graduates of the best medical schools of the land. That said Dr. Oscar Abert further admitted to your petitioner that he was not a graduate of any medical college and had never received any authority to practice medicine, and that the only diploma he had ever received was that of Doctor of Dental Surgery. That he was unable to exhibit to your petitioner said diploma, but in lieu thereof exhibited to your petitioner what purported to be a license issued by the Board of Dental Examiners of the State of Illinois.

Your petitioner further alleges on information and belief that the said Milwaukee University was never organized or formed for the purpose of teaching students the science of medicine and dental surgery, and that said Milwaukee University has never prepared or educated, or intended to prepare or educate any person or persons for the purpose of enabling them to practice as reputable physicians or dentists, or for the purpose of conferring upon them, after due study and examination, the degree of Doctor of Medicine or any other degree, according to their knowledge as exhibited on such examinations. Your petitioner further shows upon information and belief that said corporation was not organized in good faith, but was knowingly and wilfully organized for the purpose of issuing diplomas in order to enable unfit and unskilled persons to secure authority to practice medicine and to enable the organizers and promoters of said Milwaukee University to secure large sums of money for false and fraudulent diplomas, not only from the innocent and unsuspecting, but from ignorant and corrupt persons who desired the pretended authority to practice medicine for their own selfish purposes.

That your petitioner is informed and verily believes that said Milwaukee University has caused large numbers of advertisements to be

inserted in newspapers throughout the different States of the Union soliciting such persons as are above described to apply to it for diplomas and licenses such as would permit them to practice medicine in this and other States without being qualified or prepared for such profession.

That said corporation has issued a great many diplomas to persons who have made no preparation or study of the science of medicine or dentistry. That said Milwaukee University sends out a large number of prospectus to different persons throughout the United States and foreign countries for the purpose of soliciting applications to purchase the fraudulent and bogus diplomas hereinbefore mentioned. That said corporation is in no wise a *bona fide* corporation, or organized for the purpose of advancing science, or for the maintenance and use of a college for the study of medicine and dentistry, or for any other lawful purpose whatever, but for the purpose of falsely and fraudulently obtaining money from the innocent and vicious.

Your petitioner further alleges on information and belief that to permit this corporation to carry on its alleged business is detrimental to public policy and good morals and contrary to the interests of the State of Wisconsin, as well as to the advancement of the science of medicine and dental surgery.

Wherefore, your petitioner asks leave to bring an action in the name of the people of the State of Wisconsin for the purpose of vacating the charter and annulling the existence of said corporation.

W. H. MYLREA, Attorney-General.

State of Wisconsin, } ss.
Dane County. }

W. H. Mylrea, being duly sworn on oath, says that he is the duly elected and qualified attorney-general of the State of Wisconsin, and acting as such. That he has read the foregoing petition and knows the contents thereof, and that the same is true of his own knowledge, except as to those matters therein stated on information and belief, and as to those matters he believes it to be true. W. H. MYLREA.

Subscribed and sworn to before me this 11th day of August, 1896.

JOHN PRICE, JR., Notary Public, Dane County, Wisconsin.

NEW INSTRUMENTS.

A NEW MIDDLE EAR, MASTOID AND LACHRYMAL SYRINGE.

BY ALFRED HINDE, M.D.
CHICAGO.

In suppurative inflammations of the middle ear, both acute and chronic, and of both atrium and attic and also in the



extensions of the same pathologic process into the mastoid antrum the difficulties of removal of exudate, drainage, irrigation and disinfection of the infected parts are almost insuperable. For some years past I have had made and used drawn out and bent glass syringes, not unlike medicine droppers with elongated bent points. These, though exceedingly valuable for the purposes required have now been relegated to the curiosity shelf and the following syringe, modeled on their plan but indestructible and of greater capacity and power has taken their place in my practice and has been found a most useful and satisfactory instrument for the purposes required.

The syringe has four hollow tips, each seven centimeters long; the diameter of the ear end of each tip is one millimeter and that of the outer end three millimeters. One tip (B) is straight and the other three have a bend of four millimeters at right angles to the shaft. One of the bent tips (C) has an end opening at the ear end, one has an opening (E) on the right side at the tip, the other (D) has an opening on the left side at the tip; the two latter have closed ends. These tips fit on to a plain metal slip-joint on the other part of the syringe, which is as follows: From the extremity of the joint one centimeter, the shaft is bent at about an angle of 70 degrees and continues for a distance of four and a half centimeters, enlarging in caliber as it proceeds. At the widest end it fits upon a screw, the enlarged end of which is within a rubber ball. Between the screw and the rubber bulb is a metal cup into which the rubber ball fits. This cup covers one-third of the outer circumference of the rubber ball. The joint between the shaft and the ball being a screw requires a washer to render it water-tight. The syringe when filled with fluid has an emptying capacity of two drams as at present made, but larger rubber bulbs can be attached as desired, or a connection with an irrigating vessel be used. The metal parts are of German silver. The instrument can be readily taken apart and sterilized. The straight tip can be used and an excellent lachrymal[1] syringe improvised. Also the bent tip with the opening at its end can be used for irrigating the antrum of Highmore. For ear purposes the straight tip is used for emptying, disinfecting and irrigating the atrium. The bent tips are used in the attic. The one with the end opening is merely for injecting the attic cavity after the latter has been emptied of its necrotic ossicles and suppurating contents. The two bent tips with the lateral openings placed posteriorly when in use are for injecting and disinfecting the mastoid antrum through its opening into the attic after the latter has been cleared, and in those cases where every means of cure is resorted to before chiseling the mastoid, and where the latter operation is positively refused by our patient. Messrs. Sharp & Smith have made the instrument for me and to Mr. Cotter of that firm I must extend my thanks for aid in getting it out.

BOOK NOTICES.

A System of Surgery. By FREDERIC S. DENNIS, M.D., assisted by JOHN S. BILLINGS, M.D. Vol. IV. Tumors; Hernia; Surgery of the Alimentary Canal; Appendicitis; Surgery of the Liver and Biliary Passages; Of the Uterus; Of the Ovaries and Tubes; Gynecologic Surgery; Symphysiotomy; Surgery of the Thyroid; Surgical Peculiarities of the Negro; Surgery of the Female Breast; Use of the Roentgen Rays in Surgery. Profusely Illustrated. 8o, cl., pp. 970. New York and Philadelphia: Lea Bros. & Co. 1896.

This volume completes the most extensive system of surgery exclusively American yet published in this country. We must accord it a very high rank among the surgical works of the period. Indeed, it is not too much to say that the work, as a whole, is a fair reflex of American surgery of to-day as practiced in New York city.

Liberal use without credit is made of Prof. Nicholas Senn's scholarly article on enterorrhaphy, first published in this JOURNAL Aug. 12, 1893, Vol. xxi, p. 215. Of the forty-four illustrations in the chapter illustrating the methods of intestinal suture, nearly one-half of them may be seen in the article on enterorrhaphy. Nor is this all. It is impossible to resist the conclusion, on a fair comparison of the two, that the Senn article furnished the basis for this portion of the chapter, as almost without exception every author quoted appears in the Senn article, in which, indeed, are many not quoted in the book. The language descriptive of these sutures bears

[1] Since writing the above I have had a conical tip (A) one and a half centimeters long and with the small end of a diameter of one millimeter, and the latter diameter extending from the point for two millimeters distance. This conical tip fits on to the slip joint of the shaft as do the others, and is used for lachrymal syringing.

a very close resemblance to the Senn article, as may be seen on comparison.

In the article on hypertrophy of the breast two cases are mentioned, presumably on account of their exceptional size, neither of which approached in size the case reported by Professor Hamilton in this JOURNAL March 9, 1895, Vol. xxiv, p. 358, in which the glands after removal weighed respectively 27½ and 24½ pounds. Before removal, one of these breasts measured 42 inches in circumference at the nipple and the other 39 inches. The quotation from Williams also appears in Hamilton's article, but in the book there is a grammatic error in copying.

We notice in the excellent article on surgery of the thyroid gland, p. 830, that the old director of Kocher is figured. The one at present used by that distinguished operator has a fenestra near the end.

The chapter on the surgery of the alimentary canal from the ileo-cecal valve to the anus, by Dr. Lewis S. Pilcher, is one of the most satisfactory in the book.

The last chapter, by Prof. W. W. Keen of Philadelphia, "On the Use of the Roentgen X Rays in Surgery," presents in a condensed form the salient points of the subject, and gives this book the credit of being the first work on surgery in the English language to contain any reference to it. We can not close this notice without complimenting the editor on the happy conclusion of his arduous task, and the publishers on having produced a work with such uniformly excellent illustrations, and such splendid appearance. No general surgeon or general practitioner can consider his library complete without a copy of Dennis' System.

Treatise on Appendicitis. By JOHN B. DEAVER, M.D. Containing 32 full-page plates and other Illustrations. 8o, cl. Philadelphia: P. Blakiston, Son & Co. 1896. Chicago: W. T. Keener & Co.

This monograph contains an account of the history, anatomy, etiology, pathology, symptoms, diagnosis, differential diagnosis, prognosis, treatment, complications and sequelæ and after-treatment of appendicitis.

Dr. Deaver's work will be found in all respects satisfactory, the illustrations are accurate and clear and the author's advice is sound.

SOCIETY NEWS.

Alabama, Georgia and Tennessee Meeting.—The Tri-State Medical Society of Alabama, Georgia and Tennessee will hold its eighth annual meeting at Chattanooga, Tenn., October 13-15. The prospects are favorable for a large attendance.

Lehigh Valley Medical Association.—The sixteenth annual meeting of this association took place in Wilkesbarre, Pa., August 6. Dr. George M. Gould, by request, read a paper on "Some Curiosities of Medical and Surgical Practice," in which he cited a number of instances of children having been born at railway stations, theaters and in street cars, and gave an explanation of the cause of the incidents that came under his practice within the past few years. The following officers were elected for the ensuing year: President, Dr. J. R. Bucher, Lebanon; vice-presidents, Dr. Mary Greenwalt, Stroudsburg; Dr. G. T. Fox, Allentown; Dr. O. F. Harvey, Wilkesbarre; Dr. C. J. Leaver, Reading; secretary, Dr. Charles McIntyre; assistant secretary, Dr. W. S. Stewart, Wilkesbarre; treasurer, Dr. A. Stout, Bethlehem.

The American Electro-Therapeutic Association.—The sixth annual meeting of the American Electro-Therapeutic Association will be held Sept. 29-30, and Oct. 1, 1896, in Boston, Mass. Prof. A. E. Dolbear, Tufts' College, Mass., is the Chairman of the Committee of Arrangements. Dr. W. H. White, 222 Marlborough Street, Boston, Mass., is the Vice-Chairman of the Committee of Arrangements. Dr. Frederick H. Morse, Melrose, Mass., is the Chairman of the Committee of Exhibition.

The next annual meeting promises to be a greater success than any former one. Great interest is shown in all quarters; a large attendance is promised. Many candidates of national reputation are proposed for membership, so that the amendment to increase the limit of members becomes a necessity. The best talent has already announced papers, a larger number than ever before, at this early date; material almost sufficient to make a program for the session of unusual interest. There will be two discussions of importance in electro-therapeutics, interesting reports of all standing committees, several scientific lectures on the first evening, with demonstrations and stereoscopic views (including Roentgen X Rays, and electric principles in the treatment of diseases), given by eminent talent. The Committee of Arrangements has surprises in store for the social element in receptions and excursions. The exhibition promises to be a good feature and of more than usual interest. The fifth annual volume of the Transactions of the American Electro-Therapeutic Association is now on press, and will be ready for delivery about the end of July, 1896; illustrated, cloth bound, gilt lettering, octavo, about three hundred pages. EMIL HEUEL, M.D., Secretary.

The American Academy of Railway Surgeons.—The third annual meeting of this Association will be held in Chicago, Sept. 23-25, 1896. The officers are: President, John E. Owens, M.D., Chicago; first vice-president, L. E. Lemen, M.D., Denver, Colo.; second vice-president, F. L. Peck, M.D., Clinton, N. Y.; secretary, Webb J. Kelly, M.D., Galion, Ohio; treasurer, C. B. Kibler, M.D., Corry, Pa.; editor, R. Harvey Reed, M.D., Columbus, Ohio.

The following papers will be presented and discussed:

President's Address, J. E. Owens, M.D., Chicago.

Use and Abuse of Expert Testimony, with some Recommendations for its Improvement. An Attorney.

Diseases of Railway Men, caused by their Occupation. J. F. Pritchard, M.D., Manitowoc, Wis.

The Personal Equation among Train-men; its Importance Equal or Greater than the Color Sense. Illustrated by an automatic machine which records both. Robert Tilley, M.D., Chicago.

Penetrating Wounds of the Eye Ball. Archibald G. Thompson, M.D., Philadelphia, Pa.

Penetrating Wounds of the Eye Ball. G. A. Wall, M.D. Topeka, Kan.

Penetrating Wounds of the Eye Ball. T. J. Redelings, M.D., Marinette, Wis.

Penetrating Wounds of the Eye Ball, with Special Reference to Differential Diagnosis. D. C. Bryant, M.D., Omaha, Neb.

Remote Effects of Bone Trauma. D. S. Fairchild, M.D., Clinton, Iowa.

Medico-Legal Aspects of Floating Kidney. R. Harvey Reed, M.D., Columbus, Ohio.

Railway Surgery. Jessie Hawes, M.D., Greeley, Colo.

Emergency Surgical Practice. C. K. Cole, M.D., Helena, Mont.

First Aid in Railway Emergencies. James E. Pilcher, M.D., Columbus, Ohio.

Experimental Research into Shock in Abdominal Operations and Injuries. Geo. W. Crile, M.D., Cleveland, Ohio.

Shock and Collapse, with Special Reference to Amputations. Webb J. Kelly, M.D., Galion, Ohio.

The Delirium of Shock. R. S. Harnden, M.D., Waverly, N. Y.

Injuries of the Hands and Fingers. John McLean, M.D., Pullman, Ill.

An Experimental Study of Colles' and Pott's Fractures on the Cadaver. A. D. Bevan, M.D., Chicago.

The Cause and Mechanical Treatment of Subluxation of the Knee-Joint. S. L. McCurdy, M.D., Pittsburg, Pa.

Compound Comminuted Fractures at the Knee, with Report of a Case. W. A. Ward, M.D., Conneaut, Ohio.

Relation of Tuberculosis of the Knee to Injuries of said Joint. H. Reineking, M.D., Sheboygan, Wis.

Fractures of the Femur. E. M. Dooley, M.D., Buffalo, N. Y.

Past and Present Obstacles to the Radical Cure of Hernia. E. Wyllys Andrews, M.D., Chicago.

Treatment of Tramps and Trespassers. H. J. Williams, M.D., Macon, Ga.

Roentgen Ray Demonstration.

PUBLIC HEALTH.

Rochester Death Report.—The Health Board of Rochester, N. Y., report the number of deaths for the month of July as 262: 108 were under 1 year of age, 23 over 60, and 22 over 80 years of age. Four of the decedents were 90 years old.

Chicago Death Rate for July.—During July the total number of deaths in the city was 2,457. One hundred and twenty-two were due to violence, 58 were from typhoid fever, 367 infantile diarrhœa, 385 acute intestinal trouble, and 107 heart disease. The death rate for the month was 1.52 per 1,000.

Sanitary Rules for Mothers.—The Board of Health of the city of Macon, Ga., has issued a little pamphlet for the benefit of mothers who have young children, and who need advice and warning in order to guard the health of their offspring from the diseases incident to hot weather.

Necessary Precautions.—Dr. Alvah H. Doty, Health Officer of the Port of New York, sailed August 8 for Cuba, where he will remain ten days collecting information for use in preventing the outbreak of yellow fever and smallpox among passengers en route to this port from Havana. The principal object of Dr. Doty's visit is to select and appoint a resident physician in Cuba upon whom he can call at any time for such work and information as might help him in the purposes of his own work here.

New Orleans Free from Smallpox.—New Orleans has practically stamped out the smallpox, which has been epidemic in that city for some time past. It made its appearance in 1895 and increased in the number of cases until in March of this year there were 334 cases and 83 deaths. Up to July 31 there had been 828 cases and 235 deaths this year. The methods adopted were general vaccination and strict quarantining. It is claimed that no such energetic campaign against the smallpox was ever conducted before. The climatic conditions and the nature of the population of New Orleans made this necessary.

Health in Michigan, July, 1896.—Reports to the State Board of Health, Lansing, by observers in different parts of the State, show that, compared with the preceding month, cholera infantum, dysentery, cholera morbus and diarrhœa increased in area of prevalence; compared with the average for July in the ten years, 1886-1895, consumption, intermittent fever, remittent fever and cholera infantum were less than usually prevalent. Consumption was reported present in Michigan in the month of July at 213 places; typhoid fever at 82; measles at 65; scarlet fever at 44; whooping-cough at 40 and diphtheria at 27 places.

Inefficiency of Filters and Sterilizing Processes for Drinking Water.—A couple of years ago the Paris authorities offered a prize for the best process of purifying and sterilizing large quantities of water. The committee in charge report now that no such process exists, that every attempt thus far has proved a failure, and that the only means to secure suitable drinking water is to procure it from unpolluted sources. The nearest approach to this is the sand filter, with or without chemicals, but enough filters must be provided so that they can be changed and used in turn, and they must be under the incessant and scrupulous care of experts. The only process for separate establishments, schools, barracks, etc., is to boil the water and keep it exposed to the air while protected from dust. No known filter, large or small, will supply permanently suitable drinking water, as they all require care and supervison beyond the possibility of realization.—*Semaine Méd*, July 22.

Formalin as an Official Disinfectant.—According to *Hygienische Rundschau*, the above substance can be applied to the disinfection of rooms and goods such as is practiced by sanitary officials. An inquiry taken up at the Stockholm Hygienic Institute by Nils Englund into the best and most practical method among the many proposed for the disinfection of rooms and buildings, has demonstrated that the original recommendations of spraying with a dilute formalin solution, or the suspension of clothes saturated with formalin solution in the space to be disinfected are after all the best. Both these methods proved most efficient in the destruction of bacteria in rooms: 1. The spray method. Walls, furniture, etc., were thoroughly sprayed with a 2 per cent. formic aldehyde solution and the room closed for twenty-four hours; 60 to 70 c.c. of the above solution sufficed for each square meter of surface. 2. Evaporation of solutions. Clothes were saturated with one pint of formalin solution in which half a pound of calcium chlorid was dissolved. The clothes were then hung in the room which was closed for twenty-four hours. For furs and books especially this method of disinfection with formalin proved specially useful. For dwelling-houses generally the spray method is exceedingly cheap. While working with it the eyes should be protected with spectacles and the mouth and nose with cotton-wool masks; the hands may be covered with vaselin or gloves.

Violent Deaths in Great Britain.—During 1895, 820 persons lost their lives in railway accidents, while 1,054 were killed in accidents to vehicles; 253 were run over by trains and 372 by vehicles. Other causes of accidental death were: Lightning, 15; cold, 91; football 16; cricket, 3, and cold baths, 2,172. Suicides, 2,052 men and 677 women.—*Prog. Méd.*, July 25.

Improved New Sanitary Prisons for Paris.—The new hygienic prisons at Fresnes, which are to take the place of the old ones inside the city limits are said to be models in every respect. The new Montesson school will receive the children until recently incarcerated in cells at the Petite Roquette, and teach them some useful trade amid beautiful, healthy surroundings. The men and the children are thus provided for, but the disgraceful old prison of St. Lazare for the women has not yet been superseded.

Preliminary Medical Examinations in Pennsylvania.—The State Medical Council having adopted a rule that all who expect to practice medicine in the State must submit to a preliminary examination. It will be conducted at the following places by the examiners named: Altoona, Prof. D. S. Keith; Easton, William W. Cottingham; Erie, H. C. Missimer; Harrisburg, L. O. Foose; Philadelphia, James F. C. Sickel; Pittsburg, George J. Luckey; Reading, E. Mackey; Scranton, George Howell; Williamsport, Charles Lose. The scope of the examination includes arithmetic, grammar, orthography, American history and English composition.

Inspection of New York State Charities.—We note with pleasure in the *Medical News*, August 1, an announcement that the veteran sanitarian and philanthropist, Dr. Stephen Smith of New York City, has been invited to assist in the reforming of certain of the charities of his State institutions that are said to receive more than $20,000,000 annually. Dr. Stoddard, of Rochester, the associate of Dr. Smith, although ten years or more his junior, is not new in the sanitary field. Dr. Stephen Smith and Dr. E. V. Stoddard, are members of a newly appointed committee of inspection of charities, under the New York State Board of Charities. Their duties relate largely to the economic expenditure of moneys, bestowed by the State upon hospitals, dispensaries, and other charitable institutions. Under the new State constitution, supplemented by laws passed last winter, it is provided that the State board of charities "shall visit, inspect and maintain a general supervision of all institutions, societies, or associations which are of charitable, eleemosynary, correctional or reformatory character, whether State or municipal, incorporated or not incorporated, which are made subject to its supervision by the constitution or by law." The committee of inspection will investigate all charities in Brooklyn and New York, both public and private,

and will organize a system of direct supervision over all charitable work. The State has appropriated $10,000 for this year's work. The charitable donations last year in New York State, public and private, amounted to the immense sum of $23,000,000. No other State spends nearly as much. It is to provide for the wisest distribution of this money that the present supervision has been provided.

Wide Dissemination of Typhoid Fever in North Carolina.—According to the *Bulletin* of the Board of Health for July, not less than fifty-two counties in the "Old North State," out of ninety-six, reported from one to twelve cases of fever in the month of June. In Alamance County a physician lost his life by that disease. In some counties the health officers report rather vaguely, "typhoid fever in nearly all parts." The Secretary, Dr. R. H. Lewis, again demands that the water supply shall be watched in these fever stricken communities. The *Bulletin* gives the following explanation of the policy of the State Board: In order to assist in locating the origin of typhoid fever and checking its further spread when occurring in more or less epidemic form (the means at the disposal of the board would not permit it in sporadic cases), arrangements have been made with Drs. Albert Anderson of Wilson and W. T. Pate of Gibson Station for bacteriologic examination of suspected drinking water. On the back of the permit for this analysis the following appears: "Parties desiring a bacteriologic examination of drinking water must first apply to the Superintendent of Health of his county (or to the medical health officer of his city or town if it have one), who will, if in his opinion there be just cause to suspect said drinking water as the source of disease, write to the Secretary of the State Board of Health, giving his reason for such suspicion. Should they be satisfactory to the latter he will forward this permit either to said superintendent or such other physician as he may designate. The sample must be taken and packed by a physician, in strict accordance with the following directions: The fact that nearly twice as many counties reported typhoid fever this month as did last suggests the advisability of calling attention again to the importance on the part of both physicians and householders of carefully looking after the means of preventing its spread. When it is remembered that 50,000 people die annually in the United States from this disease, of which North Carolina's quota would be about 1,000, to say nothing of the constitutions shattered, of the suffering, anxiety, expense and loss of time, the gravity of the subject is apparent and no excuse for repeatedly directing the attention of both the profession and the people to their duty in relation thereto is necessary. Enteric fever is by long odds the most fatal of all the preventable diseases which occur within our borders. And it is undoubtedly preventable, in large measure certainly, and, too, by very simple and inexpensive methods. That the drinking water is the medium of transmission in an immense majority of the cases, and that the water is contaminated by the undisinfected bowel discharges of another case is practically demonstrated. So that the preventive measures necessary may be summed up in an immediate change to a water supply clearly beyond the risk of contamination, or boiling the home supply, and in promptly and thoroughly disinfecting the bowel discharges and the soiled linen."

Health Report.—The following reports of mortality from smallpox, yellow fever and cholera have been received in the office of the Supervising Surgeon-General U. S. Marine-Hospital Service:

SMALLPOX—UNITED STATES.

New Orleans, August 1 to 8, 1 death.

SMALLPOX—FOREIGN.

Birmingham, Eng., July 25 to August 1, 1 case.
Bombay, India, July 7 to 21, 12 deaths.
Calcutta, India, June 27 to July 11, 3 deaths.
Callao, Peru, July 5 to 19, 36 deaths.
Genoa, Italy, July 24 to August 1, 3 cases, 1 death.
Havana, Cuba, July 23 to August 7, 39 deaths.
Licata, Italy, July 18 to 25, 2 deaths.
Madrid, Spain, July 7 to 28, 58 deaths.
Naples, Italy, July 18 to August 1, 15 cases, 6 deaths.
Odessa, Russia, July 18 to 25, 5 cases, 4 deaths.
Prague, Bohemia, July 4 to 25, 6 cases.
Rio de Janeiro, Brazil, June 27 to July 18, 21 cases, 6 deaths.
St. Petersburg, Russia, July 18 to 25, 10 cases, 1 death.
Tuxpan, Mexico, July 18 to 25, 1 death.
Warsaw, Russia, July 18 to 25, 2 deaths.

CHOLERA.

India: Bombay, July 7 to 21, 29 deaths; Calcutta, June 27 to July 11, 54 deaths; Madras, July 4 to 17, 3 deaths.

Japan: July 13 to 21, Kisto Tu, 1 case, 1 death; Osaka Tu, 1 case; Tokio Tu, 10 cases, 4 deaths; Fuknoka Ken, 5 cases; Ibaraki Ken, 2 cases, 1 death; Kagawa Ken, 1 case; Kanagawa Ken, 2 cases; Okayama Ken, 1 case; Saitama Ken, 1 case; Sidzuoka Ken, 1 case; Wakayama Ken, 2 cases, 1 death; Yehime Ken, 2 cases.

Egypt, July 14 to 20: Cairo, 16 deaths; Alexandria, 20 deaths.

During this period, July 14 to 20, there were 1,540 deaths from cholera throughout Egypt, exclusive of those occurring in Cairo and Alexandria. Total since beginning of cholera epidemic 13,343 cases and 11,099 deaths.

YELLOW FEVER.

Havana, Cuba, July 23 to August 6, 210 cases, 95 deaths.

Rio de Janeiro, Brazil, June 27 to July 18, 20 cases, 13 deaths.

Sagua la Grande, Cuba, July 18 to August 1, 166 cases, 16 deaths. Vera Cruz, Mexico, July 30 to August 6, 3 cases.

According to reports of the Spanish Army Sanitary Corps in Cuba for the first twenty days of July, 1896, there were during that period 1,835 *new* cases of yellow fever admitted to the hospitals in Cuba. There were also during the same period 497 deaths among the yellow fever hospital patients.

NECROLOGY.

JEROME COCHRAN, M.D., Montgomery, Ala., died after a lingering illness August 17. He was the descendant of a



JEROME COCHRAN, M.D.
PORTRAIT FROM WATSON'S PHYSICIANS AND SURGEONS OF AMERICA.

Scotch-Irish family, and was born at Moscow, Tenn., Dec. 4, 1831. Having received a common school education, afterward supplemented by a course of private study, embracing biology, theology, metaphysics, and the foreign languages, he entered the medical department of the University of Nashville, and was graduated from that institution in 1861. During the Civi War he served as surgeon in the Confederate Army. In June, 1865, he established himself in Mobile, where he resided for some years. For the past fifteen years he resided in Montgomery. Of his writings may be mentioned: "Administration of Chloroform by Deglutition," "History of the Yellow Fever Epidemic of 1873," "The White Blood Corpuscle; its Physiology and Pathology," "History of the Smallpox Epidemic of 1874–75 in the City of Mobile."

As a sanitarian he was one of the foremost and through his efforts many acts of the Alabama legislature relating to State medicine were passed by that body. He drafted the "Act to Establish Boards of Health in the State of Alabama" (passed by the legislature in 1875), constituting the State Medical Association, the State Board of Health, and the County Medical Societies; drew the "Health Ordinance of the City of Mobile," as adopted in 1872, and revised in 1875; and drew the "Act to Regulate the Practice of Medicine in the State of Alabama" (passed in 1877), requiring satisfactory examination of all persons desiring to practice medicine in the State. He had been an ardent advocate of this measure since 1871. Since 1873 he had been chairman of the committee on public health of the State Medical Association, a position equivalent to that of health officer of the State. From 1868 to 1873 he was Professor of Chemistry in the Medical College of Alabama, and since that time he has been Professor of Public Hygiene and Medical Jurisprudence in the same institution.

He was associated with the late Surgeon-General Woodworth of the Marine-Hospital Service, and the late Dr. S. M. Bemiss of New Orleans on the Yellow Fever Commission, which investigated the yellow fever epidemic of 1878, and collected the history of each single case that was obtainable. This report was remarkable for the vast amount of painstaking labor expended upon it. The traveling expenses of Drs. Cochran and Bemiss were defrayed by the late Elizabeth Thompson of New York and the MS. was turned over to the National Board of Health by Dr. Hamilton, who succeeded Dr. Woodworth. We believe that this report was never printed, although extracts were from time to time printed. Dr. Cochran was one of the most active health officers in the United States, and a man of phenomenal energy. His sanitary work at Decatur, Ala., in 1888 was intelligent and thorough. As a man his character was that of one devoted to sanitary science, of great learning and unwearied industry. His long and faithful service to his State is such that it can not be overrated or excluded from the history of its progress. He had his "quips and oddities," what genius has not? But take him all in all, we shall not see his like. His friends, his State, his country and our Association have suffered a great loss.

W. H. Ross, M.D., at Pensacola, Fla., August 8. He graduated from the College of Physicians and Surgeons, New York, in 1868, and was a member of the Florida State Medical Association. He had formerly been house physician in the Charity Hospital, New York, professor of anatomy in the Medical College of Alabama at Mobile, assistant State health officer of Florida, etc.

John H. Norris, M.D. (College of Physicians and Surgeons, Keokuk, Iowa, 1870), at Metropolis, Ill., August 13, aged 66 years. He was ex-mayor of the city and prominent among the medical fraternities of Southern Illinois and Southwestern Kentucky. He was captain of Company M, Thirteenth Illinois Cavalry, served with distinction throughout the late war, and was breveted major.

Wm. H. Matlack, M.D., of Downingstown, Pa., died there July 12, aged 59 years. He was of the class of 1859, Jefferson Medical College.

Dayton E. Decker, M.D., of Woodbridge, N. J., died at Princeton, N. J., July 20. He was the only son of the late Dr. Dayton Decker and a graduate of the Long Island College Hospital, class 1874.

John H. McGivern, M.D., died at Plympton, Nova Scotia, July 21. His remains were interred at St. John, N. B., the place of his birth. He was a graduate of the New York University Medical College in 1883, and soon after began practice in the Harlem portion of New York city, where he became somewhat prominent in the cause of municipal reform.

Wm. A. Rothacker, M.D., Cincinnati, aged 42, died after a prolonged illness. Dr. Rothacker was compelled to retire from active practice a number of years ago by reason of poor health, but up to that time he had occupied a prominent position in the local profession. He was at one time demonstrator of anatomy in the Medical College of Ohio, and edited a well-known work on anatomy. He graduated from the Cincinnati College of Medicine and Surgery in 1877.

Simon M. Curtwell, M.D., of Maysville, Ky., aged 78 years, died August 4. He was surgeon of the Sixteenth Kentucky Regiment during the war and was the oldest practitioner in his county.

S. T. Anderson, M.D. (Rush Medical College, Chicago, Ill., 1881), at Bloomington, Ill., of apoplexy, August 10, aged 52 years. He was a prominent member of the State Medical Association.——Horatio H. Johnson, M.D. (Harvard University Medical School, Boston, Mass., 1869), at Belfast, Me., August 4, aged 51 years. He was a member of the Maine Medical Association and formerly secretary of the Board of Medical Examiners of Waldo County.——J. L. Henot, M.D. (University of Vermont Medical Department, 1888), at Winsted, Conn., July 26, aged 38 years.——James Dunlap, M.D. (College of Physician and Surgeons, New York, 1850), at Northampton, Mass., August 3, aged 77 years.——Fred C. A. Kellam, M.D. (University of Maryland School of Medicine, Baltimore, Md., 1866), at Pringoteague, Va., August 6, aged 83 years.——Edwin T. Morrison, M.D. (University of Maryland School of Medicine, Baltimore, Md., 1887), at Baltimore, Md., August 7, aged 47 years.——Charles H. Weinholtz, M.D. (University of the City of New York, Medical Department, 1883), at New York city, August 7, aged 45 years.——C. C. Chaffee, M.D. (Vermont Medical College, Woodstock, Vt., 1835), at Springfield, Mass., August 8, aged 85 years.——James Northrop, M.D. (Geneva Medical College, Geneva, N. Y., 1857), at Woodstock, Ill., August 9, aged 71 years.——Daniel H. Brennan, M.D. (University of Buffalo, Medical Department, Buffalo, N. Y. 1885), of Albion, N. Y., at Buffalo, N. Y., of appendicitis, August 11.——Clarence O. Arey, M.D. (Department of Medicine of the University of Pennsylvania, Philadelphia, Pa., 1894), at Cleveland, Ohio, August 11.——Curran C. Smith, M. D. (University of Louisville, Medical Department, Louisville, Ky., 1850), at Richmond, Ky., August 13.——William Joseph Morton, M.D. (Louisville Medical College, Louisville, Ky.), at Racine, Wis., August 14, aged 89 years.——Professor Kékulé, at the University of Bonn, noted for his important works on organic chemistry.

MISCELLANY.

Preliminary Question for the Court.—The preliminary question whether a witness offered as an expert has the necessary qualifications, the supreme court of Minnesota says, in Sneda v, Libera, decided June 29, 1896, is for the court, and is largely within its discretion.

A Good Showing for an American Medical College.—We are informed that by some flaw or omission in the return of preliminary qualification of the Barnes Medical College of St. Louis to the Missouri State Board of Health, the unprecedented number of 101 matriculates were notified to appear before the said board to show cause why they should not be debarred from matriculation, all of whom responding to the summons, after a rigid personal examination and searching scrutiny of their credentials, were found by the board to be fully qualified by first grade teacher's certificate or academic or high school degree, many of them showing exceptionally high qualifications.

Speculative Evidence.—It is no more speculative to say that hernia causes pain, and might terminate fatally, so the appellate division of the supreme court of New York holds, in the case of Stever v. N. Y. C. & H. R. R. Co., decided June 17, 1896, than it is to say the same of appendicitis or peritonitis.

Consequently, the court holds that it was not incompetent to ask a physician, who had testified to a party having what he termed "direct hernia," whether "a breach of that kind at any time becomes dangerous to life, or becomes dangerous or painful in any way." The answer here was: "I think it dangerous," and then the witness added, without any further question, "It may come out and become strangulated so it is impossible to return it without an operation." This reference to strangulation it is intimated was open to criticism as being speculative.

Thyroids in Catalepsy.—After giving detailed histories of cases treated by thyroid medication, Dr. Joseph G. Rogers makes the following deductions: 1. That in conditions marked by inhibition of sensory, motor, and mental activity, without gross organic lesion, such as obtain in katatonia and in certain types of stuporous insanity and melancholia, we may expect benefit from thyroid medication, judiciously used. 2. That the effects of thyroids in full dose bear a striking resemblance to many of the symptoms of Graves' disease, namely, orbicular weakness, consecutive conjunctivitis, skin eruptions, and temporary bronzing, without icterus of eyes, profuse local fetid sweats, subjective sense of heat and thirst, excessive metabolism, decided tachycardia, and the absence of any fixed relation between pulse rate, respiration, and temperature. 3. That, in so far, the theory of Möbius, that Graves' disease is due to hyperactivity of the thyroid gland, is strongly supported.—*Am. Jour. of Insanity*, July.

Foreign Graduates in French Medical Schools.—Important modifications have been made in the regulations for the admission of foreign students to the medical schools of France, and for granting them permission to practice their profession in that country. Heretofore, American medical students who went to Paris with the view of graduating from one of the medical schools were allowed certain facilities. When they were graduates of well-known American colleges, or held a diploma of doctor of medicine issued by a reputable foreign scientific institution, they were permitted, upon application being made through the American embassy, to follow the regular courses of the French medical schools, the same as French students who had graduated from the French faculties, and if successful in the final examination, were awarded the same diploma as those to Frenchmen, which carried with it the privilege of practicing in France. The number of foreign students having considerably increased in numbers and the proportion of those who remain in Paris to practice their profession having also become much larger, the French government has adopted a stricter rule for the admission of foreigners to the French medical schools. In the future foreigners desirous of obtaining the same diploma of doctor of medicine as that awarded to Frenchmen will have to submit to the same conditions imposed upon French students, that is, the diploma they may have obtained abroad or in any private institution will not be considered, and before being allowed to register at any of the French medical schools they will have to produce a French state diploma of *Bachelier de l'enseignement classique*, and the *Certificat de sciences physiques, chimiques et naturelles*. To foreign students who do not intend to practice medicine in France the facilities usually extended to them will be continued and even enlarged. But they will only be entitled to a special diploma granting no rights to practice in France. These regulations were issued on the 21st ultimo, and are not applicable to foreign students already registered.

Cure of Sarcoma in Algeria by Native Doctors.—Legrain describes several cases of sarcoma which he had removed and examined histologically. These had been treated by native doctors, who applied a tar obtained from certain bushes in the Sahara district, among them juniper. In each case the sarcoma was entirely and permanently cured. The question arises whether the supposed sarcoma may not have been a tuberculous affection, as tar is especially efficacious in them, while it has no effect on sarcoma, and it is not always easy to distinguish a sarcomatous from a tuberculous tumor. Legrain adds that epitheliomata are unknown in Algeria except as they appear on a European. This may possibly be due to the vegetarian diet without meat, and absolutely without pork. Verneuil and Reclus asserted long ago that the herbivorous animals were much less liable to cancer than the carnivora, and they ascribe the six-fold increase in the number of cancers at their hospital during the last forty years, to the increased consumption of meat by the laboring classes.—*Bulletin de l'Académie de Méd.*, July 21.

New Method of Anastomosis Without Opening Organs.—Souligeux unites the stomach to the intestines, or one part of the intestines to another, or the gall bladder to the intestines, without opening into the organs, by creating artificially a process similar to the pathologic process in tuberculosis or cancer when a communication is established between organs. This is accomplished by seizing and squeezing a piece of the intestine in a clamp forceps; when released, this piece is reduced to a thin transparent membrane no thicker than a piece of cigarette paper, about 4 cm. long by 2 to 3 wide. A similar piece of the other organ is crushed to correspond, and the two bruised portions are then united and one long edge sutured. The crushed surfaces are then lightly cauterized with potassa, the assistant instantly sponging off any liquid that exudes. The rest of the suture is then completed, and if any of the black produced by the caustic shows, a separate suture is made to enclose it. The bruised walls give way very soon, in forty-eight hours at farthest, and communication is established, with the formation of adherences that strengthen the suture. Some of the Paris surgeons are enthusiastic in their praise of this new "easy, certain and elegant" method of anastomosis, by which all the dangers of opening into vital organs are obviated. One necropsy showed perfect union with only a small fragment of the bruised tissue still adhering. Reclus advises cocain instead of ether in these operations. Chaput has been experimenting with the thermo-cautery which he prefers to the cold forceps for this purpose, and makes a row of separate sutures around the eschar. He also proposes a circular union on this principle, by thermo-cauterizing the bunch formed by ligating the intestine, and then making a circular suture enclosing it. He has had perfect success on dogs. Raynier very sensibly doubts whether this will prove practicable, as it totally closes the intestines until the bruised portion breaks away.—*Bulletin Méd.*, July 19, and *Sem. Méd.*, July 22.

Gleanings.—Vaccination made compulsory in Peru and vaccine institute established at Lima. (*Cronica Méd.*, May 31.)——Diphtheritic toxins exposed to a weak electric current for three or four days become transformed into effective antitoxins. (*Gaz. d. Osp. e d. Clin.*, July 19.)——The International Institute of Bibliography founded last September (Brussels) to collect in one catalogue all the scientific, artistic, literary and intellectual publications of the world, advocates the general adoption of the American Dewey decimal system. (*Progrès Méd.*, July 18.)——Bequest of $20,000 to the Paris Académie de Médecine from Mme. D'Ernesti, and twice this sum bequeathed by M. Marelleau to the society that aids tuberculous children. (*Union Méd.*, July 18.)——International Congress of Applied Chemistry met at Paris, July 27, with more than fourteen hundred members. Monument erected at Dijon to Woicikowsky, who performed the first successful ovariotomy in France. Red Cross corps of Scotch collies trained to carry all that is needed for first aid to the wounded and seek them out as they fall. In readiness for the autumn maneuvers of the German army. (*Progrès Méd.*, July 18.)——Menstruation of healthy child at 46 months. (*Marseille Méd.*, No. 9.)——

Case of akinesia algera, nineteen years in reclining posture, lower extremities spastic, atrophic and powerless: cured by suggestion. (*Wien. Klin. Rundsch.*, July 16.)——Epidemic of icterus in children, eighteen cases. (*Deutsche Med. Woch.* July 16.)——Honorary title of M.D. conferred upon Bismarck by the University of Jena. Dermatitis and alopecia caused by exposure to the Roentgen ray during a month of experimentation with the fluorescent screen. (*Deut. Med. Woch.*, July 23.)——Apparently healthy child of healthy mother gives syphilis to wet nurse and her family, who sue for damages. Court of appeals (Poitiers, France) decides for the defendants, as no fault could be proved. (*Journ. de Méd. de Paris*, July 19.)——Twenty-nine cases of abdominal typhus treated with guaiacol salicylate with negative results. (*Polnit. Gas. Both.*, No. 2.)——Successful extirpation of wandering spleen and left ovary, both much degenerated, without interference with pregnancy. Average annual consumption of alcohol in Russia from 1827 to 1863 4½ liters per capita; since been decreasing, until in 1893, it was only half this amount, which is less than in any other country, Norway excepted. (*St. Peters. Med. Woch.*, July 18.)——Recent case of infection emphasizes importance of sound teeth in a wet nurse. Gelatin found efficacious in arresting hemorrhages, 5 to 10 per cent. solution, at 95 degrees. Death follows enema containing 40 grams of boric acid. One-fifth to one gram boric acid fatal to guinea pigs. Barth reports two severe cases of pneumonia cured by digitalis, daily doses, 2 gr. pulv. digitalis leaves in an alcoholic infusion with syrup of orange peel. (*Semaine Méd.*, July 15.)——Seasickness prevented by suggestion. (*Semaine Méd.*, July 22.)

Pasteur Monument Committee of the United States.—The following circular has been issued:

It has been decided to erect in one of the squares of Paris a monument to the memory of M. Pasteur. Statues or bust will also no doubt be located at his birthplace and in other cities. The Paris committee has, however, wisely determined that the statue obtained through international effort shall be located at Paris, where it will be seen by the greatest number of his countrymen and also by the greatest number of his admirers from other lands. The Paris committee has for honorary members the President of the Republic and his cabinet, together with about one hundred and sixty of the most prominent officials, scientists and other distinguished citizens of France. The active members of the committee are J. Bertrand, President, member of the French Academy, Perpetual Secretary of the Academy of Sciences. J. Simon, Vice-president, member of the French Academy, Perpetual Secretary of the Academy of Moral and Political Science. Grancher, Secretary, member of the Academy of Medicine, Professor in the Faculty of Medicine. Bruardel, member of the Academy and of the Academy of Medicine, Dean of the Faculty of Medicine. A. Christophle, Honorary Governor of the Credit Foncier, Deputy from l'Orne. Count Delaborde, Perpetual Secretary of the Academy of Fine Arts. Duclaux, member of the Academy of Science and of the Academy of Medicine. Magnin, Governor of the Bank of France, Vice-President of the Senate. Baron A. de Rothschild, banker. Roux, Assistant Director of the Pasteur Institute. Wallon, Perpetual Secretary of the Academy of Inscriptions and Belles-Lettres. The Paris committee has kindly extended the opportunity to the people of the United States to assist in this tribute of appreciation and love and have authorized the organization of the Pasteur Monument Committee of the United States. The members of this committee gladly accept the privilege of organizing the subscription, and of receiving and transmitting the funds which are raised. We believe it is unnecessary to urge any one to subscribe. The contributions of Pasteur to science and to the cause of humanity were so extraordinary, and are so well-known and so thoroughly appreciated in America that our people only need the opportunity in order to demonstrate their deep interest. All can unite in honoring Pasteur. He was such an enthusiastic investigator, so simple, so modest, so lovable, and yet so earnest, so great, so successful—his ideals were so high and his efforts to ameliorate the condition of humanity were so untiring that we anticipate an enthusiastic response from the whole civilized world. The United States will vie with the foremost of nations in this tribute. Chemists, zoologists, physicians and all others interested in science will wish to be represented. No one is expected to subscribe an amount so large that it will detract in the least from the pleasure of giving. A large number of small subscriptions freely contributed and showing the popular appreciation of this eminent Frenchman is what we most desire. This committee supplies subscription blanks, which should be returned in the accompanying envelope, together with a money order, check or draft covering the amount subscribed. All checks, etc., should be made payable to "Treasurer Pasteur Monument Committee," and when received by the secretary a numbered receipt will be forwarded to the sender. The original subscription papers will be forwarded to the Paris committee for preservation. It is our purpose to do our work as largely as possible through societies or other organizations. We prefer to have each organization appoint one of its members as an associate member of this committee with authorization to collect and forward the subscriptions. The amounts thus far subscribed by individuals vary from fifty (50) cents to ten (10) dollars. It is hoped that no one who is interested will hesitate to place his name upon the list because he can not give the maximum amount. Please let this receive your early attention and in that way assist our committee which must conduct correspondence with the societies of the entire country. The committee consists of Dr. D. E. Salmon, Chairman, Chief of the Bureau of Animal Industry; Dr. E. A. de Schweinitz, Secretary, President of and representing the Chemical Society of Washington, Chief Chemist Biochemic Laboratory; Dr. Geo. M. Sternberg, Surgeon-General U. S. Army; Dr. J. Rufus Tryon, Surgeon-General U. S. Navy; Dr. Walter Wyman, Surgeon-General U. S. M. H. S.; Prof. S. F. Emmons, U. S. Geological Survey, representing the Geological Society; Prof. Lester F. Ward, President of and representing the Anthropological Society of Washington; Dr. G. Brown Goode, Treasurer, Assistant Secretary of the Smithsonian Institution; Dr. Wm. B. French, Representing the Medical Society of the District of Columbia; Hon. Gardiner G. Hubbard, President of and representing the National Geographical Society; Mr. C. L. Marlatt, Assistant Entomologist U. S. Department of Agriculture, representing the Entomological Society; Dr. Ch. Wardell Stiles, Zoologist U. S. Bureau of Animal Industry, representing the Biological Society of Washington.

The JOURNAL will be pleased to forward any subscriptions received for this purpose.

Cincinnati.

THE MORTALITY REPORT for the week gives: Zymotic diseases 20; constitutional, 30; local, 50; developmental, 6; violence, 6; under 5 years, 32; total, 112. Annual rate per 1000, 16.49; corresponding week, 1895, 104; 1894, 115; 1893, 95.

AT THE MEETING of the State Board of Charities held at Longview Asylum the reports from the different institutions show them to be all full and in many instances it has been necessary to refuse admittance on account of the over-crowded condition. Superintendent Ratliff of the Dayton Hospital said that he thought insanity was increasing but that the old prejudice against institutions for its treatment was dying out. The new hospital at Massillon which is being built at a cost of over $700,000, will accommodate 2,000 patients and is expected to give relief to the other institutions. Much of the session was spent in discussing the cost of supplies at the various hospitals, and suggesting methods to equalize prices. At Cleveland cereal foods for each inmate for the past six months cost $2.09, while at Longview they cost $3.23.

DR. VAN DER VEER TAYLOR, a recent graduate of this city, has been appointed Medical Director of the Cincinnati Young Men's Christian Association. Dr. Taylor will act in conjunction with Physical Director Fisher and will also deliver a course of lectures during the winter on anatomy and physiology before the class in preparatory medicine.

A CINCINNATI PHYSICIAN has been arrested upon the charge of violating the U. S. Postal laws in sending through the mails a threatening postal card. The card was sent to a man whom the doctor claims owed him $106, and whom he threatened to put to trouble if the account was not paid by a certain time.

OWENSBORO, KY., and vicinity is suffering from an invasion of typhoid. There is hardly a farm house along the banks of Mud River, for twenty miles, in which there is not at least one case. Berea, Ky., is also suffering from a typhoid epidemic.

THE CONTRACTS for the Massillon insane asylum have been

made to the extent of $265,000, a portion of which it is claimed will have to be annulled by reason of the fact that the amount is in excess of the appropriations made by the last Legislature, although that body authorized the trustees to expend $50,000 in excess of the appropriations. Attorney-General Monnett and State Auditor Guilbert have decided that this is unconstitutional.

THE MIAMI MEDICAL COLLEGE have completed the organization of their new dispensary and announce the following staff: Chas. H. Castle, clinical director; G. L. Bailey, assistant clinical director; Robt. Suttler, ophthalmology; Chas. E. Caldwell, surgery and andrology; C. R. Holmes, ophthalmology; J. A. Thompson, laryngology; E. W. Mitchell, medicine; R. B. Hall, gynecology; W. McMillan, surgery; Julius H. Eichberg, medicine; E. H. Shields, surgery and andrology; George Sudhoff, medicine; F. W. Langdon, neurology; H. W. Bettman, medicine; R. H. Ingram and H. K. Dunham, medical assistants; W. E. Schenck, neurological assistant; Ernest Jacob, pharmacist.

JAMES T. SCOTT, M.D., of Greentown, committed suicide August 10. Dr. Scott was mentally deranged as the result of a kick from a horse received forty years ago.

THOMAS FREELAND, M.D., of Boston, Ind., was shot by a patient named Philip Cochran on the 11th of this month.

Loulsville.

KENTUCKY INSTITUTE FOR THE EDUCATION OF THE BLIND.—An address has just been issued by the trustees of this institution, which contains much of interest to the profession as well as to those who have under their care children who are so afflicted. Kentucky established her school for the blind in 1842, the eighth school of its kind in the country, last year there being 132 inmates of the Kentucky school out of a total of 3,757 blind children educated in thirty-five such schools. The purpose of the State in founding such a school was to give to the child with defective sight as good an education as is offered to the seeing child and, in addition, to give it instruction in manual training. In 1884 the general assembly passed an act providing for the addition of a department in a separate building for the care of the colored blind children of the State. The board has provided that the children under their control have the best teachers, faithful and devoted servants, improved educational appliances, and have also provided that the children shall be properly and kindly cared for as regards their clothing, food, shelter and health, all free of cost to blind children of the State. Notwithstanding this, about 70 per cent. of all the blind children of the State between the teachable age of 6 to 16 years are allowed to grow up in ignorance, without any share in the advantages so freely offered by the State. The American idea of a school for the blind is as far removed from its being an asylum on the one hand, as it is from its being a hospital for treatment of diseases of the eye on the other. Its work is strictly educational. A blind child should be sent to school as soon as it can get along without a nurse, say at 6 or 7 years of age. Every year's delay after that renders the task of its education difficult and incomplete. From the moment it reaches the school the sense of touch has to be persistently trained. The kindergarten is of inestimable value for this purpose, and the work done in this department excites the admiration of every visitor. After the kindergarten the child studies things and models of things, and in its study of geography, models in sand and clay the surface of the State and country and the grand divisions of the globe. He is taught to read and write and cipher. studies grammar, history, natural philosophy and all the branches of a good education. If he has any musical ability it is scientifically and sedulously cultivated, for it is in the practice of the art of music that he can compete with his seeing comrades on more equal terms than in any other occupation. He is also given a course in the workshop, where he learns to cane chairs, make brooms and practice simple upholstery, such as the repair of lounges and mattresses. Piano-tuning is also taught to those who are capable of learning it. The girls are taught the use of the needle, and learn as they progress how to patch and darn and mend, how to knit and use the sewing machine, how to cut out, fit and make their own garments. In this course of study and development, extending over eight or ten years, the blind child gains a confidence in his own powers that enables him to overcome, to a great extent, the natural awkwardness of his blindness. He is to a considerable extent enabled to earn a livelihood for himself. The school term is from September to June, and at its close the children are returned to their homes, as it is the desire of the trustees to maintain as far as possible the home ties of the child.

THE PUBLIC SERVICES.

General Order No. 37.

The following is a copy of the order discontinuing full dress uniform for the Hospital Corps of the U. S. Army:

HDQRS. OF THE ARMY, ADJUTANT GENERAL'S OFFICE,
WASHINGTON, Aug. 13, 1896.

* * * * * *

11. By direction of the Secretary of War, from and after this date, the issue of the full dress uniform to hospital stewards, acting hospital stewards and privates of the Hospital Corps, U. S. Army, will be discontinued, and an equivalent allowance in money value of white cotton duck clothing will be made instead.

By command of General Miles.

SAMUEL BRECK, Acting Adjutant General.

Army Changes. Official List of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from Aug. 8 to Aug. 14, 1896.

First Lieut. Henry A. Shaw, Asst. Surgeon, will proceed to Ft. Brady, Mich., without delay, and report for temporary duty at that post.

Lieut.-Col. Alfred A. Woodhull, Deputy Surgeon-General, and Major Charles Smart, Surgeon, are detailed to represent the Medical Department of the Army at the twenty-fourth annual meeting of the American Public Health Association, to be held at Buffalo, N. Y., Sept. 15, 1896.

Major Clarence Ewen, Surgeon, extension of leave of absence granted on account of disability is further extended one month on account of disability.

First Lieut. Benjamin Brooke, Asst. Surgeon, so much of S. O. 69, A. G. O., March 23, 1896, as directs him to report to the president of the examining board appointed to meet at San Francisco, Cal. April 14, 1896, for examination by the board, is revoked.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending Aug. 15, 1896.

Asst. Surgeon M. K. Johnson, detached from the U. S. S. "New York." and to the coast survey steamer "Bache."

P. A. Surgeon G. A. Lung, ordered to the receiving ship "Vermont."

P. A. Surgeon E. R. Stitt, detached from the receiving ship "Vermont" and ordered home on waiting orders.

Change of Address.

Furay, Chas. E., from Omaha to Chadron, Dawes Co., Neb.
Galbraith, T. S., from Norman, O. T., to Seymour, Ind.
Gedge, D. M., from Honolulu, H. I., to 108 Stockton St., San Francisco, Cal.
Houston, Jas., from Ingersoll, Ont. to Swartz Creek, Mich.
Kuhlman, F. E., from 2245 Mulphany St. to 2323 Cass Ave., St. Louis, Mo.
Kneedler, W. L., from Barracks to 2003 D St., San Diego, Cal.
Paine, H. M., from Atlanta, Ga. to West Newton, Mass.

LETTERS RECEIVED

Apollinaris Company Limited, The, Loudon, England; Alderson, Jas., Benton, Wis.; American Sports Publishing Co., New York, N. Y.
Breakey, W. F., Ann Arbor, Mich.; Benson, John A., Chicago, Ill.; Bell, A. N., Brooklyn, N. Y.; Burr, C. B., Flint, Mich.
Castle, Chas. H., (2) Cincinnati, Ohio; Cobleigh, E. A., (2) Chattanooga, Tenn.; Chatterton, A. L. & Co., New York, N. Y.
Dunham, W. R., Keene, N. H.; Daland, Judson, Philadelphia, Pa.; De Schweinitz, E. A., (2) Washington, D. C.; Dibrell, J. A., Jr., (2) Little Rock, Ark.; Doliber-Goodale & Co., Boston, Mass.; Davis, N. S., Jr., Chicago, Ill.; Davis, F. A., Chicago, Ill.
Edes, Robert T., Jamaica Plain, Mass.; Earp, S. E., Indianapolis, Ind.
French, Pinckney, St. Louis, Mo.; Flint, Austin, New York, N. Y.
Gihon, A. L., New York, N. Y.; Gillette, Wm. J., Toledo, Ohio.
Hughes, C. H., St. Louis, Mo.; Hervey, E. V., Indianapolis, Ind.; Haldeman, F. D., Ord, Neb.; Hodges, J. Allison, (2) Richmond, Va.; Hyndman, J. G., Cincinnati, Ohio; Hummel, A. L. Advertising Agency, New York, N. Y.; Hurdy, J. N., Indianapolis, Ind.
Imperial Granum Co., (2) New Haven, Conn.
Jennings, J. Ellis, St. Louis, Mo.
Kercher, J., Chicago, Ill.; Kreider, Geo. N., Springfield, Ill.
Laughlin Pen Co., New Haven, Ind.
Millard, Perry, H., St. Paul, Minn.; Manley, Thos. H., New York, N. Y.; Myrea, W. H., Madison, Wis.; Murphy, Francis E., (2) Kansas City, Mo.; Moreuius, M., Chicago, Ill.; Macrae, D., Chicago, Ill.; Mettler, L. Harrison, Chicago, Ill.; Montgomery, L. H., Chicago, Ill.; McBride, M. A., Leesville, Tex.; Middleton, W. D., (2) Davenport, Iowa.
Newman, Henry P., Chicago, Ill.
Ott, Isaac, (2) Philadelphia, Pa.
Parker, F. L., Charleston, S. C.
Raymond. W., Roston, Mass.; Reed, R. Harvey, Columbus, Ohio.
Shurly, E. L., Detroit, Mich.; Sharpe, N. W., St. Louis, Mo.; Smith, Frank Trester, Chattanooga, Tenn.; Scribner & Hilliary, Boonton, N. J.; Schooler, Lewis, Des Moines, Iowa; Steele, A. J., St. Louis, Mo.
Thornton, Wm. M., Charlottesville, Va.; Tuley, Henry E., Louisville, Ky.
West, C. I., Washington, D. C.; Woods, T. J., Batesville, Ark.; Wilbur, C. L., (2) Lansing, Mich.; Wingate, U. O. B., Milwaukee, Wis.; Whitford, Wm., Carlisle, England; Weaver, W. H., Chicago, Ill.; Woodward, A. P., San Francisco, Cal.; Whamond, A. A., Chicago, Ill.; Withrow, J. M., Chicago, Ill.; Westmoreland, C. W., San Luis Patosi, Mexico.

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ORIGINAL ARTICLES.

THE PREVENTION OF WAR AND THE PROMOTION OF PEACE, IN RELATION TO STATE MEDICINE.

Read in the Section on State Medicine, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5–8, 1896.

BY E. D. McDANIEL, A.M., M.D., LL.D.

MOBILE, ALA.

The common saying that every question has two sides is generally true. But it is also true that the reasons in favor of one side are more numerous and stronger than those in favor of the other. It is fortunate that this is so. Persons of a fair degree of intelligence, by laying aside selfishness, passion and prejudices and by honestly using proper available helps, can reach such proofs as render truth plain and duty clear. One of the greatest questions that can arise in the course of human affairs happens to be before the nations as *the question of the hour*. It is the question of "war or peace." Two strongly antagonistic tendencies are in energetic action over nearly all the civilized world. The tendency toward war is manifested by the popular masses and their legislative representatives in our own and many foreign countries by an unusual restlessness, a want of forbearance, a spirit of aggressiveness, of pugnacity and a loud clamor for hasty and extreme action. On the other hand, the tendency toward peace is equally pronounced. It is heard in a strong, clear, solemn, impressive voice that comes in great earnestness, spontaneity and harmony from the consciences and convictions of the foremost, the best and the most intellectual men of the times—the great leaders in education, science, statesmanship, economics, ethics, beneficence and industry. Especially comes this voice from the two great English speaking centers of christendom—Great Britain and the United States. It demands that a system of international arbitration be adopted for the impartial and authoritative settlement of international disputes and wrongs, without resort to war. The question is open and urgent. Prompt decision must be had. Even if complete unanimity of *opinion* be unattainable, no neutrality in *action* is practicable. All influential persons and all potent agencies must act with one of the parties or with the other. The present occasion furnishes a fit time and place for discussing and deciding what part State medicine, as the proper representative of all the coördinate departments of medicine and of all the men who make up the medical profession, is to act in the great cosmopolitan drama that is being planned. To invite this discussion and to have the opinions and actions that may be elicited properly set forth is the motive of this paper.

In a subject so momentous in magnitude and scope as the one before us, many things that are more or less important must be passed without mention. The limited time allotted imposes this necessity. Moreover, the thorough knowledge and agreement known to exist in many pertinent matters would make it equally a waste of time and an abuse of patience to attempt to prove what is already believed and to gain assent to what is already granted. Let us not be understood as ignoring the matters that are omitted or as underrating or disparaging such as may seem to be too little elaborated, or insufficiently emphasized. Let us try to get a correct conception of State medicine, of war and of peace, respectively, then let us view the three in close juxtaposition, that we may better see their just relationship.

State medicine has for its function to formulate, apply and enforce rules for the protection and improvement of health and for the prevention and management of disease in organized communities. Its great and final aim is, therefore, the preservation, protection and improvement of human life. Its *importance* must be estimated by the value of human life. But how may this value be ascertained and if possible standardized? Only by one, or two, or all of three methods: 1. Sacred and human tradition confirmed by the common agreement of mankind. 2. By consciousness and ratiocination. 3. By observation of the work that can be done by man.

Let us look, as in a dictionary, for the value of human life—meaning by life, the *living human being*—as indicated by tradition and fixed by the common estimate of our race, and we find it among the foremost, if not the very foremost of all precious and sacred earthly things. The first uttered injunction to the primal human pair was this: "Be fruitful, and multiply and replenish the earth and subdue it." The first penal verdict was a sentence pronounced upon a shedder of human blood. Subsequently the command was given: "Thou shalt commit no murder." Old Testament writings abound in evidences that the care of life is the first duty of law. In the enumerations of rights and in the preambles and drafts of forms for organic laws submitted to men of various countries, races and times, preparatory to the formation of governments, constitutions and laws, the provision for the protection of life has been a leading requirement and by being ratified has become a solemn pledge of the race. That life is a foremost, if not the foremost and greatest of values, is plainly implied by the fact that prophecy, history, poetry, philosophy and philanthropy voicing the concurrent sense of our race, deplore wars, famines, pestilences, earthquakes, floods, poverty and oppression as among the greatest of human evils, because of their destructiveness to human life and, on the other hand, extol peace, plenty, security, wealth, domestic repose and abounding health as among the greatest of public blessings because of their benign influences upon the life-interests of the world. That the greatest of these

evils is war, and the greatest of these blessings is peace, are conclusions based upon the clearly implied predicate that life is the greatest and most sacred of human interests and values.

Let us next appeal to the tribunal of consciousness and ratiocinaction. In doing so let us clothe ourselves in devout humility. Let us remember that we are nearing the dark border of the spirit land, and let us take heed that we put not unholy footprints beyond the proper boundary of human territory. Let us exclude all physical, metaphysical and theologic methods, doctrines and dogmas—efforts to understand or demonstrate the essence, origin or eternity of life, as not at all pertinent to our present purpose. Let us also leave out all evolutionary questions as to what may have been the forms and capacities of man in periods of duration that have long vanished into the remote past, or what may be his possibilities in a future period that lies beyond the reach of all reasonable and practical speculation. Thus we will find ourselves at home, as it were, among beings of like size and born with ourselves—face to face with incarnate life—life with bodily limitations and instrumentalities, with consciousness, sensation, power of motion, reason, conscience, speech, knowledge of good and evil and tendencies to both. This is plain, practical, undeniable, tangible, personated life—rather it is living man, the man of our past, present and future—the typical man of our planet and our era. What value do his conscious superiority, and his capacious attributes and his regular courses of action, assent and maintain, as due to his life? Obviously the highest that can attach to any earthly interest, and beyond all fixable estimate. All else that man has, will he give for his life; and, as a rule, all else that he has, he does give for his life when its redemption is required.

In the Declaration of American Independence life is held to be an "inalienable right." In accurate definition life is not an inalienable right, nor, indeed, a right at all. The life of a living being is an attribute, an endowment, a possession of that being, and like other endowments, possessions or trusts, it is conditioned, forfeitable and alienable in case of both individuals and communities. It can not be maintained that human life is an absolute, persistent, fundamental good; it is only a fundamental *possibility* for good, and this even alone makes it a thing of priceless value.

The third and only remaining method of ascertaining the value of human life is the plain and easy one of judging a tree by its fruit. What work, then, and how much of it, both on the side of good and of evil, is man able to do, so far as we can judge from what he has already done, what he is now doing, and what he is evidently proceeding to do?

Thousands of times he has desolated the earth by his resistless blows in war, and thousands of times he has restored it to prosperity, by his all-conquering perseverance in peace. In schemes for wreaking his vengeance on the one hand and of extending the field of his blissful beneficence on the other, he defies all dangers and disregards all costs. He compasses both sea and land, sending his ships and his cables through the one and his telegraphs and cars over the other. He scales the loftiest mountains and fathoms the deepest oceans. He marches through clouds of dust and seas of blood. He enters as a missionary the far off abodes of horrid cruelty in the face of all privations and perils. He treads under foot the slow moving glacier and the never melting snow. He traverses Alaska by voyage and Sahara by caravan, and explores and develops the resources of both. He tames the massive elephant into a kneeling beast of burden. He drags from the rivers, the shores and the seas their monster crocodiles, alligators, sturgeons, sharks and whales, and converts them into food and merchandise. He plays with the manes of the strongest lions of Africa and with the teeth of the fiercest tigers of Bengal. He sinks quarries and mines for sandstone, freestone, limestone, granite and coal, the useful and precious metals, thus furnishing employment to the idle, indispensable necessaries to the poor, comforts to such as can afford them, desirable luxuries to the affluent and rich. Many valuable commodities to commerce; many appropriate materials to manufacturers, artists and artisans; many avenues to varied employment; to trade a widened domain and to finance an available standard of value. In pasture, forest, farms, fields and fishery, he provides the great ruling contributions to clothing and food for the human family. He opens wide and deep channels through everglades, pocosons and lakes at once making waterways for trade and reclaiming for cultivation millions of acres of valuable land. He sinks artesian tubes through the thick, dense strata of many vast unwatered areas and brings up copious unfailing streams to fructify the soil and soften the air, and thus causes the desert to blossom as the rose and waste places to teem with population and wealth. He bores deep into the earth's crust and taps great long-sealed reservoirs of gas and oil and brings up the contents to furnish mechanical illuminating and various other materials that give diffusion to human progress and well-being. He spans great rivers and straits with bridges and ferries. He has already or will shortly have, his sleepless sentinels on watch, in hailing distance of each other, all over the continents and islands to give timely notice of storm centers that may form or threaten to form, and to warn all men to provide against blighting blizzards, desolating tornadoes, wrecking ocean forces, or inundating cloud bursts. In Byron's day, it was only in the transporting frenzy of poesy and when live lightning leaped from cliff to cliff and the loud thunder shook the far off air that "Jura answered back to Alps;" now in words of soberness and in stormless calm, the Himalayas can talk with the Rockies and the Urals with the Andes. Orders of the President, issued with gentle but considerate firmness in Washington, are instantly heard throughout most of the States and territories of the Union. Victoria speaks in London and her words of love and authority are promptly heard by dwellers in Great Britain and Ireland, in India, Australia and New Guinea, in the East and West Indies, in the Dominion of the Canadas, in provinces in South America, and in various other far off possessions. Nearly two thousand years ago the Great Galilean told his Apostles that they should do greater works than even he was then doing, and, by the instrumentality of railroads, telegraphs, telephones and phonographs. Talmage and other evangelists are now enjoying the promise and fulfilling the prediction by preaching in New York or Washington and being heard the same day, to the ends of the earth.

Cleveland touched a button, and instantly the machinery from all the world went into motion in far distant Chicago. He touched a button and every spindle, lever and engine in Atlanta responded to the touch.

In travel, the day's journey of antiquity is now accomplished in less than an hour. We lie down to sleep when we start for a distant destination and when we awaken we are there. The hours of darkest night are now as valuable for travel and many other purposes as those of brightest day, and rest is as effective as the most energetic toil. In midst of densest darkness men can cause radiant light to shine—not by the slow word of command, but with the quickness of thought. In all the departments of applied mathematics man displays his wonderful works of perseverance and capacity. He gives to navigation all her maps of the stars and constellations, her charts of the oceans and seas, her compasses, barometers, chronometers and quadrant. He marks the boundaries and calculates the areas of states, nations and continents, and the altitudes of their various parts; locates routes and estimates costs for railroads and inland water ways for travel and transportation and adjusts the gradings of railroads for thousands of miles. In the department of bookkeeping he is the accountant without whom no census could be taken, no tax levied, assessed or collected, no financial suits settled in law, and by whom it could, without egotism or boasting be said: "By me kings reign and princes decree justice." In statuary, painting, poetry and oratory man has opened in the hearts of his fellows new fountains of justice, pity, tenderness, sympathy, compassion, forgiveness and of love. But it is in astronomy, geology, cosmology, physics, chemistry, biology and medicine that in the more recent times man's achievements have become the most transcendently glorious, marvelous, beneficent and financially important. He has analyzed the earth, separated, differentiated and classified its elements and their combinations; has measured and weighed the earth and the moon and ascertained their orbits, distances and revolutions; has done the like for the other planets and satellites of our system; has discovered and explained the causes and laws of the tides and predicted the times of their coming for all the points of the coasts of the world. Away back in the milleniums of time much was undoubtedly known about the conditions of health. Thirty-five hundred years ago the great Hebrew lawgiver wisely recognized cleanliness as essential to health, and enjoined morality, isolation and purification as safeguards of the life of individuals and communities. But disregard of this wise enactment was followed by outrage and war and these by famine, poverty, filth and discouragements. These conditions brought on many horrid and loathsome pestilential epidemics that ravaged and sometimes almost depopulated medieval nations and cities. One hundred years ago, there lived in Gloucester, England (the place just now under an epidemic of smallpox) a humane physician of very studious turn and great aptitude for scientific research. His name was Edward Jenner. His acumen, patience and perseverance were all taxed to the utmost for a time longer than the average man lives, but finally accomplished the wonderful and beneficent discovery of a preventive of smallpox. The discovery was so valuable in itself, so hard to account for, and so suggestive of some great underlying principle that it excited the curiosity of scientists all over the world. These scientists by careful, persevering and protracted study, observation and experiment, have discovered many disease germs and germicides, and much about the sources and laws of action of these, and have already obtained such control over some of the dreaded epidemic diseases of animals, plants and man as to effect an annual saving of thousands of human lives and of countless millions of property values in animals and crops.

In the above feeble attempt to place in view man's working power, not as much as a tithe of all that invites consideration has been said or even alluded to. But surely enough has been said to show that man is, in reality, the lord of earth's present era, that he is discharging the commission of subduing the earth, with a prospect and promise of final success, that his life is, therefore, the leading object of human care, and that everything that either directly or remotely affects it, for better or for worse, lies within the domain of state medicine.

We come next to consider how war and peace stand related to human life.

It is admitted that war deserves the credit of having done much good, of having sometimes carried the blessings of civilization to benighted barbarians, of having aroused activity where energy was dormant, of having forced hostile and disunited tribes to dwell together and form states and nations, of having improved its votaries in enterprise, courage, patriotism, magnanimity, gallantry and chivalry. It may also be admitted that peace has its proneness to certain evils, such as supineness, slothfulness, effeminacy, enervation, gluttony. It is believed to be fair to let these opposite influences offset each other and that our purpose will be most quickly and fairly subserved by placing the conceded effects of war and those of peace side by side and letting the spectator impartially judge for himself.

It has been shown already that by the traditions and common consent of the human race, the fact is admitted that war is the arch enemy of human life and peace its best friend. To some it may seem that our whole case might rest here. But others may think that proofs are so numerous, obvious and available and the cause so momentous that something more should be added.

Especially formidable would be an array of the statistics of war and of peace. But for this there is no time available here. We must refer to histories, official reports, and compilations of census returns for figures to show how vastly and palpably peace protects life and war destroys, how peace increases population and war diminishes it, how peace establishes law and order and war brings anarchy and chaos. Peace clears land, fences it, plants seeds, raises crops, builds homes and farm houses, rears domestic animals for food, clothing and profit, drains and reclaims swamps, fens and bogs, thus converting sources of pestilence into fountains of health, wealth and life. War burns or razes these homes, kills or otherwise destroys the inmates, consumes the flocks and herds, leaves fields that were ripe for harvest a naked surface on which victims of famine must drop down and die. How peace by long periods of patient toil, steady perseverance and unselfish economy, builds highways and factories, villages, towns and cities; and how war rapidly reduces all these to ashes and ruins. How peace covers continents and islands with happy travelers and merchants, with depots and stores of food and clothing and other human comforts and luxuries; war with armories and magazines for destruction and death. How peace checkers the oceans and rivers with merchantmen, happy voyagers and hopeful trad-

ers, that as they pass each other exchange smiles and wave friendly greetings; war with privateers and battleships commissioned to rob, kill and destroy. How peace, by encouraging thought, industry, invention, discovery, enterprise, science and art among the millions of earth's inhabitants, stores up billions upon billions of accumulated value—crystallized profit-coined capital—thus furnishing means for additional strides in the path of upward progress. How war, both by paralyzing the agencies of peace and by a wholesale process of consumption and waste, by enormous reduction of income and extravagant expenditures, exhausts the treasuries of states, of nations, and often of the entire civilized world; then resorts to promissory paper and accumulates public debts to amounts of billions upon billions, tempting following generations of children to repudiation, or subjecting them to endless oppressive, impoverishing, vexatious, demoralizing taxation for the payment of claims which they did not contract and did not approve. How peace, for all the countless and boundless benefits it creates and bequeaths, expects, and, as a rule, receives no state appropriations for its veterans and dependents, leaves no public debt and imposes no tax. Ben Franklin sent heavenward an ardent invocation. His prayer mounted up to a dark cloud that was flashing with lightning. From the midst of the cloud there descended a great angel agent and filled a vial with blessings to be poured out upon the inhabitants of the earth-blessings that now fill not only all lands but also all seas. They are blessings, the fruits of peace, priceless but costless. Franklin's compensation is the halo of glory that encircles his name. The like is true of Galvani, Faraday, Morse, Roentgen, and of the great host of scientists whose gratuitous but invaluable achievements can be accomplished only in the quiet retreats of peace. From the same beneficent retreats, in our own days, came the discovery of anesthesia, all without cost. A great phantom-like apparition that made its first earthly advent, that Eve might be born from Adam's painless side, and its second in the fullness of time for the fulfillment of the prediction: "There shall be no more pain." Long, Wells, Jackson and Morton received no compensation or pension. Military and naval academies, navy yards, veterans and their families cost the world billions upon billions of dollars annually, necessitating oppressive taxation, this taxation causing poverty, and poverty bringing exposure, disease and death.

But the industrious work of many lives and the vast volumes of many libraries would not suffice for the endless detail of the stunning contrasts between war and peace, and the opposite tendencies of their respective works as shown in the gross and obvious facts that are presented in ordinary statistics. Even if this overwhelming task were accomplished only a few pages of the momentous history would be written. Nature has vast regions that lie beyond the domain of statistics. The greatest and dearest of human interests are of things for which there is no commercial unit and no possible place in mathematics. During one of the fierce battles of our recent war it is estimated that ten thousand men were killed in not more than ten minutes, but the value of these men in all directions and the cost to the aggregate interest of the world of their horrible slaughter can never be estimated until death sighs can be painted and family agonies analyzed, family bereavement measured and the suppressed possibilities of themselves and of their prevented offspring can be understood. It is a saying that more men are lost in war by disease than by the enemy. It is probable, on due reflection, that the damage caused by the remote, long-lasting, unrecorded and ramifying influences of war far transcend its direct, obvious and loud-crying evils. These remote and recondite influences contribute in numberless ways, in various degrees and for indefinite periods, to reduce human vitality and to increase the mortality of disease. They are solid realities in casting shadows on the face of the world and in darkening the homes and the highways of men. They are not visible to man's eye, nor audible to man's ear, nor enumerable in man's figures, but, nevertheless, they are potent agencies in drying up fountains of life that otherwise would have fed perennial streams of hope, faith, love and happiness.

Here this humble thesis must end. The conclusion reached is: That human life is man's paramount earthly interest and the foundation of his temporal happiness; that war and its effects are great destroyers of life; that peace and its fruits are great conservators of life; and, therefore, that the prevention of war and the promotion of peace are not only legitimate but imperative works of State medicine.

Hoping that the medical brotherhood of this country may desire to place itself properly on record on the question above presented, and that some practical action may be inaugurated and expedited, I beg to submit to the Section on State Medicine, and through it to the AMERICAN MEDICAL ASSOCIATION, the following resolutions:

Resolved, That the AMERICAN MEDICAL ASSOCIATION is in favor of the movement now in agitation for the establishment of an international system of arbitration for the settlement of international disputes and wrongs without resort to war.

Resolved, That the said ASSOCIATION constitute the Surgeon Generals of the U. S. Army, U. S. Navy and U. S. Marine Hospital Service its representatives to act with the great organization already at work in favor of said arbitration.

HEALTH BOARDS AS DISTURBERS OF THE PEACE.

Read in the Section on State Medicine, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

BY CHARLES McINTIRE, A.M., M.D.

EASTON, PA.

LECTURER ON SANITARY SCIENCE, LAFAYETTE COLLEGE, ETC.

With a title as sensational as the one that I have ventured to announce for this paper, it may not be amiss to hasten the statement that no violent attack upon boards of health is contemplated. The great good accomplished through the official supervision of these boards, whether municipal or State, is so patent that he would be foolish, who, at this late day, would asseverate the contrary. It is not necessary to attempt to enumerate the good accomplished nor to chronicle the unselfish labors of the men to whom all honor should be given, and by whom these things have been brought about. But, acknowledging the good, and wishing them greater usefulness and power, it may not be amiss to have some of their acts pass in review for kindly inspection, and to criticize, in a friendly manner, should errors or failings appear.

You are all familiar with the Oriental fable, where the Cholera on his way to Bagdad, informs a dervish in the desert, of his intention of killing 10,000 people with his plague. And on returning from his mission, is met by the same dervish who accuses him of a much

higher death rate. The Cholera replied that he had kept himself well within his bounds, the excess was due to fear. Doubtless, if you have not read, you have all looked at that volume of goodly size by Daniel Hack Tuke, entitled "Illustrations of the Influence of the Mind upon the Body in Health and Disease." With the thought suggested by these illustrations in mind, may not a doubt arise that sometimes our health authorities in their efforts to warn, really alarm; wishing to awaken, they really affright; desiring to preserve peace, they really disturb it.

I have known in a case of diphtheria, where neither an appeal to gratitude for past favors bestowed, nor to greed for a present reward offered, was able to secure any one to perform the household duties for the well, in a house where the proper isolation could be maintained in the apartments assigned to the ill. Of a husband who was not able to be with his wife at the deathbed of their son; she must bear the strain alone, or he would be so quarantined that, not being subjects for public support, the proper supplies could not be brought to the imprisoned household. Of an arrangement by which the death of a child would be announced to a neighbor after the manner of the telegraphy devised by the political prisoners in Russian fortresses, as described by Mr. George Kennan, because no one ventured beyond the door, on which the dread placard was placed, to do a neighborly deed. Making an inspection for our state board of health in an outbreak of diphtheria, I inquired as to possible carelessness in isolation, and was told that the simple announcement of the presence of the disease was enough to keep every one away, regardless of what might be the ability of the family to properly care for the suffering.

I might multiply examples, but these are enough for my purpose. And I ask you that if this is the outcome of the teachings of our health boards, is it not a fair inference that one result of these teachings is to disturb the public peace?

You all remember the scare attendant upon the last visit of cholera in New York Harbor. Of the meetings of the health boards, their preparations and pronunciamenta, for inspection of trains, detention of the suspected, etc. One effect of that effort on the part of the state boards was to unceremoniously, let us hope not uncharitably, take a man from his comfortable bed-room in a certain Pennsylvania hostelry, to a covered porch, because he was attacked with vomiting and purging. The fear that the man might be attacked with the dread disease, and the business of his house ruined because of its contagious nature conquered every other feeling in the heart of the landlord. Fortunately the night was a warm one, and no serious result followed.

These are trivial incidents, no doubt, and some of you may be inclined to quote:

> "Diseases, desperate grown,
> By desperate appliance are relieved
> Or not at all."

And some to point to the fact, of which we are all proud, of the restricting the disease to the harbor whence it came and to the communities bordering on it; or to the wonderfully encouraging statistics that demonstrate the decrease of communicable diseases through the employment of such agencies as are here criticized. Still others may deny the conclusion and assert that these incidents are not an outcome of any action of the health authorities.

To the former objections, permit me to make clear that the contention is not for a disregard of precautions, but the unnecessary alarm to defend against a danger that does not exist; the exciting a dread of a hygienic bugaboo. The latter objection is a fair one. If such incidents as I have described are not fairly the results of the teachings of the boards of health, it is not only unfair, but unkind as well to even associate the two in the same paragraph.

As I examine some of the pamphlets prepared by our State boards for popular reading, I am reminded of a habit in dress of the worthy burghers of New Amsterdam as chronicled by that most careful historian, Diedrich Knickerbocker. These worthy heroes, you will remember, were wont to wear a half score pair of breeches at one time. Whether these indispensable nether garments were placed one over the other at one time, or whether a period of time elapsed for one pair to become somewhat threadbare before another pair covered the sturdy limbs, the historian is not careful to state. If the latter supposition be the correct one, the resemblance suggested by the pamphlets is closer. At some time in the past the medical world was using an hypothesis as to the method of communication of a disease, and the sanitarian arranged his precautions accordingly. The world wears out the hypothesis and there is need for a change of procedure. There remains, however, the doubt of conservatism. May it not be possible, under some circumstances, no matter how remote, that the older attempts to express the methods of communication may still be true? What a risk may be run if every possible precaution be not taken. The old garment is not discarded although the new one is added, and some of the circulars are almost worthy the name of "Tenbroek." Does this seem to be an exaggeration? I quote a few paragraphs, first from some of these circulars prepared by our boards of health for the instruction of the citizen; secondly, from certain named physicians who have written for the profession. I use but a very few of the possible citations from the former, and only enough from the latter to demonstrate that I have not restricted myself to the opinions of the few. I will then leave it to you to determine if my illustration is an apt one.

"Most of the so-called 'contagious' diseases are usually spread by means of atmospheric dust of which the germs of these diseases sometimes constitute a part. Consumption, diphtheria, pneumonia, influenza, scarlet fever, measles, whooping cough and smallpox are usually spread in this manner."

"Diphtheria is spread by the sputa, saliva and whatever comes from the throat and mouth of the patient, and by the dust which results from the drying of such saliva."

"Diphtheria poison has great vitality and may lie dormant in clothing, blankets, paper and houses for weeks and even months. It seems to be able to travel in the air of sewers, and thus to pass from house to house; also to rise from the emanation of putrid privies and cess-pools."

"Close attention should be paid to the sources of water and food supplies. If possible, only the purest water should be used. If there is any doubt about the purity of the water, boil it thoroughly before using it." (From a pamphlet on diphtheria.)

"A general rule applicable to all persons sick or well, is that the handkerchief should be looked upon

with suspicion. They should not be used after any secretion from the nose has been permitted to dry upon them. After being used they should be put into a paper bag which may then have its top twisted shut, there to remain until put into boiling water."

These are enough for our purpose, and it is not necessary to give the source of the quotations; they were selected hap-hazard from various pamphlets; had the circulars of other boards been used, essentially the same language would have been found. Nor is it asserted that everything quoted is open to adverse criticism; the general excellence of the suggestions makes the harmful portions all the more dangerous. The only arrangement attempted was to group several statements regarding diphtheria for the convenience of brevity in the discussion.

Permit me now to bring several quotations to your notice *à propos* to the extracts already read.

"The relation between imperfect drainage and the diphtheria poison has not yet been satisfactorily determined. Perhaps as Thorne suggests, the faulty conditions produce sore throat of a benign character, which, as in scarlet fever, affords a soil suitable for inoculation of the diphtheria germ, when present in the air. Drains, too, he thinks may retain the virus received through the sputa and dejecta of the sick. This author states that no prevalence of diphtheria has ever been definitely traced to polluted water." [1]

"Diphtheria is a highly contagious disease, readily communicated from person to person. The poison is given off in the pharyngeal secretion and in the saliva, but not in the breath. . . The virus attaches itself to the clothing, the bedding and the room in which the patient has lived and has, in many cases, displayed great vitality. The disease may be transmitted by inoculation. The contagion does not seem to be widely diffused in the neighborhood of the patient. At the Montreal General Hospital we rarely had cases develop in the wards adjacent to those in which there were diphtheria patients, in bed." [2]

"There is no evidence that the disease (diphtheria) can be disseminated by the air for more than a few feet; it is usually necessary to come in actual contact with the bacillus at its lodging place in order to become infected, and unless it is propelled from the patient for some little distance by the patient in coughing, it is rarely taken through the medium of the atmosphere." [3]

The *New York Medical Journal* quotes Flugge in *Ztschr. f. Hyg. u. Infectionskrankh.*, for July 1894, as saying that the bacilli causative of diphtheria perish when dried and converted into fine air-borne dust. Accordingly the danger of the infection being carried through the air is minimal. It is by direct contact that most harm results. Inanimate objects keep the contagion alive. In moist climates it survives better than in dry regions. If soiled clothes are kept in closed containers or in cellars, the germs there have a good chance to live and do harm.

Overcrowding and lack of personal cleanliness assist in spreading the disease. Common use of the same unclean spoons, dishes, etc., Decomposing filth piles (as such) and sewer gas are not causes. Houses where it has occurred are not so much to be feared as are the people who are unclean and careless.

"Wright and Emerson examined the dust upon the floor of the diphtheria pavilion of the Boston City Hospital and upon the clothing and persons of the attendants, to determine if the bacilli were present. Four cultures were made from the floor sweepings, and in only one did the examination reveal the presence of the Löffler bacillus, although other bacteria were present. In four examinations of the dust adherent to the shoes of the attendants, three showed the presence of the Löffler bacillus with other bacteria. Cultures were made from the hair of the attendants in four cases, with positive results in one. Examination of the margins of the dresses of the attendants, of the bed-clothes, shirts and finger nails of the patients were negative as regards bacilli, as was also the examination of the air of the pavilion. In two of the five examinations in which bacilli were found their virulence was slight." [4]

"The inhalation of sewer-gas wherever diphtheria prevails has been regarded as a common cause of this disease. For this reason the following investigations relating to the nature of sewer gas are instructive and important. J. Parry Laws presented to the main drainage committee of the London County Council the results of his investigations on the composition of sewer gas. His examination as well as those previously made by Carnelly and Haldane, showed that the air of sewers was much better than might have been expected. . . The number of microörganisms was less in the sewer air than in the outside air at the same time. . . Moreover, the sewer air contained a much smaller number of microörganisms than the air examined in domiciles. Laws found that the microorganisms of sewer air are related to the microörganisms of the air outside, and not to those in the sewage. . . He also found that a considerable increase in the velocity of the air currents did not increase the number of microörganisms found in the sewer air, and that the results of experiments were the same in small as in large sewers, and led to the belief that all microörganisms in sewage air are non-pathogenic." [5]

It is not necessary to unduly lengthen this paper with additional quotations. Admit that they are selected with the purpose of an advocate to further his plea and that other opinons are suppressed; enough is given to show some physicians of good repute, when addressing the profession, do not positively state that diphtheria is usually spread by means of atmospheric dust and should be classed in this respect, as an air-borne disease, with smallpox; that it seems to arise from emanations in putrid privies and cess-pools; or that it is a water-borne disease. And to the degree that such things are asserted beyond the proven knowledge and in an opposite direction to the trend of investigation, by so much is a needless dread aroused and the public peace disturbed.

One can easily see why this is done and suggest excuses for it. The burden of responsibility placed upon the health officer who has any fellow feeling for mankind is so great that he naturally prefers to take ten needless precautions than to run the risk of omitting to take one that is necessary. He fears that the teaching of the biologist and clinician may not include the whole truth and, while he makes use of their teachings, he does not, on that account, entirely neglect other sources of information and adds, it may be, that other knowledge whose fountain is said to lie with elderly ladies; for fear he may make a mistake. In much of this, I fear, he brings sanitation into disrepute and prevents the public support that it would

[1] Osler: Practice of Medicine, First Edition. [2] Ibid.
[3] U. O. B. Wingate, JOURNAL AMERICAN MEDICAL ASSOCIATION, Nov. 24, 1894. In a paper read before this Section at San Francisco.

[4] Sajous Annual, 1895, vol. 1, p. 4. [5] Ibid, p. 6.

otherwise receive, and fails to produce in the public mind that confidence which should always manifest itself.

Sanitarians are not alone among physicians in their methods of mingling science and sentiment. The history of medicine displays a grand march of hobbies and hobby riders. Just now our steeds are agriculturally inclined; we are in the midst of a time of weed-killing. The farmers in the region about my home have their fields at times invaded by sorrel (oxalis stricta), but they never think of entering upon a campaign of pulling them out root and branch. No! they sprinkle the ground thoroughly with air slaked lime and change the character of the soil; then the weed can not grow. In our anxiety to kill the weeds we suggest, in effect, that every one of us who may suffer from a slight coryza should carry a a bale of pocket-handkerchiefs and a package of paper bags (preferably of waxed-paper) and, presumably, a grip-sack; for even the capacity of a small boy's pockets would not be equal to the emergency were the cold a brisk one. If you have ever had any experience with "hay-fever" you will be able to testify of the added burden that this would be to those already heavily laden. At the same time, so little attention is paid to the soil factor, with suggestions along the line of hope and not despair. I am glad to note that a paper on this side of the subject was presented at the last meeting of the American Public Health Association; may it be the harbinger of a renaissance.

But, shall we cry "peace, peace, when there is no peace?" Assuredly not! Let our efforts not be for calming into false security but rather into that state of mind that prevents a panic. Let us be scientific in all our processes, and it is scientific to admit a lack of knowledge when such lack exists. If we have become convinced of the truth of any supposed fact in medicine, let us act honestly by its teachings, laying aside all that is contrary. If we are convinced that typhoid fever is a water borne disease, and rarely, if at all communicated by contact, why insist that the dead be wrapped in a bichlorid sheet or object to the transportation by rail for burial? Our train robbers and train wreckers, however vicious and debased, are not cannibals; and the risk of an accident whereby the body will be precipitated into a source of water supply of any community is so remote that the most painstaking need not consider it. Let us be honest in our presentation of sanitary statements. President Lincoln's suggestion about the ability and inability of fooling the people is so trite that it need not be quoted; but it is true.

Let us be more vigilant than ever; pressing reform, acknowledging error, seeking to educate, striving to prevent. But science, not dogma; deductions not presumptions nor assumptions, only should pass current. Not only safety but peace of mind should be our aim. Let us strive rather to increase our efficiency, and in striving remember that efficiency is never measured by the manifest exertion or parade in its execution.

DISCUSSION.

DR. COCHRAN—I think the health authorities in various cities have put themselves to much useless trouble to instruct the people by the leaflets and circulars they send around. In Alabama we do not try to teach our people hygiene. We do not send them leaflets about how to avoid diseases. We would send them pamphlets about treatment of disease. We tell them to send for a doctor, and when they want sanitary work done to send for a sanitarian. We do not try to make every man his own health officer. I have been struck with the extremes to which these health officers go.

The Doctor related an instance of three cases appearing at Stone's Bank, Ala. The physicians vaccinated the people, and there was never another case, but the people at a town fifty miles below went to the unnecessary trouble of quarantining against them, and invoking the aid of the service, after the danger is over.

DUTY OF THE PHYSICIAN TO THE PUBLIC.

Read by Title in the Section on State Medicine, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5–8, 1896.

BY JAMES W. COKENOWER, M.D.

SECRETARY IOWA STATE MEDICAL SOCIETY, AND PROFESSOR ORTHOPEDIC SURGERY, COLLEGE PHYSICIANS AND SURGEONS, DES MOINES, IOWA.

The tendency among modern medical writers has been to present a subject pertaining to some special branch of medical and surgical science and, especially, to ride some "hobby" or pet theme, wholly ignoring the more practical thoughts which come before us in everyday life.

It is the purpose of this paper to point out briefly some of these errors, and it will make no pretense to science, but endeavor to present such thoughts as come under the writer's observation almost daily, while engaged in a general practice. And, it seems to me, they are of sufficient importance to invite the attention of the entire medical fraternity. It is true that science, and advanced theories of medicine and surgery have done much, and no doubt will do more, and are not to be disparaged, but they have in the past, it seems to me, been prosecuted to the detriment of the more common and practical things. I have observed, daily, in the families, where I am called to practice, the amount of good which the physician might accomplish in teaching them how to live, how to ventilate their homes, and such other hygienic measures as would advance their physical, as well as mental and moral interests. And, not only this, but the ravages of hereditary diseases, which are annually apparently increasing in our land, seem to imperatively call for legislation with regard to the intermarriage of such people as are known to have such hereditary taints. However, since there are none, and since it does not appear to be practical, that a law can be made prohibiting the intermarriage of such persons, it occurs to me to be the duty of the physician to counsel and advise those who are under his observation of the dangers that lurk unseen within them, and, thereby if possible, cut short and limit the number of such cases.

Again, while there are laws prohibiting the physician from producing abortion, and which, I regret, is not as fully carried out as it should be, yet, perhaps, as nearly so as most of the laws not wholly a dead letter on our statute books, the writer's observation has been directed to another class of people aside from the physicians, and that is the women themselves. These counsel with no physician, or any one else, but do the work themselves and, if everything passes off smoothly, the physician is never consulted, but, in case they fear trouble, the physician is invited in to assist and, thus, bear the blame for whatever injury may have resulted.

And, so I might go on enumerating things wherein the physician, in his greed for science, wholly ignores the more practical things, thereby causing grief

throughout our land. It seems to me if the physicians would unite upon some means of extending their influence in the proper directions with regard to these facts, they could wield a great force, mold public opinion, and so instruct their patrons, which means the entire public, as to bring about a change that would be effective in the end and would be, in fact, more practical than any legislation upon the subject.

I have been endeavoring, in a quiet way, to manifest my influence in this direction with those whom I come in contact, and it is my opinion that a vast amount of good can be done in this way. And, whenever physicians unite in this one cause, and cease to ignore simple things, things apparently of not sufficient value to give heed to; whenever they cease to ride their hobbies, and look at such a thing as the writer has endeavored to point out, then, and not till then, will the time come when there will be that change wrought upon the public that will improve and advance the physical condition of the community in which this influence may have been exerted, and prove to the unsuspecting public that there is no class of men who have more to do with the confidence, and are better able to mold public opinion than the physicians, when they work in harmony and manifest their influence.

ON HEALTH DEPARTMENTS OF LARGE CITIES AND THEIR ORGANIZATION.

Read by title in the Section on State Medicine, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

BY JOHN B. HAMILTON, M.D., LL.D.

CHICAGO.

SURGEON, FORMERLY SUPERVISING SURGEON-GENERAL U. S. MARINE-HOSPITAL SERVICE; MEMBRE HONORAIRE SOCIÉTÉ D'HYGIÈNE, PARIS, FRANCE; MEMBER AMERICAN PUBLIC HEALTH ASSOCIATION; CONSULTING HYGIENIST CITY OF CHICAGO.

The progress of sanitary science, and the increase of knowledge among sanitarians, is one thing; the putting in practice of that information, is another. All science is concerned with the former; the State, the Government and the people, with the latter.

Our cities have grown so fast that the problems which confront them of civic administration, have not been dealt with as if they had come gradually on a community prepared by long years of dwelling together, to meet them; and so in our great cities we find great advances in certain directions, and we find ourselves very far behind the age in others.

Among the unsettled problems in large cities is that of the best means of securing a perfect sanitary organization, and in the securing of that result, we are more or less hampered by the laws which have been enacted in the village before it became a town, and the ordinances of the town before it became a city, all of them more or less changed by acts of the State Legislature in which the city is situated. It therefore follows that in most cases, it is better to create these sanitary organizations of our large cities by legislative enactments rather than by municipal ordinances, because in many cases the city charter will be infringed upon or violated in some of its provisions by the adoption of certain salutary regulations, or prevent their adoption.

I recently had occasion to make a report to the Mayor of the City of Chicago, providing for a sanitary organization which would meet the exigencies of the existing law of that place, and at the same time create a new department on a basis that would provide for proper scientific work, in the interest as well of promoting sanitary science generally as in that of the health of the people of that city alone; in other words, to draft a plan for the organization of a model Health Department.

In drafting this organization, I was struck by the fact that in this country there can be only two systems of sanitary administration, and these systems are radically different; the one is an enlargement of the old town meeting plan, whereby the select men of a town meet at stated intervals and adopt regulations in which there is no individual responsibility either on the part of the select men themselves, or the person who has to execute them. The other system is the military one, in which every person is held responsible, from the commanding officer down to the private: each for the division of labor assigned to him. When responsibility is thus fixed, we insure better administration, because the results are always apparent. A person responsible for a bad result can be properly dealt with and removed from his position, to enable his place to be supplied by some one judged more competent.

In the city mentioned, the occupancy of a position of health officer by a layman, without knowledge of chemistry, engineering, sanitary science, or any part of medical education, made it necessary to provide for his retention in the act; although in my judgment such positions can not be filled with credit to the incumbent, or with safety to the public, by any person, however able he may be, until after some training in the fundamental branches of the education of a health officer, and I feel obliged to say to the Section that, in my opinion, whatever measure of success has since been achieved by the health department named, it has been done by reason of the advice of the Board of Health, and the advice and experience of the trained Assistant Commissioner of Health, our colleague, Dr. Frank W. Reilly, who, during the present administration has guided the sanitary affairs of the department, practically unhampered by his titular lay chief. I do not doubt that any layman by close application to study and honest attention to his duties, may in time become thoroughly informed in hygienic matters, but in such case the education is acquired at the expense of the city, and without adequate compensation to the public.

I herewith present to the Section a revised draft of an ordinance, which in my judgment, is best adapted to meet the requirements of a health department of a large city:

AN ORDINANCE TO REORGANIZE THE DEPARTMENT OF HEALTH.

Be it ordained by the City Council of the City of ————: There is hereby established in the municipal government of the city of —— an executive department to be known as the Department of Health.

Appointments—General Provision.

SECTION 1. No person shall be appointed to any office or position in the said Department, until proper inquiry shall be made by examination, or otherwise, into the ability and fitness of such person to perform the duty that may be required of him, should he be appointed.

Removals—General Provision.

SEC. 2. No officer or employe of this Department shall be removed except for cause and no person shall be appointed, promoted or removed for any political reason. Any officer or employe may be removed for crime, malfeasance, habitual neglect of duty, willful misconduct, insubordination, disobedience of orders, incompetence or insanity, and for no other cause.

Officers and Employes shall not accept Gifts or Bribes.

SEC. 3. Any officer, inspector or member of the Sanitary or

Ambulance Corps who shall accept any gift of money or other valuable thing for reporting or not reporting the existence of any nuisance or case of contagious or infectious disease, shall upon proof thereof be dismissed by the Sanitary Director, and shall in addition be subject to such other penalty as the ordinance may prescribe.

Enumeration of Officers and Employes.

SEC. 4. The Department of Health shall hereafter consist of the following officers and employes to-wit: a Sanitary Director; an Assistant Sanitary Director; a City Physician; Chief Clerk; a Sanitary Captain; a City Chemist; Medical Inspectors; a Sanitary Corps; Clerks and Interpreter.

Sanitary Director—General Qualifications.

SEC. 5. The Sanitary Director shall be a physician of not less than ten years' practice and shall be skilled in sanitary science. He shall be appointed by the Mayor, by and with the advice and consent of the Council. He shall hold his office until his successor shall have been appointed and qualified.

Duties of Sanitary Director.

SEC 6. The Sanitary Director shall supervise all matters connected with the sanitary interests of the city, and shall perform such specific duties as may be defined in this ordinance, and he shall have authority over all officers and employes in said Department. And when at any time it shall become necessary to establish sea, lake or land quarantine, he shall have command of such quarantine. He shall according to circumstances and season, issue such circulars of popular instruction as shall lead to the preservation of the public health.

Assistant Sanitary Director—Qualifications.

SEC. 7. The Assistant Sanitary Director shall be a physician of not less than ten years' practice, and shall be skilled in sanitary science. He shall upon recommendation of the Sanitary Director, be appointed by the Mayor, by and with the advice and consent of the Council, and shall hold the office until his successor shall have been qualified and confirmed.

Duties.

He shall perform such duties as may be assigned him by the Sanitary Director. In case of the sickness, disability or prolonged absence of the Sanitary Director, he shall by direction of the Mayor, act in the stead and perform the duties of the Sanitary Director.

City Physician—Qualifications.

SEC. 8. The City Physician shall be a physician of not less than ten years' practice in the State of ———, of which not less than five shall have been in the City of ———. He shall be appointed by the Mayor, by and with the advice and consent of the Council. He shall appoint a physician as City Pathologist, who shall, under his direction, make such post-mortem examinations of animals or men as may be required by the Sanitary Director, to whom his report must be sent by the said City Physician.

Duties.

He shall supervise the administration of the hospitals established by the city, including hospitals for contagious diseases, excepting quarantine hospitals. He shall prepare regulations for the government of police surgeons, ambulance physicians, resident physicians and superintendents of the city hospitals and the pathologist in the performance of their duties and shall have immediate supervision of the city ambulance service, when established. He shall attend or cause an assistant to attend the sick in the city workhouse, calaboose, watchhouse, police stations or houses of correction, and shall attend such meetings as may be held by the Department of Health, and in case of epidemic, he shall render such assistance and coöperation, and perform such duties in connection therewith as the Sanitary Director may require.

Chief Clerk.

SEC. 9. The Chief Clerk of the Health Department shall be skilled in business affairs and statistics and shall be appointed by the Mayor, by and with the advice and consent of the Council.

Duties.

He shall have supervision over all clerks of the Department except as hereinafter provided; and shall have charge of all accounts. He shall keep an accurate record of all receipts and expenditures and shall be responsible for all fees received. He shall keep the records of births, marriages and deaths, and issue burial permits under regulations to be made by the Sanitary Director. He shall disburse all monies, pay all officers and employes, make all purchases of supplies, and execute all contracts and bonds, but he shall make no purchase of sanitary or special appliances without the approval of the Sanitary Director.

Sanitary Captain.

SEC. 10. The Sanitary Captain shall be a person accustomed to superintendence of workmen, and qualified to keep records. He shall be appointed by the Mayor on the recommendation of the Sanitary Director, and shall have the rank and pay of a Captain of Police.

Duties.

He shall be the custodian, and have charge of the storehouse of the Department with all property belonging thereto, including horses, wagons, carts, ambulances, fumigating apparatus and sanitary appliances of every kind belonging to the Department, and shall make a semi-annual return thereof to the Chief Clerk. The return shall show from whom the property was purchased or received, to whom issued, and the present condition thereof. No property of any kind shall be issued to any person except upon requisition duly approved by the Sanitary Director, Assistant Sanitary Director, City Physician or Chemist as may be required. He shall have charge of the Sanitary Corps, and under the department regulations, supervise the work.

Chemist—Qualifications.

SEC. 11. The Chemist shall be a graduate in medicine, skilled in chemistry, pharmacy and bacteriology. He shall be appointed by the Mayor on the recommendation of the Sanitary Director. He shall have an assistant, who shall be City Bacteriologist, and who shall be nominated by the Sanitary Director and appointed by the Mayor.

Duties.

His duties shall be to have charge of the laboratory, and to direct the conduct of such chemic and bacteriologic investigations as he may from time to time be instructed to make by the Sanitary Director, to make test investigations of food products, milk, water, ice, beverages and drugs, and to make report thereof to the Sanitary Director.

Medical Inspectors.

SEC. 12. The Medical Inspectors shall be appointed by the Mayor on the recommendation of the Sanitary Director, but no person will be appointed Medical Inspector until after such examination as shall satisfy the Sanitary Director that the applicant is fully informed in the principles of sanitary science.

Qualifications.

Physicians holding the collegiate degree of Doctor in State Medicine, or its equivalent, will not be required to pass such examination.

Chief Inspector.

One of the said Medical Inspectors shall be specially skilled in the diagnosis of the exanthematous and contagious diseases, and shall be designated as Chief Medical Inspector.

SEC. 13. Medical inspectors, except the Chief Medical Inspector, will perform such service as may be required of them from time to time, and they shall be paid according to the service actually performed, on a schedule of pay to be prepared by the Sanitary Director and approved by the Mayor.

Sanitary Corps.

SEC. 14. The Sanitary Corps will consist of three divisions, viz., *first*, those employed in the division of the City Physician as litter bearers, ambulance drivers and hospital attendants; *second*, milk, meat, food and other inspectors employed in the chemist's division; *third*, plumbing inspectors, fumigators, and persons employed in the work of placarding infected premises, and disinfection of the same, acting under the Sanitary Captain.

Uniform to be Worn.

SEC. 15. All members of the Sanitary Corps shall wear the uniform of their grade, and shall receive such monthly compensation as the Mayor may by order promulgate, as equitable for the services respectively performed by each class.

Clerks and Interpreter.

SEC. 16. There shall be employed in the Department of Health ——— clerks, who shall be appointed after due examination into their fitness for such position, and they shall be assigned to such duty as the Sanitary Director may designate, and the Sanitary Director is hereby authorized to employ one person as stenographer and clerk to serve under his immediate direction, and one person as interpreter and translator. No person shall be employed as translator who can not read correctly and converse in five modern languages to be designated by the Sanitary Director.

Repeal Provisions.

SEC. 17. So much of any and all previous ordinances as conflict

with or in any way impair the operation of this ordinance are hereby repealed, and all provisions of law and ordinances relating to the Department of Health, the Commissioner of Health, the City Physician, the inspection of food, milk, ice and drugs, and miscellaneous ordinances relating to health, shall, so far as they may be applicable, remain of full force and effect.

I will now take the bill up by sections for the purpose of explanation. Sections 1, 2 and 3 are, in my opinion, necessary to secure the perfect working of the officers and employes of the department. Indeed it will be found impossible to secure the appointment of proper persons unless the tenure of office be made more secure than has been the case under previous ordinances. Moreover, it is such as to bring the department in line with the civil service laws of the State and of the United States. I had charge of a Bureau of the Treasury Department when the present civil service law was enacted, and I am entirely familiar with its operations. Some passages in this ordinance will be recognized as quoted directly from that law.

Sections 4, 5, 6 and 7 are self-explanatory, and relate to the different classes of officers, and especially to the qualifications and appointments of the Sanitary Director and Assistant Sanitary Director.

Section 8, relating to the City Physician, after giving the qualifications, makes specific mention of his duties.

Section 10, providing for a Sanitary Captain, is self-explanatory. It must be obvious that some one must be had to account for the property owned by the Department, to have charge of the same, and to superintend and to direct the outdoor work. This section is not only calculated to protect the interests of the city, but to prevent misuse or misapplication of any property or appliance belonging to the Department.

Sections 11 and 12 relate to the appointment of a City Chemist and a Medical Inspector, which are self-explanatory, except that definite qualifications are provided for. The system of examination of medical inspectors, as preliminary to appointment, as proposed in this ordinance, should by all means be adopted at the earliest possible moment, as the appointment of persons through motives of friendship or political association fails to secure that standard of professional qualification that a great city should always be able to command.

The adoption of an ordinance or law like this provides the skeleton organization; as will be seen, it provides for indefinite expansion by increasing the number of persons employed, when the necessity for so doing may arise; it provides for extraordinary powers in case of epidemic; and more than all, a unity of system is provided and responsibility fixed.

As all cities have an Engineer Department, City Engineer or Department of Public Works, it is not deemed necessary to provide specifically for that coöperation which may be always secured by the comity necessarily existing between different departments of the same administration. Should that fail the Mayor as chief executive can always settle the matter by special order.

The *details* of executive work, the *regulations* governing the special office and the Department, are by this organic act left to be framed by the Sanitary Director to suit the particular city. But in no case need they conflict with the organic law, which, as will be seen, is sufficiently broad to allow the framing of all necessary regulations.

NOTE.—The essential features of this draft were commented upon with approval by the distinguished editor of the *Journal d'Hygiène* of Paris, and a translation formally presented to the Société d'Hygiène.

THE METHODS OF DRAINAGE NOW PREVAILING IN SOME OF OUR EASTERN SEABOARD MUNICIPALITIES, TENDING TO THE PRODUCTION AND DISSEMINATION OF DISEASE.

Read In the Section on State Medicine, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5–8, 1896.

BY AUGUSTUS P. CLARKE, A.M., M.D.
CAMBRIDGE, MASS.

Crudely constructed latrines and cesspools, without connections with regularly laid drains, were the devices which often obtained among the early inhabitants of the country; they were places for receiving the waste water and the dejecta of occupants of houses and other buildings, and were for the most part recommended merely for the convenience they afforded. The method which these contrivances furnished for disposing of refuse liquids and excrementitious elements worked no serious manifest injury unless some of the more deleterious products had gained, by percolating through the surrounding soil, admission into a well or other source of water to be used for domestic purposes. Among the more dangerous products of this class have been those derived from the albuminoids and the nitrates, and from carriers of some of the forms of bacteria that were capable of giving rise to diseases that have been regarded as of a zymotic character. The development of morbid conditions from such sources in sparsely inhabited districts has not been of common occurrence, from the fact that the free ventilation which takes place through the open vaults, and also the diluting action of water from the frequent storms, have had a counteracting effect upon the potency of the bacterial agents, and have thus rendered immunity to persons not particularly susceptible to influences of such disease factors.

As these places became more densely populated, there were also built, in connection with the receptacles, different forms of drains, into which the fluid and the less solid portions of the waste matter were discharged. Beyond this measure of dealing no very definite plan at first for the disposing of sewage was maintained, and so the contents of the drain were disembogued into a stream or water-course that perchance could be found in the vicinity. When the discharge was made into rivers whose courses had a steep and rapid descent, very little seemingly ill effects were experienced by those who dwelt above the point of the inlet. Those who dwelt along the river banks or in the valleys below were not always so fortunate, especially when they found it necessary to take from the river in that vicinity their water supply.

Water of large streams, if charged with deleterious products, will not after flowing several miles become wholly innocuous and be safe for drinking purposes. The tenacity of life possessed by certain bacterial elements will not be overcome by such an inadequate exposure. In this connection it is but just to remark that it is not so much the negative testimony of the chemist and the microscopist that insures safety in the choice of the drinking water, as it is that there exist no possible sources of contamination.

Many of our larger cities have already inaugurated measures for taking water where the unhealthful influences have been reduced to the minimum. Unfortunately, however, this freedom from contamination does not prevail in the majority of municipalities. Among the more prominent objectionable features of the present methods of drainage for municipalities is that of discharging large quantities of refuse matter into sewers which are connected, either directly or indirectly, with rivers that receive tide-water. The people dwelling in the less densely populated portions of a city or town where a good-sized sewer has its outlet into the river through a gate that opens and closes with the ebb and flow of the tide may not, perhaps, suffer to any great extent in availing themselves of the use of such a drain. A long open drain, however, connecting at one end with residences and at the other with tide gates to allow its vile contents to be discharged so as to be exposed to the rays of a summer's sun, and to have its evaporations wafted back through the long conduit by the counter-currents of air set up, and drawn back to the homes of the occupants, presents features that are far from being conducive to health.

A still more dangerous factor results even after the closure of the gates from the oncoming tide, by the rapid filling up of the sewer from the numberless drain pipes that are directly connected with the government drain; this arrangement tends to displace the air laden with poison or pathogenic organisms, and force it back toward the house connections with the sewer. When the pressure that produces this reflux is moderate, the effect may be overcome by the water in the closet traps, but during the time when there is much storm water to be carried off the pressure becomes inordinate, and thus forces not only the mephitic air, but causes a reflux of the filthy water; this may pass through the traps that are lower down, and in some instances also through those placed as high as the street level. This has been particularly noticed when great storms have been raging. The numerous conductors extending from the many high buildings in the neighborhood to these sewers tend to force, in accordance with a well-known law in physics, the water up through the house drains above the normal level, and thus to flood the basements and cellars with water and sewage that have been collecting in the drain during the storms and while the tide gates were closed.

This unhealthful condition of things has gradually increased since the custom of building large apartment houses and of other high structures has obtained. To show the inadequacy of the sewers or the drain traps employed for preventing the reflux when the sewer is being filled by the accumulation of storm water flowing from the conductors of high buildings and from the street catch basins during the closure of a tide gate, a drain pipe connected with a sewer leading to a house whose basement had been flooded by a regurgitation of storm water through the bowls, on being opened to determine its condition, a jet of water like a geyser spouted up several feet into the air, and continued thus to flow until the drains had been relieved of their excessive pressure.

The objectionable features arising from such a defective method of drainage have been sought to be overcome by the construction, at an enormous expense, of what has been designated as the "metropolitan sewer," for the accommodation of the inhabitants of Boston and of other municipalities within a certain radius. The benefits to be derived by the laying of this drain are not altogether what was generally anticipated, for the reason that the sewer is not of sufficient capacity for receiving and carrying off in a proper manner the storm water, in addition to the sewage it has to take in. The sewer has been built out some distance into Boston harbor, where the contents are discharged by means of large pumps into the deep water, that they may be borne out with the tide into the sea.

The object of the expedients adopted or suggested by the engineers of the cities that have been interested in the construction of the work, is that the storm water entering the great sewer may by an automatic device escape into the local sewers, and so pass into the Charles River or other water-courses with which they may be connected. It requires but little reflection for any one to comprehend the fact that more or less actual sewage will still be carried along with the storm waters into the river, and that the cessation of contamination of our natural water-courses by the carrying into them of drainage material will only be accomplished theoretically and not in real practice. Again, the storm water can be discharged by the devices above mentioned from the local sewers into the rivers only at ebb tide and while the gates are open. At other times the entering waters coming from the heavy rains will not all pass on, and when the sewers become overcharged will take a backward flow into the estates embraced within the lower sections of the district, as has so often occurred by the operation of the old system of drainage, with this difference, perhaps, that the new method, as the sections become more crowded, will nevertheless give rise to a greater reflux of the sewer contents.

It should be stated that some twenty years ago or more, statutes by the State government were passed, requiring certain lands below thirteen feet above mean low water mark to be raised to grade. The difficulties that are now being experienced are not, however, confined to such districts that have been filled, but are met with to some extent in places that are of a higher grade. It is too bad that after the enormous outlay of money that has been made by the inhabitants, and the annoyances and vexations experienced, beside the expenditure for the construction of sewers, so little of real permanent value has been achieved. This result is not dissimilar to the experiences of other State governments when they have attempted to accomplish any great, new and lasting benefit.

In order to overcome the unhealthful features incident to the working of the present system of drainage, special sewers for carrying off the storm water should be laid. Into these should pass all the water from roofs, gutters or conductors upon buildings, and the storm water of the streets after it has been well filtered through catch basins to deprive it of its more solid portions. These water conduits should be laid so deep that the water in the cellar and foundation wall trenches for some inches below the deepest portion of a cellar bottom may readily flow into them, to be carried off to the rivers or other depths of natural water channels.

In cases of tidal rivers there should be for the most part no tide gates; deep basins should be constructed for receiving such waters, that, after being filtered, could be discharged, by means of a pumping station, into the river. For times of great drought these

waters could be stored in receiving basins and could be used for the extinguishing of fires and for other purposes in cases of emergency.

The State Board of Health has already recommended that some independent system of sewerage should be employed for the disposition of storm waters. For one particular part of our city our mayor has given some encouragement that he would manifest his official influence for the construction of a sewer for the greater relief of water coming during the heavy storms. No definite experiments as yet have been instituted for determining the feasibility of carrying out the plan here proposed, but it is evident that something more radical than what has heretofore been attempted will have to be undertaken for the insuring of permanent relief and healthfulness in our municipalities.

Until there are adopted plans for drainage founded on more scientific principles than those still prevailing, we can not expect to achieve any great results in diminishing the occurrence of many forms of disease. We may raise the standard of our medical colleges and our universities, may improve our methods in pharmacy, extend the list of articles and remedial agents in our materia medica, and develop to the highest degree our surgical technique, but these promising helps will still be found capable of relieving only a mere moiety of the sum total of the suffering from disease, so long as occupants of dwellings continue to be exposed to the increasing dangers of overcrowding that is everywhere now taking place.

A DEPARTMENT OF HEALTH, OR A BUREAU: WHICH?

Read in the Section on State Medicine, at the Forty-seventh Annual Meeting of the American Medical Association at Atlanta, Georgia, May 5-8, 1896.

BY S. S. HERRICK, M.D.

SAN FRANCISCO.

It is assumed that the AMERICAN MEDICAL ASSOCIATION substantially agree that the time has come for some permanent branch of our national government to promote and administer the interests of public health. There is, however, a variety of plans of organization, each of which has its merits and defects, the most prominent of which may be designated a board of health, a department, a bureau, and the continuance of the present method as administered by the Marine-Hospital Service.

The plan of a board of health has been tried, with such want of success that, in my opinion, it would be unwise to experiment again. It is needless now to consider where the fault chiefly lay; and there are too many yet living and active, who participated in the controversy, safely to risk the danger of its revival. The plan most favored by the AMERICAN MEDICAL ASSOCIATION has been to create a department of public health, presided over by a secretary holding a seat in the President's Cabinet. Its conspicuous aim is to magnify the importance of public health and extract a large appropriation from the treasury. Without detracting from the value of health as one of the enjoyments of life, we must not overlook the fact that other great interests are clamoring for recognition *and an appropriation.* The agriculturists, who now number approximately 9,000,000 of our population, have recently secured a separate department. It may be expected that those engaged in manufacturing and mining (about 5,000,000) will soon demand like consideration, and that they will be followed in due time by the trade and transportation interest (numbering about 2,500,000). The two latter are already anticipated by the sanitary interest, which may be represented by about 100,000. Roughly speaking, this number is now classed in the medical ranks (regular, irregular and defective), and I think it would be fair to deduct, as not being interested in sanitation, quite as many as should be added to those so interested from the laity. Teachers and scientists (representing the educational interest) now number approximately 300,000, or three times as many as the sanitarians. In 1867, the Bureau of Education was created by act of Congress, and it has done excellent work ever since. So far as I have learned, both the public and educators are satisfied with their modest organization, though, doubtless, they would like more money.

In 1885 the present writer, recognizing the excellent work done by the Bureau of Education, being deeply impressed with the need of a national sanitary service and at the same time warned by the troubles which had befallen the National Board of Health, formulated a plan for a bureau of health, which was approved by the American Public Health Association. Under its auspices a bill for this purpose was framed and introduced in Congress. It would serve no useful purpose here to dwell upon the reasons of its failure. In substance the proposed functions of the bureau were the following:

1. To gather information upon the state of the public health and the existence of contagious disease in foreign countries through the consulates of the United States government; to digest and communicate the same to all government posts and health authorities of our country; through medical officers attached to the consulates, when requested by the masters of vessels destined for ports of the United States, to inspect the vessels, cargoes, crews and passengers (including their personal effects), to use measures for cleansing and disinfection, and to vaccinate those requiring vaccination (all at the expense of the vessel), to furnish bills of health relative to the port of departure and full dealing with the vessel, or to notify the bureau by telegraph of neglect or refusal to accept such service.

2. To serve as a medium of intelligence in sanitary matters, including vital statistics, between health authorities throughout the United States, by means of a weekly publication, which would contain also foreign intelligence.

3. To inspect the various quarantine stations of the United States from time to time; to investigate outbreaks of pestilential disease in any part of the Union; to report such inspections and investigations; to recommend to local health authorities needed preventive and suppressive measures.

4. To conduct chemic, physiologic and pathologic investigations in the interest of sanitation.

5. To publish and distribute documents relative to public health.

It was contemplated to authorize the bureau to require the detail of suitable medical officers from the Army, Navy and Marine-Hospital Service for carrying out its functions at home and abroad. This would be a measure of economy and also a safeguard against political intermeddling. At that time it was not thought wise to give the bureau powers in quarantine matters, but it is now probable that there

would be little or no opposition to some exercise of authority, when needed, in international or inter-State quarantine. I am satisfied that a bureau organized on some such plan would fully meet all requirements of sanitation and could be enlarged so as to keep pace with the growth of the country quite as well as the Bureau of Education. Those who believe that the right way to gain the earth is to go for the whole solar system, may naturally suppose that the best way to obtain from Congress a bureau is to ask for a department. This is a matter of opinion, which I forbear to discuss. There is, however, a choice between a department and a bureau which, to my mind, vitally concerns the utility of the service. The secretary of public health would be a political officer, appointed for four years, and his subordinates would also belong to the same party. The one important qualification for office would be partisan services rendered during the preceding campaign. Those who are conversant with the customary methods of securing positions in State and municipal sanitary service in our country need no explanation of what might be expected. Now, the question is: Does the AMERICAN MEDICAL ASSOCIATION, claiming to represent the most numerous body of scientific men in our country, stand ready to commit the interests of preventive medicine to that class of adventurers who have control, for the time being, of the national political machine? If such be its deliberate choice, then I beg to recall Æsop's fable of the frogs who asked Jupiter for a king. At first he gave them a log (likened to a national board of health), which they sat upon in scorn, until it sunk out of sight; then they asked for another, and he sent them a stork (likened to a cabinet officer), which devoured them without mercy.

On the other hand, if the choice be some plan which will put our health interests out of politics, then I advise a bureau of health modeled after the Bureau of Education, in which a commissioner may hold office under successive administrations. Let his subordinates be drawn, as far as practicable, from the three national bodies of medical offices, detailed for the special qualifications which they have shown by their works. Already the Surgeon-General of the Army has organized a school, in which medical officers receive special instruction in hygiene, and the Navy and Marine-Hospital Services will not long delay in following the example. Perhaps in time State and municipal boards of health may be authorized and feel disposed to ask the detail of officers from these corps to serve as experts in sanitary work, and thus the whole country may see their health interests emancipated from politics.

The last proposition, that of leaving national sanitation with the Marine-Hospital Service, seems not to meet the wishes of the medical profession at large, though, to my knowledge, the reason has not been openly declared. The most obvious explanation is, that this plan does not satisfy the aspirations of an army of patriots anxious to serve their country. If we must choose between a department of health and the present system, in my judgment, the change would involve great additional expense with a strong probability of poorer service. On the whole, I find no valid reason to change the views held on this subject since 1885.

Let us have a Department of Public Health!

ARGUMENTS FAVORING A DEPARTMENT OF PUBLIC HEALTH.

Read in the Section on State Medicine, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5-8, 1896.

BY LISTON H. MONTGOMERY, M.D.

CHICAGO, ILL.

Some of you perhaps may have views and ideas that are not entirely in accord with those of the writer. It is natural to suppose that some of us have hobbies or fads in medicine in general, the science of hygiene, or upon some branch of scientic study or research.

Emerson said, "Science surpasses the old miracles of mythology." It is with pardonable pride therefore that I offer this contribution and venture to briefly discuss this important subject, which as it appears to me, is one of the *most pressing needs of legislation that confronts us* and which our government can bestow and by so doing promote the welfare of the people of the United States.

It is a well known fact that by the acts of our National legislators during the past few years hundreds of thousands of dollars have been appropriated and expended for agricultural pursuits including that of saving the cattle and other stock products that belong especially and distinctively to the farming interests of our country, and which we as sanitarians most heartily commend. But have you considered the proposition that during the professional career of thousands of members in our profession, not one dime has been appropriated for public health matters, to save or prolong the lives of human beings, and while our Marine Hospital Service has its duties to perform, it is nevertheless very circumscribed in character, and can render very little public service to the people inland, when cholera for instance, or any other disease from a foreign country invades our shores, as was the case when this dreaded malady threatened New York city during the summer of 1892 and the year following. The disease was stamped out, or more properly speaking, what was supposed to be cholera was prevented from making inroads to the interior by the State's laws.

But we are reminded that New York State, and the City of New York has facilities for caring for an epidemic which very few other States possess.

That the United States is constantly exposed to the importation of disease from foreign countries, and subject because of the facility and rapidity of interstate transit to the rapid spread of infection and deadly germ infection of almost any city or town, is to the writer's mind something that ought not longer be tolerated by the patient people of this country.

While Philadelphia, Baltimore, Boston, New Orleans, Portland, San Francisco and our sister city Quebec, may be sufficiently provided for in this respect, there are numerous other cities on the Atlantic, Gulf, and Pacific sea boards that are not as fortunate nor properly protected and equipped to bar out disease that has been imported should it gain a foothold.

I think this is particularly the case with our Southern sea board cities. That they are not sufficiently prepared to combat the ravages of pestilential diseases that may invade them from some foreign country is a well-known fact to the practical sanitarian everywhere. This fact, lamentable as it is, has, to say the least, one specific cause, the absence of a department of public health. On the other hand we are well aware that the efficient health officer of the city of Charleston,

S. C., and of other cities along the southeast Atlantic and Gulf coasts are as alert and equally efficient as health officials can be, but oftentimes they are hampered in doing thorough painstaking work toward suppressing a threatened endemic or epidemic.

What has our government done for the medical profession? Congress should do all in its power to advance the scientific interests of the medical profession and promote the welfare of the people of this country. Has this been done? Governmental aid in this respect is not lacking in several other countries with which we are in daily commercial intercourse. I believe the time has fully matured, and the importance to the public welfare in the matter of sanitation and health laws has arrived for our people to require, yea demand, that we are entitled to another branch of the Federal Government and portfolio to be known as the Department of Public Health with a medical secretary at its head, to be on the same plane or parity or dignity as is accorded to the other departments in the general administration of public affairs.

The consensus of opinion in this respect is widespread as will be noted by the following illustrations. This subject, to quote as near as I can recall them the words of the late Prof. C. G. Comegys, "Is not for the promotion, welfare, or aggrandizement of the medical profession," but for *the welfare of the people* of a united country, the fairest the sun has ever shown upon, and to quote further from our late associate and worthy teacher, "Who is there that is more capable of judging of the welfare of our people, scientifically speaking, and I will add socially and morally than we who comprise the membership of this noble ASSOCIATION, representing as it does the hundred and twenty odd thousand physicians in the United States?

Why need our government wait for a threatened invasion or approach from Europe or other foreign land of some specific form of deadly germ or disease infection?

Why wait for the advent of smallpox from Mexico. or yellow fever from the Spanish colony or States of South America, or the arrival on our border of some poor indigent immigrant sick nigh unto death with some form of pestilential disease, or until the germs of an infectious or contagious character have already made their appearance?

But some wiseacre (not a member of our profession) will say: Oh well, these cases will be quarantined or the maritime quarantine system will take care of them, etc. Scarcely two weeks ago the utter failure of this method was demonstrated at the city of Baltimore, Md., when there arrived several hundred immigrants at that port who had been exposed to smallpox or varioloid on board the steamship that brought them. The poor sick immigrant was detained, but the balance were allowed to pass through and take up their abode at their place of destination, many of them within three days arriving at Chicago, Ill.

While the maritime quarantine service does very well indeed and is a most useful system so far as it goes, yet it has no control in the inland and its power of authority is limited. Its system does not include all the ways and means of carrying into effect efficient prophylactic measures on a thoroughly scientific basis as should be done by scientific preventive medicine and thorough bacteriologic investigation beyond the few cities enumerated above. This system has no authority to carry out the enforcement where necessary of sanitary regulations tending to prevent or abate the spread of epidemic or pestilential diseases beyond the seaport places it has found lodgment and where it may be equipped for this purpose.

At the Pan American Medical Congress, the first congress of this kind ever held in the United States, which convened in the city of Washington, D. C., in September 1893 under the auspices of our Government, this subject was critically and thoroughly discussed in all its phases, heartily concurred in, and reported in favor of such a Department, with a cabinet minister at its head.

The Chicago Medical Society having a membership now of upward of 750 members as early as the summer of 1884 at the instance of the writer had a committee appointed consisting of seven of the most able sanitarians of that city, including the Commissioner of Health to devise and formulate a plan to urge the importance of National legislation upon this subject.

The committee submitted its report in September following and it was unanimously adopted.

The American Public Health Association at several of its annual meetings has heartily and unanimously concurred in this measure, and has appointed its special committee to confer with a similar committee of this ASSOCIATION to devise the best ways and means toward establishing this *sine qua non*, and much is hoped for in this direction from this influential body at its coming meeting at Buffalo, N. Y., next September.

Various State, county, and municipal medical societies in a numbr of portions of the Union have within the past two or three years unanimously approved and adopted resolutions to this effect, and have heartily approved the bill now before Congress prepared by the special committee of this ASSOCIATION, to establish a department of public health.

STATE RIGHTS AND INTERFERENCE WITH STATE LAWS.

The possibility of interference with inter-state authority I think is a subject too mythical indeed to require discussion.

Section 2 of our bill provides for the coöperation of State and municipal health authorities, hence no obstacle can supervene in the matter of inter-state or municipal boards of health and all will be of the most harmonious advisory nature and unanimity in character, with the one main object in view, the advancement and improvement in the welfare of the American people, the prolongation of human life, the physical and mental development of our citizens, and I might go farther by saying, the evolution of the human race by the diffusion and promulgation of scientific facts and treatises compiled from the best literature prepared by the most thorough scientific painstaking sanitarians of our country, thus promoting the physical health of our people and a correspondingly cultured intellectuality.

The following questions have doubtless been proposed to some of you already: Is there a degenerative tendency in our advancing civilization, in these days of the new woman, hypnotism, bicycles, church affairs, etc., or is there a tendency for the rich of our Nation attaining a premature old age? Is insomnia, hypochondria, hysteria, dipsomania, suicide, insanity and cognate diseases including diseases of a tubercular nature on the increase?

I would answer in a general way. In certain geologic sections of our Union and among a certain class, most certainly this is true. We may ask our-

selves then, what is the cause of this vital or mental change?

The miscellaneous statistics on these and kindred subjects to which I have had access, imperfectly as they are collated, unmistakably prove this.

If the government could see its way to rise to the dignity of having a department of public health and a medical secretary a man of well known scientific attainments, as other nations have, statistics on this point could be made more reliable and valuable scientific accurate investigation could be carried on in a methodic manner from the center or fountain head.

In these days of specialism, the surgeon and the specialist receive for their professional services a fee which to my mind is greater and out of all proportion compared to that which the sanitarian or general practicing physician usually receives, or which he is justly entitled to.

While many of the ailments suffered by man are due to germs, morbid or toxic products or agents entering the system whether from food in any form, drinking water of polluted wells, rivers, lakes, etc., or germs of contagious nature, that enter the human economy through a wound, whether there be syphilitic, puerperal, tubercular. or sepsis due to other causes. The sanitarians of the medical profession in renewing their endeavors toward bringing about what this paper has for its object again manifest their unselfishness in exerting their influence in the matter of a department of public health.

What we do ask after this proposed branch of our government has been established, is that it shall have equal dignity and rank with other branches of the government, and the secretary be a member of the Cabinet. In order to carry out our undertaking to a successful conclusion we must do so intelligently. We must be public spirited and with earnest zeal enlist with renewed effort the united profession of our country.

The reports of the special committee appointed by the ASSOCIATION in 1891 has submitted its report annually since, viz., at Detroit in 1892, Milwaukee in 1893, San Francisco in 1894, one year ago at Baltimore. Each year its deliberations have been unanimously approved and adopted, all of which is very gratifying to the committee and tends to show that the committee is not, nor at any time has it been remiss in the performance of its duties.

But our ASSOCIATION and our profession must do something more than adopt resolutions, all of which are good enough in their way. We must encourage the profession everywhere, and by concerted action urge upon Congress the necessity of this measure. That the matter has been successfully carried on thus far I think no one will deny. But the profession must not become apathetic. If our Eastern confrères should hold different views, let us persuade them to unite with us, for, I am convinced after careful observation and study, that practically the entire western, middle and southern members of our profession are a unit and endorse the bill now before Congress which was prepared by the committee of the AMERICAN MEDICAL ASSOCIATION having this matter in charge.

With this strong force united, and our eastern professional friends with us, with renewed efforts on our part and the combined support of the medical journals and newspapers, shall we not be able to convince our friends in both branches of Congress of the necessity of this urgent and needed legislation, for certainly our opinions on this topic are equally as valuable to public welfare, hygeia, and health as are those who have views upon finance, the tariff, the judiciary, theologic and ecclesiastic affairs, etc. The profession is too modest to claim more than this.

In reviewing the Constitution of our country, submitted Sept. 17, 1787, and which went into effect in 1788, I find in the first or opening sentence the following lines:

"We, the people of the United States, in order to form a more perfect Union, establish justice, insure domestic tranquillity, provide for the common defense, promote the general welfare and secure the blessings of liberty to ourselves and our posterity, do ordain and establish this constitution for the United States of America," etc.

Mark the words in the above clause—"establish justice," "promote the general welfare," "secure the blessings of liberty to ourselves and our posterity."

Is not this a sufficiently meritorious reason as provided in our Constitution to secure that which will prove to be a blessing to ourselves and posterity? And if so, are we not several years behind the times in the matter of this proposed department?

Is not the well known and oft-quoted maxim which I will paraphrase, "*Salus populi suprema est lex*," a sufficient reason? Is it not sufficient to know that, for instance, where an epidemic of smallpox prevails, accurate information can not be obtained by neighboring States or municipal boards of health from the medical officer in charge, or commissioner of health regarding said epidemic by his refusal to promulgate information desired when requested to do so?

All the foregoing illustrations are facts and matters of history, and not hypothetical queries, specific instances of which can be furnished if needed. All of which prove that Congress is in duty bound to provide this additional department.

IT SHOULD BE AN IDEAL DEPARTMENT.

To have this proposed department an ideal and efficient one, it should be under the direct and personal supervision of the medical secretary, who should not only be a graduate of a medical school, and a man of letters, but a thorough sanitarian in all that this word implies, as well as possess an acquaintance with the requirements and needs of our own beloved country as well as those of foreign lands.

Genuine civil service reform should prevail in said department. The obliteration of the spoils system will mean a higher order of men. A spirit of *entente cordiale* will exist between all branches and schools of medicine and an *esprit du corps* will prevail also between the department, its secretary, and State and municipal boards of health everywhere.

This department should have control over the poor and unfortunate immigrants that land upon our shores. An instance which came under my observation recently may aptly serve as an illustration. During the first and second weeks in April about 17,000 Italian immigrants arrived in New York. On April 17 five of these unhappy and unfortunate people were arrested by the police of Chicago and placed in the police station, charged with vagrancy and begging on the streets. These poor unfortunate aliens had left their native country scarcely four weeks previously. This is but a single instance out of scores of analogous cases that came under my personal

observation during the past winter and spring months as an attaché of the Chicago Health Department. So that well may we ask what kind of citizens are we importing now? I am thoroughly convinced that a certain class of the illiterate and poorer classes of immigrants should be prohibited from landing on our shores—only to become a burden to us instead of a benefit to our nation.

NATIONAL VACCINE FARM, BACTERIOLOGIC LABORATORY, ETC.

Regarding this, and what might be regarded as kindred subdivisions of my topic, in the projection of sanitary improvements, etc., I will not attempt to discuss nor more than mention that they should be under the scientific observation of this department.

In concluding this imperfectly prepared paper, permit me to request of you to urge upon your representatives in Congress, your governors and others, in justice to the welfare of the people, in the name of science and humanity, the necessities and needs of our claim: That the medical profession and State medicine is broad and philanthropic and has made great strides and progress within recent years; that our medical representative or secretary will be a man of culture and intellect and *bon camaraderie*, thus assuring the profession and the world that our claim was not of the *ignis fatuus* kind; that at some future time the United States will have an ideal department of health with influence that shall be unsurpassed, will be our reward, for which posterity will bless us is my firm and sincere belief.

STATE MEDICINE IN PENNSYLVANIA AND HOW WE MAY INCREASE ITS EFFICIENCY.

Read in the Section on State Medicine, at the Forty-seventh Annual Meeting of the American Medical Association held at Atlanta, Ga., May 5-8, 1896.

BY EUGENE O. BARDWELL, A.M., M.D.

Health Officer of Emporium, Pa., County Medical Inspector to the State Board of Health of Pennsylvania, Fellow of the American Academy of Medicine, Vice-President of the West Branch Medical Association, etc.

EMPORIUM, PA.

The State Board of Health and Vital Statistics of Pennsylvania was organized in June, 1885, so that its existence covers a period of a little less than eleven years. The appropriation made for it on its natal day called for $5,000 per year, and the appropriation made ten years later was for $6,000 per year, so you may easily judge that there has been no great development of cerebral matter in the legislature of our good Keystone State during the past ten years. Out of this enormous sum $2,000 is paid to the secretary and executive officer of the board. I understand that the clerk of the board receives $1,500 per year, and this leaves the munificent sum of $2,500, which according to the terms of the act is to be expended, or so much of it as may be necessary, for postage, telegrams, express charges, rent, incidental office expenses, traveling and other necessary expenses of the members and secretary of the board, and for sanitary inspections, analyses and protection of water supplies, and for scientific investigations. Think of it, $2,500! Sanitary inspections, protection of water supplies, analyses, scientific investigations; and be sure to return an unexpended balance!

Pennsylvania in point of population is the second State in the Union. One of the oldest States. The Keystone? Notwithstanding the parsimoniousness of our legislature in regard to appropriations for the protection of the public health, I am happy to be able to say that we have, as far as they go, as good legislative enactments for the control of contagious and infectious diseasesand the regulation of health boards and all matters pertaining to the public health as could well be devised. In that respect nearly every session since 1885 has seen some improvement, chiefly through the efforts of one man, Benjamin Lee, M.D., to whose able and untiring work as secretary and executive officer of the State Board of Health, we primarily owe all our laws for the intelligent supervision and protection of the public health. To Dr. Benjamin Lee the State of Pennsylvania owes a debt she can never repay. But the people do not appear to appreciate the fact that to this one man all credit is due that the great State of Pennsylvania has, in sanitary matters, emerged from a condition akin to barbarism. Eternal vigilance, however, is necessary to prevent the repeal of our health laws. At every session of our legislature some learned member from Squeedunck, Daguscahonda or elsewhere will arise in his place with the air of a Solon, pull the fringe of whisker under his chin meditatively, and present a bill which, if passed, would destroy the result of the labor of years; labor, too, which has been done gratuitously without hope of reward, except such as comes through a man's inner consciousness of duty done. We have a large number of boards of health in small towns or boroughs, and the effectiveness of these boards is slowly increasing each year. The public is very slowly awakening to a knowledge of the utility of health boards and their work, but we are still wofully behind the times in many portions of the State. We have no boards of health in townships, although there is a total of 1,511 townships in the State. Now, such a state of affairs is a great drawback, and renders nugatory, to a certain extent, much of the effort put forth in towns and boroughs. In order to secure the best results every township should have its board of health and health officers; but our sapient legislature, having several times refused to legalize such boards, our State Board has, as a make-shift, appointed deputy inspectors who receive no pay, except when ordered by the State Board to investigate nuisances. One such inspector is appointed in each county, and when we consider the fact that many counties contain thirty, forty or more townships, it is easy to comprehend that such officer, serving without compensation, will not be able to exercise a very close or valuable supervision over sanitary affairs, the more so as the people are likely to look upon him as an outsider and give him no aid whatever. The cause of the apathy of the people in the matter is not general ignorance; it is ignorance on this one subject. The public control of matters pertaining to the health of communities is an idea comparatively new, and when it runs against that fetich of the American people, "personal liberty," it experiences a severe shock. Now how can we give an impetus to the dissemination of knowledge of this subject? To my mind the answer is easy and the result certain. Compel the State to pay for the service. It is entirely too much to ask men to serve on health boards for love of the people who abuse them. It has been my experience in the practice of medicine, that the people who pay promptly are my best friends in other ways. Nine times out of ten when a physician is stabbed in the

back it is done by some one to whom the physician has rendered services, either without fee or at a reduced rate.

Physicians who are supposed to act as health officers in most places, are surely the last people who should be expected to serve the State without fee. Physicians who give to individual members of the State from one-fourth to one-half of their total labor should not be expected to do more than that much for the public. In this State health officers receive all the way from nothing, in many cases, to $100 per month, in very few instances, in towns of the same size; and where the salary is largest, there is the officer most appreciated and there is the intelligence of the people in sanitary matters the most marked. The increased knowledge of the people is partly the cause and partly the effect of the high salary of the health officer. Where a health officer receives no salary, the people very naturally think his services are worth just what he gets. Aside from the fact that the health officer gets no credit for philanthropy, which is a small thing, his work is thereby rendered of little value to the people and to the State, which is a very important thing. Even ministers of the gospel, followers of the meek and lowly Savior, do not labor for nothing, and I most earnestly protest against physicians serving the State free of charge. I have just noticed in a recent medical journal that a well-known surgeon of Philadelphia has declined to serve as consulting surgeon to a State hospital for the reason that he thinks physicians ought not to serve the State gratuitously. All honor to Dr. John B. Deavor, and may his example be widely followed. It is a small thing to ask doctors to make reports of contagious or infectious diseases for the benefit of a community, and very few physicians object to making such reports free of charge; at the same time it is rank imposition to frame laws making such services compulsory, and the supreme court of Illinois has recently decided that doctors can not be compelled to make such reports without compensation. In Pennsylvania the State prescribes the duties of health officers, and imposes the pains and penalties attaching to non-performance of those duties; such being the case, it is clearly the duty of the State to fix the salaries of these officers and see that they are paid; and this same plan should extend to townships. Every township in the State should have a board of health, or at least a health officer, and the State should fix the salary and in case of a board, of the secretary as well. The salaries should be small, but even in small townships, where a salary of not more than $25 or $50 a year would be paid, it would be easy to find good men willing to serve who would do their duty faithfully and well.

So long as the old plan is followed of no pay but curses, it will be found almost if not quite impossible to get men, especially in townships, to take any interest in public health problems, or to give such matters any efficient support. Large cities may be trusted to attend to the administration of health laws, but outside of cities the State should control and should fix the salary of every health officer and inspector and every secretary of a board of health, at a rate proportioned to the number of inhabitants in the territory covered by such official.

In the State of Pennsylvania a few years ago the State authorities printed, by order of the legislature, a bird book which was of no use to man, woman or child, at an expense of about $40,000. Every session the State votes hundreds of thousands of dollars to city hospitals, sufficient, one would think in some cases, to pay all legitimate expenses of the hospitals which pay, in most instances, nothing for medical services, yet a patient from outside the city can not be accommodated in any of them for a sum less than is amply sufficient to pay all expenses incident to the care of such patient while in the hospital. Why does money flow so easily for such purposes? The answer in each case is the same. The publisher or editor of the bird book and the managers of the hospitals each have a "pull."

Shall we not take a hint from this state of affairs? We have talked and reasoned with our legislators, we have explained the benefits to be derived by the people from a more liberal expenditure in the public health department, we have treated our lawmakers as gentlemen, and we get $2,500 per year for expenses, scientific investigation, protection of water supplies, etc.

Now, in the writer's opinion, it is time to adopt a different plan. If we must adopt the methods of the politician in order to obtain anything from the State, then let us even do so and "fight the devil with fire." We all have friends who help make the laws; let us say nothing to them about benefits for the people, let us not appeal to reason or say anything concerning moral obligation. Let us say: "I am a friend of yours; I have voted the straight party ticket, lo, these many years; I supported you for school director and also for the Assembly. I carried a torch in the illustrated parade; I howled and hooted and yelled when the news came that you were elected, but now times have changed; I intend to fight your nomination in the caucus, or, if you should be nominated, to work against you at the polls, and get all the friends I can influence to do the same thing, unless you will promise to favor honestly and heartily an appropriation large enough to pay all health officers, inspectors and secretaries of health boards in the State, and also to pay for physicians' reports and to carry on scientific investigations as may be thought necessary or desirable by the State Board of Health, unless you show something like the liberality in providing means for preventing disease that you show in supporting hospitals and publishing bird books. If you promise to do this I will work for you in season and out of season; but it will not be enough for you to introduce a bill of this nature, or get some one else to introduce it, and then lay it under the table; you must work for the bill and work hard." Such a course is not a pleasant one to follow, but I confess I can see no other way that offers any reasonable hope of success. I am positive that we can never hope to have health boards in every township until we pay for the service rendered, and I am equally positive that were it possible to have a health officer in every township serving gratuitously, the benefits derived from such service would be infinitesimal as compared with that which would be received in case each health officer received a salary. Salaries should be made small enough to keep the office out of politics where it is possible to do so, but even a nominal salary tends to preserve the officer's self-respect and enhance his importance in the eyes of the public. That physicians will labor solely for love of humanity, work against their own interests to prevent sickness and do it without remuneration, the public will not believe, and such services are, in the end, of questionable utility.

It is the duty of every good citizen to preserve order and to suppress rioting or any public violation of the laws of the commonwealth, but such action is invariably left to the executive officers of the municipality or government, who are paid for performing those functions. I have looked the matter over carefully and I fail to find the slightest justification, the faintest shadow of a reason why the physician should serve the State gratuitously in any capacity. There is no class of men who give so much to the worthy poor ungrudgingly, there is no class who are so imposed upon and defrauded of their just dues as physicians, and it is time we refused to allow the State to add anything whatever to the sum total of the impositions we already suffer from individuals. In the way of public sanitation the Legislature of Pennsylvania has next to nothing to be proud of; but in coming generations, when our bones are dust, when the people understand fully the value, the immense benefits accruing to the State from public sanitary control and all that pertains to the functions of a State Board of Health; when our Christian civilization, so-called, shall present fewer elements of barbarism, when the true spirit of Christ is abroad in the land, and men who save lives are considered the heroes, then will the name of one physician stand high on the roll of honor as a public benefactor, as the founder and father of the State Board of Health of Pennsylvania, and the letters of that name, when written in order, will spell BENJAMIN LEE.

In preparing a paper on this subject to be read before this body, I have not thought it desirable to take up your time with an exposition of the reasons for advocating the establishment of health boards in townships, reasons which are patent to you all.

We ought to be and we are heartily ashamed of the position our State occupies on this question. Still, it is sometimes a good plan to air one's dirty linen in public, to the end that when the housewife learns that such a condition has become a matter of public notoriety, she may perchance reform.

SHOULD THE STATE PROVIDE HOSPITALS FOR THE TUBERCULOUS POOR?

Read in the Section on State Medicine, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

BY J. F. JENKINS, M.D.

TECUMSEH, MICH.

Tuberculosis prevails in almost every region of the habitable globe. It is the most destructive of all the contagious diseases, requiring no new proofs at the present to establish the fact of its contagious character. To control the spread of tuberculosis, which stealthily enters into so many housholds in every community, is a problem which our profession is called upon for solution.

Pulmonary tuberculosis is so insidious in its nature, so slow in its evolution, so chronic in its course, frequently requiring months for its development, while its duration may extend over many years. From its incipiency to its termination the tuberculous patient is a menace to society, and although the subject of the disease neither excites public attention nor alarm, still he is more dangerous to the community than the leper, whom society abhors, or Asiatic cholera, which is feared by mankind everywhere.

We are well aware of the fact that many wealthy patients, or those of moderate means, may prolong life and a certain percentage regain their former health by a residence in a suitable climate, or they may undergo treatment at their homes without endangering the public health; but there is a large class in every community without means, and with bad hygienic surroundings; this dependent class should be provided by the State with proper treatment, and the public protected by having the tuberculous poor conveyed to a hospital for consumptives, because it is this class of patients that spread the disease in all directions.

In the rural sections of the country these dependents frequently occupy hovels, while in cities they are the denizens of tenement houses, cellars and garrets, which are usually almost destitute of light and air, deluged in filth, and surrounded by abject poverty. In this position tuberculous patients are the disseminators of the bacilli, sowing the seed in the well prepared soil which has been so richly fertilized by their insanitary surroundings. In the condition above described it is impossible for them to secure the treatment that humanity dictates, for temporary aid is almost valueless, principally from the fact that the disease is essentially chronic. The alternating hopes and fears of a dependent family constantly come under our observation; frequently a father with a half dozen children depending upon him, a mother or son, the only support of a family, is stricken down with this inveterate disease, which is so graphically described in the following lines by the pen of Dickens in the death of Smike:

"There is a dread disease which so prepares its victims, as it were, for death; which so refines it of its grosser aspect, and throws around familiar looks unearthly indications of the coming change—a dread disease, in which the struggle between soul and body is so gradual, quiet and solemn, and the result so sure, that day by day and grain by grain the mortal part wastes and withers away so that the spirit grows light and sanguine with its lightling load, and feeling immortality at hand, deems it but a new term of mortal life; a disease in which death and life are so strangely blended that death takes the glow of life and life the gaunt and grizzly form of death."

From the shores of the Great Lakes to the Gulf of Mexico, and from the Atlantic to the Pacific Ocean, wherever towns and cities are built, there will be found special or general hospitals, and even the few lepers within this wide domain are either segregated, or are carefully provided with lazarettos, but for the "great white plague," consumption, which carries off one-seventh of the human race, scarcely a beginning has been made in the way of building and maintaining hospitals for their accommodation.

Our country is far behind England and Germany in providing hospitals for the treatment of consumptives, and it will be well for us to look over the field, in order to ascertain what has been done abroad and what may be done at home to stamp out a disease which is more destructive to the youth of our land than war itself; and when we place a commercial value on human life the aggregate annual loss would amount to many millions of dollars.

Over a century ago England began building hospitals for consumptives, and at present there are eighteen hospitals containing over seven thousand free beds for tuberculous patients, the result of which has been to materially lessen the death rate from pulmonary tuberculosis in that country.

The *Progrès Médical* in a recent issue makes a statement relative to tuberculosis in France and England which clearly demonstrates the results accomplished by special hospitals for consumptives. That journal states: "That there are three times as many deaths in Paris as in Great Britain, and that in 1870 the mortality in England and Wales was 2,410 for each 1,000,000 inhabitants, but since consumptives have been treated in special hospitals this number has fallen to 1,468, in 1893. In Paris there were 4,158 deaths from tuberculosis during 1894, or almost three times as many as across the Channel." If the foregoing statement is correct, England saves the lives of 20,000 of her inhabitants yearly by wise sanitary measures in maintaining special hospitals for her dependent class of consumptives; on the other hand, Paris loses several thousand of her citizens yearly from defective sanitary laws and deficient hospital accommodations for her indigent class of tuberculous patients. The city of Paris has recently built a hospital at Agincourt, some fifty miles from the city, with a capacity of one hundred beds, for her dependent class of tuberculous patients, and there are some half dozen more located in different parts of France. Many of the larger cities of Germany have recently built special hospitals for consumptives, as Berlin, Cologne, Hanover, Breslau, Dresden, Frankfort-on-Main, Worms, Würzburg and Bremen, besides there are two institutions located in the Hartz Mountains, and one in the Black Forest. German statistics have shown a marked decrease in the death rate from tuberculosis within the past few years. They are building an institution near Vienna for the tuberculous indigent, and even the "unspeakable Turk" has built a consumptive hospital for children on the banks of the Bosphorus.

The success attending the treatment of tuberculous patients in private hospitals is certainly an encouragement for States and municipalities to build and support hospitals for the dependent class. At Gorbersdorf in Silesia a private sanitarium was built in 1854 which in the course of eighteen years has had under treatment about 958 consumptive patients, of which 20 per cent were permanently cured; and in the private institutions located in the Alpine regions there have been reported cures in 40 per cent. of tuberculous cases. The city of Bâle, Switzerland, has lately pledged herself to build and maintain a sanitarium for her tuberculous poor.

In our own country a number of private hospitals have been built by philanthropic persons and societies, and it becomes necessary to mention them, and the success attending them, in order to ascertain in a measure what may be accomplished by public institutions built for the treatment of the tuberculous poor. One of the most widely known is the Cottage Hospital, situated in the Adirondacks, which will accommodate eighty-four patients. This hospital during the past ten years of its existence reports a cure in from 20 to 25 per cent. of their cases. In the Adirondack Mountains, about 1800 feet above the sea, a hospital for consumptives is being built named the Sanitarium Gabriels.

The Sanitarium at Ashville, N. C., has an accommodation for 100 patients, and reports that of 600 patients treated in that institution 45 per cent. have recovered. The Home for Consumptives located near Philadelphia, it is stated, discharge each year about 30 per cent of their patients cured, and in that city is the Rush hospital for consumptives; both of these are institutions of small capacity. In the vicinity of Boston is a small institution called the Sharan Sanitarium, and in Colorado there are three private sanitariums for tuberculous patients.

In all these institutions above named there are only about two hundred free beds, while England has over seven thousand free beds for her tuberculous poor.

Massachusetts probably has the largest death rate from tuberculosis of any State in the Union, but she has recently adopted measures which will doubtless lessen the death rate from this disease, her legislature having appropriated $150,000 for building a hospital for her tuberculous poor. Dr. F. I. Knight, who was before the Finance Committee of the Massachusetts Legislature, states that the question was asked him: "Have the medical societies of the country made any formal declaration which has been put on record, in regard to the establishment of such hospitals?" Fortunately he could reply that "Some societies had made such a record." "I was astonished to see how readily these men—most of them politicians—favored the hospital idea, not only showing sympathy with the homeless patients, but with the idea of preventing the spread of a disease which is communicable. To our surprise on our first effort, both houses passed an appropriation of $150,000, which was signed by the Governor, for the establishment of a hospital for the consumptive poor."

The above is a brief sketch of the first successful effort to build a State hospital for this purpose. A question was asked by the Massachusetts Legislature which would undoubtedly be the question propounded by State legislatures everywhere when requested to build hospitals for the consumptive: Have the medical societies of the country placed themselves on record relative to building these hospitals? Finally, has the AMERICAN MEDICAL ASSOCIATION made a formal declaration relative to States and municipalities building and and maintaining hospitals for the consumptive poor?

REMARKS RELATIVE TO THE UNITED STATES MARINE-HOSPITAL SERVICE.

Delivered in the Section on State Medicine, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5-8, 1896.

BY WALTER WYMAN, M.D.

SUPERVISING SURGEON-GENERAL U. S. MARINE-HOSPITAL SERVICE, WASHINGTON, D. C.

I had hoped that I could prepare a paper in response to the invitation of the Chairman, but was uncertain whether I could attend this meeting, and was too hurried to prepare a formal essay. However, the day before I left Washington I received from the Public Printer the Annual Report of the Marine-Hospital Service, 1895, which had been in his hands four or five months, and as the material therein is new, I thought it might be of interest to bring it with me, and explain to this Section that portion of the report which relates to the public health service.

If you will turn to page 249 you will see a résumé of the operations of the service in the interest of public health during the last year. Referring to the preceding portion of the report I may say it deals directly with the operations of the Marine-Hospital Service in its care of the sick and disabled seamen of the merchant marine, about 53,000 being treated annually. It seems to me that any service in behalf

of the seamen of the merchant marine, is public health service in the broader sense. But returning to this section, you will find in this résumé an account of the danger of the introduction of yellow fever from Cuba, and operations to prevent the same.

You will find also an account of the threatened introduction of smallpox by the return to the United States of some four hundred negro colonists who had been to Mexico, where a colony had been attempted and failed, there being 178 cases of smallpox among them. The bureau took charge of these colonists, established a camp, fed and held them under observation until the last case disappeared, when their clothing was either disinfected or burned and replaced with fresh clothing and they were allowed to go on their way.

While these operations were in progress reports came from Japan, China and the Sandwich Islands with regard to cholera that created considerable alarm. The special measures adopted to meet the unusual danger are detailed in the following pages.

The national quarantine stations are described on pages 252–304 inclusive. I will not go into details as they are fully set forth in the reports of the medical officers.

An account of the division of sanitary reports and statistics is given on pages 305–310 inclusive. I will call your attention to a table prepared in this division, showing the yearly mortality of 199 cities in the United States.

The operations of the hygienic laboratory are found on pages 311–343 inclusive. In this report of the medical officer in charge of the laboratory will be found a complete discussion of the serum therapy of diphtheria. There will be found also an interesting account of some experiments which have been made in the serum therapy of variola. Also, an account of the examination of drinking water in the District of Columbia, and reference to experiments made with a view to practical disinfection of mails and school and library books.

The sanitary inspection service you will find described on page 344, showing results and giving a description of the inspections which were instituted by the bureau for the purpose of keeping out epidemic diseases.

I will not take your time by attempting to summarize the pages on cholera, smallpox and yellow fever, but I believe you will find them very interesting.

Since the date of this report I have prepared a circular letter addressed to the mayors of the cities and towns of the United States making inquiries relative to the water supply of the several cities, and the disposition also of the sewage. We have sent out these circulars to a few cities at first, but we propose to send them to all the cities in the United States, collect the information and publish it in a condensed form. The blank form which I have here has place for answers to the several questions relating to the source of water, its storage, purification, distribution, control and its disposition. The blank also relates to sewage and garbage disposition. In addition to the above the bureau has recently enlarged the scope of the health reports and improved the records pertaining to diseases of all classes throughout the United States.

DISCUSSION.

DR. VALENTINE—It seems to me one matter has been entirely overlooked. I refer to the disease which kills 80 per cent. of the women, which destroys the health of 80 per cent. of the children who are born healthy. I will not speak of the particular cases directly due to gonorrhea. I am not speaking of it as a disease, but as a sequel; but I desire to ask whether the disease is not one of importance, and whether it does not merit closer consideration and some active measures for the prevention of its spread. In many cities an effort is made requiring the prostitutes to be registered. In the city of Berlin there are more than twenty thousand registered. Without adequate methods of inspection the efforts are almost unavailing, and the disease is being propagated at from six cents up. This matter naturally belongs in this Section, but I think the Department which has rendered such signal service in the matter of public health should take it up also. It is my hope to show on Friday the manner in which 60 per cent. of the cases of gonorrhea are curable in ten days, 30 per cent. within one or two weeks at the utmost, and 5 per cent. within two weeks, leaving 5 per cent. as yet without the reach of the new method. Why should not the Marine-Hospital Service adopt the method which requires no expense, obviates all danger of contagion and numerous other things which could be prevented.

DR. KELLOGG—I just want to enter a protest against this country adopting any such method for the supposed prevention of the disease named as that described in Europe. A recent investigation made in Berlin, even, shows that not one in ten of these diseases are discovered; and this method, while it gives a sense of security to every cautious man, at the same time really promotes the disease which it intends to prevent.

SERUM THERAPY IN DISEASE.

Read in the Section on State Medicine, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5–8, 1896.

BY GEORGE TULLY VAUGHAN, M.D.

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From the time of Jenner's discovery that the dried serum of cowpox prevented or modified smallpox when introduced into the human system, has existed the hope that remedies would be discovered somewhat of the same character which would cure or prevent all diseases.

But this bud of promise was slow in developing, and the bright expectations thus aroused were doomed to wait a century before they were even partially realized. As the ovum of the cicada septemdecem requires seventeen years to bring forth the mature insect, so the germ of Jenner's discovery after an incubation of one hundred years has blossomed into the science of bacteriology, which, through the labors of Pasteur, Koch, Behring and others, has already brought forth a wonderful harvest of relief from suffering and disease, and the day seems now at hand when, with a cure or preventive for every disease, cholera, yellow fever, diphtheria, leprosy, syphilis, and tuberculosis will be as rare as smallpox now is among those who are properly vaccinated. The ideal treatment of disease is to prevent it.

The fact that certain animals are immune from certain diseases, *e.g.*, that the lower animals do not have syphilis, has long since excited curiosity as to the reason, but nothing satisfactory was offered until the bacteriologists had established the existence of toxins and antitoxins, and that immunity can be induced or acquired by the proper use of the specific entity, its products, or effects, which causes the disease.

The theory of natural immunity now most in favor is that the blood serum contains in solution a germicidal proteid, alexin or nuclein, whose source is the

leucocytes, soluble only in an alkalin fluid, and that phagocytosis (the phenomenon discovered by Sternberg and developed by Metschnikoff) plays a subsidiary part. Nucleins are thus defined by Victor C. Vaughan: "Physiologically, nucleins may be said to form the chief chemic constituent of the living part of cells. Speaking broadly, we may say that nuclein is that constituent of the cell by virtue of which this histologic unit grows, develops and reproduces itself. It is the function of the nuclein of the cell to utilize the pabulum within its reach. It must be evident that those tissues most abounding in cellular elements contain relatively the largest amount of nuclein. It must also be seen that it is by virtue of their nuclein that the cells of various organs and organisms possess and manifest their individual peculiarities.

"We should therefore expect to find that the nuclein of the yeast cell is not identical with that of the bacillus tuberculosis, and that the nuclein of the spleen differs from that of the thyroid gland. The number of kinds of nuclein is limited only by the variety of cells. Nuclein is the chemic basis of that part of the cell designated by the histologist as the nucleus, sometimes called chromatin on account of the readiness with which it absorbs and holds coloring agents. It is the nuclein of the bacterium which takes up and retains the stains, and it is on account of the fact that the nuclein of the bacillus tuberculosis differs from that of other bacilli that we are able to distinguish the former from the latter by its tinctorial properties. Differences in reaction with staining reagents, so plainly seen under the microscope, are only outward manifestations of less apparent and more important differences in chemic composition. Chemically the nucleins are complex proteid bodies, characterized especially by the large amount of phosphorus which they contain. The phosphorus exists in the form of nucleinic acid, which is combined with a highly complex basic substance. So far as we know at present, the nucleinic acid of all nucleins is the same, yet the basic part differs in the various nucleins. This basic substance yields, as decomposition products, one or more of the so-called xanthin bodies, adenin, guanin, sarkin and xanthin. Some nucleins yield only adenin and these may be designated as adenyl nucleinic acids. Those which furnish xanthin most abundantly may be called xanthyl nucleinic acids. Generally speaking, the nucleins are insoluble in dilute acids and soluble in dilute alkalies. They resist peptic digestion and in this way may be separated from most other proteid bodies."

According to Buchner natural immunity can not, as a rule, be transmitted to the body of another animal by means of the blood.

Acquired or artificial immunity is of the greatest importance as it affords the physician the means of preventing disease. To Pasteur belongs the credit of having taken up the thread where Jenner left off and he was the second to show, by his experiments on chicken cholera in 1888, that infectious diseases may be prevented by inoculation with "attenuated virus." Immunity may be acquired: 1. By having the disease. One attack of certain diseases as yellow fever, smallpox, measles, scarlet fever, etc., usually assuring future immunity. Of course this may be induced by inoculation with the microörganism of any particular disease. 2. By inoculation with attenuated cultures. 3. By inoculation with filtered cultures which are free from bacteria, or with sterile cultures which contain dead bacilli. Filtered cultures contain the toxins, while sterile cultures contain in addition some special property in the dead bacteria. The latter were used by Löffler and Abel in their experiments for immunizing against typhoid fever with the best results. This protective power afforded by one attack of a disease against other attacks of the same disease or by inoculation with bacterial cultures, is generally supposed to be due to the existence of antitoxins and something else (enzymes) in the blood serum. The antitoxins were discovered in 1890 by Ogata and Jasuhara of Tokio, when they found that the blood of an animal immune against anthrax contained something which neutralized the toxic products of the anthrax bacillus.

Experiments have shown that in some cases the blood serum of immune animals has no antitoxic power but acts as a germicide, and as a rule antitoxins have no such power. In such cases the immune animal may still be susceptible to the action of the toxins though unaffected by the bacillus. Brieger and Ehrlich had proved that antitoxin is contained in the milk of a goat which had been immunized against tetanus, by conferring immunity to the same disease on a mouse by injections of the milk. The *modus operandi* of the antitoxins is involved in considerable doubt.

According to Buchner, the action of the antitoxins does not depend on destruction of the bacterial poisons by contact with them but upon their action through the medium of the tissues of the body. The presence of the antitoxins produces a lower degree of susceptibility to the toxins of the bacteria, in the living cells of the body, thereby rendering it more resistant to the action of the specific toxin.

Sternberg says: "We must admit that the exact source and method of production of the antitoxins in the animal body, and their mode of action, are still undetermined; and for the present, we must be satisfied with the knowledge that, in some way, these so-called antitoxins, which have been proved to be present in the blood serum of immune animals, protect them from infection by pathogenic bacteria. And that when transferred to susceptible animals they confer upon them a temporary immunity; or if introduced after infection, may neutralize the pathogenic action of the toxins produced by specific disease germs." The following are the known differences between alexins and antitoxins. Alexins are germicidal and globulicidal, destroying both red and white corpuscles of animals belonging to different species from that whence they were obtained; they are coagulable and unstable, destroyed by sunlight and by a temperature of 50 to 55 degrees C. Antitoxins are not germicidal or globulicidal; they resist the action of sunlight and require a temperature of 70 or 80 degrees C. for destruction.

Failing to prevent disease the next best thing is to cure it, and the successful use of blood serum in accomplishing this result first seems to have first been made by the Japanese bacteriologists already mentioned, Ogata and Jasuhara, although their experiments failed of confirmation by others, when, in 1890, they announced that mice which had received a small amount of dog's, rat's or frog's blood (animals immune to anthrax) two or three days before, or a few hours (5) after, the injection of anthrax bacilli, all recovered from otherwise fatal doses of anthrax bacilli and proved afterward to be immune. No doubt the first step in this direction was made when in 1888, Nuttall demonstrated the power possessed by blood serum of

antagonizing the products of bacterial growth, while to Behring and Kitasato belong the credit of having, in 1891, established its use as a practical measure in the treatment of disease.

Blood serum has been used in the treatment of the following diseases with more or less success: Diphtheria, cholera, tuberculosis, leprosy, syphilis, tetanus, typhoid fever, pneumonia and others. Beyond question its greatest triumph and most convincing effect for good has been obtained in the treatment of diphtheria. I had the pleasure of seeing many cases treated by Dr. Kossel in Koch's Institute for Infectious Diseases in the winter of 1894–95. It is as unreasonable to doubt the efficacy of antitoxin in diphtheria as it is to doubt the power of vaccination to prevent smallpox or to modify its virulence.

Syphilis has been treated with the blood serum of one who has just passed through an attack of the disease by Dr. Edward Cotterell of England, in eighteen cases extending over a period of six months with the following results: 1. In the early stages with only a sore and glandular enlargement, injections of this serum caused the sore to heal rapidly. The adenitis in the groin became intensely marked, while the skin and throat symptoms were absent or slightly marked. 2. When the treatment was not begun before the rash and throat symptoms had developed, the skin eruption faded more rapidly than under mercurial treatment, but the throat symptoms disappeared rather slowly. 3. The general health improved. 4. Serum from a person with secondary symptoms appeared to be more active than that obtained from one with tertiary symptoms. 5. Dose of the serum from one-half to five cubic centimeters.

The importance of finding a remedy for the treatment of leprosy is evident when the rapid increase in the number of sufferers from this disease in certain countries is considered. The United States Minister to the United States of Colombia reports the number of lepers in that country to have increased in forty years from four hundred to twenty-seven thousand. Dr. Carrasquilla of Bogota reports fifteen cases of tuberculous leprosy treated with blood serum and four cured in less than a month, except for the scars caused by the ulceration. Dr. Putnam of the same place reports a case treated with serum with great improvement which promised ultimate recovery.

He prepares the serum by making a culture of the bacillus lepræ in the blood in the vessels of a living animal instead of in an artificial apparatus, thus: He takes blood from the leprous patient, allows it to stand four hours in order to separate the serum which is then injected into asses or goats.

After the proper time the serum of the asses' or goats' blood is used as a remedy on the patient from whom the serum was originally obtained or on any case of leprosy. Dr. Putnam admits that he obtained ideas as to the treatment of leprosy from Dr. Carrasquilla. Dr. W. Impey, Medical Superintendent of the Leper Settlement at Robbens' Island, Table Bay, where 600 lepers live, says he has noticed that whenever a leprous patient is attacked by any inflammatory skin disease as measles, smallpox, or erysipelas, the part affected is invariably cured of leprosy, and the patient either entirely recovers from leprosy or his life is prolonged beyond the normal period of eight years. Dr. Impey advocates the induction of erysipelas within three or four years after the disease begins and believes that by this means leprosy may be eventually stamped out.

Kinyoun (1895) reports two cases of smallpox treated by injection of serum from a vaccinated or immunized heifer, beginning with 15 c.c. with encouraging results. The treatment was commenced during the pustular stage.

More recently Beclere reports a case of smallpox treated by the injection, in the course of one hour, of 1500 c.c. of the same kind of serum on the third day of the disease, with rapid recovery.

Before ending this paper I will refer briefly to the use of serum in tuberculosis as recommended and practiced by Dr. Paul Paquin of St. Louis. He uses serum from the horse which has been rendered strongly antagonistic or antitoxic by the use of gradually increasing doses of tubercle bacilli toxins. It takes three months to prepare a horse and the method is similar to that used to prepare him for producing the antitoxin of diphtheria. Dr. Paquin reports the results of one hundred cases of pulmonary tuberculosis treated from three to eight months as follows:

In the first stage, recovered 14; in the second stage, improved, 26; disappeared from observation in all stages 35; died, treatment begun in second stage, 5; died, treatment begun in third and fourth stages, 20.

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THE ABUSE OF ALCOHOLIC DRINKS, ITS RELATION TO PUBLIC HEALTH AND ITS PREVENTION.

Read in the Section on State Medicine, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5–8.

BY W. BAYARD, M.D., Edin.

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I have selected for discussion the abuse of alcoholic drinks, its relation to public health and its prevention. I emphasize the *abuse* as I am unwilling to believe that the moderate and proper use of them has relation to public health.

It will not be disputed that the abuse of them, with its attendant consequences, disease, insanity, crime, poverty and premature death, is the greatest evil of the age, and that it calls loudly for remedial measures. What those measures shall be has exercised the minds of many.

The subject has been discussed in the pulpit and on the platform, some claiming that nothing but coercive and restrictive measures will remedy the evil, while others declare that such measures will aggravate it, both wishing to arrive at the same goal, but differing as to the road; in their enthusiasm, too often ignoring all rights, appealing to passions and prejudices, claiming more than can be accomplished, and deliriously denouncing those who differ from them, thereby injuring a good cause. The subject is of such vast importance that it should be approached calmly and reasonably, appealing to the mind from a moral and sanitary standpoint.

Our professional education teaches us the physiologic action of alcohol, the base of all intoxicating drinks, upon the human system; when it shall be abstained from and when it can be taken with advantage. It teaches us that when taken into the stomach in a concentrated form a chemic action takes place in consequence of the strong affinity it possesses for

water, seizing that fluid contained in the tissue, producing a coagulation, rendering it hard and dense and destroying for a time the absorbing power of that organ, which will only be renewed when the alcohol becomes sufficiently diluted with the water in the tissue. It may be observed that pure brandy, which usually contains equal parts of alcohol and water, is sufficiently strong to produce this coagulation, and when diluted is absorbed into the circulation with marvelous rapidity, as proved by the experiments of Dr. Percy, who found that when death took place in two minutes after it was injected into the stomach of the animal, that organ was found almost void of it, while it was found in the blood and in considerable quantity in the substance of the brain. It appears to seek out and fasten itself upon the nervous matter, affecting in the first stage of intoxication the intellectual faculties through the cerebrum. In the second stage, a disturbed function of the sensory ganglia, as indicated by want of control over the muscular movements which are guided by sensation. And in the third stage, when the functions of the cerebrum and sensory ganglia are suspended and those of the medulla oblongata and spinal cord now begin to be affected, as shown by the difficulty of respiration, strabismus, dilated pupils and tetanic spasms.

According to Richardson the man who swallows eight ounces of alcohol in twenty-four hours increases the number of the beats of his heart from 100,000 to 124,046 during that period, at the same time altering the shape and quality of the red globules of the blood.

Observation teaches us that alcohol is partly eliminated from the system by the lungs, bowels, kidneys and skin. But the amount thus eliminated is so small that it does not account for all that disappears. Carpenter thinks that a combustive process takes place in the blood, at the expense of the oxygen it contains; while the experiments of E. Smith and others go to show there is no increase of carbonic acid produced. Anstie and Thudicum contend that it is consumed in some way in the economy, though how they do not say. It is urged by Beale and Bing that alcohol possesses the property of restraining the rapid growth of young cells and, like quinin, of checking the increase of the white corpuscles of the the blood.

While alcohol is one of the means of keeping up animal heat through the increased action of the heart, it can not be classed as fuel-food. Animal heat is maintained by the combination of the carbon and hydrogen contained in the blood, with the oxygen taken in by the lungs. Fats and sugars in the blood yield the carbon and hydrogen, and while alcohol furnishes the same elements of combustion, it is not certain that it plays the same part in the body. Alcohol does not contain any of the constituents necessary for the growth and regeneration of the muscular system.

Our professional experience, too often, teaches us the baneful effects, morally and physically, upon the individual who indulges in the use of alcoholic drinks to excess. While the justice is daily and hourly brought face to face with the "moral evil," the physician is as often called upon to combat the inroads upon the constitution produced by the abuse of them.

Laudable efforts have been made to stay the progress of intemperance. Societies have been formed, laws enacted and persuasive and coersive measures adopted. Yet according to investigations of the Harveian Society, it appears that in London one-seventh of all adult deaths (male and female) is directly or indirectly due to the consequences of alcoholic excess.

The statesman requires the aid of all enlightened minds to assist him in framing such laws as will meet the difficulty. And the people at large require to be taught that the abuse and oftentimes the continued use of alcoholic drinks leads to results dreadful to contemplate. They must be made to believe that they are swallowing a poison, which, if taken at improper times, in improper quantities, will sooner or later, inevitably create disease of the body and mind. Who can educate them so well on these points as the physician? It is our duty as custodians of the public health and as well-wishers of our race, by precept and by example, to exercise that influence which each and every one of us can command toward this end.

A certain amount of self-control is implanted in the mind of every individual; he knows that danger attends many of his acts; he commits the act and avoids the danger. So with the alcoholic drinks, the danger lies not in the use of them but in the improper use of them. His daily experience teaches that many, very many, become victims to the abuse. He thinks he possesses sufficient self-control to avoid the danger, and so he does, up to a certain period; but let him continue to indulge at improper times and in improper quantities, that self-control is lost and can only be regained by continued total abstinence; one glass will rekindle the appetite, when the fire will continue to burn until disease and death follow.

If an individual is so weak minded and so much the creature of impulse and selfish desire that having experienced the pleasurable effects of intoxicating drinks he will voluntary surrender that power given him by Providence for his safety and throw aside the reins of self-government, he is to be pitied; can claim no respect and is a fit subject for restrictive laws and punishment. He should know that the highest attribute of a well-regulated mind is the power of self-control, that the act of self-government is noble, when exercised in the face of temptation, and nothing without it. He who will not restrain an injurious appetite degrades himself to the level of the brute creation.

The individual under the influence of alcoholic liquors feels an exhilaration of spirits, a sensation of gaiety, is pleased with himself and others, his ideas flow rapidly and he pours forth his thoughts with force of expression and richness of conception. But as the candle burning brilliantly in an atmosphere of oxygen soon burns itself out, so the over-stimulated brain becomes exhausted and demands rest, upon the well-known principle that undue mental excitement, from any cause, is invariably followed by depression and languor.

The fact that alcohol when taken into the circulation augments the force and rapidity of the heart's action, increases the excitability of the nervous system and supplies one of the means of keeping up animal heat commends it to the physician when other means of obtaining these effects are defective. Our practical experience teaches us that when administered with caution and discrimination it is a valuable remedy in various forms of disease and one for which no proper substitute has yet been found. As to its mode

of action in the cure of disease we can not speak with certainty. Dr. Berdon Sanderson's theory seems to be accepted, that in certain diseases the tissues waste, first the fat, then the muscles, and that the alcohol prevents their waste at a time when the patient's stomach is too weak to receive nutritious food. He says the cause of the waste of tissues is that they are used or burned in the process of respiration, alcohol takes their place and supports respiration when the stomach is too weak to prepare and assimilate any other food for the purpose. The practical application of them must be left to the judgment of the physician, no two cases being exactly alike, each differing in constitution, intensity and temperament. But he should be careful to avoid bringing the system into a habit of dependence upon the stimulus, for it can not be doubted that over-indulgence has commenced with the therapeutic use of it. Hence he should be ever on his guard.

Those who value good health and wish to enjoy the effects of alcoholic drinks socially will naturally ask at what time and in what quantity can they be used with impunity? We may answer that except in sickness alcohol in any of its forms should never be taken without food, and preferably at dinner. I wish to impress this precept as strongly as words can express it upon the minds of all who hear me, believing as I do, that food is the great antidote to its injurious effects, and that if this rule were adopted we should not see one inebriate for every hundred we see under the present pernicious custom of drinking at all hours of the day and upon an empty stomach.

A man meets a friend to whom he wishes to be "civil;" he asks him to have a drink; the friend is not thirsty, but he does not wish to be "uncivil," and they have their glass. They meet other friends in the shop, who also want to be "civil." The result is that many glasses are taken upon an empty stomach which can not at the time bear with impunity one glass. This is not the use; it is the abuse, and he who so indulges will sooner or later pay the penalty. Happily this "treating habit" is decreasing.

As to the quantity, it is difficult to lay down any rule; what would be enough for one would be too much for another. The quantity usually taken at a dinner party, if habitually taken, would prove injurious. From one to three glasses of port, sherry or claret should be the limit. Light wines are preferable, the stronger liquors should never be taken in larger quantities than from one to two ounces, and then largely diluted.

Before a remedy is applied to an evil its cause should be studied. The fondness for stimulants of some kind is almost universal, every nation exhibiting more or less of it since the time of Noah, who "drank wine and was drunken." And I may add that the most civilized, the most powerful nations are the most drunken. Does not this fondness for alcoholics originate in the "beneficent instinct" implanted in man, which prompts him to seak pleasure and avoid pain, bodily or mental? I think it does.

While the history of intemperance teaches us the evil is less than it has been at any time since the first century, still the existing evil is of such magnitude that it urgently demands remedial measures.

There are four that present themselves to a reflective mind, namely, sanitation, education, legislative regulation and prohibition.

Sanitation. There is abundant evidence to prove that insanitary surroundings are the cause of more or less bodily and mental languor, often accompanied by lowness of spirits. The man returns from his daily work to a cheerless home, with few comforts, fatigued in body and worried in mind; he takes a glass; his cares assume a pleasanter aspect and, according to Solomon, "his heart grows lighter." Here lies the danger; continue the habit and this use is soon followed by the abuse. Give him a bright, cheerful, healthy and happy home and you remove a large cause of intemperance.

Education, I contend, is the most potent combatant against inebriety. Appeal to the man's fears and to his understanding. Teach him that alcoholic drinks do not assist his muscular power, that they do not enable him to withstand the effects of heat or cold, that they do not contain the necessary ingredients for his well being and that he is much better without them. Teach him that if he will take them, from one to two ounces of brandy or whisky should be the limit. Teach him that under no circumstances—in health—should they be taken on an empty stomach or without food. Forbid the use of any form except as medicine to the young. Teach him that the exhilarating effects of alcoholic drink is evanescent and that the effect is bound to be followed by a corresponding depression; that if he continues to take them in quantity or at improper times a dangerous craving and dependence upon them is produced which sooner or later will obtain control of him. No man intends or expects to arrive at this stage. He will say to you that this one or that one has taken them as he does, with impunity. True, but this is the exception to the rule and many are ruined by such exceptions. Teach him that they act injuriously upon every organ of the body and that the injury is not confined to himself, but extends to his offspring, entailing upon them insanity, idiocy and inebriety, a catalogue that should alarm any sane mind. Plutarch says that one "drunkard begets another," and Aristotle that "drunken women bring forth children like unto themselves." He may tell you that he will reduce his allowance. Impress upon him that he can not do this with safety; one glass will surely kindle the appetite. Total abstinence will alone protect him.

Temperance and total abstinence societies have done and are doing much good. While I do not altogether agree with their mode of education, inasmuch as they ignore the power of self-control in man and say to him: We will not trust you, we must have a pledge. Still, acknowledging the good they have done, I strongly advise all those who fear to trust themselves to take the pledge, but as men are more easily led than driven, I feel that temperance enthusiasts will accomplish more for their cause by claiming less and refraining from denouncing those who do not see eye to eye with them, as holding the cup to their neighbor's lip. Lectures should be given pointing out the evil, and it should be daily impressed upon the mind of every child in our public schools; through the child the erring parent may be educated.

Legislative regulation. From the year 1551 to the present date, laws have been enacted, canons, decrees, and anathemas made against the abuse of alcoholic drinking, and it may be asked, what have they accomplished? The Committee of the House of Lords in England declared in their report (1879) that "recent

legislation has had a beneficial effect throughout the country by producing good order in the streets, by abolishing the worst class of beer houses and by improving the character of licensed houses generally. It is not, however, proved that it has diminished the amount of drunkenness." "In certain localities drunkenness has increased among women, but as a rule the respectable class of artisans (both male and female) are becoming more sober and the apprehensions for drunkenness are becoming more and more confined to the poorer classes of the community."

Laws upon the statute book are useless unless enforced. To accomplish this object the laws require to have the approval of a large majority of the community, who must feel that he who breaks or evades them degrades himself. This belief does not exist owing to the fact that a large majority of those who purchase and consume liquor, use it in moderation, are never intoxicated and do not feel that they are injured by it. They claim that a majority of ninety should not be coerced by a minority of ten, who are too selfish to obey the restraining power Providence has given them.

The object of all laws regarding alcholics is to control and lessen the use of them. As you increase the cost and the difficulty of obtaining them so you lessen their consumption. To do this the price of the license to sell should range from $500 to $1,000 per year. and in number should not exceed one in every five hundred inhabitants. Happily individuals, as a rule, are ashamed to be seen in or going into a barroom, enter by a side door and drink behind a screen. I would foster this shame by making it imperative that the barroom shall face the street, have but one entrance, without blinds or shutters to the windows, enabling passers in the street to see those in the room. Barrooms should not be allowed in hotels, the boarder should be required to treat his friend in his room, and they should be prohibited in grocery shops.

The present licensing system is defective in every particular, inasmuch as the number exceeds the demand, creating such competition that the "publican" can not afford to refuse credit and must please his customer by giving him liquor at all hours. The hours of opening are too early. For I hold that under no possible circumstances is it necessary or beneficial for a healthy person to drink liquor before his dinner hour; on the contrary, when the appetite craves the stimulus in the morning the subject is on the road to ruin.

At the risk of being considered "Utopian" I do not hesitate to urge that no liquor should be sold for consumption on the premises at an earlier hour than 2 o'clock in the day, and then preferably with food. I might go further and urge that it be not sold for consumption on the premises at any time without food. It may be urged that the purchaser would pay for the food but not eat it. True, but the expense of the performance would have its influence upon the amount of liquor consumed by him. Legislation should encourage the use of light wines and beer as coutaining less alcohol.

The Gothenburg system commends itself to the rate payers, as all the profit accruing from the public-house sale of liquor is appropriated toward paying the debts of the municipality. It is recommended strongly by the committee before referred to, composed of seventeen of the leading men in England. It directs that no individual, either as proprietor or manager, shall derive any private gain by the sale of spirits. That the whole public-house traffic be transferred to a limited liability company, who shall undertake by their charter to conduct the business solely in the interest of temperance and morality, and to pay to the town treasury the whole profit beyond the ordinary interest on the paid up capital. The capital annually expended was between $30,000 and $40,000, and the profits amounted to nearly $120,000. The number of licenses issued by the new company was reduced from 119 to 56. The company had the power of fixing the hours of closing and prohibited all "bar" business from 6 P.M. on Saturday to 8 A.M. on Monday. The experiment appears to have worked well, for almost every town in Sweden has adopted it. The reduction in the taxation makes it to the interest of every man to see the law enforced.

Prohibition. As I have already said, temperance enthusiasts claim more than can be accomplished, indeed they are following a shadow. But legislators wishing to gain or retain power, may yield to combined pressure and place a prohibitory law upon the statute book. Prohibition failed in the Garden of Eden; it has failed in every instance when it has been placed upon the statute book; and it must continue to fail until the ninety out of the hundred adults who use alcoholic drinks without abusing them are educated to the belief that they are committing a sin. This belief does not exist and can not be enforced by prohibition, upon the principle: take from a man against his will his freedom of action, he chafes under it and considers it a hardship. It may be asked, will any reasoning mind believe that—with the existing appetite for stimulants—a prohibitory law would or could be forced, and would not the endeavor lead to disrespect for the law, smuggling, illicit distillation and the use of other stimulants and narcotics with all their injurious consequences?

Again, if such a law existed, would it not pave the way to others equally obnoxious? The sanitarian finds it difficult to administer laws where an injurious appetite is not involved, and where the benefit applies to all. It is claimed that a prohibitory law would lessen crime and consequent expense. This is more than doubtful, for the expense of enforcing prohibition would be necessarily large.

The next question for consideration is: What shall be done with the inebriate? Medical treatment has little influence upon him while he has the ability to indulge his appetite; entreaty is useless, the tears of a fond wife are of no avail, the finer qualities of his nature are destroyed, the terrible craving for stimulants has in a great measure taken possession of his will and he pursues his course to degradation and death regardless of consequences. How the law shall deal with him is a question of great difficulty. The liberty of the subject must be guarded and the community justly claim protection from the violence of his acts.

There are two classes of inebriates; those who voluntarily get drunk, possessing the power to resist, and those who are so far lost that their voluntary power is destroyed. The first should be treated as misdemeanants, the power of the elective franchise withdrawn from them, after the second conviction, and in other ways degraded.

The involuntary drunkard, if I may so term him, should be treated as a lunatic and kept in restraint for a period sufficiently long to cure his malady; how

long that should be must depend upon those in charge of him; and when that restraint is enforced for a suitable time it is often surprising to witness the recovery of mind and body under it. It is true that the inebriate is not in the strict sense of the term a lunatic. The church looks upon him as a sinner, the state as a criminal, while the observing physician knows that he has lost his power of self-control, is ruining his health, shortening his life, squandering his property, and oftentimes in his delirium commits acts of violence against those most dear to him. It may be said that the disease was caused by his own act. True, but that does not absolve the State from responsibility. Is he dangerous to himself and others? He certainly is, and therefore he deserves the same care as a lunatic.

While restraint is necessary I deem it highly improper that the inebriate should be associated with lunatics. The government receiving a very large income from the material causing the evil should be forced to supply and support hospitals for the cure of the disease—such hospitals stand upon a different footing from others, and it is obviously unfair for the private individual to be taxed for the support of them, beyond that which he willingly pays consequent upon the tax upon the material producing the disease.

Such hospitals should be established in a pleasant district in the country, built in cottage form, so as to receive the different classes and sexes, and so fenced as to prevent escape. Those who can not pay should be compelled to work at fixed wages, the proceeds of which—deducting the amount for their board—should be paid to those dependent upon them.

The present practice of imposing a heavy fine upon the inebriate is cruel in the extreme, inasmuch as it does not fall upon the offender but upon the unfortunate wife and family, already beggared by the selfish creature's act. Again, the imprisonment imposed has the effect of recouping him for another debauch.

Dr. Norman Kerr claims that 40,000 die yearly from inebriety in London and that one-third of those could be cured by proper isolation and treatment. I take it for granted that a like proportion die in the larger towns of America. If such is the case, the wonder is that legislators hesitate about applying the remedy. Recently those in authority are becoming better educated to the necessity for spending money for sanitary purposes; surely this sanitation should appeal to the sympathy and the judgment of all.

Voluntary isolation is valueless. The inebriate, as a rule, will not enter, and when he does it is for a short period and to exercise his own judgment about leaving. In a large majority of cases a year or more is required before the individual can be pronounced well.

I have been unable to learn the laws of your country regarding inebriety. But in the Provinces of the Dominion of Canada the friends of the inebriate are empowered by law to cite him before a judge of the supreme court who, upon sufficient evidence, may incarcerate him for a year in an inebriate asylum. The judge may also appoint a committee to take charge of his estate. This is as it should be. But each province is obliged to furnish and maintain its own asylum. While the large revenue received from the importation and manufacture of the material causing the evil is appropriated by the Federal Government, the law is only enforced in those provinces where asylums exist.

Believing as I do that education and hospital isolation are the most practical remedial measures for the gigantic evil of intemperance, I appeal to the members of our noble profession, who are ever foremost in philanthropic work, to exercise the power which each and every one of them may possess toward this end. If any thing that has fallen from me has the effect of enlisting their interest in this good cause I shall feel that I have not spoken in vain.

NON-ALCOHOLIC TREATMENT OF CONSUMPTION.

Read in the Section on State Medicine at the Forty-seventh Annual Meeting of the American Medical Association at Atlanta, Georgia, May 5-8, 1896.

BY O. G. PLACE, M.D.

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That consumption is a disease of lowered vitality, I think, is not to-day questioned. While the tubercle bacilli is the active agent in this disease, yet observation shows us that while the body tissues are well nourished and the general vitality good, tissue cells have the power of repelling these germs, even though they may be quite plentiful in the body, but lowered vitality predisposes to tuberculosis.

Alcohol lowers the vitality of body tissue. On this point Dr. N. S. Davis says: "Alcohol is a poison and when taken into the system is not assimilated, and while passing through the body disturbs every physiologic process and is finally thrown off through the organs of excretion unchanged. Hence, if not assimilated it can not be a food, and as it disturbs every physiologic process it can not be a medicine. Therefore, if alcohol is not nutritious and serves no purpose as a therapeutic agent, then mankind should be so instructed and its promiscuous use abandoned. This work can alone be done by the medical profession."

Also the following from Dr. J. W. Squires is worthy of note: "Numerous scientific investigations by various distinguished authorities bear me out in the statement that alcohol is not a stimulant but a depressant; is not a tonic, but an anesthetic; is not a food, for it is not digestible nor assimilative; it impairs the senses, and that, too, in exact proportion to the quantity consumed."

A strong man in perfect health and strong mind will degenerate physically and mentally by a liberal use of alcohol in any form. It is true that in many cases alcohol increases the production of adipose tissue, but it is just as true that it decreases the amount of muscle. But in this case we are to choose between fat and muscle. What is the change in fatty degeneration of the heart? If adipose tissue is more valuable than muscle, why is our anxiety aroused and our advice so positive when we decide that the muscle fibers of the heart are gradually being degenerated and globules of oil are taking their place? Alcohol may and does, without question, often increase fat. Bodily inactivity will often do the same; but is a fat man stronger than a muscular man? Is a fat man more able to resist disease than a man who has less fat and more muscle? The cause of lowered vitality suggests the remedy.

That there is in all cases of consumption an unnatural and more or less rapid disintegration of bodily tissue is not questioned. Tuberculosis is a most treacherous disease and the germs are only waiting at the windows of our bodies to stealthily creep in and spoil the house as soon as by intemperance in any form, the body

has been rendered so dormant as not to repel the intrusion. In presenting the above, the point we wish to make before speaking of treatment, is that fat does not necessarily mean vitality; that adipose tissue is of a lower order than muscle; that weight and strength are not synonymous.

Hundreds of patients to-day are coming to Colorado with this advice: "Drink plenty of good whisky and keep in the sunshine and you will soon build up." The climate of Colorado does stand as the best refuge known to us for those infected with this disease. The sunshine helps to make this climate what it is, but the man who comes here with little vitality, low by disease and still lower by alcohol, and sits in the hot sun, will go down like an icicle in the streets of Calcutta in midsummer.

In the treatment of this disease better vitality is the one thing essential; oxidization brings better vitality; cold, not heat, promotes oxidization and gives tone to the body tissue. Patients must avoid the extreme heat of any country. The Rocky Mountain region is recognized as having a dry climate abounding in sunshine. It fully sustains this reputation; yet in some sections of this State, especially in the southern portion as well as other points along the foot hills south of latitude 40, there is not that cool, bracing air which is found extending farther north even into southern Wyoming.

Although there has not been discovered any specific preparation which taken internally or externally will destroy the germ, yet we believe that by proper care, combined with climatic advantages, a much larger percentage of complete recoveries may be obtained. We are convinced that tubercular patients need equally as regular management, advice and treatment as patients suffering from other protracted fevers. The following outline of treatment and general management during the past two years has seemed to bring gratifying results, and a few cases are cited below to illustrate conditions of patients and results obtained from the change of climate combined with careful treatment. The general treatment pursued has been substantially the following: All patients are kept in bed for a few days after arriving to prevent too much reaction. When there is much fever the patient is kept quiet until the temperature shows a decided drop, and remains down. The most nutritious foods are given which can be assimilated by the digestive system, paying attention to frequent change and good variety; but at the same time caution against "stuffing." When the temperature rises above 100.5 F. we have employed the moist compress, enveloping the whole chest and so adjusted as not to allow the air to pass under it. This is held firmly in place by another dry covering made of cheese cloth, which is wrapped about the chest and over the shoulders, completely covering the moist one and holding the same close about the chest. When this compress is removed in the morning, unless the patient is liable to chill, a cool, wet hand-rub is given by a skilled attendant, who follows it by a light, medium or thorough massage, according to the patient's condition and the prescription given in each case. In this way the circulation is well started just at the time when the temperature is generally the lowest.

The object of this treatment is two-fold, for its tonic effect on nutrition and its antiperiodic effect on the nervous system. For it is well known that in any fever if the periodicity can be broken or modified by anticipating the chilly stage by a thorough warming of the body the chill is markedly decreased, and the fever is in like proportion lessened. The patient is especially protected and kept warm in the morning, but allowed to be out much in the cool air a little before time for the temperature to rise. When there is a tendency to night sweats a hot vinegar or salt sponge will usually control this and so quiet the patient as to induce sleep. From 5 to 30 drops of creosote by enema is also given in an emulsion of oil of sweet almonds and the yolk of eggs three times a week. General treatment by an attendant is given, such as light massage, electricity, dry or wet hand-rubs or sponges, according to the strength and reactive powers of the patient.

In cases where there is thickening or much accumulation of secretion in the smaller tubes or air cells, we have used quite liberal inhalations of ozonized oxygen, which serves to loosen up and clear out such exudate more satisfactorily than perhaps any other one measure. This gas acts upon the pus and exudate ina similar manner as dioxid of hydrogen would, but in a very mild manner; the results can be governed at will by regulating the quantity of gas inhaled. Ozone can be produced quite readily by whipping pure oxygen in the static flame generated from a large coil attached to a dynamo producing the direct current. Any coil which is strong enough to throw a ten-inch spark will produce a liberal amount of ozone by using the silent discharge, but not the spark.

In cases where the bowels are especially involved and there is much pain and looseness, we have been able to control both quite readily by the moist abdominal girdle, protected as for the chest, the use of hot applications over the bowels and hot starch enemas. In mild cases, usually the girdle will relieve in a few hours; in more severe cases, each or all of the above measures may be required. We find it necessary to keep patients quiet while the temperature is high.

The following cases taken from our book of records without selection, and including all tuberculous patients who entered during twelve weeks ending September 31, will give an average result from the employment of the above outlined treatment:

Case 1.—July 3, Miss F. B., aged 20; home, West Virginia; heredity, tuberculosis. Patient has been failing for a year, cough for past three months. When received had a very distressing cough, raising heavy yellow sputum; test showed tubercle bacilli; temperature 101.5 degrees. Quite extensive thickening in right lung and râles in both apices. Treatment as indicated above. Result: Patient began regular work as a nurse in one month, in three months all indications of thickening had disappeared and the temperature was normal. She had gained eighteen pounds in flesh and no return of any symptoms to date, and yet regular work has been continued since the first month.

Case 2.—F. T. J., aged 21, Iowa. Grandfather and grandmother died of consumption. Patient never very strong. Condition at examination: Left lung, lower lobe, solidified; upper lobe much thickened, with râles quite general; temperature 101 to 103 degrees, with chills. Patient gained during the first three months fifteen pounds. Temperature normal, but lower lobe did not entirely clear up. Was quite well until he took cold about three months ago, which again caused much thickening in the left lung. Patient at present has some fever, but is making a slow but steady gain. Temperature now about 100 degrees.

Case 3.—Mrs. J., aged 19, sister of above patient. Large cavity in upper lobe of right lung, lower lobe consolidated; left lung slightly thickened; not able to walk; temperature 102 to 103; chills, no appetite, bowels tender and loose, profuse night sweats. Patient made a steady gain for five months. Left lung gave no signs of further infection; right lung still slightly thickened but no râles; temperature normal; cavity contracted. March 1 patient was discharged from treatment,

but advised to remain in Colorado. Five days later took a severe cold from exposure, contracted pneumonia of the left lung and died the following week.

Case 4.—Capt. B., aged 60, Iowa. Grandfather died of consumption. Patient suffered since the war with stomach and bowel trouble. Pneumonia two years ago, involving the left lung; marked pleuritic effusion. Physical examination showed left lung to be practically consolidated, with breaking down near the apex, forming a small cavity. Examination of sputum showed tubercular bacilli in large numbers. Had three severe hemorrhages. Temperature on entering 100 to 101.5. Has had two quite severe hemorrhages while under treatment, but is now gaining in flesh and strength.. Temperature now normal both morning and evening. Especial attention has been given in this case to the digestive system as well as to the lungs.

Case 5.—Aug. 20, 1895; Miss C., Michigan, aged 26. History, always delicate, troubled with enlargement of the glands of the neck for fourteen years; have been removed twice; was sent to Colorado by physician two years ago after having two hemorrhages. Made a very satisfactory gain for several months when she had what she termed "grippe." In my judgment, many of the so-called cases of "grippe" are simply an acute attack of tubercular invasion; that is, in these cases which later develop tuberculosis. Examination on entering our institution showed the left lung thickened, especially in the lower lobe, with only fine crepitant râles and little, if any, normal vesicular sounds. The upper lobe showed decided signs of softening near the apex, and either dilated tubes or a small cavity. The temperature varied from 101 to 103.6 during the first week. The ozonized gas was used carefully, and the exudats was quite readily cleared out of the lower lobe, but the indications of a cavity still remained near the apex. Patient has gained and lost at times, but on the whole is at present about as when we first examined her, except that the lung has cleared up almost entirely. Is still under observation but not treatment.

Case 6.—September 1, Miss E., aged 24, Michigan. Patient never strong; had two hemorrhages about eight years ago; began to decline about one year ago; sputum tested and the bacilli found; sent to Boulder by her physician. Physical examination showed marked thickening near apex of left lung with moist râles. Temperature varying from 100 to 101; no night sweats; annoying cough. Treatment pursued as given above and patient after two months showed no evidence of the thickening; temperature normal; no cough; had gained twelve pounds in flesh and has since worked continuously and no indications of return of the disease.

Case 7.—Mrs. W., aged 34, New York. Father died of consumption. Patient well up to about five years ago, then had pneumonia; has had seven hemorrhages; coughed most of the time for the past five years; has been failing for the past two years; shortness of breath, very nervous and appetite poor. Physical examination revealed general thickening and moist râles throughout both lungs with friction râles on right side. Temperature varied from 99 to 100 during the first week. Especial attention was given to diet and treatment. She was kept absolutely at rest for one month, after which she took some exercise, and for the past three months has been working from six to ten hours per day and her temperature has been normal for over two months. Much of the thickening has been cleared out and the râles have nearly disappeared. The patient was discharged about one month ago, but advised to stay in Colorado the remainder of her life.

Case 8.—September 10, Miss M., Indiana, aged 32. Heredity good; had what she called la grippe four years ago, since which time has had two hemorrhages with cough. For past year has had a persistent cough and throat remains irritable and husky. Physical examination showed general thickening of the right lung with mucous râles in upper lobe. The ozonized gas was used quite freely in her case with other treatment, and November 28 she was discharged with only slight indication of thickening in the back part of the middle lobe of right lung. Temperature had been normal for several weeks.

Case 9.—Sept. 12, 1895, Mr. T. M., aged 20, Iowa. One sister died of consumption. Patient in fairly good health up to about one year ago, when he "took a severe cold;" had pain in lungs and after the "cold" was relieved noticed a shortness of breath with cough. Sputum was examined and tubercular bacilli found. His physician advised him to go to Colorado by wagon; the trip was very tiresome and patient lost much strength and flesh while on the road. He was put under treatment at our institution September 12. Physical examination showed the upper lobe of the left lung softened and the whole lung thickened, with crepitant râles in lower lobe. Temperature first week varied from 101 to 103.6, with chill daily. Patient was kept absolutely quiet, the cool compress kept constantly about the chest. The ozonized oxygen was freely used, about ten gallons twice daily. Later took careful exercise and spent much time on the verandas and in the sun when not too warm. The appetite was very poor, bowels tender and the patient much emaciated. Patient was discharged from treatment Dec. 10, 1895, after having gained twenty-two pounds. Appetite good, and but slight thickening in upper portion of left lung.

Case 10.—Mr. W., aged 23, New York. One sister died of consumption. Had been running down for about a year; slight, dry cough at first, gradually grew more troublesome. Physical examination revealed marked thickening of upper lobe in right lung and some considerable infiltration into the small tubes of the lower lobe. Chills daily in the morning, with a rise of four degrees of temperature by 2:30 P.M. Tubercle bacilli found on examination; considerable expectoration. Temperature gradually lessened under treatment and patient was discharged December 1, to all appearances well, but advised to remain in Colorado for one year at least. Two months later he passed an examination for life insurance, and has, to the present time, shown no indications of any return of the trouble.

The above ten cases are taken without selection, in the order in which they entered our institution. We are convinced, after watching a large number of patients in Colorado, that tuberculosis is curable in a large percentage of cases and without alcohol, provided the same study and care is employed with these cases as with other patients suffering with infectious fevers.

REMARKS ON THE MANAGEMENT OF GLAUCOMA.

Read before the Michigan State Medical Society,

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The literature of glaucoma is honeycombed with doubt and contradiction. If a writer advances a theory of its causation, others demonstrate its inadequacy; if one presents a pathology, another proves it incomplete; if one proposes a plan of treatment, others shortly affirm that they have tried the plan and found it wanting. One cures his cases by iridectomy; another by sclerotomy posterior; another by sclerotomy anterior; another by internal division of the sclerotic at the angle of the anterior chamber; another by division of the ciliary body; another by corneal punctures; another by myotics; others make a selection from these several modes of treatment according to the case in hand. This is a rational method, but as no two make the same selection the seeker for practical directions in treating a case of glaucoma must sift his own data and follow his individual judgment.

If the eye could be taken apart and studied during the very early manifestations of the disease, we should more directly attain that knowledge which shall unite all discords into one consistent tune. As a fact, we are compelled to wait till the eye is blind or the patient dies from some intercurrent disease, for a chance to study the actual changes in the eye made by glaucoma. Experiments upon the eyes of lower animals are utilized to fill this gap in our knowledge, but these are always discounted by the doubt as to the extent to which they represent the reactions occurring in the human eye during the progress of a case of glaucoma. Then cases of glaucoma are rare, so that an individual observer has relatively few with which to pursue his practical studies. Worse still, of the cases he does see, few are within his observation during the entire course of the disease. In spite

of these and many other obstacles, the management of glaucoma is progressively more satisfactory; what can be, is more definitely separated from what can not be done and a clearer light illumines the entire subject.

On one point all agree—normal ocular tension should be restored at the earliest possible moment, because an increase of intra-ocular tension is to the contents of the eyeball what a strangulation is to the intestine in a case of hernia. Von Graefe first proved that iridectomy would cure some attacks of glaucoma, a discovery of inestimable value. Added experience has shown that an iridectomy will not cure all attacks of glaucoma, or all stages of any one attack; that it is useless to stay the progress of some, and absolutely hastens the destruction of the eye in other cases. Yet with all its limitations it remains *the* remedy for attacks of glaucoma with increased tension. The cause of this increased tension has been the occasion of a vast amount of research. Present facts seem to support the following as the chain of events leading to an attack of glaucoma:

Normally the fluids secreted in the posterior chamber of the eyeball escape through the cribriform disc of the optic nerve and the suspensory ligament. From the anterior chamber the outflow is by the anterior angle through Fontana's spaces and the canal of Schlemm, thence through the sclerotic to Tenon's capsule. The spaces through which this outflow occurs are in connective tissue and devoid of epithelium. Hence the fluid has a constant contact with the connective tissue fibers of the suspensory ligament, optic nerve and angle of the anterior chamber. If this fluid becomes abnormal and remains so during long periods, the connective tissues through which it flows must undergo changes. If the fluid be defective in nutritive materials and loaded with irritative elements it is clear that ultimately the connective tissues through which it passes must undergo degeneration. Such changes in the secreted fluid of the posterior chamber may be expected when the blood constantly supplied to the chamber be what is known as "dirty" blood. Such blood is found in numerous diseases, as gout, rheumatic gout, syphilis, imperfect digestion from either bad food, or good food taken in excessive amounts. After a time the degenerative process in the connective tissue outflow spaces of the posterior chamber becomes so advanced, as to no longer suffice for the free transmission of the fluid secreted in the posterior chamber. If now this fluid be changed by a disturbance of the secreting vessels, through the nervous, muscular or digestive systems, we may have the outflow spaces absolutely closed, and an acute attack of glaucoma. Dr. Richey has especially emphasized the origin of glaucoma through the operation of "dirty" blood.

Knies has experimentally shown that the composition of the fluid in the posterior chamber may be so altered as to effectually clog the outflow spaces, both anterior and posterior, when the connective tissues are perfectly normal. Much more will such changed secretion clog the spaces when they are diminished in size and altered in character by degenerative processes. Thus glaucoma is a chronic constitutional disease, with occasional local outbursts in the eye due to obstruction of the outflow spaces. Generally ophthalmologists have called the local outburst glaucoma, and devoted their exclusive attention to its management. Evidence is accumulating to indicate that it is a part of wisdom to treat the general constitutional dyscrasia that produced the local outburst, in the expectation that the local treatment will prove more satisfactory and future outbursts prevented.

Simple glaucoma has little to distinguish its presence in many cases, other than diminished visual field and excavation of the optic nerve. Under the operation of the constitutional dyscrasia the connective tissue of the optic nerve loses its power to hold these fibers in place, so that with the central retinal vessels they drop into the hole. The peculiar appearance of the blood vessels at the sides of this hole make it quite easy to recognize with the ophthalmoscope this excavation. If the anterior connective tissue spaces have escaped the ravages of the dyscrasia no other symptom may attend the case from beginning to end. But if the anterior spaces become involved, other symptoms of more or less gravity will appear. Without these latter the management of such a case is wholly constitutional, as there is no reason to suppose that either operation or medical treatment, locally applied, will avail. To secure such habits of life as will insure an abundant supply of pure blood to every portion of the body, including the eyeballs, will afford the patient the best chance of retaining vision for the longest period. It is surmised that some of the cases in which iridectomy was followed by an immediate reduction of vision belonged to this class. But most cases of simple glaucoma, at some time in their course, present other symptoms, as increased tension, diminished field of vision, dilated pupil, pain, etc. These call for local treatment, surgical or medical, or both. Typical of the first is iridectomy; of the second eserin.

As to the value of iridectomy in chronic simple glaucoma, the studies of Dr. C. S. Bull (Trans. Amer. Oph. Society, 1889) are very conclusive. He gives the history of ninety cases treated during a period of seventeen years, all of which he was able to study for a considerable period after operation.

Vision was temporarily improved in two cases in both eyes, in six cases in one eye; but in all the eight cases a steady loss of vision and a narrowing of the visual field set in and continued progressively so long as the patients remained under observation. The vision remained unchanged in eight cases in both eyes; and in twenty cases in one eye. Vision grew steadily worse in forty cases in both eyes, and in forty cases in one eye. Vision grew rapidly worse after operation in two cases in both eyes, and in one eye in eight cases. Of the one hundred and eighty eyes, only ten eyes were at all improved by the iridectomy, and these steadily grew worse. In thirty-six eyes the vision was unchanged for a year after the iridectomy. In one hundred and twenty eyes, vision grew steadily worse after iridectomy, while in twelve eyes vision grew rapidly worse after iridectomy. It is thus clear that in chronic simple glaucoma iridectomy is far from a brilliant success.

Of the comparative value of eserin and iridectomy in simple glaucoma, an excellent study is given by Drs. Zentmayer and Posey (Will's Eye Hospital Reports, Vol. 1). One hundred and sixty-seven cases are reported from the service of Drs. Norris and Oliver.

Sulphate of eserin was used in all cases when well borne and was continued for years. At first the doses were small, being increased or diminished according to results. The cases irritated by its use were treated

by iridectomy. When well borne it improved central visual acuity in 62.16 per cent. of cases, while it retained vision unaltered in 21.62 per cent.; in 16.21 per cent. it was powerless to prevent decrease of vision. In 85 per cent. of the cases it diminished intraocular tension. The visual field improved in 50 per cent. of the cases; remained stationary in 18.75 per cent., and steadily diminished in 31.25 per cent.

When well borne, eserin kept the fields improved ten months, and vision fifteen months. In cases not improved fields remained stationary for three months; vision for thirteen months.

Iridectomy improved 60 per cent. of cases; did not change 20 per cent.; failed to prevent loss of visual acuity in 20 per cent.; diminished it in 10 per cent.

Tension improved in 90 per cent. of cases. The improved visual field lasted on an average eighteen months; the degree of visual acuity twenty months after iridectomy.

The facts show that it is advisable to employ eserin, when well borne, for a month; if the field of vision has diminished nothing further can be hoped for from eserin, and an iridectomy must be done. If there be an improvement of the visual field, eserin should be continued, as there is reason to expect a beneficial action for ten months upon the extent of the visual field, and fifteen months upon the visual acuity. In half the cases we may expect iridectomy will check the course of the disease for eighteen months. Ten per cent. of the cases will not be benefited by either eserin or iridectomy, or both. Both successfully reduce intraocular tension. Thus in simple glaucoma we have the following elements of management:

1. In every case make the nutrition of the entire body as perfect as possible, by removing defects of excretion or secretion; disturbances of digestion; constitutional dyscrasias, as gout, rheumatic gout, syphilis, etc. Medicines avail much, but wise regulation of diet, exercise, sleep, bathing, etc., will generally be most efficient.

2. Place the affected eye under the influence of eserin, if well borne, and keep it there so long as it controls the tension and prevents a diminution of the field of vision. This failing,

3. Do a large upward iridectomy, and follow with eserin, if well borne, while any manifestations of the attack continue. This failing; a sclerotomy anterior may be done.

4. Correct and keep correct all defects of refraction and muscular balance.

Acute inflammatory glaucoma presents a remarkable likeness to acute inflammatory gout, just as simple chronic glaucoma resembles rheumatic gout. The following is given because the attack could be studied from inception to close.

On March 29, 1880, Dr. Fletcher placed in my care a boy, aged 15, suffering from an injury to his left eye by an exploded gun-cap. The eye was operated upon and the wound treated at a hotel under the care of his father, a man 45 years old, of unusual intelligence. Aside from a history of sub-acute rheumatism, this man's general health had always been good. His eyes were astigmatic, hyperopic and presbyopic, though he wore a simple spherical glass to correct the same, selected by a jeweler. While watching his suffering child, he read much in a poor light. On the morning of April 3, five days after coming to Detroit, he complained of slight discomfort in his left eye, and thought that at times his vision was dulled. A careful study of the eye revealed a slight intra- and extra-ocular congestion, with a trifling increase of tension. A saline cathartic was administered; a soothing lotion applied hot to the eye at short intervals; the eye protected from bright light and small doses of quinin administered internally. On the following day the eye was worse in all respects; the pain in and about it had become intense; the pupil dilated and very sluggish; the tension plus 2; the field of vision contracted; the cornea insensitive; the anterior chamber very shallow; the iris crowded into the anterior angle which was filled from behind with the ciliary body; the anterior ciliary vessels much dilated and the entire circumcorneal margin of the sclerotic covered with engorged blood vessels; the fundus oculi was engorged, the optic papillæ being considerably swollen; the retinal arteries pulsated on the slightest pressure of the eyeball. Patient could not count fingers and complained of flashes of light, when the lid was closed, and rings about the light when the lid was open. Thus we had a case of typical acute glaucoma. To reduce the intense congestion, several ounces of blood were at once abstracted by an artificial leech from the temple, relieving the pain and reducing the tension. A drop of a two grain solution of eserin was placed in the eye every hour while the pupil remained dilated. Previous to each dose the eye was soaked in hot water for five minutes. These measures so modified the attack that the patient was more comfortable on the following day, but the tension was still above normal; the fundus could not be seen with the ophthalmoscope, and the eserin had failed to keep the pupil contracted. Iridectomy was now urged, but rejected. Local abstraction of blood was repeated, a saline cathartic given, and the other treatment continued, but with less effect than on the previous day. Iridectomy was urged at each visit, but rejected till the sixth day. Then vision was reduced to a mere perception of light; the media cloudy; pupil widely dilated; iris immovable; anterior chamber very shallow; cornea steamy and insensitive; great circumcorneal injection and very severe pain. Because of the shallow anterior chamber a Von Graefe's cataract knife was used to make the corneal incision, which was done upwards so as to admit the removal of a full third of the iris. This was drawn out of the wound by the iris forceps, till it was placed upon the stretch and then divided by Wecker's scissors, close to the sclerotic. The angles of the wound being freed from the remaining iris the lid was closed and protected from injury by a light bandage. The little aqueous which escaped had a straw-like color. The pain immediately disappeared never to return; the wound healed kindly, the vision gradually improved until it equals that in the other eye, and the entire eye resumed its former condition, aside from the mutilated iris. The cure of the attack was complete.

To prevent future attacks the following measures were adopted: His defects of refraction were fully corrected and the correction glasses ordered worn constantly. He was placed upon a diet and habit of life, such as would tend to eliminate the arthritic taint, and appropriate remedial agents were ordered. There was no recurrence of the attack in the left eye, nor did one develop in the right eye. The case remained cured during many years till his death.

In this case we have an arthritic disorder existing long anterior to the acute attack of glaucoma, in a

man who had reached middle life, suddenly subjected to intense mental worry and marked eye strain. Without the last two factors he might have escaped the attack, but with them the secretion of the vitreous was so modified as to clog the connective tissues of the suspensory ligament and optic disc. This was followed by an accumulation of secretion and enlarged blood vessels in the posterior chamber which pushed forward the ciliary body, the lens and iris, and forced the aqueous out of the anterior chamber. An iridectomy removed this obstruction to such a degree as to admit of the normal circulation of the intra-ocular fluids. No doubt the sudden change in the tone of the intra-ocular blood vessels modified the changes described.

The management of acute inflammatory glaucoma by constitutional remedies, eserin and iridectomy, is satisfactory to patient and surgeon if it can be applied promply at the onset of the attack. Sub-acute glaucoma differs mainly in degree from the acute. We find moderate degrees of vascular obstruction and some sharp pain; an enlarged and sluggish pupil; increased tension; shallow anterior chamber; hazy vitreous; pitted optic disc, in varying degree. The following abstract of a case places it fairly before us.

Mrs. F., age 70, seen first Oct. 22, 1885, a large fleshy person of Hebrew extraction, and for many years a more or less constant sufferer from rheumatic gout, but otherwise perfectly healthy. At a period prior to her visit to me she had noticed occasiona obscuration of vision, a little redness of the eyes; rings about lights; and some pain. At first the attacks were infrequent, but of late they occurred almost daily, and vision of right eye was 10–200, of the left 6–200; pupils widely dilated and almost immovable; aqueous cloudy; tension of right eye 2 and left eye 1; fields of vision greatly contracted; much circumcorneal injection and enlargement of the anterior ciliary vessels.

She was given a mercurial cathartic followed by full doses of salicylate of soda; her diet regulated so as to secure the best possible digestion; her skin and bowels were also so stimulated as to enable them to perform their normal functions. Locally, eserin, one grain to the ounce, was dropped into each eye every hour till the pupil contracted, and then as frequently as was needed to keep it moderately contracted. Before using the eserin the eyes were bathed in hot water for five minutes each. On the following day all symptoms were improved and in two weeks the eyes had become nearly normal in appearance, aside from the cupping of the optic discs. On correcting the hyperopic astigmatism and presbyopia her vision was right eye 20–40, left eye 20–50 and she could read Jaeger number 2 with each eye.

On recovering from the attack she was directed to wear the correction glasses for her ametropia constantly; to continue her anti-gouty diet and mode of life, and to use a weak solution of eserin once daily, if the eye seemed at all uncomfortable. She has been faithful in following directions, and ten years later reported no return of the disease, and fairly good sight.

I have met many cases from syphilis, that were successfully managed by the use, in a vigorous manner of antisyphilitic in addition to the local treatment. But in other cases such treatment fails and resort must be had to iridectomy. If the cases can be kept under close observation, and the fields of vision do not diminish, and other symptoms improve it is safe to wait till eserin and constitutional agents are clearly futile, ere doing an iridectomy. But if the case can not be carefully watched the iridectomy should be done without delay—except in case of a degenerated iris, when the operation is disastrous.

Absolute glaucoma presents a notable picture: eyeball of stony hardness; devoid of all expression; blindness complete; pupils widely dilated and immovable; pupillary space filled with the glistening opaque lens; sclerotic of marble whiteness streaked with the tortuous and enlarged ciliary vessels; the glaucomatous process has done its worst. No treatment remains except such as will render the patient more comfortable, which may necessitate a sclerotomy or an iridectomy or enucleation.

We can not speak of glaucoma which is secondary to other local diseases or injuries in the eye; each of which must be managed according to its specific indication, the object in each case being the restoration of a normal circulation through the chambers of the eyeball. Pertinent to the management of glaucoma, is a brief note on the technique of the operations for its relief. In glaucoma the iridectomy differs materially from that done for optical purposes in that it needs to be as large as possible, and the iris removed close to its scleral attachment. Owing to the shallowness of the anterior chamber, great care is needed in making the corneal section, to avoid wounding the lens; otherwise grave consequences follow. I have found the use of Von Graefe's cataract knife most suitable for this purpose, as by it one can skirt the angle of the anterior chamber, keeping in the sclerotic, and make a section as large as desired. The incision should always be made in the sclera.

When the anterior chamber is nearly normal, the lance shaped knife may be employed, or the Graefe knife, used as in making the incision for cataract extraction. It is desirable to make the withdrawal of the knife so slow as to avoid the sudden freeing of the tension of the posterior chamber. On completion of the section, the iris is seized by the forceps and drawn till it is fully without the eyeball, then divided close to the sclera. Especial attention is given to the edges of the wound that they do not retain any of the remaining iris. Formerly a general anesthetic was required but now cocain suffices if the patient be controllable.

Anterior sclerotomy is possible only when the pupil is contracted and the anterior chamber of nearly normal depth. A Von Graefe's cataract knife is introduced about two millimeters above the horizontal margin of the eye and a counter puncture made directly opposite. By gentle movement the blade of the knife is made to cut its way, till it has nearly reached the surface, when its withdrawal completes the operation. This operation is called for in cases threatening hemorrhage, or after iridectomy has failed. Posterior sclerotomy is done by opening the sclerotic between the lower and external recti muscles, and posterior to the ciliary processes. The blade of a Von Graefe's cataract knife having been entered horizontally through the sclerotic, is turned at right angles and slowly withdrawn. Some fluid or vitreous may follow this operation, and the tension of the eyeball reduced so as to admit of an iridectomy which otherwise could not be correctly done. Numerous other operations have been done for the relief of glaucoma; thus a large portion of the sclerotic at the anterior angle has been

divided from within and good results reported; th ciliary body has been divided; the cornea has been punctured at each end of the vertical and horizontal meridians; the supratrochlear nerve has beenstretched. But after all iridectomy furnishes in the ordinary case the largest hope of relief.

Lately Dr. Gould has proposed the use of massage of the eyeball for the purpose of freeing the outflow spaces of the debris clogging their meshes. He reports one case in which the results at date of writing were satisfactory. To a certain extent all the operations mentioned, exert a massage at the point of greatest obstruction, and doubtless, in this way produce their effects.

Dr. Pilgrim lately advocated with much show of reason the local use of the galvanic current placing the negative pole over the affected eye and the positive at the nape of the neck. In three cases of acute inflammatory glaucoma he reports the happiest results. He thinks that the current modifies favorably the obstructing fluid, and the obstructive connective tissue at the outflow spaces.

My own experience supports the claim of Dr. Sutphen, that salicylate of soda often relieves the severer pain of glaucoma, and accords with the fundamental idea of this paper, that the foundation of glaucoma is a constitutional dyscrasia, which should be sought out in every case and removed so far as possible.

CONCLUSIONS.

In the management of glaucoma, such attention should be given the bowels, skin and kidneys as to secure the most prompt and complete elimination of the effete tissue metamorphosis. The diet should be so regulated as to admit only such articles and in such quantities, as can be perfectly digested. The liberal use of water internally and externally greatly assist in restoring the fluids of the body to a state of reasonable purity. The continuance of such diet and mode of life affords the largest hope of preventing future glaucomatous attacks.

Such medicines should be employed as are called for to remove the constitutional dyscrasia found in each case, as arthritic, gouty, syphilitic, etc.

In simple glaucoma with no increase of tension such treatment may suffice; but should there develop increased tension, diminished visual field, pain, shallowed anterior chamber, myotics should be first employed(if they can be constantly watched) and if they keep the symptoms under control, nothing farther is called for. But if they are not well borne, or if at the end of a month, the visual field has diminished, then an iridectomy should be done. If the tension still persists, a sclerotomy should be performed and myotics again employed.

In acute inflammatory glaucoma, the tension must be promptly reduced by general treatment and myotics if possible, but if these do not act immediately in reducing the ocular tension and in keeping it reduced, an iridectomy must be promptly done.

Sub-acute glaucoma is managed along the same lines as the acute except that operative action may be delayed a longer time, though the rule should not be deviated from which demands an iridectomy in all cases that grow worse under general management and myotics.

Chronic glaucoma is managed in the same manner as the sub-acute except that iridectomy is contraindicated in cases of degeneration of the iris, the results of the operation in such cases being unfavorable.

Absolute glaucoma is treated only to relieve pain, if salicylate of soda fails, the treatment is exclusively surgical, sclerotomy, iridectomy and enucleation.

Hemorrhagic glaucoma is rarely benefited by any operation, owing to the weakened condition of the blood vessels within the eyeball. Hence if genera- and local medication fail, and pain persists, enucleal tion is the only resource.

Secondary glaucoma calls for specific treatment according to the condition inducing it. If it be an intraocular tumor, enucleate the eye; if it be lens swollen from discission, extract the same and so through the list.

Finally, he who would do the most for a case of glaucoma, must not only be able to quickly detect the disease in the form of its acute exacerbation; to apply the local remedies or do the operation which will quickest and surest restore the normal intraocular currents; but he must be able to recognize the constitutional dyscrasia, underlying such acute attack and put in operation the wisest measures for its mitigation or removal.

103 Cass Street.

HYGIENE OF THE EYE.

Read before the Medical Society of the District of Columbia.

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WASHINGTON, D. C.

The many cases seen in private and hospital work, which earlier could have been more effectively treated, if not entirely cured or corrected, and the earnest desire to obtain the coöperation of the general physician is my only excuse for bringing this subject before this society. As a rule, healthy parents beget healthy offspring; therefore, that the eyes may be free from disease and have perfect vision, the parents should live such lives as will conduce to health, that their children may be perfect physically and mentally; there should be legislation preventing marriage and intermarriage between those suffering from disease that may be transmitted to their children. The disastrous effect upon the eyes by syphilitic heredity is well known, also that of consanguinous marriages; in the first class we find various inflammatory conditions of retina, choroid and cornea; in the latter class we frequently find retinitis pigmentosa and sequelæ. One disease that is responsible for a large percentage of blindness and which costs the government millions of dollars annually for support of the blind, is ophthalmia neonatrum, but owing to the unceasing efforts of physicians this disease is becoming rare. Several States have laws making it a penal offense for nurses or midwives to neglect reporting a case of sore eyes in infants which they alone have attended at birth. I have seen the gradual decrease of this disease in the clinics with which I am connected. It is the class of persons who, from their mode of living and lack of hygienic surroundings, and often want of medical attendance, whose infants are more liable to this and other ocular diseases. These people still need educating as to the necessity of applying early relief in all eye inflammations and affections. As a rule, when they seek advice much damage has been done, which is almost, if not entirely, irreparable; as a result of

this we find many cases with all sizes and shapes of opacities of the cornea, disfiguring it and interfering more or less with vision; there is not a day that we do not meet men and women with eye affections which could have been remedied by early treatment. Children have been allowed to grow up with affections of the eye which handicap them in their studies. The failure of those having the children in charge to have all ocular troubles treated in their incipiency is due either to ignorance or indifference.

By the adoption of the Credé method of dropping a 2 per cent. solution of nitrate of silver into each eye of the newly born infant and by the adoption of scrupulous cleanliness to avoid reinfection, ophthalmia neonatorum can be prevented. So it is possible to prevent the disastrous effects of purulent ophthalmia, of iritis, keratitis and other ocular diseases by early and prompt treatment.

It is no uncommon experience of the ophthalmologist to have patients brought to him who are past the period when treatment will be of benefit. Recently I have had two such cases brought to my service at the Eastern Dispensary, one a colored youth who had cyclitis of both eyes, which developed into a panophthalmitis, with total destruction of both of them. This case was seen by one of our general practitioners during the period of intense inflammation, and who instructed him to apply at the dispensary, but he refused to go. He will always be a charge upon his friends or the community, perhaps both. I shall not be surprised at any time to see him among the many who are daily soliciting alms on our thoroughfares. The other case was one of purulent ophthalmia, which was treated at home by his people; the result was total destruction of the affected eye. Neglect of the eyes in infancy or at an early age is often the cause of poor eyesight; they are more sensitive to light than at mature age; children are often taken out of doors with their faces unprotected from the bright sunlight, or are allowed at night to stare at the gas or lamplight for hours; this is all wrong; the child's eyes should be protected from the glare of light of any kind: also from dust and other irritating substances and from atmospheric changes. Should this be neglected an impairment of vision may result. As they arrive at the age of 6 years, the age at which they begin school, their eye work should be regulated by their physical development; it would be better to educate them by the kindergarten method and by object teaching until they are about 10 years of age; their eyes would be in better condition to stand the work to be put upon them in the future. In a report of the public schools of one of our cities I found for the year 1893 that of the total attendance, 69.63 per cent. were in the primary grade; the ages of this grade ranged from 5 to 10 years; 26.06 per cent. were in the grammar grades, and only 4.31 per cent. were in the high school. By these figures it was seen that a little over 50 per cent. failed to enter the grammar grades; the average age at that time was 10 years; at the termination of the grammar grades 71.68 per cent., more than three-fourths, failed to enter the high school; the total loss between primary and high school was about 96 per cent.

The question naturally arises as to what is the cause of this loss and why so few enter the high grade. Removals, sickness and death are factors in causing these results, but are they the sole causes? Many may be taken from school because their parents think that it is necessary that they receive only sufficient education to enable them to read and write and perhaps have a slight knowledge of arithmetic. Still, if this be so, there are others who fail to enter the higher grades because of their inability to keep up their studies. Many of them are not in full vigor of health, are weak and poorly nourished, have bad hygienic surroundings, and their whole aspect is one of lack of nutrition. These children, as a rule, also suffer from defective vision. Not only from this class are those who drop out of school or keep up in their studies with difficulty, but we find them among the healthy and well nourished; the reason of this is that having some visual defect they can not do their work without such physical discomfort that they finally yield and leave school. The children at our public schools are kept too continuously at work, long lessons are assigned them for memorizing, and the general curriculum, especially of the grammar grades, is one liable to produce eye strain and mental fatigue. I think we should have some legislation compelling an examination of the eyes of all children at the time of their entrance to school, and as they progress and reach the higher grades there should be some method whereby a supervision of their eyes could be maintained. Their studies should be regulated so that the hours for home study would not be too long. The lessons given in the eighth grade and high school in this city are, in my opinion, too long; the brightest and best scholars are compelled to begin their studies in the early evening and continue them until 10 and 11 o'clock in order to complete and memorize them; the effect upon their eyes is bad, and not only upon them, but upon their general health. It is no uncommon experience to be told by parents that their children's eyes and health began to fail after their entrance into the grammar grades of our schools. We need more physicians on our school boards who will take an active interest in all matters pertaining to the education of our children, such as the amount of work to be done daily, the arrangement of desks, light, ventilation, etc. They are better qualified to regulate such matters than any other class of persons, and I think that the country at large would be better served had we more physicians to represent us in the different legislative bodies of the United States. The city of Washington is fortunate in having so many of its prominent physicians actively engaged in endeavoring to secure such legislation as will be of great benefit to the city and its entire population. Poor light is a factor in producing eye strain, therefore, particular attention should be paid to the manner of allowing the light to enter the school room, it should not be allowed to shine directly in the faces of the scholars, but, if possible, from behind them. The walls of the school room should be painted some neutral tint, thus doing away with the white walls, the glare from which further contracts the pupil, already contracted by the effort of accommodation. When we remember that the contents of the eye is really a liquid, and that we have six muscles attached to it externally, we can readily see that a strain of this character together with the effect of poor light and the dependent position of the head usually assumed in studying, will tend to produce myopia, which will, as a rule, increase as the child advances in its studies and keeps pace with the higher education of universities and colleges. The effects of a high degree of myopia are sometimes very grave, complete blindness of one or both eyes

ensuing from detached retina, stretching of the percipient elements of the eye, etc. Divergent strabismus is mostly associated with myopia, and if not early corrected by glasses and an operation, if necessary, the sight of the diverging eye may become permanently impaired. Parents and others having children under their care have a great responsibility upon them; these children are to be the bread winners of the coming generation and everything should be done that they may enter their respective vocations of life in as perfect physical and mental condition as possible. We need the coöperation of the family physician in this, as he is usually the one from whom advice is first sought, and it is he also who is to advise the parents to have all abnormal conditions of the eyes promptly treated.

Another condition from which children and adults suffer is hyperopia, so-called far-sightedness. This I believe to be the normal condition of the human eye. Prof. Jaeger of Vienna examined the eyes of a large number of new-born children and found nearly all of them hyperopic. This condition is due to the shape of the globe, it being too short antero-posteriorly, the rays of light that enter the eyes do not focus upon the retina, but behind it, so that in order to sharpen the vision the ciliary muscle is called into action, to make the lens more convex, thus practically elongating the globe, that the rays may focus upon the proper place, the macula. This constant effort of the ciliary muscle, which should only be brought into action for near vision, will cause headaches, pain in the eyes and other distressing symptoms, and often affects the entire nervous system and general health; the nervous system is kept under constant strain by the effort of the eye muscle endeavoring to secure perfect vision; general character and disposition are frequently affected by imperfect sight. Children often appear dull and stupid from this cause, if they are compelled to use their eyes for long and close work, in the glare of too much light or insufficient illumination. As long as they have out-door work and their physical condition is good, they suffer little if at all. Children with hyperopia will find that by squinting they can see more distinctly; they will not squint constantly at first, but only when looking at near objects, and sometimes when looking at a distance; this is periodic squint and manifests itself about the fourth or fifth year, when they are learning to spell. Convergent strabismus is mostly associated with hyperopia, and unless promptly corrected the vision of that eye may become permanently impaired. Both of these conditions may be corrected by properly adjusted glasses, an operation, or both; as a rule the glasses are always needed by the patient. It is the hyperope as a rule who suffers most from his eyes, is prone to headache both temporal and occipital, and nervous symptoms; these latter are more aggravated when associated with muscular imbalance. Cases are on record where chorea and epilepsy have been cured by the correction of the refraction error and the heterophoria. The usual train of objective symptoms due to the eye strain are impaired vision to a greater or less degree, winking the eyelids, constantly inflamed conjunctiva, scales and crust in and among the ciliæ, crops of styes, strabismus divergent and convergent, etc. The subjective symptoms are inability to use the eye for any length of time on account of pain and blurring of the image; the running together of the type, or lines or both; sensation as of grit between the lids, etc. The ophthalmologists have of recent years devoted considerable attention to the prevention of disease and have achieved considerable success. I believe with earnest efforts in this direction that further good can be accomplished. It is a well-known fact that the older text books on ophthalmology contain much in regard to pathology and treatment, but very little in regard to refraction; true we have works which treat theoretically of refraction, such as Donders and Landolt, which can not be improved upon, but they do not treat of heterophoria or state that errors of refraction are a causative factor in certain diseases and that their correction cures them. We now know that many of our ocular diseases, such as conjunctivitis, chalazions, styes, blepharitis, etc., which were once believed to be local in their origin, are largely due to eye strain, that when they are corrected by a properly adjusted glass, the cause being removed a cure is effected. It is the belief of the writer that refraction errors can produce not only the above-mentioned diseases, but that it is capable of producing more serious eye troubles as well as constitutional ones. Lately I read a paper before this society on "The Relation of General Disease to the Formation of Cataract." I would state that I believe also, that there is a relation of eye strain to the formation of cataract and to the causation of glaucoma; the etiology of the latter disease is yet open to doubt; it is generally conceded that its secondary cause is the closure of the filtration angles; the canal of Schlemm and the spaces of Fontana. These spaces become closed from increased ocular pressure, the reason for the increased ocular pressure can not be so easily explained. In this connection a paper written by Dr. Swindell may be quoted.

In twenty-five cases of glaucoma seen by him nineteen had errors of refraction, the other six he could not test satisfactorily; all of those tested had hyperopic astigmatism. The ill effects of hyperopia and hyperopic astigmatism have already been mentioned, therefore, who can deny that these nineteen cases of glaucoma were not due to eye strain? We have now in a general way mentioned the ill effects of errors of refraction. We know also that they as a rule are corrected by properly adjusted glasses; the question naturally arises as to who should make these examinations and prescribe. I unhesitatingly say that no one but a graduate of medicine and one who has had several years' practical experience in that line should do so. Theory without practical experience is of little avail; all of the leading medical colleges of this country recognize this fact and give their students the practical as well as theoretic instruction. The great physicians and surgeons of our age became such through practical experience gained in the hospitals and clinics. It is there they put their theory into practice, there the surgeon gained his operative skill and physician's eye, ear and touch become educated. The pharmacist who has only theory at his command would not be a desirable one to compound a complex prescription; the chemist, the bacteriologist and others could never become expert and accurate in their work without practical experience; so it is impossible for one to examine the eyes (one of the most delicate organs of the human economy), measure the refraction error and correct it, without having had practical experience in doing so. It is the prevailing opinion of the public that fitting glasses is an

easy matter, that anyone who chooses may do so for their financial benefit, notwithstanding the fact that they have never received a medical education nor any special preparation or experience in this line. This is a grave error, the correction of which will be of great benefit to the welfare of the public and ophthalmology in general. We have in this city a class of men who have none of the above requirements, but who advertise to fit all eyes with glasses. They are to be found in many of the jewelry stores; there is not a day the oculists of this city do not correct some of the errors of these men. The glasses they furnish are injurious to the eyes of those wearing them; they think that all eyes having defective vision need glasses, therefore, prescribe them when the visual defect is due to choroidal or retinal inflammation, beginning cataract, optic neuritis, etc. One of the first and most important methods of examining an eye to determine whether an error of refraction or disease exists is by means of the ophthalmoscope; in many instances photographs, as it were, of many diseases which have their origin in remote parts of the body can be seen; patients who have applied to the oculist for glasses have learned for the first time that they are the victims of some incurable disease; we see such photographs in albuminuria diabetes, cerebral tumors, locomotor ataxia, etc. In such cases the oculist instead of trying to remedy the lack of visual acuity by glasses refers the patient to the family physician for general treatment. Have we not here an object lesson? Who can say how many diseases have gained headway and progressed beyond being remedied, among those in whom the first symptoms became manifest by the lack of visual acuity and who applied to the optician for aid and were furnished with glasses, the true condition not having been discovered until in despair they consulted an oculist.

The assurance of these men is appalling and they are a menace to the welfare of the public, against the perpetuation of such iniquitous optical practices as described; in this city we are powerless at present to do more than protest. Ohio has taken the initiative step to correct this evil. "The regulation about to become operative under the 'medical regulation law,' recently passed by the Legislature, will materially reduce the evils of refracting opticians by making a large portion of the work done by them a penal offense. Other States must follow suit; the future is encouraging; all that is needed is determination and action!" We have now, through the united and untiring efforts of our physicians, a medical bill, which a few amendments will make an ideal one, and we hope that in the near future, the same champions of our cause will secure such changes as will make it perfect in all its requirements, and we sincerely hope that a clause will be inserted making it a penal offense for any but a graduate of medicine and one who can pass a satisfactory examination in practical refraction to examine, prescribe or fit glasses to the eyes of the public; for it is the belief of the writer that, with better correction of refraction errors by skilful ophthalmologists who have kept abreast of the times and who are thoroughly equipped with the best of modern paraphernalia, great and lasting benefit will result to the eyes of the present and coming generations, preventing and curing many serious ocular diseases, as better methods of sanitation and hygiene have been effective in preventing the ravages of such diseases as cholera, typhoid fever, yellow fever, etc.

1016 I Street.

MEDICAL PARIS.

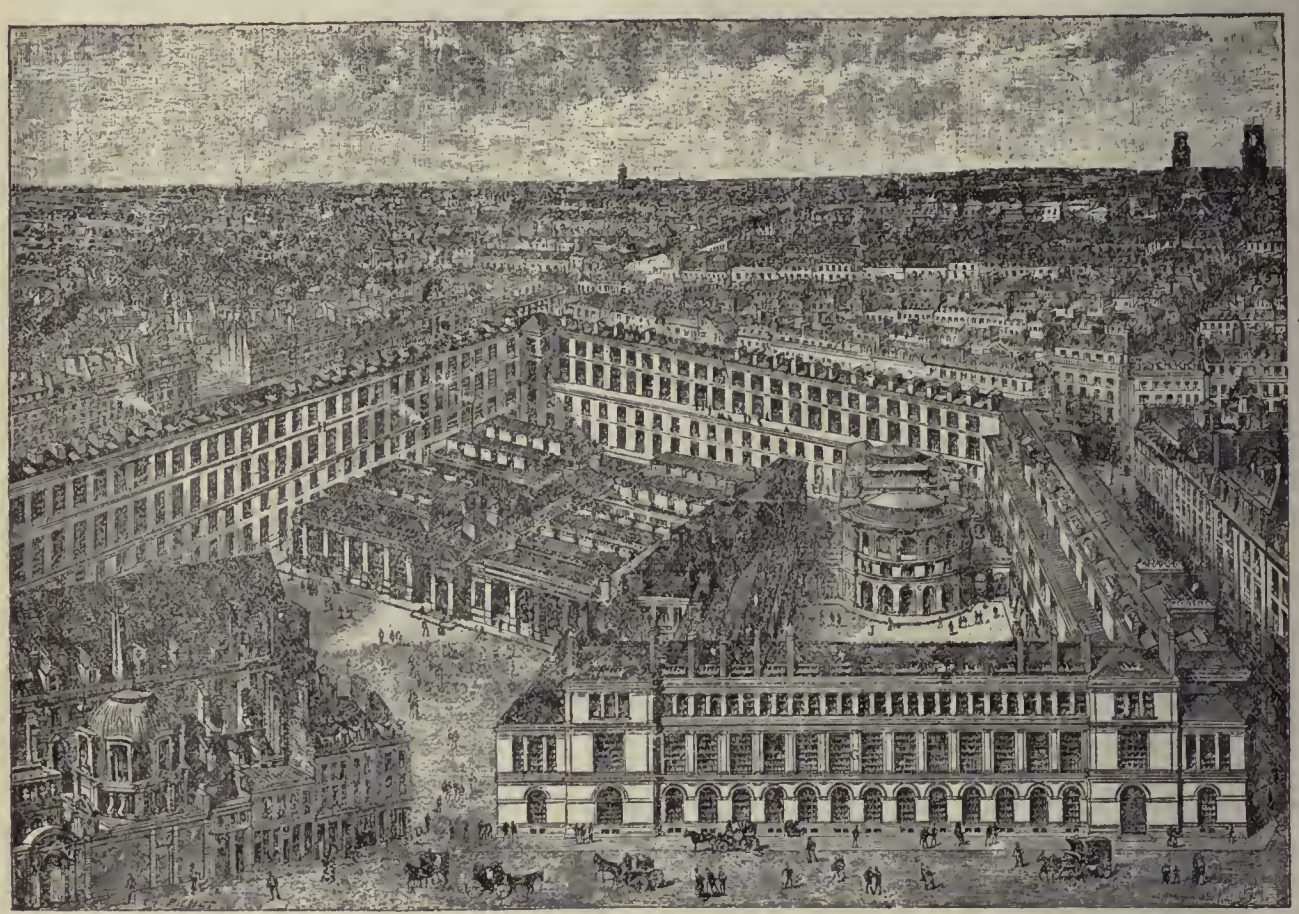
NOTES FROM MY SKETCH-BOOK

BY L. HARRISON METTLER, A.M., M.D.
CHICAGO, ILL.

To have seen Paris is to have seen the world; few are the tourists, however, that ever see Paris. A room in a hotel near the Opera and a few buildings viewed from an open barouche is not Paris. Once I met a traveler who had sauntered about the "city of delights" some three long months, and yet had not observed that the Notre Dame cathedral was upon an island. Except Rome, probably no city in the world has been so much written about or has played so picturesque a rôle in history as Paris. It is so full of novel attractions, historical relics and romantic reminiscences, so adorned with all the beauties of art and architecture, so enriched with the most modern scientific and sanitary improvements, so systematized in government and municipal management, that an American physician might well be excused for forgetting that medical Paris is equally as full of historic anecdote and modern achievement. Ah! no, be not deceived; medical Paris can not be seen in a three-days' sojourn, with an occasional call at the Pasteur Institute or the Hotel Dieu Hospital. When Vienna was little else than a Roman fortress, when Berlin was still a little group of huts and drying fish-nets, when Munich was only a monastery and when even London was little more than a Saxon hamlet, Paris was a royal city, the seat of government and the site of a university. In the sixth century Clovis chose it as his residence, and in the tenth century Hugh Capet encouraged its learning so as to lay at that early day the foundation of the future reputation of its great schools.

The actual beginning of the University of Paris was in 1253 under Robert Sorbonne. One of its earliest and most flourishing departments was that of medicine. To-day there are six medical schools in France, namely, Paris, Montpellier, Nancy, Lille, Lyons and Bordeaux. The great reputation of Paris as a medical center began about the middle of the fifteenth century. In 1618 the first amphitheater for anatomic demonstrations was erected. This was rebuilt in 1744 and was soon discovered to be inadequate. Lamartinière, Surgeon to Louis XV, obtained the ground of the College of Bourgogne in the Rue des Cordeliers and began the construction of the present vast assemblage of buildings known as the *École de Médecine*. They were not completed until 1785 and on account of their architectural beauty they made the reputation of their designer, Gondouin. They were opened for use Aug. 31, 1776. There is a main building, flanked by two wings, joined by an open gallery. In a word, there are four buildings surrounding a court-yard, sixty-six feet in depth and ninety-six in breadth. The main frontage upon the street extends a distance of 198 feet. The open gallery, consisting of a double row of Ionic columns, is surmounted by a second story. The anatomic museum and library are found on the first floor. The amphitheater at the bottom of the court is capable of holding 1,200 persons. In the wings are spacious halls for various demonstrations. Over the main portal is a bas-relief of Louis XV, between the allegoric figures of *Wisdom*, little of which he seems to have possessed, and *Benevolence*, too much of which he exhibited for his own good. In front of the entrance stands the bronze

statue of Bichat, the anatomist. In fact, all about the buildings are memorials of various eminent medical men, such as Broca, Petit, Marechal, Paré, Pitard and Peyronnie. During the latter years many additions have been made to the old *École de Médecine*, especially the magnificent façade upon the boulevard St. Germain. To the casual tourist of a medical turn of mind, however, the most interesting of all this assemblage of bâtiments is the ancient structure, which looks from the outside like a church. It is the ancient refectory of a Franciscan monastery, but is now used as a pathologic museum and known as the Musée Dupuytren. How many names, now famous in the history of medicine, did I see on the specimens in this quaint old museum! As I saw upon this bottle or that skull, the names of Paré, Velpeau, Larrey, Nélaton, Broussais, Dupuytren and others, it seemed to me as though I were reading a history, not only of medicine but of Paris as well; and memories of the early kings of France and their wars, of Napoleon and of the French revolution poured in upon me.



ECOLE DE MEDECINE, PARIS.

The applicants for admission to any of the medical schools of France must possess the "diplôme de bachelier ès lettres," or the "diplôme de bachelier ès sciences restreint," equivalent to the B. A. of London University, with considerable knowledge of chemistry, zoölogy, botany, geology and astronomy.

The *École de Médecine* is in the heart of the Latin Quarter of Paris, whither one must go, if, as Thackeray says, "he is to study the humanities or the pleasant art of amputation." Now to learn where the Latin Quarter is and why it is so called, the tourist can not do better than read Victor Hugo's "Notre Dame," wherein a certain chapter is set apart for a brilliant description of the origin and development of Paris. Originally Paris was confined to an island in the middle of the Seine River. To-day this part of the capital is known as La Cité, and contains among many notable buildings the Notre Dame Cathedral, in the shadow of which nestles the historic old Hotel Dieu Hospital, of which I will have something to say later on. As the city grew, its extension beyond the limits of the island away to the north, or right bank of the river became known as La Ville, and contains the palaces, municipal buildings, art galleries and residences of the aristocracy. On the south, or left bank of the river stood the University in all its pride, independence and scholarship, and its immediate vicinity, so dear to the heart of the student, ere long became known as Le Quartier Latin. I am unable to say why this particular part of Paris should be called the Latin Quarter, unless because here are most of the great schools and here the scholars congregate in their crowded lodgings, conferring upon the neighborhood the general air of Latinity that usually surrounds student life. As it is also one of the oldest sections of the city, that, too, may have a little to do with its pagan appellation. To know the Latin Quarter is to know Paris, and to dwell therein awhile is to observe student life such as it will be seen in no other city in the world. Space forbids my description of it here, but the reader who wishes to revive memories of his days in the good old

Latin Quarter, will do well to read a few chapters of Ohnet's story of "Dr. Rameau."

One day shortly after my arrival in Paris I found myself in the great courtyard of the Ecole de Médecine. Groups of students standing about or seated upon the doorsteps of the main entrance were vehemently discussing the "examens." It was a rare sight, these fiery, excitable, gesticulating French lads—or rather men I might say—chattering and bobbing to one another in a most tremendous fashion, about the soul-harrowing examinations which they were to undergo or had just escaped. They could not talk fast enough (a Frenchman never can) and each individual that emerged from the doorway was pounced upon as wolves pounce upon a helpless lamb and was all but annihilated with questions and gesticulations. There were others who stood silently apart and in rather a comical manner kept their lips moving while their eyes were riveted upon mysterious looking little bits of paper which they kept stored away somewhere in the depths of their capacious pockets. All at once there was a profound stir among the various groups. The mysterious papers disappeared, the mutterings changed to mute reverence, ears were less strained, the noisy chatter and wild gesticulations ceased, some of the fellows moved off in a kind of nonchalant manner, others seated on the doorsteps leaped up and started off or stood near where they had been sitting in an attitude of almost oriental obeisance, while all acted as if royalty itself were approaching. Their majesties consisted, however, of only a few members of the faculty including the late Professor Charcot. When this section of the faculty had vanished beneath the shadow of the doorway, the chatter and gesticulations, as only Frenchmen are capable of, began again with tenfold energy. I saw many of the students following the professors and did likewise. In one of the upper corridors the professors scattered and disappeared in various small apartments. In and out of these rooms strolled the students as though they were merely visiting some anteroom of the Louvre or Luxembourg. I did the same and this is what I saw: At one end of the room, behind a railing was placed a green-covered table, behind which sat the examiner, the referee and perhaps an additional member or two of the faculty or subfaculty. Outside of the railing, huddled as closely to one another as possible, were fifteen or twenty students, one of whom at the time was undergoing an oral examination, causing him untold miseries. He would blush like the setting sun, his knees and hands would tremble like the sunbeams on a ruffled lake, and his tongue would scarcely realize whether it were talking sense or nonsense. He felt ill at ease, to be sure, but he was not in the least ashamed, for he knew he had the hearty sympathy of the fellows about him. Their turn was yet to come. Thus are the examinations conducted at the great medical school of Paris; open to all and before several witnesses and referees. It is a severe test, but one has the consciousness of knowing that it is fair and equal to all alike. The questions were plain, direct, and practical. They were not in the least framed merely to trip the student on some rare and abstruse item. Scholars whose homes were in most distant parts of the world were undergoing the ordeal.

In the vicinity of the medical school are many book stores, some of them devoted exclusively to medical literature. They are patronized freely by the pupils and in some respects resemble small public libraries, in that every one is welcome to enter and thumb over the books. Paris publishes quite a number of excellent medical journals, notably *La Semaine Médicale*, *La France Médicale*, a small but sprightly sheet which appears three times a week, *Le Journal de Médecine*, which is Dr. Luteaud's organ, and a vigorous one it is, too, and many others of lesser importance. There are quarterly publications with the clinics of the Salpêtrière and special reports of the French Academy of Medicine. I can not say, however, that the French journals compare favorably with the great English weeklies; in style and general typographic appearance, however, they maintain the proverbial French reputation for this particular kind of work.

The history of the management of the public charities, and especially of the hospitals of Paris, forms an interesting chapter in itself. In the earliest times the convents and monasteries, both of the city and its suburbs, offered a retreat not only to pilgrims, but also to the sick and insane. Gradually these establishments erected special buildings for the sick within their domains, and while the monks administered the treatment, the sisters attended to the nursing. In 816 Charlemagne decreed that at each See one of the canons should always govern the hospital or hospice; and that these institutions should always be in close proximity to the cathedral. This explains the near association of hospitals and great churches in many parts of Europe to-day, as, for instance, Notre Dame and the Hotel Dieu of Paris. The control of the hospitals by the clergy continued until the beginning of the sixteenth century. After that date governors were selected partly from the laity, though the religious orders continued to bear an important share in their management. As the charitable institutions developed, as they were more and more assisted by the state and private benefactions, the transfer of their government from the church to the state became more and more complete.

The Assistance Publique forms one of the administrative departments to-day of the Prefecture of the Seine. Its revenues exceed forty million francs, obtained by a tax on the receipts of theaters and other places of amusement, on burials and on the Monts de Piété or government pawning offices, of which there are twenty-five. Among other charities it has under its supervision some twenty-two civil, general and special hospitals, nineteen public hospices, twenty-seven asylums and almshouses and three military hospitals.

The largest as well as the most famous of the Paris hospitals are the Hotel Dieu and the Salpêtrière. As a student for a number of weeks at the Salpêtrière, I enjoyed the opportunity of watching some of the work at both institutions and in another paper will have something to relate of their history and clinics. I would that space allowed me to do more than merely refer to some of the others, for a visit to the Charité with its 504 beds, its history running back to Marie de Medicis in 1602, its founder, and its interesting chapel constructed at the end of the last century and now used for the meetings of the Academy of Medicine, or a morning call at the modern and elegant Lariboisière, with its 636 beds and the magnificent tomb of Madame Lariboisière, its benefactress, in the chapel, is something to carry long in one's memory. The Hôpital du Midi was in 1613 an old convent, but is now a hospital with 336 beds. Was it not here

that Ricord, the famous Frenchified American doctor came and first established his own school after his rupture with the great Dupuytren! And was it not here that he made those marvelous pathologic studies in regard to certain unmentionable diseases, which ran counter to and overthrew all previously conceived notions! Certainly, and the American physician who is interested in les hommes atteints de maladies vénériennes, will be sure to visit Le Midi. As that same American physician is singularly interested in les maladies de la peau, he will go direct from the Midi to the Saint Louis, which was founded in 1607 by Henry IV. and contains 823 beds. I would like to be able to sketch this quaint old hospital for skin diseases as I saw it, its low creaking doors, its musty, close little rooms, its pleasant, quiet little courtyard with gravel walks and ancient trees, its energetic, loquacious old porter, and its remarkably rich clinic, presided over by the distinguished Fournier, but I must hasten on.

A clinical lecture at the new and artistic Clinique d'Accouchement by the great Tarnier is a revelation to an American. The manner and method of it is something to be envied by all teachers of obstetrics. But I must forbear and close by simply mentioning the Hôpital Beaujon, with its 422 beds, the Cochin Hospital, with its 201 beds, the Hôpital Laennec, dating back to 1634 and containing 311 beds, the Necker Hospital, with 418 beds, the Hôpital Saint Antoine, with 594 beds, the Hôpital Tenon, with 635 beds, and such other special hospitals as the Lourcine, with its 276 beds, for women afflicted with venereal disease, the Maternité, with its 316 beds, the Hôpital des Enfants Malades, with its 518 beds for the little folks, and the Hôpital Broussais, with its 260 beds. These are not all by any means, and most of the hospices and asylums which are of particular interest I have not even attempted to mention.

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SELECTIONS.

Abnormal Mobility of the Liver.—Mr. John Morris, in the *Practitioner*, discusses some cases of this morbid condition that have lately been recorded, inclusive of one by Dr. J. E. Graham of Montreal. "Dr. Graham published his case with a facsimile of a woodcut showing a displaced liver, published by Heister in the year 1754. No fewer than seventy cases were tabulated, excluding all in which the displacement was due to causes above the diaphragm, and also those in which it was due to tumors or abscesses between the liver and the diaphragm. Of course the diagnosis was not certain in all the cases. A large majority occurred in women who had pendulous bellies after frequent child-bearing. In the only well-marked case that I have seen, the luxation followed the rapid disappearance of a large fibroid tumor at the menopause. The abdominal wall was thin, and the liver edge could be easily defined by palpation at the level of the anterior and superior iliac spines. The organ could be pushed into its proper position, and an abdominal belt gave considerable relief. Abdominal section has been performed (sometimes on a mistaken diagnosis), and the liver has been fixed to the abdominal wall; but I have not observed a record of any such case when sufficient time had elapsed to enable us to know whether real benefit resulted.

"Cases of undue mobility of a portion of the liver have been recorded. Bastianelli (*Il Policlinico*, 1895) has detailed a case in which he diagnosed a cancerous right kidney. An abdominal section having been performed, the tumor was found to be a portion of liver attached to the main mass of the gland by a band of hepatic tissue. The pedunculate mass contained growths which were afterward found to be gummata. It was removed with the gall bladder, which lay on its under surface, and the patient was seen thirteen months later in good health, and seven months pregnant. I have seen a case in which a similar diagnosis of kidney tumor was made, and on operating, a portion of the right lobe of the liver was found to be bent on the main mass, the line of flexion being very thin, and permitting free movement. At a recent meeting of the Medico-Chirurgical Society, Mr. Mayo Robson related a case in which he cut down on a gall-bladder and found that it was the seat of malignant disease, there being also a nodule in the liver close to the growth in the gall bladder. The liver was somewhat displaced downward, and it was found possible to draw the affected portion of the gland and the gall-bladder out of the abdomen, and to make an artificial constriction of the liver substance behind the disease by means of an India-rubber tube. The constricted portion was transfixed by two knitting needles and secured outside the abdominal wound after the plan commonly adopted in performing hysterectomy, the distal part being cut away. A small growth, in which no malignant elements were found, was removed from the abdominal wall of this patient some three months later and ten days before the reporting of the case. Recovery followed, but sufficient time had not elapsed to allow of the permanent effect of the operation being recorded. Bastianelli (*loc. cit.*) attributed floating liver lobes to malformation, acquired deformity, as from pressure, and the traction of new growths."

Acute Peritonitis Produced by the Pneumococcus.—The three last numbers of the *Archives Clin. de Bordeaux* (3, 4 and 5) are almost entirely devoted to a critical study of this comparatively rare disease: Acute peritonitis caused by the presence of virulent pneumococci in the peritoneal cavity. As the disease usually terminates fatally, without prompt and sufficient surgical intervention, it is of the utmost importance to be able to diagnose it at once. The author, Professor Cassaet, first proves its existence as a pathologic entity, and its essential element, the virulent pneumococcus. It develops at all ages, without distinction as to sex or season, but preferably where there has been some former lesion in the abdomen or when the resisting powers of the organism are diminished from any cause. The infecting agent penetrates into the serous membrane without assistance from any other pathogenic or saprophytic agent, either through the skin or intestine after traumatism or from inflammations, tumors, etc., in the genital region or elsewhere, or conveyed by the blood or lymphatics. Colonizing there it produces its specific lesions, the same as in the lungs, with the same effusion and tendency to wall in the purulent collections. Cassaet suggests that one reason why the lungs are so much more frequently the seat of the disease than the abdomen may be that the microörganisms are so easily inhaled and remained unchanged in the lungs, while it is a much more difficult matter to reach the peritoneal cavity and run the gauntlet of the secretions of the alimentary canal. Primary pneumococcus peritonitis is distinguished by an absolute absence of prodromes, by its abrupt début, commencing suddenly, like a thunderclap, in the midst of apparent health or following some other disease. The principal manifestations are sudden, intense pain, vomiting of bile, profuse diarrhea, occasionally a few chills. In the secondary stage the fever rises, the pulse grows more rapid, respiration labored, the urine decreases and contains albumin, and the entire organism is gravely affected. There is no tympanitic resonance, although the abdomen is enormously distended; it offers a certain soft resistance to the finger, changing to an undulation, slight at first, becoming an actual fluctuation, amounting at last to the

sensation of a vast accumulation of fluid inside. The meteorism does not appear until a day or so after the pain period. As the meteorism gradually increases the fever declines and the pain subides; an important indication differentiation. The terminal period is short if the infection is severe; death follows without much change from the preceding conditions. It lasts longer if the body has had strength enough to survive till the purulent period, when the symptoms are those of true septicemia, subsiding to those of a circumscribed abscess, when the encysting process has been accomplished. Comparing it with the other forms of peritonitis, it is distinguished from puerperal peritonitis by its absolutely sudden beginning and the absence of repeated chills and fetid discharges. It resembles appendicular peritonitis, but as the treatment is the same for both, differentiation is not imperative. It can be distinguished from the peritonitis following perforation, as the fever in the latter is higher from the start, with subsequent hypothermia; the dysuria is more complete, the meteorism more sudden, the dulness more immediate and the evolution more rapid. The history of the case may also proclaim the probability of perforation. Careful study of all the cases on record and others proves that laparotomy is the only means of cure; and it must be prompt and effectual so as to open and clear every infected focus. It must be median laparotomy, extensive enough to insure a minute exploration of the flanks and hypochondriac region. Several cases reported, which were doing well after laparotomy, succumbed later and the necropsy disclosed unsuspected purulent collections behind the liver or elsewhere which had escaped notice. The percentage of recoveries in the cases on record which were treated in an effective manner amounts to 80 per cent., but the mortality is 75 per cent. in the general average of cases. We add the author's summary of the various pneumococcus infections which may follow or appear independently of pneumonia: Bronchitis, broncho-pneumonia, pleurisy, pericarditis, endocarditis, sporadic and epidemic meningitis, arthritis, amygdalitis, pseudo-membranous angina, enteritis, nephritis, metritus, inflammations of the nasal cavities and sinus, otitis of the middle ear, osteo-periostitis, abscesses and inflammations of the connective tissue.

The "Curatel" Treatment of Inebriates in Austria.—The treatment of habitual alcoholics in Austria is attended with difficulty, the laws having been so framed as to leave that class virtually without direct constraint. Drunkards, in that country, come under the same class as idiots or spendthrifts. A special report on this subject in the *London Lancet* for June 6 further states that the process of "curatel," whereby the court appoints a curator or administrator for persons who do not look after their own affairs and who are unable to defend their rights, is made applicable not only to children, lunatics and idiots, but also to those who having been declared "spendthrifts" by a magistrate, have been deprived of the administration of their property. A man may be judicially termed a spendthrift if it appears on examination of the charge that he is running through his property in a senseless way and that he is exposing his family to future destitution by contracting loans under reckless or ruinous conditions. In some kingdoms, as in Galicia and Lodomeria, there is a special law for the prevention of drunkenness, and one section provides that on being convicted of drunkenness three times in one year the district authorities may forbid the offender to visit public-houses or liquor shops in the neighborhood of his domicile for the period of one year, under pain of fine or imprisonment. "The inadvisability of mixing mere drunkards with the insane in asylums is fully recognized by the Austrian authorities. Last year a bill for the erection of public asylums or establishments for the cure and reform of drunkards was brought into the Reichsrath by the Minister of Justice. These institutions are intended for the reception of 1, those who have been judicially punished for drunkenness three times in the course of one year; 2, those mentally affected owing to habitual or periodical abuse of alcohol who have been admitted into hospitals or lunatic asylums, and who, although they have recovered their sanity, have not sufficient self-command to resist the temptation to drink; and 3, those who, owing to habitual or periodical abuse of alcohol, endanger the moral, physical or financial security of themselves or their relations. Provision is also made for the compulsory retention of patients for a period which may not exceed two years, and placing the police and judicial authorities at the disposal of the administration of the asylum in order to recover fugitives from the same. Consideration is given to the proper safeguarding of the individual from the illegal and undue application of the various processes upon which detention in an asylum may be carried out."

Dress Reform for Women Rendered Probable by the Bicycle Costume.—A female medical practitioner who has ridden the wheel since 1888, has expressed herself as sanguine that a healthful and comfortable dress will be the outcome of the extension of the bicycle habit among females. She states that she has modeled one for her own use, which satisfies her as preferable, on a variety of occasions, to the dirt-collecting long skirt. "I frequently shop in my bicycle costume," she said, "and, while much staring and often audible comment greet me, yet I think if the costume were universally adopted it would soon cease to be noticeable. As to its merits there can be no doubt, and no woman who has experienced the freedom and comfort of the short, light skirt will willingly return to the long, heavily lined skirt which fashion now prescribes. Women are slaves of fashion, and it will be a difficult matter to bring the most approved style or short skirt in vogue, for it is detrimental to the interests of the mercantile trade. Many furbelows would follow the long skirt if it were discarded and in its stead a modification of the bicycle costume adopted, for the latter only lends itself to the severest adornment. I object to bloomers," she continued, "because they create unfavorable comment and are often immodest. I think it is a great mistake for women to walk around and sweep up the dirt with their skirts, and I am in hearty sympathy with any movement to get rid of them for a more sensible style of dress. I do not wear corsets, and I have used my pen and voice equally to persuade other women to discard them. In some cases I have been successful, but in nine cases out of ten a woman clings to her corset as the drowning man clings to a straw. The long skirt is equally reprehensible, and there is no garment so ungraceful, so suggestive of untidiness as a long, rain or dirt bedraggled skirt. Especially is this the case in stormy weather, when woman requires all her strength and the free use of both hands and limbs to battle with the elements, and is generally so encumbered with umbrella, bag and parcels, that her skirts are allowed to trail unnoticed through wet streets. Any dress which it will not be necessary to hold up and will be comfortable and useful, will be welcomed by all sensible women. The bicycle costume, when the skirts are a graceful length, and not too light about the hips, seems an ideal costume for a rainy day, and adaptable to walking and outing generally. I shall be most happy to advocate its use. A learned gentleman once told me that women would never attain the same power intellectually and physically as men until they freed themselves from hampering clothes. Men will not submit to uncomfortable fashions in clothing, and consequently do not suffer from the nervous disorders that are produced by the unhygienic and irritating clothes that are worn by women."

A Mild Epidemic of Scarlet Fever at Louisville.—In the *American Practitioner and News*, June 27, Dr. John Larrabee depicts the differences that present themselves in two epidem-

ics of fever, just twenty years apart, in the same town. The epidemic of 1876 was grave and distressful, while that of 1896 is designated as "benign"; and some of the physicians go so far as to disregard the isolation of the well. In the discussion of the subject before the Medico-Chirurgical Society of that city he went so far as to say that the type of the epidemic fever was so mild that he would not insist on quarantine because it was a good chance for the unprotected children to obtain immunization at a low risk. Other members expressed the like opinion. To those of us who have never yet encountered a benign epidemic of scarlet fever, an avowed neglect of isolation is "a hard saying," but these gentlemen of Louisville are open-eyed and humane practitioners, so that we know that the apparently "thin ice" they are testing will be abandoned so soon as they discover that their course is hazardous.

Dr. Larrabee opens his paper with a historic reference that illustrates in an admirable way the capricious behavior of scarlatina. He says: "It is well to remember that scarlet fever was differentiated from measles about two centuries ago. Its history for upward of two hundred years, the period in which it has been known, is peculiarly interesting. None of the exanthemata is subject to such variations. Thus the description given by Sydenham of the first great London epidemic, contrary to what should be expected, was that of a light and trivial disease, only dangerous by the officiousness of the doctors: 'Vix novem morbi merebantur.' And it was he who first differentiated scarlet fever from measles, an older and more prevalent disease. This is certainly a strange contrast with the observations of more recent periods both in Europe and America. Its prevalence in the eighteenth and nineteenth centuries warrants the conclusion that it has steadily increased in potency until it has come to be considered one of the most treacherous as well as fatal diseases of childhood. Löschner, fifty years ago, wrote that he had never seen a benign epidemic. Thirteen per cent. of all cases became dropsical, and 38 per cent of all dropsical cases died. Epidemics of scarlet fever vary not only in severity but also in complications. Some have been largely anginose, others noted for rheumatic complications. The mortality has ranged from 13 to 40 per cent. and then again as low as 3 to 4 per cent. Köstlen wrote that scarlet fever disappeared entirely from his practice for fifteen years, and that there was not a case in Stuttgart from 1830 to 1846, at which time an epidemic occurred in which there were no fatal cases. Those who have had experience with the present prevalence of scarlet fever will, I think, agree with me that in point of severity cases are in strange contrast with those which we have been accustomed to see in former epidemics. The word epidemic is not strictly proper to apply to the present prevalence as to the number of cases, and still the disease is so widespread as to be out of consideration as an endemic. If epidemic, it must certainly be considered benign.

Regarding first epidemics we are taught to believe in their severity, and such was the case with measles in the Phillipine Islands several years ago. In scarlet fever we have a disease in which the first epidemic known was as mild as at present. A point that has not been discussed sufficiently was the proportion of complications in different epidemics. It was my privilege to see the epidemic of 1876. I saw in my own practice thirteen deaths. In two cases the temperature ran up to 110 degrees F. before the eruption appeared, the other case being typical scarlet fever. In regard to middle ear troubles, the point I insist upon is that cleansing the throat should be made a routine practice whether the throat is sore or not, and in all cases of the disease however mild. In regard to the point of contagiousness the remarks have been surprising. Negatives never prove anything. The fact that a child does not contract the disease when exposed does not prove anything; but a child getting the disease when exposed proves the whole question. I have always looked upon scarlet fever as the highest and most persistent type of contagion with which we have to deal. In regard to the rheumatic complications of the disease and the discussion upon that point, I desire to be understood that this is a true rheumatism and that the conditions of metabolism are as perfect to produce it as could be. The rheumatism complicating scarlet fever yields at once to salicylates, which of course we all employ.

A Bishop Upholds Vivisection.—Bishop Lawrence, at the last annual meeting of the Massachusetts Medical Society, June, 1896, gave a pointed rebuke to the antivivisectionists of his State, which was wise and timely. The remarks given below contain the Bishop's reference to that subject and also a recognition of the debt the Commonwealth owes to the altruistic ranks of medicine:

"Speaking not only for myself, but also for the great religious sentiment of this Commonwealth, I can say that wherever one finds any representative member of this Society, one is impressed, he is humbled, by the devotion of the doctors to their work, by their instinctive love of their profession, by their interest in the scientific lines of their work, and by the service they devote unweariedly to their fellow men. The public spirit of the physicians throughout this State, in relation to their hospitals, to sanitary movements, and to all other civic movements which bear upon their profession, is recognized; but I can not quite believe that they are sufficiently recognized by the people. They are doing untold work in all those lines. The readiness with which the physicians of Massachusetts and of this Society respond to calls, without asking questions as to whether they are to receive money in return or not—and they are sometimes imposed upon—is remarkable. The work is done cheerfully and willingly, and is the best form of charity. I can not, therefore, understand how it can be that a great body of people in this Commonwealth can so far distrust the great body of these physicians—can so far distrust their tenderness, their humanity, their sensitiveness to pain—as to bring any unwise, unreasonable restrictions to bear upon scientific study as expressed in vivisection. The people of this Commonwealth have tender hearts, and though they may be New Englanders externally, they are desirous of seeing that no hurt shall come to the animals. At the same time, it seems to me that into no hands can the welfare of lower forms of creation and the question of vivisection be more confidently placed, than into the hands of the recognized medical fraternity of this Commonwealth. In reviewing in my mind the character of the good physician and his value to the community in which he lives, I can not help thinking of another medical man whom, like your president-elect, I have known as a friend and neighbor for many years, and to whose sympathy and help in time of need so many in Cambridge can testify; I mean Dr. Morrill Wyman. He comes of a family in which are united the love of pure science and the love of humanity. I need not remind you of the scientific work of his brother, Jeffries Wyman. Dr. Morrill Wyman unites the qualities of an enthusiastic, earnest, progressive student of the medical sciences, and a most skillful and devoted practitioner of his art. I remember his telling me of the remark of an old lady, a patient of his, upon whom he had just performed a very delicate operation, which illustrates the regard which is felt for such men by their patients. After the operation was over she said to him, rather to his chagrin, 'After all, physicians are but instruments in the hands of God.' But she soon set him at ease by adding, 'But there is a great deal of choice in the instrument.' If each physician learns, as I hope he does, to regard himself as an instrument in the hands of God, to be more fully developed for His honor and the welfare of humanity, he has within him untold possibilities of usefulness."

PRACTICAL NOTES.

Chronic Pharyngitis.—Iodum .5 gm., potass. iodid 1.0 gm., menthol and glycerin āā q. s. ad 5.0 gms. Apply two or three times daily.—*Pac. Med. Jour.*, August.

Loeffler's Solution.—Alcohol 60 parts, toluol 37 parts, liq. ferri perchlorid 4 parts. Swab the affected parts with this every two or four hours.—*Pac. Med. Jour.*, August.

Camphor Dressing for the Sores left after Furunculosis.—Castellan states that the best dressing for this purpose for sailors and laborers is pulverized camphor sifted on the sore and covered

with an aseptic linen cloth, which is to be kept constantly wet with a boric solution or camphorated alcohol.—*Semaine Méd.*, July 29.

An Anthelmintic.—Tape worm is said to be best treated with ten drop doses in water, three times a day, of a mixture consisting of hydriodate of potash, 3 gms.; iodin, 1 gm., and water 40 c.c. *Med. Sentinel*, August.

Effects of Elevated Altitudes on the Constituents of the Blood.—Recent experiments confirm the announcement that the number of red blood corpuscles increases in mountain air, and gradually returns to the usual number after return to a lower level. It is also established that the increase is an absolute formation of new corpuscles.—*Wien. Klin. Rund.*, July 19.

A Point in Differentiating Obturator Hernia.—Landerer describes a rare case of acute osteomyelitis of the bony frame of the obturator canal, which had every indication of an obturator hernia, with pus formation, even after exploratory laparotomy and drainage. Two months elapsed before the discharge of a piece of the pubis with pus, followed by recovery.—*Cbl. f. Chir.* July 11.

Treatment of Tetanus with Carbolic Injections; Baccelli's Method.—A man of 68 arrested the flow of blood from a crushed finger with manure, and in six days tetanus followed. It was treated with seven to eight injections a day of 0.01 to 0.02 g. acidum carbolicum after the wound had been disinfected with sublimate and iodoform, and hourly tepid baths after the fourth day of treatment. The patient was dismissed in ten days entirely recovered.—*Gaz. degli Osp. e delle Clin.*, June 27.

Early Diagnosis of Pregnancy; Hegar's Sign.—Hegar's sign seldom fails to diagnose pregnancy as early as the sixth or tenth week. It consists in a change in the body of the uterus, which becomes spheroidal in shape and soft to the touch, while the neck retains its tenacity and shape until much later. The uterus is thus palpated as a round, yielding body mounted on the straight cylinder of the neck. In connection with the cessation of the menses, disturbances in the digestion, ptyalism, changes in the breasts, slaty appearance of the vagina and vulva in a primipara and varicose appearances around the external genital organs and on the lower limbs, the diagnosis of pregnancy is certain in the great majority of cases.—*Lyon Méd.*, No. 5.

Treatment of Vitreous Hemorrhage by Sodium Iodid.—Dr. De Schweinitz states that in vitreous hemorrhage, if not otherwise contraindicated, the internal administration of frequently repeated small doses of sodium iodid materially aids in the absorption of the effused blood. This is particularly true of myopic eyes which are predisposed to hemorrhages of this character by reason of changes in the choroidal and ciliary vessels. In place of the sodium iodid, or sometimes alternating with it, he is accustomed to give the fluid extract of jaborandi in doses just short of its diaphoretic action, or small doses, for example a tenth of a grain, of pilocarpin hydrochlorate.—*Weir's Index*, June 15.

Catheterization of the Pylorus Through the Mouth.—Kuhn of Giessen has invented a sound which can be passed through the mouth into the stomach and through the pylorus into the intestines, even as far as the iliac fossa. It consists of a long metal spiral spring enclosed in a rubber tube. It is so flexible that it makes its way through the most winding passages with a vermiform motion, when carefully twisted. A small rubber bag at the end can be blown up through the tube at any time. This can be palpated and the course of the sound followed. It promises to render great services in the treatment of strictures of the pylorus and intestines, in administering medicine directly into the intestines, sparing the stomach, and in radiography, etc.—*Semaine Méd.*, July 29.

Action of Alkalies on Carbohydrates.—If some alkali is added to the solutions of certain carbohydrates, the transforming power is altered, and in such a way that one sugar is transformed into another. Glucose, fructose and mannose are thus transformed and it is immaterial which one is used to start with. There is also, at least for the substance thus formed, a certain equilibrium reaction, which is prevented from becoming absolute equilibrium by another reaction occurring at the same time, the formation of acid. In all probability the fructose is the immediate link in the transformation of glucose into mannose, and of the mannose into glucose. The process itself may be the work of some of the hydroxyl group. A similar process may occur in plants, which would explain the production of cane-sugar out of glucose.—*Cbl. f. Phys.*, July 11, from *Ber. d. d. chem. Ges.* page 3078.

Treatment of Pertussis.—Dr. Charles Gilmore Kerley reports relative to treatment as follows: "Antipyrin, bromids and belladonna were each used in several groups of twenty. The ages of the cases treated varied from 6 weeks to 5 years. They were of every condition of bodily strength and weakness. The duration of an attack was not shortened in a single instance. Antipyrin gave the best results. Under its use the number and severity of the paroxysms subsided. A combination of the bromids of soda, potash and ammonia came next. The much vaunted belladonna appeared to exert little or no influence. It was given to the point of physiologic effect. Alum gave practically negative results. Dilute nitric acid and fluid extract of horse chestnut leaves were utter failures. The results in a few cases in which antipyrin was used were notably good. The number of paroxysms diminished one-half in some, one-third in others.—*N. Y. Polyclinic*, August.

Hypertrophy of Prostate Treated by Castration.—The *Medical News*, July 25, has an analysis of twelve cases of this nature, as reported by Dr. C. W. Mansell Moullin, the well-known author and surgeon to the London Hospital, before the Harveian Society, which were attended with gratifying results. "In two cases, both under his own care, death had taken place five and nine days respectively after operation; one death was due to cerebral hemorrhage, the other from fatty degeneration of the heart. In two cases, both of which ultimately recovered, traumatic delirium in severe form came on very soon after the operation. In all twelve cases, even inclusive of that which was fatal on the fifth day, there was reported a distinct improvement as to obstruction, and in those cases which remained under observation a sufficient long time to enable the surgeon to measure the size of the prostates, there was found an appreciable diminution in size, as measured both by urethral and rectal examinations. One case, less successful than others, was that of a patient, 80 years or age, the diminution in size when measured by the finger in the rectum was not very great, and voluntary control was not regained. But as a soft catheter passed easily, whereas before only a metal one or a bougie could be used, and that with difficulty, and as the stranguary, which had resisted all previous treatment, entirely disappeared, Dr. Mansell Moullin thought the case could not be considered a failure. It was never suggested that removing an obstruction at the neck of the bladder would be able to regenerate the muscular coat, if this had been destroyed by catheterism and previous cystitis. In another case the inflammation of the bladder persisted, but this again was not the fault of the operation, for the walls contained numerous sacculi, which could not be kept empty. Respecting the traumatic delirium in two cases, already referred to, Dr. Moullin avers that it is not due to the orchotomy, but to that tendency to delirium that obtains in elderly people after severe injuries, and may even follow the administration of an anesthetic."

"Molding" Treatment of Club Foot.—This method takes its name from the gentle, gradual way in which the soft parts of the foot are molded into the correct shape, stretching, pulling and

cutting where necessary, until a touch of the finger will turn the foot into the normal position. Not until this is attained is the cast applied, thus preventing gangrene from pressure. It is the exact opposite of Wolff's forcing method, which applies the cast and just as it hardens, the foot is forced into the correct position. Another advantage of Lorenz's method is that the various defects are corrected in turn, although at one sitting. Adduction and inversion are first altered into abduction and eversion; the tendon of Achilles is then cut, with care that the tuberosity of the calcaneum is brought down into place. Then supination is changed into pronation, and not until the foot is thus altered without force into a calcaneo-valgus, is the cast applied; split down the center to allow for slight swelling. It is left for six weeks, and the later bandage for two to three months. The treatment concludes with massage and active exercise of the muscles, especially the pronators. Lorenz has invented an instrument to assist in molding the feet of adults, as this requires more strength than a child's club foot. The method is described and illustrated in full in the *Wien. Klinik*, Nos. 11 and 122.—*Cbl. f. Chir.*, July 5.

Pellotin, a New Hypnotic.—According to the *London Lancet*, June 20, Dr. Jolly of Berlin, has made considerable progress in the study of a new hypnotic, called pellotin, which is not prepared by chemic synthesis, like the other sleep-producing medicaments of the present day, but is an alkaloid discovered in a species of Mexican cactus called anhalonium. The natives of Mexico are reported to swallow slices of this plant, to which they give the name of "pellote," and Dr. Hefter of Leipsig, has now succeeded in isolating its soporific alkaloid. Pellotin itself is not soluble in water, but its hydrochlorate is extremely soluble. Its physiologic action was first tried on frogs and then on mammals, which very soon became unable to stand or perform spontaneous movements, and shortly afterward an increase of the reflexes was observed, followed by tetanic convulsions. This action of the drug on animals was not identical with that which Dr. Heftner observed in himself, for after taking five centigrams (three-quarters of a grain), he became very drowsy and ultimately fell asleep. The drug was then given by Professor Jolly to a number of patients in the neurologic wards of the Charité Hospital in Berlin. The first case was that of a man suffering from alcoholic neuritis, who, after an injection of four centigrams, became very drowsy, and one hour afterward he fell into a sleep which lasted for four hours. Dr. Hefter had observed in himself a diminished pulse rate, and the same symptoms were perceptible in this patient, during the first hour of whose sleep the pulse fell to 56 per minute, rising again to 76 before the man awoke. Another patient with multiple sclerosis took five centigrams during the afternoon, and after half an hour he slept soundly for several hours. Similar results were obtained in a series of other cases. Some patients complained of giddiness and declined to take the medicine, but the greater number did not suffer in this respect. The cost, at present, of the article is about fifty cents per grain, but the chemists, Boehringer and Soehne predict that they will presently be able to bring down this high cost as the demand for the drug increases.

Diagnosis of Calculus by the New Photography.—The *Bulletin de l'Académie de Médecine*, June 2, records Dr. D'Arsonval's opinion that a great diagnostic advantage will soon be reaped, in regard to renal and vesical calculi, by the Roentgen photography. The latest pictures obtained by Chappuis and Chanel, have an especial value, since they show that it will soon be possible to diagnose calculi in the urinary passages with absolute exactness. They not only show the existence of a calculus in the bladder, kidney or ureter, but it is possible to distinguish the substances of which it is composed, whether it is homogeneous or formed of different layers, whether the kernel is small or large and of what it is composed. The most interesting photograph from this point of view showed: 1, the silhouette cast by a calculus of pure uric acid; 2, that of a calculus the same size as the first, but composed exclusively of phosphate of ammonia and magnesia; 3, that of a calculus much larger than the others, formed of several distinct layers of uric acid in the center, with an outer layer, 4 mm. thick, entirely different in color, and composed exclusively of the triple phosphate; 4, the silhouette of a bone 1 cm. thick, and another of the index finger of one of the experimenters. The differences in the depth of shadow in this photograph are so marked that it is impossible to mistake the characteristics and kinds of the calculi. The tiny kernel of uric acid is distinctly visible, while the outer layers of the large calculus are represented by clearly defined rings. A second photograph showed another calculus with a kernel formed of soda urate, inclosed in an outer layer of the triple phosphate, both very clearly defined in the photograph. , A third represented a number of uric acid calculi lodged in the parenchyma of the kidney, one-half of which was 5 cm. thick. The rays passed through this thick layer of tough tissue and the calculi alone showed in the photograph. It will be a simple matter, therefore, preliminary to an operation, to take the photograph of similar calculi, and then compare them with the results of photographs taken through the patient.

Cod Gall for Cod-liver Oil.—Dr. Clarence Wright, in London *Lancet*, July 11, writes on the above subject. He says that while the claim of cod-liver oil as a powerful alterative in diseases of the respiratory tract has long been recognized, yet, owing to its unpalatability and the nausea oftentimes attendant on its administration, it is the common experience of all that the cases which on theoretic grounds are selected as most suitable often prove least amenable to such treatment. These are for the most part cases characterized by a general wasting of the body and failure of its nutritive functions. How insuperably difficult it is to overcome this inherent propensity of the oil may be remarked when we notice how the ingenuity and art of the pharmacist have been strained to the utmost in devising ways and methods whereby it may be disguised if not destroyed. Its combination with malt, the hypophosphites, etc., are so well known that allusion to them would be superfluous. It would likewise prove a useless reiteration to enumerate the many oils and fats that have been proposed as substitutes for it. However feasible such substitution as a theory may seem, yet in practice their use has not been attended by any marked success. Cod-liver oil has been proved by French investigators to owe its activity, not to any peculiarity in the nature and constitution of its oleaginous constituents, but to certain definite antemortem products of liver action, which not only promote the absorption of the oil, but also materially assist digestion and exert the well-known alterative action. It has likewise been proved by examination of frozen and prepared sections of a fresh liver that these physiologically active constituents of cod-liver oil are of biliary origin, for their distribution in sections so made bears a definite relation to the ramification of biliary radicles, and not to the fat cells of the liver. "I was induced thereby to utilize that biliary product of unchallengeable antemortem liver action cod gall as a substitute for cod-liver oil, and I can now after a trial of eighteen months, say that I have every reason to believe it an efficient, active and palatable substitute for cod-liver oil, and one that deserves a trial. My usual method of employing it is by making a wine of cod gall (vinum gadeo-morrhuine) by adding one ounce of fresh gall, along with two and a half drams of extract of pancreas, to a pint of wine (sherry or port optionally), and after ten days filtering it through some cotton. I administer the wine so made in doses of one to four teaspoonfuls at or after meals four times a day."

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SATURDAY, AUGUST 29, 1896.

A NEW MEDICO-LEGAL QUESTION.

The highest criminal court of the city and district of Magdeburg, Germany, in May last, decided a case that is entirely new in medical jurisprudence.

The defendant, Dr. HIRSCHFELD, treated a case of serous inflammation of the cellular tissue of the arm which resulted in septicemia and death, without any spirits or supporting wines. When the case became serious it was sent to the hospital and death followed. Dr. BOEHM, a member of the medical council and hospital, accused Dr. HIRSCHFELD of neglect of proper treatment in keeping the patient on what he called "a cold liquid diet," rather than the strongest wines, and most nourishing foods. The court charge was acceleration of death, or homicide by negligence, in not using spirits freely. Dr. HIRSCHFELD was permitted to present a scientific defense of his treatment of the case. He asserted that in his long experience he had never used any form of alcohol. He considered it very mischievous, and that it never added strength, but always detracted from the power and vigor of the case. A series of statements were offered by Prof. BINS of Bonn, Prof. STRUMPELL, of Erlangen, Prof. HARNACK, of Halle, Dr. SMITHE, president of the German Medical Society; also the medical council of Saxony, consisting of five physicians with the president, all confirming the following general facts: "The idea that alcohol gives strength is deception, while any form of alcohol may produce an apparent form of stimulation, there is always a reaction in a profoundly marked diminution of energy. The special paralyzing action of alcohol on the brain and spinal cord is no longer a theory, but a fact that can be measured and proved. We are confident that experience will fully sustain our beliefs that no single human life, which would have fallen a prey to death without alcohol, has ever been saved by alcohol."

These general facts were supported by voluminous statements and clinical experience. The court adjourned twice in order to secure a great variety of authoritative opinions, and Dr. BOEHM, the prosecutor, seemed to rely on the statement of text-book authorities; finally the following discussion was presented by the court: After stating the legal aspect, the judge remarks: "It appears from the authorities offered, that in regard to the diet of fever patients strong soups and wines have in a comparatively recent period, been abandoned as increasing the fever. Prof. BINS has reported an instance where the medical man was arrested for treating a case of fever with alcohol alone. It is clear that opinions in regard to the value of alcohol have materially changed, inasmuch as its stimulating effect on the heart is regarded by many as valuable, and some maintain that it is always capable of lowering the temperature. Notwithstanding among the most eminent practitioners at the present day, there is a large number of opponents of this remedy. Some declare with emphasis that they have better success in their hospital and private practice without the use of a drop of alcohol than otherwise. It appears quite certain that alcohol in large doses exerts a paralyzing influence, increases the decomposition of albumin in the organism and is thus capable of influencing the course of the disease unfavorably. Therefore, without giving any definite judgment on this difficult question, we shall adhere to the principle that it is entirely inadmissible to lay down any limits to the exercise of the individual judgment of the physician in such matters." The defendant was accordingly acquitted. It would appear that considerable personal feelings were combined with this case, and a strong disposition exists to hold prominent medical men responsible for any new innovations of treatment where alcohol is supposed to be the remedy.

It is also noteworthy that the opponents to the use of alcohol as a remedy are very formidable in culture and scientific reputation, and defend their theories with great emphasis and spirit. This case is also of great interest, from the eminence of the parties in the contest, both of them being teachers of medicine and eminent practitioners. It would appear that no question of this nature could ever come into court in this country, because the use of alcohol therapeutically is becoming more and more unsettled every year, and while there is only an occasional paper in the medical journals, relating to this question, there is a wide-

spread distrust and skepticism of the value of alcohol as a medicine.

It is a curious fact that alcohol as a beverage is not much disputed, but when given as medicine its value is questioned at once, especially in continental Europe. Evidently a great revolution of theories concerning this drug has begun.

THE AUGUST HEAT.

The month of August was ushered in by a torrid temperature causing a reign of terror throughout the central and eastern sections of the country which equaled, if not surpassed, all previous records of lives destroyed by climatic causes. Day by day a stationary high thermometer swelled the long list of victims and the humid nights furnished no relief to the perspiring and exhausted multitudes. Even Chicago, "The Windy City," discarding her sobriquet, missed the invigorating breezes from Lake Michigan, and for a period of ten days the atmosphere was tainted by the odor of hundreds of putrefying animals lying in the streets, which the city authorities were powerless to expeditiously remove.

We are indebted to Acting Commissioner of Health, FRANK W. REILLY, M.D., of Chicago, for the mortality statistics of the various cities. The death rate in Chicago for the week ended was 697, making the annual death rate 22.38 per 1,000, as against 579 deaths during the preceding week with a rate of 18.62. There were 148 deaths from sunstroke during the week ended August 15. The following shows the mortality of four Eastern cities: New York, heated term began August 4; total deaths 2,429; maximum temperature August 9, 98; previous record July 24–30, 1892, total deaths 1,615, mean temperature 83, maximum temperature 97. Philadelphia, heated term began August 2; total deaths 1,328; mean temperature 82.7; maximum, August 11, 98; previous record June 30 to July 13, total deaths 1,649, mean temperature 86. Washington, heated term began August 1; total deaths 39; mean temperature 81; maximum temperature August 6, 98; previous record July 1 to August 3, total deaths 66, mean temperature 84.9, maximum 97. Baltimore, heated term began August 4; total deaths 344; mean temperature 84.2; maximum 98.

The deaths from sunstroke in Chicago amounted to 165. It is estimated that more than 800 horses fell victims to the heat. These statistics must cause some inquiry as to the diet and mode of life of the victims. As is well-known, alcohol continues to furnish a large proportion of the cases. But unfortunately the statistics are silent on that point.

Prof. STANFORD E. CHAILLÉ has well summarized the points to be remembered concerning hot-weather diet. In a recent letter to the Editor he says:

1. Nature's first lesson—a prolific production of edible and appetizing vegetables and fruits.

2. Nature's second lesson—a decrease of appetite, especially for fats and meats, and its greater gratification with vegetables and fruits.

3. The greater needs of the body for temperance in eating and in alcoholic indulgence.

4. The more abundant growth of microbes, and hence the greater need for cleanliness of food.

5. This greater need of microbic cleanliness most urgently requisite in the diet of infancy and childhood, and especially as to milk.

This last point is one to which too much attention is not likely to be given. For the benefit of those interested in these matters we reprint below an item which appeared in this JOURNAL December 29, 1894.[1]

It will be seen that while 1896 has contributed liberally to the heat statistics of the world, the season we have just passed through was by no means phenomenal. A London periodical in a recent article touching man's power to endure heat says:

To begin with, the difference between the highest and lowest limits is estimated at 250° Fahrenheit. French troops in Algiers must frequently march and maneuver at a heat of 122° above zero. A French professor has, during a stay in the Sahara with a tribe of Tuaregs, observed a heat of 153°.

Attendants in Turkish bath establishments work ten hours a day in rooms where the air is artificially heated to 155, 175, and even to 195° Fahrenheit. A scientific gentleman in Paris not long ago spent fifteen minutes in a hot air room of the Paris Hammam, in which the dry air had been heated by his order until the thermometer registered 250° Fahrenheit. Issuing from this room, he plunged immediately into a bath filled with water of about 53°, a difference of 200° Fahrenheit which his body passed through in less than a minute.

On the other hand, man will stand greater cold than any of the other mammals. For instance, during the journey of Prince Henry of Orleans through the Central Asiatic highlands the party frequently had to withstand a temperature of 40 degrees below zero. The quicksilver in the thermometers had frozen solidly at this temperature, and even the alcohol in the alcohol thermomcters became thick. Horses and camels died from exposure, while none of the men in the party suffered in the least.

In North America intense cold is frequent. A Captain Burn once measured at Fort Reliance a temperature of 70° below zero, while Captain Dowron, at Fort Rae, saw the thermometer down to 88° below zero in the month of April. The lowest temperatures known, however, have occurred in Siberia, where a temperature of 50° below zero is not uncommon, while at Werchojansk a temperature of 93° below zero has been observed. It appears, therefore, that men can stand a cold of 90° below zero, while a heat of 160° and even 180° Fahrenheit appears to be the extreme limit in the opposite direction. No animal is known which is able .to resist such changes of temperature.

It must be remembered, however that power to resist extremes, to resist great changes in temperature, does not insure power of resistance for long

[1] PHENOMENALLY HOT YEARS.—The recent mild winter weather in this country somewhat breaks the force for us of the contrast which the *Journal d' Hygiène* endeavors to make in furnishing a list of phenomenally hot years as "agreeable reading now that cold weather is at hand." Among the most remarkable of these torrid years, all of which had serious effects on the public health, may be mentioned A.D. 738 when the heat was so great throughout Europe and especially in France, that nearly all the springs dried up and thousands perished of thirst. In 879 reapers who staid in the fields after midday fell dead in great numbers. In 990 nearly all fruits dried up, occasioning a great famine and an enormous mortality. In the year 1000, amidst panic fears about the end of the world, the river sources dried up and vast numbers of fish putrefied, giving rise to a general epidemic; it was widely believed that the end of the world by fire was at hand. In 1132 rivers and springs again dried up and the bed of the Rhine became a dry sandy road. In 1182 the sand was so heated that eggs were cooked in it in a few minutes. The Seine, Loire, Rhine and Danube could be passed over dry-shod in 1303. All fruits withered and animals dropped dead from the excessive heat of 1393. Four years of great heat and continuous dryness, from 1538 to 1541, caused many rivers to disappear entirely, crops were failures and famine and sickness carried off large numbers. There were fifty-eight consecutive days of extraordinary heat in 1646. There was no rain from April to October in 1719; the Réaumur thermometer marked over 36 degrees; in gardens which could be irrigated fruit ripened twice. In 1818 the theatres of Paris were closed for a month on account of the heat; the thermometer marked over 38 degrees R. During June and July, 1830, the centigrade thermometers registered over 38 degrees in Paris in the afternoons.

continued heat. It is the long-drawn-out "hot spell" that tests the permanent resistant property of the human frame.

THE EXCELLENT WORK OF THE AMERICAN ACADEMY OF MEDICINE.

The new fields which the American Academy of Medicine have elected to till, and the noteworthy crops at present being gleaned deserve the most respectful consideration of the profession. More than this, its attempt and success in reclaiming waste and abandoned lands and making them yield rich harvests for professional and sociologic good demand the sympathetic interest of every physician who looks upon his work as something more than bread-winning.

For many years, about eighteen, the Academy labored with a singleness of purpose to raise the standards of medical education, and it should not be forgotten that the seed sown by it has been widely distributed by its members and their publications, and has been a highly important means of bringing about the remarkable changes in this respect by public legislation, and in spontaneously chosen standards by medical colleges, now proving and still more to prove of incalculable benefit to all concerned.

But the singleness of aim with which the Academy labored, became (sometimes and to not a few) somewhat monotonous; this fact coupled with the very patent associate factor that the work of the Academy was and remains genuine missionary work, offering no sort of reward, political or financial to its fellows, had served to make the function and even the existence of the organization altogether too little recognized and unsupported.

But all this is now, we are led to believe, a thing of the past, and with its new ground and methods of husbandry, the Academy is attracting the earnest attention not only of the medical world but of that greater world of which we form a part. Briefly stated, in the last two or three years the Academy has undertaken the tillage of the "Bad Lands" of Medical Sociology, not only as pertains to the profession considered in itself, but also as relates to the community at large. It might at first sight appear that this was only the old question of Public Health, but a glance at the last dozen numbers of the *Bulletin of the Academy* in which the papers and proceedings of its meetings have been published will show that without any desire or attempt to infringe upon the territorial rights of the organizations and agencies working these farms, the Academy has found vast domains wherein to exercise its energies. Two years ago the meeting of the Academy was largely given over to the subjects of the relations of the profession to the dependent classes, and the inter-relations of both to the community. Instead of exhausting even the most general of these subjects, it was evident that here was an extremely rich soil, well-repaying years of study and tillage. The reports of this meeting, and the papers read there, as republished in the *Bulletin*, at once gained the attention of medical editors and of the lay-public, and were extensively quoted and bespoken both in this country and in Europe. The general subject then introduced has in subsequent meetings continued to arouse interest, and in future a not inconsiderable proportion of the time and attention of the Academy will doubtless be dedicated to it. At the meeting of last year besides due consideration of this aspect, the question of hospitals, their management and abuses was uppermost in the minds of the attendants. At Atlanta this year, one day's sessions were devoted to medical education again, and the number of the *Bulletin* just at hand (Vol. II No. 8) contains the able papers of many distinguished teachers upon its protean aspects. The "President of the Academy, Dr. HENRY M. HURD of Baltimore, presented a valuable contribution upon "Laboratories and Hospital Work."

Drs. OSLER, PARSONS, GERRISH, ROBERTS, SMITH, WRIGHT, EDGAR, WILSON, TAYLOR, HOLMES, PARK and others dwelt upon the best methods in education as regards the preliminary requirements, and each of the special branches of the medical curriculum. In reading these papers one finds himself in a new atmosphere, even a new world from that of but a very few years ago. Everyone who is interested in practical education and the new ideals and methods now ripening into certain near harvests will not neglect the reading of these articles.

The meeting of 1897 is to be held in Philadelphia and is noteworthy as being the 21st. The celebration of the attainment of its majority should be an exceptional and memorable gathering and the members are already at work to make it so, and to arouse a proper recognition on the part of the general profession to the vital issues of the time. The words of that ideal secretary, Dr. MCINTIRE, concerning the Philadelphia meeting are as follows:

"It has been suggested that next year another phase of the life of the physician and his environment be made the subject of investigation. Probably the theme can be expressed by the phrase. 'The Associated Duties of the Physician,' as by any other, although a more precise wording may be thought out later. There are certain duties to one's fellows that pertain to the profession; unless these are clearly understood and properly defined there is the danger of imposing on the benevolence of the physician on the one hand or an undue selfishness on the other. In either event harm is wrought. These associated duties may be crudely classified as his 1, with his fellow-physicians; 2, with his fellow citizens (as a physician of course); and 3, with the body-politic. The first of these divisions treats of medical societies, their history, use, proper method of conducting, etc.; the associations of physicians having insurance or financial relief in view; indeed of any question involving the united effort of several or many physicians to accomplish. The second division relates to

those problems involving medicine so frequently met with by us all in our private capacity, and in the solution of which we must be associated with our fellow citizens. Questions relating to the sanitary condition of the community, or the physical side of child-life in the public schools; the freely giving of our professional services to those who can not pay at the suggestion of others who, possibly, ought to be asked to share in the giving. While the third division includes the discussion of all questions involving the services of physicians as incumbents of public positions, whether merely of honor, or of honor and some profit. This outline serves to illustrate how extensive a field is included in the topic, and the purpose of this notice is to invite the promise of contributions from the Fellows of the Academy in order to ascertain if it will be practicable to arrange for a day's discussion along these lines. Those who may desire to contribute a paper are asked to write to the secretary stating their purpose and giving the title of the proposed paper. At the same time none of the themes of the previous years have been exhausted, so additional contributions along these lines are still acceptable."

THYROID THERAPEUTICS.

Thyroid therapeutics is an acquisition of the last six years, and one that better than perhaps any other illustrates the close relations between physiologic research and the rational treatment of disease. It is not very long since that the thyroid, like other ductless glands, was a physiologic puzzle, and the theories as to its utility in the organism varied from that of its being a merely esthetic appendage to round off the contour of the throat to the attributing to it an important action in mechanically regulating, as a diverticulum, the blood supply of the brain. The recognition of the connection of the cretinoid condition described by GULL with atrophy of this gland by ORD in 1877, and the subsequent experimental studies of SCHIFF and his assistants and of HORSLEY in England, and others, led directly to the theory of the chemico-vital function of the thyroid and to the suggestion of its utility in the therapeutics of myxedema.

While the suggestion and the demonstration by experiment on animals of the efficiency of the extract of the thyroid is due largely to VASSALE and GLEY, the first successful application in a human subject of this treatment was made in England by MURRAY in 1891, the method by hypodermic injections of a glycerin extract having been employed. A little later, in 1892, the more convenient plan of administration by the mouth was substituted for the hypodermic method and has become the general practice. The various preparations in the market seem all, or nearly all, more or less effective, and in some of them at least we seem to possess all the active principles of the gland itself so far as its specific action on the disorder is concerned. While myxedematous conditions are not extremely common, they are, like other newly described affections, becoming daily more and more recognized, and the experience of the profession has already demonstrated sufficiently the practical value of the findings of physiologic experimentation. In any disorder which, like myxedema, seems to depend upon or be connected with deficient functioning of the thyroid gland, the use or, at least, the trial of thyroid extract is indicated and justifiable. Thus there appears to be a certain relation between the thyroid and the pituitary gland, and in acromegaly both are likely to be disordered. In those cases where the thyroid is atrophied, thyroid extract is probably indicated; where it is hypertrophied its utility is very questionable. The possibility of a vicarious functioning of the two organs, the thyroid and the hypophysis, suggested by ROGOWITSCH, seems to be disproven by the experiments of VASSALE and of OLIVER and SCHAFER, and the therapeutic experience is not especially in its favor. The results of the use of pituitary extract have not yet been so extensive as to enable us to affirm that its value is at all comparable to that of the thyroid, in the cases where it is theoretically indicated, and the treatment of acromegaly is therefore still a problem for the future.

In exophthalmic goitre the use of thyroid is generally condemned, and yet there have been cases in which it is reported to have been of benefit. While we may admit that as a general rule the theory of MOEBIUS, viz., of hyperthyroidization, best explains the pathology of the affection, there are possibilities of other conditions existing, and the cases where it tends to pass into myxedema (PUTNAM, JOFFROY) are very suggestive of a possible utility of thyroid extract in some stages of the disorder.

Aside from myxedema, the principal affection for which this medication seems likely to be of most value, is obesity. It is abundantly demonstrated by experience that it produces a most remarkable and rapid reduction of body weight, probably on account of its stimulating the fat consumption in the organism and increasing the urinary excretion. The fact that no change of diet is necessary and the comparative safety, so far as known, of the treatment, makes this property a very valuable acquisition to our medical resources, notwithstanding the often, or even generally, transitory duration of the effects after the discontinuance of the treatment.

The value of thyroid medication in true goitre must depend on the degree of functional inactivity of the organ. If the disease is, as is probably generally the case in its incipiency, a compensatory hypertrophy, the most we can reasonably expect of thyroid ingestion is that it may supplement an enlarged but perhaps still overtasked organ. It may indeed relieve the hypertrophy in some instances, but it is hardly in the order of things to consider it as yet a specific for this affection. In sclerodermy it has been reported as useful, and this is in accordance with some researches

that indicate a causal nexus between this condition and functional disturbances of the thyroid gland. In other skin affections and in syphilis it has also been tried, but no very positive evidences of its general value have as yet been given.

We are not yet able to say that the whole physiology of the thyroid is known, and therefore may in the future find other functions that will furnish indication for rational therapeutics. It is occasionally deranged we know in a large number of disorders, and whenever its secretory function is hindered or abolished it is reasonable to try thyroid medication. But beside this, this latter has in all cases a decided effect on the general nutrition, stimulating, it would appear, the metabolic changes, and in this way its effects may be valuable. Thus, in many cases of insanity where it has been tried empirically and because of the mental improvement it causes in myxedema, it has been found of benefit. Unless in these cases there was direct thyroid derangement, which it must be admitted may have sometimes existed unobserved, we can best attribute the beneficial effects, in the present state of our knowledge, to this general systemic action producing the change that was required in possibly a critical stage of the disorder, or perhaps we should better say that the stimulation of the systemic metabolism caused the carrying off of toxic substances poisoning and deranging the brain. As a general alterative of this kind thyroid medication may have a decided usefulness in certain cases, apart from its direct specific action in thyroid deficiency. There is possibly more than one active principle secreted by the gland; the thyroidin of BAUMANN alone will suffice to account for the specific effects, as shown very recently by MAGNUS-LEVY, while he states that thyro-antitoxin presents a series of interesting peculiarities that will form the subject of a future publication.

The comparative innocuousness of the extract has been already noted. The inconvenient or excessive action of the remedy in a few cases is probably due to idiosyncrasy, though the possibility of imperfections in the manufacture and of impurities as suggested by LANZ, should not be neglected. In certain cardiac cases it ought certainly to be only employed with caution and the state of the urine and other secretions should always be watched during its administration. But, given with proper judgment and care, it is as safe as any remedy with equal physiologic effects and far safer than many of them. Within its range of usefulness, the limits of which are not yet fully determined, it seems to be one of the most important of recent medical acquisitions.

Sunday Rest for Druggists.—The drug stores of Soissons, France, close now at noon, Sundays, all except one, and the address of this one is placarded on the door of each. They take turns in remaining open this way on Sundays.

CORRESPONDENCE.

A Letter from Professor Edwin Klebs.

CHICAGO, Aug. 23, 1896.

To the Editor:—The paper of Dr. F. E. Stewart, "The Scientific Nature of our Patent and Copyright Laws," in the recent number of the JOURNAL, brings forward facts in the "Klebs Antiphthisin Case" which are entirely new to me, and which induce me to clear up my personal position in the matter.

Though the contents of the paper of Dr. C. P. Ambler, read before the AMERICAN MEDICAL ASSOCIATION, as well as the following discussion, are entirely unknown to me, as I was not present when the paper was read, I learn through the paper of Dr. Stewart some details in the matter which demand explanation of my standpoint on the question.

When I came the first time to this country in the fall of 1894, induced by Dr. Karl von Ruck of Asheville, N. C., to visit his institution, I was in every respect an entire stranger. Dr. v. Ruck made me the proposition to accept a position as director of a laboratory for experimental research and consulting physician to his institution. As the great advantage of an institution with the facilities for scientific research, and at the same time for the practical perfection of my more theoretically developed ideas, seemed evident to me, I accepted the offer, with the greatest expectations in a final solution of all these problems.

By the contract I entered with the Winyah Sanitarium and Hotel Company, whose medical director and president Dr. von Ruck was, I obliged myself to accept the mentioned position in the laboratory of the sanitarium at an annual salary and as well to interest myself financially in the institution, leaving to Dr. von Ruck entirely the management of the medical and business part of the institution, as well as the exploitation of substances prepared in the laboratory. I therefore did not see any harm in the application for a legal protection of Antiphthisin, as this lay entirely in the hands of Dr. von Ruck, whom I would expect to be familiar with the systems and ethics of the medical profession in this matter. In Germany nostrums are not patented at all, and scientific preparations only are patented. These scientific patents are frequently held by members of the medical profession, and I was not aware that there was a difference in the ethic practice of the two countries.

The application for the patent as not complying with the requirements of the office was refused, and Dr. von Ruck therefore tried to induce me to undertake certain experiments to fulfil these requirements. Declaring myself unable to do this and for other reasons, which I explained to the company, I left the institution early this year.

I was met in my efforts for a cancellation of the then existing contract by Dr. von Ruck at the end of May, by his proposition of a new contract. Both parties in this contract agree to cease the manufacture of Antiphthisin in this country. I agree to furnish the preparation from Germany, leaving to Dr. von Ruck the right to sell it here. One-third of my investment in the company was paid me, for the other two-thirds I had to accept notes. I have never received any payment of dividends from the company, only a small compensation for Antiphthisin furnished from my German laboratory, in whose management Dr. von Ruck and myself had equal shares at this time.

Being now more familiar with the customs of this country and better acquainted with the medical profession, I can only regret that ever an attempt was made to protect Antiphthisin by patent, and I am satisfied that this question will not need any further consideration. I consider the rule of the AMERICAN MEDICAL ASSOCIATION against proprietary medicines of

binding force, though its existence was not known to me at the time, and though I agree with Dr. Stewart, that a qualification of these medicines would be very desirable, which would not indorse the whole unscientific nostrum trade. The question has gained in importance since the introduction of bacteriologic products into therapeutics, as a protection by law of their methods of preparation, not in the interest of individuals, but as a guarantee for their purity and efficiency and as a protection against the production of such remedies by untrained hands.

Hoping that Dr. Stewart's paper will find the well merited consideration by the profession, to the benefit of science and further therapeutic efforts and to the strict exclusion of the entirely unscientific nostrums, I am yours very respectfully,

EDWIN KLEBS, M.D.

Herman W. Mudgett alias H. H. Holmes.

MILWAUKEE, WIS., Aug. 20, 1896.

The article of Dr. Eugene S. Talbot in our JOURNAL for August 1, reminds me that I may say something about Holmes which may be of interest to members of the medical profession.

Holmes was a member of my class, which graduated in 1884, and he received his degree of Doctor of Medicine with the other successful members. A few failed in their examinations but Holmes was not among them. I was not intimately acquainted with him but knew him as well as I did any member of the class, excepting my immediate associates. What manner of man he was I remember distinctly and as distinctly recall several conversations I had with him.

Holmes was a mild-mannered young man, with a diffident air, possessing no characteristics in any direction which would attract attention. He evidently had not much in the way of pecuniary means, for he dressed plainly, almost shabbily, and he eked out his expenses by "doing chores" about the premises of Prof. Edward S. Dunster, who died several years ago. As a student he was below the average of the class, decidedly, both in ability to acquire knowledge and in readiness to express what he knew. I distinctly remember his halting, uncertain manner when called upon to answer a question at a "quiz," and I also remember a "scoring" which that earnest, conscientious old man, Professor Palmer, gave him on an occasion because he was remiss in answering a question in physical diagnosis. Indeed, a single circumstance indicating acuteness in any direction on the part of Holmes, can not now be recalled.

Holmes attended the meetings of the Y. M. C. A. Whether he was a member in good standing I do not know. He once told me that he intended to go to New Zealand as a medical missionary after graduation. At another time, when a clerical member of the class took exception to a eulogy of Thomas Paine, given incidentally by one of the professors, he had a supporter and sympathizer in the person of Holmes, when he (the clerical member) took the matter to the president of the University.

He seemed to take a good deal of pleasure in the uncanny things of the dissecting room. One afternoon's conversation with him I remember distinctly. He talked a great deal about what he had done in the dissecting room with, what appeared to me at the time, unnecessary gusto, and told me that the professor of anatomy was to permit him to take the body of an infant home with him for dissection during the spring vacation, which was to begin on the following day. I asked where he would find a place in which to carry on his work without offending his neighbors, and he replied with something to the effect that he "would find a place."

There can not be much doubt that even at this time Holmes would lie when it was to his advantage to do so. On one occasion I was directly concerned in his lying, the circumstances of which may be of interest as throwing some light on his character. It occurred at a final oral examination. The members of the class were called in alphabetical order, one by one, and I was surprised to find Mudgett present himself in front of me. I called his attention to the fact that his name came after mine and asked for an explanation. He said that L., mentioning the name of a student, had gone out of town and that he (L.) had given him his place. I asked him when he saw L., and he said "this morning." Now, I knew as a matter of fact, that L. had left the city the night before, and, moreover, that he had been dismissed from the University in disgrace for attempted cheating in an examination. Feeling a little surprised at Mudgett's mendacity, I told him that I knew he was lying and I told him how I knew it, and that I would not permit him to go in for his examination ahead of me. He received my decision with very ill grace, but made no physical resistance. When I came out I found him in tears, relating the matter to a classmate, and he whined that it was "a damn mean trick" to deprive him of the place given him. This is the last conversation I remember having had with him.

While at the University I can not recall any direct evidence of his fondness for women. On one occasion, the latter part of his last year at the school, he spoke of his wife, and I was surprised to hear that he was married, as, up to that time, I supposed he was a single man. There must, however, have been some story current, connecting Holmes with women during his University life. I have a hazy remembrance of his being charged with some irregular conduct of the kind, and of his making a stout denial. Turning to the "Class Phrophecy" which was written at the close of last year at school, I find that I wrote of Mudgett as follows:

"Herman W. Mudgett, unlike George Washington, no widow shall find favor in his eyes. After being charged with innumerable Don Juan escapades for which he is not responsible, he will retire to write a book on the 'Oppression of Man.' This book will make women very unpopular." This was, no doubt written apropos some affair with the other sex which was discussed by his fellows.

The stigmata of degeneration discussed by Dr. Talbot, no doubt existed at this time; but they did not attract enough attention to cause any remark that I ever heard, except on possibly one occasion. Following a custom which then existed, the members of the senior class ordered silk hats and a representative of a Detroit firm came to Ann Arbor to take the boys' measures. In doing this the usual periphery was sketched on paper. As is well known some startling irregularities are sometimes disclosed by this proceeding. A friend and myself took a good deal of interest in these outlines and Mudgett's was inspected among the rest; but I am unable to say what the irregularities were in his case, or how valuable they were if they existed. The outline may still be in the hands of Walter Buhl of Detroit.

It is not the purpose of this article to discuss Holmes as a probable degenerate. I simply write the facts concerning him, as far as I know them, while he was a student in the University of Michigan. On the whole the impression I had of him before he became notorious as a criminal, was that of a liar and sneak without ability or courage to do great deeds in any direction.

JOHN MADDEN, M.D.

Concerning Dispensaries.

NEW YORK, Aug. 20, 1896.

To the Editor:—A circular of information wanted, is being sent to the various dispensaries of New York City by the State Board of Charities. I presume that it is sent to all dispensaries alike, both large and small. Among the questions to be answered are the following:

6. If connected with a medical college, hospital, or any other institution, state the name thereof.

7. The name of the governing board of the dispensary.
8. The stated times of meeting of said board.
9. The average attendance at meetings.
10. How often have the members examined the work of the dispensary?
13. What forms of records are kept?
14. What means are employed to determine that each patient is unable to pay for medical or for surgical treatment?
15. What charge, if any, is made to patients for treatment?
16. What charge, if any, is made to patients for medicine?
17. If any members of the medical staff are paid for their services, state for what service, and at what rate?
20. How are the medical men selected, and by whom?
21. Are any physicians or officers appointed after competitive examination?
22. Do the physicians ever treat the patients as their own private patients, and if so, give the particular rule under which the charge is made?
28. Is there a class of physicians assigned to the treatment of patients at their homes?
29. What pay do they receive, and from what source?
31. How many of the patients were non-residents of the county in which the dispensary is located?
38. Is a collector employed to solicit contributione?
39. If so, at what rate of compensation?

S. F. B.

Audi alteram partem.

A Defense of the Bicycle.

Birmingham, Ala., Aug. 21, 1896.

To the Editor:—Will you kindly allow me space to comment briefly on an editorial in the Journal of the 15th inst. entitled "Bicycling Pro and Con."

I would like to ask how many cases of deformity of the female pelvis from this cause have been noted? Also, how many patients have applied for treatment for vesical and prostatic irritation caused by the bicycle saddle?

To place the bicycle in its proper place as a machine for good or evil, it would seem to be necessary to compare all such damage done with the good it has accomplished. The great advantage which the wheel has over all other modes of exercise is the pleasure it affords. The therapeutic value of fun is, I think, undisputed. It combines fun with plenty of fresh air and exercise, and if there is any better combination from a health standpoint it is yet to be reported. The tired drudge of a clerk or book keeper, after being on his feet all day, does not relish such a prescription for his dyspepsia as a "long walk," but he can ride a wheel and enjoy it, and at the same time promptly cure his dyspepsia.

The reason for the wide extent of "the craze" is just this combination of exercise, pleasure and fresh air, which reaches all classes. And the good it accomplishes I think far outweighs the occasional harm it may do to a young girl or an old man.

Where little girls once spent all their idle time cramped up in a corner of a nursery, with their dolls or inane amusements, pale faced, dull eyed and constipated, or strolled languidly along the street in groups, anemic, round shouldered and spindle shanked, they now ride wheels and are animated, strong limbed and healthy. No doubt the morals of a few older girls suffer, but they are far fewer than was the case under the old style of buggy driving and entertaining their men friends in dark corners.

Idleness and erotic thoughts always go together. There are no such safeguards anywhere against bad habits as active mental and physical exercise. The reproductive instinct, the sexual appetite, is the result of a surplus of energy left after the body heat and growth, and the mental and physical expenditures, have been supplied.

There is no evidence, so far as I know, to substantiate the theory that the bicycle will deform the pelvis, and there is no more reason for it than to suppose that sitting on a chair will do it. On the other hand, it develops all the pelvic muscles, and must, by the general good health it induces, make the girl stronger in every way.

The bicycle costumes and contours are shocking to conservative eyes just as the modern bathing suits are shocking to the eyes of our Uncle Reubens and Aunt Marias, while others would feel it infinitely more shocking to see a bathing skirt which reached down to the heels. But the bicycle girl, like the summer girl, has cut her clothes for convenience, and will likewise probably leave the Uncle Reubens and Aunt Marias to get over it as best they may.

The bicycle has too many advantages pointing to its permanency to be called a fad. The people who first took advantage of comfortable railway coaches were, no doubt, called faddists by their philozoic contemporaries, and no doubt a great cry was raised about the harm to come to the morals and the hemorrhoidal veins of the nation from the slothful and luxurious habit of sitting all day on the soft and warm cushions. But the railway was more than a fad, and anything like a just recognition of its merits must show that the bicycle has also come to stay.

Book keepers, salesmen and others, whose lives were once one round of drudgery, bad air, no exercise and dyspepsia, now live two or three miles out in the country where their families can be healthy and they themselves can live on something more nourishing than tea, toast and pepsin.

Finally, the bicycle takes young men away from the saloons and those other places the natural allies of the saloons, the frequenting of which probably gives rise to a thousand cases of prostatic and vesical irritation where the bicycle saddle causes one.

The writer does not ride a wheel, consequently has no personal experience of vesical or prostatic irritation to report. He can readily see, however, that a busy practitioner forced to an explanation of a vesical irritation in his own person, by a recently developed monomania for urinals would be unfortunate indeed if he did not have a wheel to charge it to.

2220 1st Ave. George S. Brown, M.D.

Practice in Africa.

Milwaukee, Wis., Aug. 20, 1896.

To the Editor:—Will you please inform me if our American diploma is accepted to practice medicine and surgery in any and all parts of Africa, and if not what procedure I will have to undergo to begin practice in that country. I was under the impression that anyone could practice in that country who was a regular graduate. Will you please be kind enough to give me the desired information I ask and oblige yours fraternally,

W. C. Arons, M.D.

211 Grand Ave.

Answer:—Each country having provinces in Africa, has a different regulation. The independent states also have special regulations. A letter to the colonial governor in the case of the provinces would give you the desired information.

Albinism.

New York, Aug. 22, 1896.

To the Editor:—As bearing on the subject of racial degeneracy, I report the following cases:

1. Mrs. B.. an ultra-blonde, native of county Wexford, Ireland (limestone region), recently died of aortic stenosis and cerebral embolism, leaving as surviving family: a sister, congenitally hunchbacked, a deaf and dumb son, and two daughters, one unusually tall, who is goitrous, the other a *full albino*.

2. Miss C., aged 28, whose parents both were deaf mutes,

has a streak of *perfectly white hair* an inch in width, extending from occiput to forehead; this was congenital.

I ask the question therefore, is not albinism like deaf-mutism, goiter, dwarfing, etc., evidence of racial degeneracy? Certainly there exists some relation between vitiligo and leprosy, and the latter is found only in degenerate classes.

ALBERT S. ASHMEAD, M.D.

Civil Service Commission.

CHICAGO, Aug. 24, 1896.

To the Editor: The Chicago Civil Service Commission will hold an examination for the position of medical inspector of the City Health Department (salary $75), September 3, at 2 P.M., in the Council Chamber. Applications must be filed at the offices of the Civil Service Commission on or before September 1. Candidates must present evidence of recognition by the State Board of Health of Illinois to practice medicine in this State before application will be received.

Examining Board: Drs. Wm. Cuthbertson, Maurice L. Goodkind, S. C. Plummer, Arthur R. Edwards, Jos. R. Hawley. Respectfully, E. J. PHELPS, Secretary.

BOOK NOTICE.

The Journal of Experimental Medicine. Edited by WILLIAM H. WELSH, M.D., Baltimore. Vol I, No. III. New York: D. Appleton & Co. 1896.

A stately volume of more than 200 pages, showing in its various contents how timely and successful appears the gathering of American experimental work in one organ. This will excite more and more the emulation of the investigators and of the institutions dedicated to this work.

If it is practical to bring about also pathologic and anatomic labors, I am not sure. But the division of the two lines of scientific investigation can be made later, if it seems to be needed.

We can give here but very short indications of the rich contents, hoping that they shall provoke the reading of the original.

1. On the pigment of the negro's skin and hair, by John T. Abel and Walter T. Davis, from the pharmaceutic laboratory of the Johns Hopkins University.

A fine chemic work, showing that the pigment of the negro's skin and hair forms, as is known, cylindric or rod-like granules, contained in epithelial cells. The authors show that the pigment can be made soluble by treating the granular part by diluted hydrochloric acid, then by diluted alkalies. A very skillful use of acetic acid, ammonia and precipitation with alcohol ether (6 to 1) grants a high degree of purification. The brownish powder gives a markedly acid reaction. The first high percentage of salts can be reduced from 0.8 to 1.2 per cent. The quantity of pigment in the epidermis (3.08 to 3.78 per cent.), is greater than in the hair (1.9 per cent.).

The acid is probably identic with the hippomelaninic acid, prepared by Berdez and Nencki from melanotic tumors of the horse. The non-colored ground substance seems to be derived from keratin, giving pyrrol and hydrocyanic acid in dry distillation.

The substance has a very high percentage of sulphur (3.6 per cent.) and is nearly free from iron, a fact which correctly brings the authors to the conclusion that the hemoglobin, containing but a little more than .05 per cent. sulphur, can not be regarded as the mother substance of the melanin. That the melanin probably must be derived, as is suggested by the author, from proteids of the parenchymatous juices, coincides very well with the anatomic facts proved in melanotic tumors and the suprarenal melanosis (morbus Addisonii).

2. W. J. Bradley brings an anatomic description of hemorrhagic cysts of the thyroid gland, and thinks to have found a new form of goitre. So far as the writer can see, it is no other than a secondary degeneration in glandular and colloid struma.

3. A. C. Abbott has found in the Schuylkill River in Philadelphia a vibrio, very similar to V. Metschnikovii, and studies its cultural, biologic and morphologic properties in a very intensive and careful manner. The discovery of such a suspicious vibrio, of near relationship to the vibrio of cholera Asiatica, in a place that was free from cholera since 1873, is of a great practical and theoretic interest.

4. The same brings experimental investigations over the influence of alcoholism upon the susceptibility against certain pathogenic organisms. As control-animals suppported infections that killed the alcoholized animals there can not be a doubt that the very high alcohol doses used in rabbits (10 to 15 c.c.) must heavily depress the normal faculty of resistance.

5. I. Adler and S. J. Meltzer (New York), have worked on the question of "the path by which fluids are carried from the peritoneal cavity into the circulation." By tying in rabbits the innominate veins, the authors searched to exclude the lymphatics; afterward they observed the quantities of fluid reabsorbed in a certain time (mostly forty minutes) from the peritoneum. Injecting small quantities of potassium ferrocyanid, they found only a retardation of the excretion in the urine, marked by the Prussian-blue reaction, showing that by excluding the lymphatic circulation thus indirect penetration of the peritoneal fluid into the blood vessels takes place, but after a longer time. After injecting larger quantities of fluids into the peritoneum, much more complicated processes must be expected, depending upon the quantity influencing the circulation, and upon the composition of the injected fluid, influencing the osmotic process.

The exclusion of the lymphatic ducts effects also in this order a retardation in the process of resorption, but the exceptions from the rule are greater and the differences not so striking as after injecting small quantities. Finally, they find the greatest resorption from the peritoneum in dead animals, demonstrating the swelling of tissues (Quellung) effected by the osmotic process. Also filtration was effected in these experiments by the gaseous distension of the intestines. The path in which, under these circumstances, the fluids are carried from the peritoneum, is shown by the edematous infiltration of the surrounding tissues.

In the explanation of these phenomena the authors find difficulties which they, as it seems to me, can not wholly resolve (pp. 518 and 519). They state a marked difference between lymph and tissue fluid, but they can not detect the forces that direct the movements of these fluids; forces that they do not like to name "vital forces." Certainly, if the entrance of fluids from the peritoneum into the tissues occurs also in life, as in death, there must be some forces that will cease with life. That is, what physicists may name "vital forces" so long as the physic of the living body is not more recognized as yet. The problem will absorb much labor before the truth is declared, but there is made by the authors a good step toward this end.

6. S. J. Meltzer reports very curious experiments on gastric resorption. Strychnia solutions are not reabsorbed and will not kill the animal, if the introduction into the intestine is hindered by ligature of the pylorus. Hydrocyanic acid, on the contrary, results fatally injected in the ligated stomach, as the author suggests, possibly by its volatility. It would have been interesting to see a statement of the action of the soluble salts of the same acid.

7, 8. B. Meade Bolton brings some studies over the modern theme of antitoxin, the first with Herbert D. Pease on the production of antitoxin by the passage of electricity through diphtheritic cultures, the other on antitoxin in normal horse blood.

The authors use in contrast to the last observers (D'Arsonval and Charrin, Bonomi u. Viola, *Centralbl. f. Bact.*, xix, 22, 23) constant currents of 110 volts (of the Edison light) working on diphtheria cultures in H-shaped tubes for dividing the products formed at the two poles. The products at the positive pole

had decided antitoxic effects, if mixed to efficient toxin in the proportion of 1 to 5 c.c. The product of the negative pole was inefficient.

Probably the toxins are destroyed by the current and the antitoxic effect depends upon the healing substance contained in every culture of diphtheria.

Bolton found antitoxic properties in the serum of some horses. The immunization of these animals is going on with very slight reaction. But reaching doses of more than 100 c.c. toxin, there is no more difference in reaction.

9. Henry G. Beyer gives the results of regular exercises on the growth and weight of naval cadets from 16 to 21 years of age. The increase in height reaches to nearly one inch, of weight to 25 kilos. over the increase in untrained young men of the same age. The lung capacity had gained in the five years 1,722 c.c. more in the trained than in the untrained.

10. Simon Flexner (Johns Hopkins University) reports in a highly interesting treatise the results of bacteriologic studies made regularly in the postmortems of the pathologic department (H. Welsh). We can not reproduce here the details, but it is clear that, if in 255 cases 213 or 83.5 per cent., give positive results, we have an important death-promoting factor not yet estimated. It is also shown by plate cultures that in cases of patients with bad prognosis, the bactericide power of serum is highly diminished, a fact in apparent connection with the origin of these "terminal infections."

NECROLOGY.

William C. Benedict, M.D., well known to the medical fraternity in Brooklyn, N. Y., for the last fifty-two years, died August 17. The cause of death was heart failure, brought on by the intense heat of the previous week. Dr. Benedict had been suffering from heart disease for a number of years. He became seriously ill on Thursday evening, but it was not expected that the attack would prove fatal. Dr. Benedict was born in Schenectady on April 19, 1820. He graduated from Union College in 1840 and from the Medical Department of the University of Pennsylvania in 1844. After his graduation he became connected with the Blockley Hospital for the Insane in Philadelphia, where he rose to the position of chief physician, and remained two years. He then became one of the managers of the Insane Asylum at Poughkeepsie, which place he filled for about a year. He moved to Brooklyn and became prominent during the cholera plague. He is said to have treated the first cholera victim and was successful in saving his patient's life. He served as physician at the Raymond Street Jail for a number of years. Altogether, Dr. Benedict practiced for forty-five years, retiring in 1877, after which he made a tour of Europe.

Lewis McKnight, M.D., medical director, at Milwaukee, Wis., August 21, of neuralgia. He was 71 years of age and a native of New Jersey. He graduated from the Medical Department of the University of Pennsylvania, Philadelphia, Pa., in 1841.

William C. Parker, M.D., at Santa Cruz, Cal., August 11, after a lingering illness, aged 73 years. Dr. Parker was a native of New York and had just graduated with high honors in medicine and surgery when he received his appointment as surgeon in Colonel Stevenson's famous regiment, which was dispatched from his native State to California in 1846. At the close of his military service a few years later he settled in San Francisco, where he was prominent in professional and business circles for over thirty years.

Andrew J. Pierce, M.D. (Jefferson Medical College, Philadelphia, 1856), at Kansas City, Mo., August 13, aged 64 years.

John H. Callender, M.D., at Nashville, Tenn., August 7, aged 64 years. He graduated from the Department of Medicine of the University of Pennsylvania, Philadelphia, in 1855, since which time he has been in general practice in Nashville, except from October, 1861, to February, 1862, when he served as Surgeon in the Confederate Army. From 1855 to 1857 he was editor of the *Nashville Patriot*, and from 1866 to 1869 editor of the *Union and American*. In 1858 he was appointed professor of materia medica and therapeutics in the Shelby Medical College; in 1868 professor in the same chair in the Medical Department of the University of Nashville, and in 1870 professor of diseases of the brain and nervous system in the Vanderbilt University and the Medical Department of the University of Nashville. In 1869 he was appointed medical superintendent of the Tennessee Hospital for the Insane. He was a member of the American Medical Association, American Medico-Psychological Association and Tennesse State Medical Society.

J. A. S. Grant Bey, M.D. Our readers will regret to learn of the death of Dr. J. A. S. Grant Bey of Cairo, Egypt, which occurred July 28. He was well known in this country, having attended the Ninth International Medical Congress at Washington in 1887, and the Columbian Exposition of 1893 in Chicago. No foreign visitor made more friends in the short trips made to America than the subject of this notice.

Robert Fleet Speir, M.D., of Brooklyn, and brother of the late Dr. S. Fleet Speir, died August 13, at his home, of valvular disease of the heart with dropsy and some intercurrent renal impairment. He had been ill about six months. His early training was obtained at the Polytechnic Institute of Brooklyn, and he was a graduate from the University of Vermont, just thirty years ago. He had not been in active practice for many years.

Martin C. McCarthy, M.D., of Brooklyn, died August 12, aged 30 years. He was a graduate of the New York University Medical School in 1891. Dr. McCarthy had a large practice in the eastern district of the city. The numerous cases of sudden illness caused by the heat overtaxed his strength. Dr. McCarthy came to Brooklyn from North Adams, Mass., five years ago, and obtained rapidly a profitable practice. He was married three years ago to Miss Rose McKeever, of Pittsfield, Mass. The cause of his death was certified as being acute renal disease, with a duration of less than three weeks.

Normand Smith, M.D., of Yonkers, died at Keene Valley, N. Y., July 30, from apoplexy. He was a graduate of Yale, 1858; obtained the degree of M.D. from Columbia in 1861, and subsequently studied at Berlin and Vienna. He practiced medicine in New York for many years, and up to the time of his death was a member of the Century Club. Dr. Smith suffered from his first attack last January. The second was some time during last month, from which there was a temporary recovery. He leaves a widow with five children.

Joseph Augustus Monell, M.D., a general practitioner in New York city for about forty-five years, died at his home August 12. He was born at Middletown, New York, on Sept. 25, 1826, and was an alumnus of the College of Physicians and Surgeons, New York, 1850; a fellow of the American Medical Association and of the New York Academy of Medicine, as well as of other leading local societies.

George R. Henderson, M.D., of Brooklyn, N. Y., who died July 28, was a colored practitioner of good position. He was 45 years of age and a graduate from Yale University in the class of 1876. He had been eight years a resident of Brooklyn. His death took place at St. Catharine's Hospital, whither he was taken for treatment on account of an overdose of morphin accidentally taken, for the relief of pain.

Algernon Sidney Roberts, Jr., M.D., of Philadelphia, died August 17 at Halidon Hill, R. I., near Newport. He was a graduate of the University of Pennsylvania, 1877. He made a promising professional opening, but social and other opportunities led him to retire from active practice several years since.

Woodman W. Royal, M.D. (Medical School, Maine, 1863), died at his home in Portland, Ore., July 22, aged 61 years.——James W. Green, M.D. (Rush Medical College, Chicago, 1856), a member of the American Medical Association, and at one time president of the Shelby County Medical Society, died at Shelbyville, Ind., July 26, aged 72.——James Hanghey, M.D. (University of Louisville, Ky., 1846), died at Scooba, Kemper County, Miss., in his 79th year, July 26.——Richard G. Wharton, M.D. (University of Pennsylvania, 1837), died at Port Gibson, Miss., July 30, aged 82 years.——Elias S. Boatner, M.D. (Tulane University Medical Department, New Orleans, 1891), died at his home in Victoria, Texas, August 1.

PUBLIC HEALTH.

Mortality Report.—There were sixty deaths in Louisville during the past week; none from typhoid fever though there is a great deal of it in the city. Seven cases of diphtheria were placarded and two cases of scarlet fever.

Vital Statistics of Cape of Good Hope.—A preliminary report issued by the registrar of births and deaths contains an account of the working of the new registration law of 1894. For the year 1895 there were registered 45,642 births, 31,467 deaths, and 7,358 marriages. Exclusive of the native territories, and taking the population in 1895 at 1,143,846, the birth rate amounted to 32.8 per 1,000 population and the death rate was 21.7 per 1,000. These figures will be somewhat increased in the final report owing to the addition of delayed returns.

New Respirator for Factory-Workers.—A valuable prize has recently been awarded by the French "Society for the Prevention of Accidents in Industrial Pursuits," for the best form of respirator produced, to Dr. Detourbe, whose design has now been adopted in quite a number of the most important workshops in northern France. The arrangement in question is described as a mask so shaped as to fit the lower half of the face closely, but not so as to interfere with the wearer's vision; a chamber in the middle, through which the air is filtered, which projects only a slight distance from the rest of the mask, contains a layer of asbestos and also one of cotton or wool, arranged between small plates of aluminum gauze. The mask is of copper, and a strip of elastic felt runs around the inner surface near the edge, thus insuring the necessary contact all around, and the device is held on with light elastic bands encircling the head, one being on a level with the forehead, and the other about opposite the lower lip. The orifice is of such a size, and the lining of the chamber so loosely packed, that the wearer of the appliance is enabled not only to breathe, but to talk without difficulty, these two points constituting the great advantages of the invention.

Dangerous Water Tanks of City Buildings.—Sundry are the improvements that the fertile minds of architects and builders have pressed upon the modern top-lofty city structures. Divere are the perils that attend these same devices in the case of accident or derangement. Fire Chief Bonner of New York City has said that in that city there are not less than 5,000 unsafe water tanks upon house tops. These are likely to destroy property by leakage at any time, and in case of fire they constitute a serious danger to the firemen of falling through the building when the lofts and roofs are burned away. But if there are 5,000 unsafe tanks, how many foul ones are there. Every such reservoir, furnishing as it does, water for drinking, washing, cooking, etc., should be cleansed every month or oftener, and it is not probable that one in a hundred receives this attention. Perhaps some of the most pretentious dwellings and the most famous hotels have the filthiest water. Too much care can not be addressed to this source of disease by those intrusted with the charge of public health; verily conveniences many and menaces many go hand in hand in our ways of civic life.

Health Officer Doty's Return from Cuba.—Dr. A. H. Doty, Health Officer of the port of New York, returned from Cuba August 17. The object of his adventurous midsummer visit was to arrange with the Spanish authorities for the lessening of the danger from yellow fever. His trip was partly successful. He appointed health officers at Havana, Cienfuegos and Santiago to represent the interests of New York harbor and the country at large. They will inspect all persons bound for New York and prevent those undesirable from a sanitary point of view from embarking. Dr. Doty is reported as saying that Havana is a most unhealthy place. There seem to be no methods of sanitation there at all. Many of the vessels in the harbor are anchored near docks out of which the sewage flows, and thus bring infection away with them. He intended to visit the south side of the island, but he could not do so because the insurgents had practically blocked railroad traffic in that direction. He could not find the health officer or the health office in Havana. "Within the last two weeks preceding my departure," Dr. Doty said, "there were 300 cases of yellow fever there. No attempt has been made to sewer the city properly. By simply cutting through a narrow strip of land and dredging a channel the city's refuse might be carried into the gulf stream and far out to sea. With proper sanitary precautions Havana would be a remarkably fine city. The Spanish soldiers get sick on their way to Havana in the transports. When they land some of them are half dead from the effects of the fever."

Culture Work in Diphtheria for the Buffalo Board of Health.—Dr. W. G. Bissell, in the *Buffalo Medical Journal*, reports upon the bacteriologic work done at the laboratory of the Department of Health in 1895. He says that although a considerable amount of work relating to the diagnosis of diphtheria was carried on in the laboratory prior to January, 1895, it was at that time that the work was begun in a systematic manner. Out of 1,535 cultural inoculations made by the physicians in Buffalo since the inauguration of municipal bacteriologic examination, only eighty-three were found to be imperfect. Occasionally a culture was so neatly contaminated with various bacterial growths that it was impossible to recognize the Klebs-Loeffler bacillus, when the latter was present in small numbers. The smallest amount of certain germicidal fluids, especially the solutions of the bichlorid of mercury, in the throat of a patient at the time of the culture-taking will frequently prevent growth on the culture media. Of the 1,040 cultures which did not reveal the Klebs-Loeffler bacillus, the organisms found, named in order of the frequency of their occurrence, were as follows: Staphylococci, the most numerous being the aureus; cocci without any definite arrangement; streptococci; bacilli other than the Klebs-Loeffler and deserving of special mention, a very large strepto-bacillus was of frequent occurrence; the thrush fungus; diplococci. The greatest mortality in cases of diphtheria appears to be produced by a mixed infection; that is, the specific germ is usually associated with either the streptococcus or the staphylococcus. It seems also to be a fact that when both the staphylococcus and the streptococcus are associated in the same culture with the diphtheria bacillus, that the case is a mild one. From this latter point it would certainly appear as if there was a certain antagonism between the combined cocci and the diphtheria bacillus, and this latter point seems well worthy of consideration and experiment. Many experienced physicians still find difficulty in believing that cases in which the exudate or pseudo-membrane is entirely absent from the pharynx and tonsils are those of true diphtheria, and it is also difficult to impress upon parents that a case is diphtheria and capable of transmitting the infection, although the person infected is hardly in a condition to be called ill.

Health Report.—The following reports of mortality from smallpox, yellow fever and cholera have been received in the office of the Supervising Surgeon-General U. S. Marine-Hospital Service:

SMALLPOX—UNITED STATES.

New Orleans, August 8 to 15, 1 case.

SMALLPOX—FOREIGN.

Alexandria, Egypt, June 4 to 10, 1 death.
Buenos Ayres, May 1 to 31, 15 deaths.
Cairo, Egypt, June 4 to 10, 4 deaths.
Callao, Peru, July 19 to 26, 12 deaths.
Corunna, Spain, July 11 to August 1, 3 deaths.
Dublin, Ireland, July 1 to 31, 1 death.
Guayaquil, Ecuador, August 1 to 7, 1 death.
Hong Kong, July 11 to 18, 2 deaths.

Leith, Scotland, August 1 to 8, 1 case.
Licata, Italy, July 25 to August 1, 1 death.
London, England, August 1 to 8, 22 cases.
Madrid, Spain, July 28 to August 4, 26 deaths.
Montevideo, Uruguay, July 11 to 18, 3 cases, 1 death.
Moscow, Russia, July 25 to August 1, 1 case.
Odessa, Russia, July 25 to August 1, 5 cases, 3 deaths.
Osako and Hiogo, Japan, July 4 to 11, 47 cases, 21 deaths.
Prague, Bohemia, July 25 to August 1, 1 case.
St. Petersburg, Russia, July 25 to Aug. 1, 3 cases, 3 deaths.
Warsaw, Russia, July 25 to August 1, 2 deaths.

CHOLERA.

Egypt: Alexandria, June 4 to 10, 23 deaths; Egypt, June 4 to 10, 133 deaths.

YELLOW FEVER.

Matanzas, Cuba, August 5 to 12, 28 deaths.
Sagua la Grande, Cuba, August 1 to 8, 99 cases, 10 deaths.
Santiago, Cuba, August 8 to 15, 27 deaths.
Quantanamo, Cuba, July 1 to 31, 13 deaths.
Havana, Cuba, August 6 to 13, 160 cases, 52 deaths.
Vera Cruz, Mexico, August 6 to 13, 3 cases.

SOCIETY NEWS.

Mississippi Valley Medical Association.—The time of the twenty-second annual meeting of this Association at St. Paul, Minn., has been changed to Sept. 15-18, 1896.

American Dermatological Association.—This Association will hold its twentieth annual meeting at Hot Sulphur Springs, Va., Sept. 8-10, 1896. The following papers will be read: "A Pathologic and Clinical Classification of the Diseases of the Skin," L. A. Duhring: "Erythema Multiformis," with a report of two cases, W. T. Corlett; "A Peculiar Affection of the Mucous Membrane of the Lips and Mouth," with colored drawings and photographs, J. A. Fordyce; "A Favus-like Eruption of the Oral Mucous Membrane Caused by the Aspegillus Niger," J. MacF. Winfield; "What Effect do Diet and Alcohol have upon the Causation and Course of the Eczematous Affections and Psoriasis," discussion opened by J. C. White; "Cases of Mycosis Fungoides and Sarcomatosis," J. T. Bowen; "Xanthoma Diabeticorum," A. R. Robinson; "Some Glycosuric Dermatoses," C. W. Allen: "The Relation of Dermatitis Heptiformis to certain other Diseases," L. A. Duhring; "Bath Pruritus," H. W. Stelwagon; "Eruption from the Local Use of Iodoform (with colored drawings)," J. A. Fordyce; "Impetigo Contagiosa Universalis," C. W. Allen.

Pan-American Medical Congress.—Dr. C. H. Hughes, honorary president of the Section of Neurology, Psychiatry and Medical Jurisprudence of the Pan-American Medical Congress, is sending out the following invitation to the alienists, neurologists and medico-jurists of the United States:

My Dear Doctor:—Can the Section rely upon you for a paper or subject of discussion for the Pan-American Medical Congress to be held at the City of Mexico, November 16, 17, 18 and 19 proximo?

I have just been informed, rather tardily I think, of my selection as honorary president of the Section of Neurology, Psychiatry and Medical Jurisprudence for the United States.

The meeting promises to be an exceedingly profitable and agreeable one socially and scientifically. We should make the best showing we can for American psychiatry, neurology and forensic medicine. You can materially help in this laudable direction. Will you promise a paper and your presence on this interesting occasion? If so, please indicate on the enclosed your intention to be present. Address Dr. E. Licéaga, Secretary, Republic of Mexico, Calle de San Andres No 4, Mexico City. Yours very truly, C. H. HUGHES, M.D.,

St. Louis, Mo., Aug. 14, 1896. Honorary President.

Accompanying each enclosure is the following announcement and request from Dr. Licéaga, Secretary-General of the Congress:

I have the honor to request your presence in the Second Pan-American Medical Congress, which will meet in the City of Mexico on November 16, 17, 18 and 19 of the present year, sending you separately the respective rules.

I beg of you to answer if you come, and how many persons will accompany you. The invitation is also for ladies, and we hope to obtain a considerable reduction on the round trip rates, but for such reduction the railroad companies must know three months before the meeting the number of passengers and the places they come from.

Please send as soon as you can the answering card, filling the spaces marked for names and addresses.

DR. EDUARDO LICÉAGA, Sec'y 2d P.-A. M. C.

Mexico City, January, 1896.

Dr. Hughes requests his neurologic friends who contemplate attending the Congress and taking part in the work of this Section to accept in his name the foregoing request from President Licéaga and to answer direct to him the questions Dr. Licéaga propounds.

MISCELLANY.

New Edition of Gray's Anatomy.—Lea Brothers & Co., of Philadelphia and New York, announce a new edition of Gray's Anatomy. The few errors of previous editions have been corrected, and many additions made.

Honorary Chairman.—Dr. N. C. Morse, of Eldora, Iowa, has been elected, on behalf of the United States, honorary chairman of the Section on General Medicine of the second Pan-American Medical Congress.

Professor Behring's Resignation.—Professor Behring is about to resign his chair (hygiene) at the University of Marburg, in order to devote himself exclusively to scientific research. Wernicke will probably succeed him.

The Vienna Medical Association.—Dr. Adamkiewicz has been dropped from the list of members on account of his having advertised his cancer cure in the daily press. The inefficacy of the cure was fully established by Professor Albert and others after careful trial.

Serum Treatment of Leprosy.—Carrasquilla's success with fifteen cases of leprosy treated with serum from horses inoculated with the disease, has already been mentioned in this JOURNAL, page 943. A copy of his report to the Bogota Academia de Medicina (Republic of Colombia) has been received. His methods are similar to those generally practiced in serotherapeutics, but until we read a detailed description like this few realize the infinite devotion and courage required in this branch of science.

Evidence Required to Prove Intoxication.—Evidence of intoxication which unfits one for his duties is competent in some cases in investigating whether his acts are negligent or not. But the supreme court of Missouri holds, in Culbertson v. Metropolitan Street Railway Company, decided June 30, 1896, that the mere habit of taking an occasional drink can not be regarded as any evidence of intoxication in the practical administration of justice, whatever abstract theories physiologists may advance on this subject. The evidence should and must go further, and show that the liquor affects the particular individual in such a way as to incapacitate him to some extent to attend to his duties.

Too Speculative Opinion Evidence.—The opinion of a medical witness as to the mental condition of a person at a certain time, based upon a physical examination made eighteen months afterward, where such witness is not informed as to the mental condition at the time when the mental capacity was in question, the supreme court of Kansas holds, in Missouri Pacific Railway Company v. Lovelace, decided July 11, 1896, is largely conjectural, and is too uncertain and speculative to be valuable or admissible. Opinion evidence, the court says, is only admitted from necessity, and then only when it is likely to be of some value.

Does Not Believe in "Fortune Telling."—The supreme court of Michigan affirmed, May 26, 1896, in the case of People v. Elmer, a conviction of "a modern day seer," "clairvoyant," "trance medium," and "healer" as a disorderly person. The court

quotes with approval the language used in the English case of Penny v. Hanson, which was, in effect, that no person who was not a lunatic could believe that the person referred to possessed such power as he advertised, his advertisement and circular amounting to pretending and profession to tell fortunes. And it is idle, says the court, to attempt to draw distinctions between professing to possess a power and pretending to exercise that power.

Detection of Formol Added to Milk.—Some of the milk sold as sterilized in the market has merely had formol added to preserve it, which is certainly not a benefit to infants. It can be detected promptly and rapidly by Denigés' method described in the *Bull. de la Soc. de Phar. de Bordeaux* for July. Boil two to three cubic centimeters of the suspected milk, add 10 to 15 drops of the following fuchsin reagent; then add one c.c. of pure hydrochloric acid. If the milk contains formol, the resulting mixture will be a violet blue, but if there is no formol it will be white like pure milk. The fuchsin reagent is prepared as follows: One-half per cent. solution of fuchsin, 40 c.c.; acq. dest., 250 c.c.; add 40 per cent. bisulphite of sodium, 10 c.c., and pure sulphuric acid, 10 c.c.

The Bertillon Method in Brooklyn.—At the Kings County Penitentiary, this system has been taken up with unusual thoroughness. A medical man, Dr. Stumpf, the assistant physician for the penitentiary, has been placed in charge of its early stages, and he is to have an exclusive cabinet or building wherein to conduct his examinations, and where the photographs and measurements can be made. This building, 20 by 18 feet, will have a north light, an abundant skylight roof and a photographic chamber.

A Characteristic Anecdote of Pasteur.—Once when Pasteur was dining with his daughter and her family at her home in Burgundy, he took care to dip in a glass of water the cherries that were served for dessert and then to wipe them carefully with his napkin before putting them in his mouth. His fastidiousness amused the people at the table, but the scientist rebuked them for their levity and discoursed at length on the dangers in microbes and animalcula. A few moments later, in a fit of abstraction, he suddenly seized the glass in which he had washed the cherries and drank the water, microbes and all, at a single draught.

Atomizer Decision.—May 21, 1896, the United States circuit court of appeals affirmed the decision of the circuit court in the case of Codman v. Amia, holding claims 1 and 2 of the Shurtleff patent, No. 447,064, for an improvement in atomizers, void for want of patentable novelty. This patent, the court says, simply describes a compact form of atomizer, which is better adapted than some others for nasal purposes. The specific improvement set out in the first claim consists in having the nozzle "secured directly to" the "cap or stopper, and adapted to be applied in the nostrils, and in open communication with the interior" of the vial; and in the second claim it consists of a cap or stopper having "its top formed with a seat for the nozzle." An examination of certain other patents mentioned, the court declares shows clearly that there was no invention in these improvements.

Care Required of the Blind.—The blind have as much right, says the supreme court of Florida in the case of the Florida Central and P. R. Co. v. Williams, decided April 14, 1896, to frequent railroad depots, public crossings and other places of danger, as any other of the general public. But, when they do so, due care dictates that they must provide themselves with such surroundings while there as are reasonably necessary to avoid upon their part all the known dangers that encompass the place. It is gross negligence in a blind man to expose himself alone and unattended in any situation where he knows that the faculty of sight is absolutely necessary to the safety of life and limb.

Proper Testimony as to Probability.—In an action for personal injuries the plaintiff's mother testified that since the wound in question had apparently healed it had broken out, and discharged blood and matter; that the wound was very tender; that she called no physician, but cared for it herself. A physician testified as to the cause of its breaking out, and that, from the fact that the wound had once broken out, it was liable to do so again. He was then asked: "What do you say as to whether that result is probable and likely to occur?" This question was objected to; but no objection was made as to want of knowledge by the witness of the facts, or that the form of the question should have been hypothetic, and the appellate division of the supreme court of New York holds, in Penny v. Rochester Ry. Co., decided June 17, 1896, that the question was proper as calling for what was probable and likely to occur.

Physiologic Action of Airol.—The *Gaz. degli Osp. e delle Clin.* of July 5 contains the results of a careful study of the effects of airol made in Mosso's laboratory at Genoa. It was found that it slightly accelerates the coagulation of the albuminoids, and that in cold-blooded animals it retards the cardiac action. In warm-blooded animals the effect differed with the amount administered and the method of administration. There was no toxic action when injections were made hypodermically or into the ear, but symptoms of intoxication followed injections into the peritoneal cavity with renal inflammation. With these toxic doses there were noticeable alterations in the crasis of the blood, due to the special action of the iodin on the hemoglobin. Used externally airol proved a good antiseptic, by no means inferior to iodoform.

The New York Skin and Cancer Hospital.—The old structures of this institution that have been in use for fifteen years are being torn down to give room to a more commodious hospital. The new building will be of four stories and basement, the material to be brick with white limestone dressing. The building will be substantial, pleasingly simple, with all modern sanitary features, with accommodations for forty-two patients and an outside department that can care for 100 patients on ordinary occasions. It will cost $80,000. The basement will contain a complete system of Russian and medicated baths, so necessary in the treatment of skin diseases. The first floor will contain the dispensary, waiting rooms for eighty patients and the officers' rooms. On the second floor will be the ward for treating skin diseases, with the necessary operating rooms and nurses' quarters adjoining. On the third floor will be the wards for cancer patients. Then on the top floor will be private rooms for pay patients, operating room and quarters for attendants. Throughout, the building will be plainly and substantially furnished in brick and tile, that the utmost cleanliness may be observed.

Enzymes.—Fischer and Lindner have found that Frohberg and Saaz's bottom yeast contains an enzyme that is capable of splitting melitose into hexose, a power entirely lacking in invertin. No. substance containing an enzyme that had any power to split cane sugar or maltose, could be extracted from the monilia candida, and the yeast itself works in this way only in the presence of toluene. They therefore conclude that the enzyme of this yeast is an insoluble substance, which is gradually disintegrated by the toluene. No enzyme that would invert cane sugar could be derived from the saccharomyces apiculatus. (From the *Cbl. f. Phys.*, for July 11, which also reviews Arthus's study of the various theories in regard to the nature of exzymes.) According to one theory they are albumoses, as although they do not have the same proportions in their composition as the albumoses, they possess the same properties. Others take an exactly opposite view, and still others believe that the enzymes are carbohydrates or gummy substances. Arthus concludes by stating his own theory, which is that the enzymes are not material substances, but only properties of material substances, like the physical forces.

Experimental Suturing of Tendons.—Baldassari has succeeded in securing complete regeneration of tendons in animals after cutting out a piece and making a tubular suture. In one or two months there was no apparent difference in shape, size or strength between the sutured tendons and the normal (rabbits). —*Gaz. d. Osp. e d. Clin.*, June 27.

An Unfortunate Appointment.—The appointment by Governor Altgeld of Mr. W. P. Boyd to the vacancy in the Illinois Board of Pharmacy, occasioned by the tragic death of President Coffee, while perhaps above criticism so far as concerns the qualifications and merits of Mr. Boyd, was nevertheless in deliberate defiance of wise precedents and of the manifest intent of the State pharmacy law, which contains a specific provision as to the manner of appointment, as sanctioned by the druggists of the State. The law provides that the State association shall annually recommend to the governor the names of persons deemed most worthy for appointment on the board. This provision applies in principle as forcibly to vacancies resulting from accidents or resignations as from term expirations. Governor Altgeld, in once before defying this wise provision, and now again exercising his prerogative in contemptuous disregard of the recommendations of the Illinois Pharmaceutical Association proves himself a lover of the very form of tyranny in himself which he affects to despise so heartily in others. The appointment of Mr. Boyd was clearly made for purposes of political profit for the governor in the pending campaign. Whether the outrage perpetrated upon the expressed sentiment of the druggists of the State will make the appointment one of net profit remains to be seen. —*Western Druggist*, August.

Experimental Thyroidectomy.—The *Cbl. f. Chir.* of July 25 contains a contribution to our knowledge of the effects of extirpation of the thyroid gland, with some curious facts collected by Lanz in his extensive investigations. He finds that removal of the thyroid gland and the absence of its secretions can be fully made up to the organism by transplanting other glands and even by subcutaneous injections or internal administration of the extracts, but it is necessary to commence the treatment the very day of the extirpation (dogs). A hen whose thyroid gland had been removed, only laid one egg, one-tenth of the usual weight during the four months after the operation, while, on the other hand, a normal hen fed with thyroid extracts, laid three times as many eggs during the month as any one of the eight control fowls. Lanz also extirpated the gland in fishes. Forty-four operations on the common shark prove that this gland performs a vital function in cold-blooded beings also. Death followed in from twelve to forty days, after a slow, gradual development of the chronic symptoms usually following thyroidectomy.

Philadelphia.

Midsummer Mortality.—During the week ending August 15, the number of deaths from suntroke and heat exhaustion were 173. There were also 106 deaths from cholera infantum, the total mortality of the week among children under five years of age being 315. Probably a large proportion of these cases was caused indirectly by the exceptionally high temperature which prevailed from the 5th to the 14th inclusive. The total number of deaths was 838, which was 47 less than that of the memorable week ending July 13, 1872, during which the mortality from cholera infantum was frightful. Although recently the weather has been exceptionally severe and prolonged, yet the mortality has not been so much increased by the heat as might have been anticipated from the experience of former years. This may be attributable to several causes, among which may be prominently noted the improved paving of all the large streets and particularly of the alleys and small streets, which has been accomplished after several years work. The small streets are frequently flushed with water and great attention is given to the daily collection of garbage and the abolishing of nuisances. Backyards and cellars are inspected and cleaned. Unwholesome and spoiled food is condemned and destroyed and street peddlers are fined for selling articles that are injurious or prejudicial to health. Special attention has been given to the inspection of milk, and vendors of adulterated or watered milk are prosecuted. In addition to these hygienic precautions, the city has six free bathing houses in different parts of the poorer districts, which are largely patronized. The city has recently established a number of small parks in the congested districts and the schoolyards have been thrown open, as well as some of the piers on the river front, for play grounds and breathing places, especially for the younger children. It is also believed that the open trolly cars have had a very decided influence in improving the public health by taking people out into the suburbs, where they can breathe purer air than in the heated streets. It has been stated that the business of the saloons has fallen off during the hot spell, which, if true, indicates that the public has learned the lesson of the special dangers from intemperance during such weather, and the close relation existing between alcoholism and sunstroke. It is also very probable that the deceased mortality may be attributed to modern therapeutic measures, especially in our large hospitals.

Treatment of Insolation at the Pennsylvania Hospital.—The method of treating thermic fever by the external application of ice and ice water, combined with friction, originated at the Pennsylvania Hospital some thirty years ago, during the term of service of the late Dr. James Levick, and its usefulness has been so fully demonstrated that now it may be regarded as the accepted treatment of hyperpyrexia following exposure to the sun. At this institution, temporary wards in tents have been established for the season on the lawn, under the shade of the trees, and the heat has recently been so great, that during the middle of the day the hose was played on the outside of the tents to reduce the temperature. The woman's insolation tent is smaller than the men's, and is in a remote portion of the enclosure. The management of a case is generally as follows: As soon as the patient is brought in by the ambulance, he is stripped and his temperature taken. If it is a case of high temperature, he is put into the bath to which pieces of ice are added and he is vigorously rubbed by the hands of attendants, or he is placed upon a couch and rubbed with pieces of ice, and an ice cap is applied to his head, until the temperature is reduced to the normal or under. If the pulse is weak, hypodermic injections of nitroglycerin (gr. 1-100) with whisky (m. xx) are repeated at intervals of an hour or two; hypodermics of atropin (gr. 1-60) or of strychnin (gr. 1-30) are substituted later, if the heart is weak. In one case hypodermic injections of tincture of digitalis (m. xv) given every hour for four hours, was apparently effective in saving life. Small doses of morphin (gr. 1-8 to 1-6) were also used, where great restlessness or muscular twitching was present. Where there was great fulness of the vessels of the head and neck with symptoms of central congestion, leeching at the occipital region, followed by the ice cap, gave good results. In one patient Dr. Starbuck, in order to relieve convulsive symptoms in an apparently moribund patient, took a pint of blood from the arm and a pint of normal salt solution with immediate good results. After the bodily temperature of the patient has been reduced to somewhere near the normal, he is removed to the medical wards, and there treated with cardiac tonics and a restricted diet, the amount of nourishment or stimulants being regulated by the condition of the patient. After a few days rest in bed, if the fever returns and the temperature of the ward is excessive, the patient is returned to the tent in the open air, and given cold baths, or the cold applications may be used in the ward. In cases attended by hyperthermia, the extraction of excess of bodily heat, and the sustaining of the heart's action are the prin-

cipal objects sought to be attained by the treatment. In heat exhaustion, where the temperature is not greatly increased or remains about normal, the patient is placed in a bed in the open tent, and nitroglycerin or atropin given in moderate doses, followed by strichnin or digitalis during convalescence. The success of this treatment is shown by the fact that out of a total of over sixty cases (of which only four were women) there were only two deaths during the ten days of hot weather. One case at the autopsy was found to have advanced degeneration of the kidneys, and the other had been taken ill on a train and it was several hours before he was brought into the hospital, when he was in a hopeless condition, dying shortly after admission.

A CASE OF MIXED INTOXICATION.—A man 43 years of age, after a prolonged indulgence in alcohol, being suicidally inclined, swallowed, it is said, ten ounces of laudanum and, in order to take the taste out of his mouth, immediately washed it down hy a draught of two ounces of lead water. He was taken to the German Hospital, where the stomach pump was used with the result of bringing to light the lead water and laudanum mixture so familiar to a former generation of surgeons. The patient recovered promptly without any symptoms of narcotism, and may live to prove the truth of his assertion that his life was not worth saving.

APPENDICITIS OPERATIONS.—Operations for removal of the appendix vermiformis nowadays are of such common occurrence as scarcely to require comment. It is, however, noteworthy that the operation has been successfully performed upon a dozen or more of the physicians of this city, especially those who are rising into prominence in various specialties. Dr. Joseph Price, who has operated upon several physicians, is very positive that the tendency to suppurative inflammation of the appendix, which has recently occurred with so much frequency as almost to assume the proportions of an epidemic, is in reality one of the evil consequences of the grippe. He claims that physicians and surgeons of ten or twenty years ago were not so ignorant or unobservant as not to be able to recognize inflammation of the appendix, which every tyro can diagnosticate to-day, and the only explanation possible is that the cases did not occur, and in fact were extremely rare. The wide extension of the influenza epidemics and the well known tendency to mucous membrane inflammation, gastro-intestinal as well as pulmonary, affords, in Dr. Price's opinion, an efficient cause for the present prevalence of appendicitis. Certainly medical men are not fond of surgical operations upon their own bodies, and the fact that they have taken the risks and submitted to the surgeon's knife, demonstrates very clearly that the condition is a real one and not a figment of the imagination of the abdominal surgeon; nor does the frequency of operation argue the existence of an operative mania on his part.

THE CITY BACTERIOLOGIC LABORATORY AND DISINFECTING PLANT.—In the basement of city hall, Dr. J. M. Bolton and his assistant, Dr. Wm. G. Gillespie, have installed a plant for manufacturing a disinfectant solution out of sea water by means of electrolysis. The product is termed "electrozone" in the report just made by Dr. Gillespie of the result of his recent experiments, which proved the solution to be a powerful germicide. He stated that it kills anthrax spores in five minutes or less, and it is superior to corrosive sublimate, since it does not form an inert insoluble precipitate with all albuminous substances as the latter does, thereby diminishing its power and efficiency as a germicide. It is further commended for its cheapness and the facility of its manufacture in large quantity. It is considered an ideal agent for the purpose and as a municipal germicide and disinfectant; according to Dr. Gillespie, it can not be surpassed. As it is so easily manufactured it would seem obligatory upon health authorities to largely avail themselves of this cheap disinfectant.

THE ROENTGEN RAYS IN SURGICAL DIAGNOSIS.—In the recent case of a child, 4 years of age, who swallowed an iron toy "jackstone," which was lodged in the esophagus, it was found that the patient was too restless to permit the ordinary exposure to the X rays required to obtain a negative, and accordingly the fluorescent screen was substituted and the foreign body located between the clavicle and the second rib. Dr. A. C. Wood opened the child's stomach and succeeded in bringing down the jackstone through the cardiac orifice by entangling it in the meshes of a skein of silk. This is the second case of this kind occurring recently at the Hospital of the University of Pennsylvania, the former operation having been performed by Prof. J. Wm. White. The condition of the bones of the foot in the condition known as metatarsalgia, or Morton's painful affection of the foot, was well shown in some radio-photographs exhibited by Dr. Thos. G. Morton, president of the Academy of Surgery, at the last meeting of this society.

THE PUBLIC SERVICES.

Army Changes. Official List of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from Aug. 14 to Aug. 21, 1896.

Major Henry McElderry, Surgeon (Ft. Robinson, Neb.), leave of absence granted is extended two months.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending Aug. 22, 1896.

P. A. Surgeon A. M. D. McCormick, detached from the "Bancroft" and ordered to the naval academy.

P. A. Surgeon E. M. Shipp, detached from the "Monongahela" and ordered to the "Bancroft."

Marine-Hospital Changes. Official list of changes of station, and duties of Medical Officers of the U.S. Marine-Hospital Service, for the fifteen days ended Aug. 15, 1896.

Surgeon W. H. H. Hutton, granted leave of absence for thirty days from Aug. 25, 1896, Aug. 13, 1896.

Surgeon H. W. Sawtelle, granted leave of absence for twenty days from Aug. 25, 1896, Aug. 13, 1896.

Surgeon C. E. Banks, to assume temporary command of the Service at Vineyard Haven, Mass., for thirty days, Aug. 13, 1896.

P. A. Surgeon S. D. Brooke, to assume temporary command of the Service at Cleveland, Ohio. Aug. 8, 1896.

P. A. Surgeon R. M. Woodward, granted leave of absence for thirty days from Aug. 13, 1896, Aug. 11, 1896.

Asst. Surgeon Jos. B. Greene, granted leave of absence for twenty-three days from Sept. 14, 1896, Aug. 13, 1896.

Change of Address.

Brassell, T. C., from Stroman to Leesville, Tex.
Greene, H. S., from Masonic Temple to 70 State St., Chicago.
Lacy, Hattie E., from 1461 Jackson Boul. to 820 N. Park Av., Chicago.
Murrell, T. E., from Santa Fe, N. M., to 2205 Colfax Av., Denver, Colo.
Reun, T. H., from 1241 Milwaukee Av. to 227 Townsend St., Chicago, Ill.
Smith, O. E., from Grand and Caroline Sts. to 3509 Lindell Av., St. Louis, Mo.
Seacat, G. M., from Klusley to Cherry Vale, Kan.
Seagley, J. B., from Chicago, Ill., to Scott, Ind.
Tasche, J. C., from Sheboygan to Howard, Wis.
White, J. W., from 64th and Grace Av. to 754 69th Pl., Chicago, Ill.
Walker, Robt. S., from Beacon, Mich., to Toledo, Ohio.

LETTERS RECEIVED

American Endoscopic Company, Providence, R. I.; American Therapeutic Co., New York N. Y.: Anheuser-Busch Brewing Co., St. Louis, Mo.; Atkinson, W. B., Philadelphia, Pa.; American Sports Publishing Co., New York, N. Y.

Bishop, S. S., Chicago, Ill.: Borland, E. B., Pittsburg, Pa.; Boger, Frederick, New York, N. Y.: Bernd, Henry & Co. St. Louis, Mo.; Byrd, W. H., Salem, Ore; Brown Warren, Tacoma, Wash.; Benson, John A., Chicago, Ill; Bryant, D. C., Omaha, Neb.; Bovinine, The, Co., New York, N. Y.; Berlstain, David, Baltimore, Md.

Cone, Andrew, New York, N. Y.; Chapman, Jas. J., Washington, D. C.; Cain, J. S., Sewanee, Tenn.; Christison, J. S., Chicago, Ill.; Connor, Leartus, Detroit, Mich.; Chaillé, S. E., New Orleans, La.

Dufour, C. R., Washington, D. C.; Dry Extract Co., Janesville, Wis.; Dunham, W. R., Keene, N. H.; Davis, N. S., Chicago, Ill.; DeCourcy, J. O., St. Libory, Ill.; DeLee, J. B., Chicago, Ill.

Flint, Austin, New York, N. Y.; Fite, C. C., New York, N. Y.; Fisher, John C., Lytton Springs, Cal.

Gihon, A. L., New York, N. Y.; Gratigny, L. H., Cincinnati, Ohio; Gundrum, F., Sacramento, Cal.; Gilpin, Langdon & Co., Baltimore, Md.; Gardner, R. W., New York, N. Y.; Gould, J. B., Minneapolis, Minn.

Haldenstein, J., (2) New York, N. Y.; Hugus, H. P., (2) Ravenna, Ohio; Harnden, R. S., Waverly, N. Y.; Hughes, C. H., St. Louis, Mo.; Hummel, A. L., Adv. Agency, New York, N. Y.; Henkle, C. K., Moscow, Idaho.

Josephi, S. E., Portland, Ore.; Jones, Louis, Ill., Atlanta, Ga.; Jones, H. Webster, London, England.

Kane, Evan O'Neill, Kane, Pa., Kneipp Malt Food Company, Manitowoc, Wis.; Kreider, Geo. N., Springfield, Ill.

Lofton, Lucien, (2) Atlanta, Ga.; Lewis, Denslow, Chicago, Ill.; Lewis, W. C., Boston, Mass.

Meserve, Chas. F., Raleigh, N. C.; Murphy, Garrett, Garden City, Minn.; Munroe, J. P., Davidson, N. C.; Medical Era, The, Chicago, Ill.; Meany, Wm. B., St. Louis, Mo.; Martins, E. J., Forsyth Junction, Mo.; MacLean, Donald, Detroit, Mich.

Nash, Alfred, Joliet, Ill.

Opie, Thos., Baltimore, Md.; Oxford Publishing Co., Chicago, Ill.

Pershing, Howell T., Denver, Colo.; Parker, Francis L., Charleston, S. C.; Page, C. E., Boston, Mass.; Purvis, C. B., Washington, D. C.; Peeples, D. L., Navasota, Tex.: Playter, Edward, Ottawa, Canada; Parmele, C. R., (2) New York, N. Y.

Ross, Geo. M., Chicago, Ill.; Rockey, A. E., Portland, Ore.

Stern, Max J., Philadelphia, Pa.; Steele, D. A. K., Chicago, Ill.; Stover, G. H., Eaton, Colo.; Sharp & Smith, Chicago, Ill.; Schroeder, & Hinkle, Columbia, Pa.; Sturgis, E. M., New York, N. Y.; Strueh, Carl, Chicago, Ill.; Simmons, Geo. H., Lincoln, Neb.; Stallman & Fulton, New York, N. Y.: Stearns, F. & Co., Detroit, Mich.

Tucker, Willis G., Albany, N. Y.; Travis, B. F., Chattanooga, Tenn.; Taylor, J. J., Philadelphia, Pa.; Thomas, F. S., Council Bluffs, Iowa.; Trout, E. H., Oak Park, Ill.

Wilber, M. R., Neenah, Wis.

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ADDRESS.

THE MUTUAL RELATIONS OF THE MEDICAL PROFESSION AND THE PUBLIC.

President's Address Forty-sixth Annual Meeting of the Illinois State Medical Society, delivered before the Members of the Society and the Citizens of Ottawa, evening of May 19, 1896.

BY DAVID W. GRAHAM, A.M., M.D.

CHICAGO.

The Illinois State Medical Society requires of its presiding officer each year an address on some subject of his own choosing, the members of the Society for the most part constituting the audience. But to some extent the nature of the subject and the character of the audience for this evening have been determined by the circumstances under which this meeting is held, and the plans of the committee of arrangements.

The reciprocal relations and duties of the medical profession and the community is, as a theme, like an old jewel which requires an occasional resetting to bring it into harmony with the changes of time and circumstance.

While some of these relations and duties are always and everywhere the same, the subject still requires frequent restatement, both because of its perennial interest to the profession and the public at large, and also because in the progressive community the mutual relations of the various interests, occupations and component parts of that community are constantly undergoing change and requiring readjustment.

In a limited sense each individual member of the modern industrial community is pursuing that course and conduct of life which he chooses for himself so far as he is not prevented from doing so by the natural limitations of his own powers of mind and body, by his environment, and by the presence and plans of others. Every individual thus becomes a competitor or antagonist of every other within his own sphere of action in the struggle for existence and advantage. The rivalry of individuals is also a prominent characteristic in the uncivilized state of society. But division of labor with coöperation and mutual interchange of the benefits and products of effort is the law of civilized life. Without these no community can become civilized or maintain the civilized state. In such a community no one can be for himself alone. Every one must both give something to, and receive something from, others. Likewise a group of individuals which stands for a particular interest, or represents a given line of activities, is dependent upon, and accountable to, every other group of the same community.

There is a certain analogy between the human body as an organism and the civilized community, and the more highly developed the latter, the more perfect is the analogy.

The body is an aggregation of organs, as the hands, the feet, the eyes, the ears, the lungs, the nerve centers and so on. Each organ has a function to perform both with respect to itself, and also in its relations to the organism as a whole. The principles of division of labor and coöperation, with mutual interdependence, are perfectly exemplified. The civilized community is likewise an organism separable into, or composed of, individuals or groups of individuals, each unit or group corresponding in some sense to an organ of the human body. There is the hewer of wood and the drawer of water, the farmer, the merchant, the manufacturer, the teacher, the preacher, the lawyer, the physician and so on, the organs of the body politic; each having a place for itself and a duty to perform for all the others. No one interest can suffer without detriment to the whole. The more harmonious and symmetrical the development of the various component parts, the more perfect the development of the whole. The more perfectly and clearly the true relations and the relative duties and functions of the several factors to each other are recognized and kept in view, the greater will be progress in all that goes to make up the civilized life.

The medical profession as one of the constituent parts of the community has intimate relations to every other interest and to every other part of that community. Its work and the principles which it represents, are in their importance to organized society second to no other.

If, as a modern philosopher declares with respect to the moral quality of human actions, "the highest conduct is that which conduces to the greatest length, breadth and completeness of life," then the medical calling must take high rank if not the highest of all others; for the genius and the end of this calling are to secure that length, breadth and completeness of life for all mankind.

Not many centuries ago medical knowledge and medical practice were concerned with little more than the giving of crude drugs and caring for the more common accidents of life. Diagnosis was almost purely a mental process, with only a slender basis in the observation of the most superficial manifestations of disease. Causation was mythical speculation based on superstition. Prevention of disease was counted a sacrilege rather than as belonging to the science and art of medicine.

But medical science has outgrown the narrow limits of the past, and the history of its growth from the primitive state to its present position is a part of the history of civilization. It stands for the physical perfection of the individual not only, but also for the improvement and perfection of the human race. Though it deals first and chiefly with the diseases and imperfections of the individual, it extends its dominion over aggregate life in all its combinations and ramifications, and inasmuch as it discovers and

demonstrates the laws and influences of heredity, over transmitted life as well.

While its most evident functions are to treat disease and manage the sick, yet it is not less concerned with the prevention of disease and the discovery of its causes.

It is the source of modern psychology which dictates modern methods of education. It is the center of all that knowledge of the defective and dependent classes, as the insane, the idiotic, the deaf and dumb, the pauper, the inebriate and the criminal—which has led up to their humane management and rational treatment.

It puts every branch of science under tribute; as biology, of which it is now itself recognized as a part, which demonstrates that the diseases which afflict mankind are largely the result of conflict between the lower and the higher forms of life; and the whole range of the physical sciences whose wonderful development has been such a conspicuous feature of recent time, and whose contributions have added immeasurably to the powers and scope of medical knowledge in the way of diagnosis, treatment, prevention and the discovery of the causes of disease. Medical science thus includes all knowledge of whatsoever kind, or from whatsoever source that tends to prolong life and ameliorate its conditions. This is the high conception of the nature and the purpose of the science and the art of medicine for which we would plead.

Through medical science the medical profession has a twofold relation to the community at large. First, that in which the physician lives for himself, and second, that in which as a benefactor he contribntes to the welfare of others, in which he is the exponent of all that medical science means to men.

By it and through it he earns his living as a citizen. He thus discharges his first duty to himself and others both in point of time and importance. It is the field in which he toils as a man, that sowing and tilling he may reap from it the rewards of the labor of his life.

The medical calling considered purely as a calling in which the physician manifests the selfish side of his life, selfish in the sense and to the extent that he lives for himself as distinguished from others, stands on the same footing and sustains the same relation to the community and the State as any other calling.

Physicians are not entitled to any special privileges and should receive none on their own account. If they sometimes ask for them on this ground, it is through ignorance and mistaken notions of their rights and privileges. There is a widely prevalent notion in the minds of the public that the laws and customs of society "hedge about" the medical calling in such a way as to favor the physician as compared with those of other occupations. A presumably learned judge of our own State, within the last year, has given public utterance in his official capacity to this erroneous interpretation of the laws and customs of society as they relate to the medical calling, in a case which has become somewhat celebrated on account of the ruling of the court and the arguments used to sustain his position. A physician was called as an expert witness by the city of Springfield, as defendant in a personal injury damage suit. The physican refused to testify unless a reasonable fee should be guaranteed him as an expert witness. The presiding judge in arguing against the position assumed by the witness, said among other things that, "so far as the witness is able to respond to proper questions propounded to him on the trial of a cause, while he is upon the witness stand, without previously making special preparation or examination to enable him to answer that particular question, I think it is his duty to answer. Especially the court holds is that true of physicians. Physicians in this State are favored children of the State; a department of the State government is maintained very largely for their benefit; they hold a license to practice their profession and practice by grace as well as by right, and are so hedged about and protected by the laws of the State, and by public opinion and confidence, that in five minutes of a time a doctor may earn more than an ordinary laborer could earn in a day, and may continue to earn such fees all day long, even on a day he may be required to attend court, except the hour or so devoted to attending on the court. Very much of that is because of the laws of the State which nurse their profession, and by grace which the State and society extends to them in regard to their profession."

If the department of the State government here alluded to, viz., the State board of health, is maintained largely and principally for the benefit of physicians, then it ought to be wiped out of existence, and would be as soon as it were put to the test. If the State board of health has any reason for existence at all, it is because it is supposed to protect the lives and health of the people at large. And to the extent that these objects are secured, just to that extent is the physician in the pursuit of his calling, as it relates to himself, interfered with, rather than benefited. Perhaps the learned judge could tell us how the prevention of disease and the preservation of health by the State inures to the benefit of physicians, as a class, for it is not evident on the surface.

If the laws of the State "nurse the profession," and foster medical science, it is that the community as a whole may be benefited, and not the physicians as a class. If a law of the State exempts the physician from jury duty and other duties of the citizen, it is not because he himself has any claims to such exemption. If a city government gives the physician right of way in a crowded street, or allows him to break through a procession, it is not that he may thereby add to his comfort or his income, but because he is supposed to be on an errand of mercy and humanity for others.

"They hold a license to practice their profession, and practice by grace as well as by right," says our expounder of the law. If the practice of medicine is a legitimate calling, a useful calling, then the physician would seem to have the same right to pursue that calling as any other citizen has to pursue any legitimate calling. If so, then it is not in any degree by grace. The license of the physician like the license of the lawyer or that of the locomotive engineer is generally counted as an evidence of technical qualifications and a restriction or limitation. It has reference to the rights and safety of the community, rather than to the individual holding it. It tells the public that he is a physician in fact, not a pretender. It confers no benefit on the individual physician, but it does protect the interest of those with whom he deals, and is for their benefit, not his. Whatever benefits come to the physician by reason of the laws of the State, or customs of society bearing on the medical calling or the medical profession, are purely incidental to their primary object of conferring benefits on the community at large.

In this relation also the physician is entitled to the rewards of his labors. No less than others is he worthy of his hire. While he is treading out the corn like the ox, he should not be muzzled. If he tread the wine press he should share in the vintage. That every individual should receive all the rewards which his ability, his industry, and his opportunities can secure for him in a legitimate calling honestly pursued, is a self-evident proposition which admits of no exceptions. That community in which this fundamental principle is the most clearly recognized, and the most perfectly applied will be the best community, the most highly civilized, and the most perfectly adjusted in all its parts. If any one class or constituent part of a community is deprived of the legitimate reward of its labors, that class will lose something in its quality and in its power, and the society of which it is a part will suffer directly or remotely as a consequence. As when one member of the body deteriorates, the whole organism suffers loss.

Most physicians can be trusted as a rule to claim their own in the matter of pecuniary rewards for services rendered and they are not generally backward in asserting those claims. But as a class, physicians are inadequately paid if remuneration should bear direct relation to benefits conferred; and of all classes they are the most grudgingly paid.

The genius and the traditions of the medical profession require the physician to give his services whenever and wherever medical knowledge and medical skill are demanded for the relief of the sick and the afflicted, conscientiously to the rich and the poor alike, and with equal fidelity, and primarily without thought of reward. Thereby the medical calling becomes a profession as distinguished from a trade. By this token may we know the true, the ideal physician. But this conception of the professional aspects of the physician's life pertain to his obligation to his calling and his class, and does not carry with it the idea of unrequited toil. Neither does it absolve the individual or the community receiving those professional services from pecuniary obligations. While the physician is thus under obligations, by the very nature of his calling, to the poor around him, common equity would forbid that this obligation should be perverted by the community or any class of the community for its own benefit.

One of the most beneficent institutions of our day in theory and practice is the modern hospital, but there is a growing tendency to pervert and abuse it by certain classes of the community for the promotion of their own interest. The work of a large public hospital supported by general taxation, as for instance, the Cook County Hospital, is to a large and increasing degree taken up with the care of the sick and injured employes of the great corporations and the wealthy commercial establishments.

If such an employe can get free care and free medical attendance when sick or injured, he does not need and does not get as high wages as he otherwise would. There is, hence, more profit and larger dividends for the employer. If the multimillionaire corporation, half of whose capital is the value of the public franchise it possesses, and whose annual profits are so large that an occasional watering of its stock must be resorted to in order to keep the percentage rate of dividends within a reasonable limit in the eyes of the public, can require the medical profession and the public to treat and care for its sick and injured employes free, in order that the profits of the concern may be larger on account of low wages of the employes; then why may not the public and other interests be compelled to furnish said employes with such other necessities as food, clothing and house rent. The sophistry and process of reasoning that would make one appear right and respectable can be used to justify the other also.

There are rewards other than pecuniary which are due the physician from the community, and of which he is sometimes deprived. It is due to the dignity of his calling, and in the interests of the highest usefulness of the profession to the public, that all positions of honor, profit, or trust, whose chief functions pertain to medical matters and require medical knowledge for their administration, should be held by physicians. The law expressly forbids that the president of the Board of Health of New York City shall be a physician, though a physician living in that city is eligible for the office of President of the United States, for that of Governor of his State or mayor of his city. Just why this prohibition exists is not explained, but it may be surmised that it is because it is the one position in the department which carries with it a high salary. In the chief city of our own State, the only medical office in the city government with a respectable salary is held by a layman, who never was suspected of having any knowledge of, or interest in, sanitary matters. The knowledge necessary for conducting the Department of Health is supplied by some ten or twelve physicians in subordinate positions, whose combined salaries amount to but little more than the salary of the layman who is at the head of the department. A company of West Point graduates going into battle commanded by a green recruit, would not be more anomalous. In our own State, as in most of the other States, the law provides for the office of coroner for each county. It is the chief duty of this officer to ascertain the cause of death in certain cases. The office is held in all the larger counties, that is, where there is any considerable remuneration attached to the office, by a man who possesses no medical knowledge whatever. He is ably assisted in his quest by six other laymen as jurors, who, in the large cities, are generally tramps. In our own State it is still allowable for six men, also mostly tramps in the large cities, to make a diagnosis of insanity in the name of the State.

There is another evil under the sun which pertains to the practitioner and the question of the rewards of his labors. A confusion of values in the minds of the public, and to some extent in the minds of the profession, has arisen in these latter days with respect to remuneration. This is partly due to the exuberant specialism which characterizes modern medicine. It is also partly due to the greater advance and wider scope of operative surgery, and in part to the relatively unimportant rôle which the internal treatment of disease by drugs has assumed in comparison with former times. There never was a time when the drug treatment of disease could accomplish more than to-day, when internal medication was more definite in its purpose, though its limitations are better recognized than before. While in former times it outranked in importance all other means and methods, to-day preventive medicine and operative surgery have outstripped it in the general advance in demonstrable results. But the physician who clearly saves a life by internal medication ought to have the same recognition from his fellow practitioners, and to

receive the same rewards from the public as he who does a life-saving surgical operation. If a practitioner prevents sickness which might or might not prove fatal, by timely advice to the family and neighbors who rely on him in times of thickness, as by preventing the spread of typhoid fever, diphtheria and other contagious diseases, he renders a service upon which an adequate money value can not be placed, and yet he rarely receives any pecuniary or other reward for such a service. Even the average educated, prosperous citizen would resent the effort to collect more than a nominal consideration.

The family physician who stands by his trust and faithfully guards and guides a whole generation from birth through childhood and adolescence to manhood and womanhood, directs their education, training and growth, and blazes the way against the pitfalls of hereditary tendency to disease of body and mind, and in all these periods and relations gives the best resources of the whole range of the science and art of medicine to his charge, outranks in point of service to the individual and humanity all other classes of practitioners. It is to the detriment of the medical profession and the community that he does not receive greater rewards, both honorary and substantial, for his work. As compared with the specialist and the surgeon he gets scant measure of either, and yet he outranks them all.

The medical profession has a standing grievance against the community in that the pretender, the unscrupulous and the ignorant so often receive the encouragement and the rewards which by right belong to the qualified, conscientious, educated physician. It is partly true, as the poet says, "'tis understood that the good are half bad and the bad are half good," and in the general mixture of motive and conduct who is competent to draw the line, and who shall furnish the standard of measurement? It ought not to be difficult, however, for those who desire to do so, to discriminate between the true physician who pursues his course animated always by the professional spirit which requires that his own interests be secondary and subordinate to those whom he serves, whose whole trend of life is right, whose attitude is in the right direction, and him on the other hand whose whole conduct and attitude are wrong. Two men may stand very close together and yet face in opposite directions. The charlatan is not only the *ignorant* pretender. He may be highly educated and skilful. He may have high social standing. He may not only be in evidence in the advertising columns of the newspaper, but be the special pet of the editorial chair. His chief and distinguishing characteristic everywhere and always is that he uses the public and his patients for his own aggrandizement. He considers always that his patient is made for him and not he for the patient. His attitude to the public is that of the tradesman, and he is animated by the spirit of the tradesman. He makes merchandise of his calling. He takes advantage of the foibles and weaknesses of humanity to add to his own fame, power and pelf. In his most perfect and typical form he is essentially a parasite on the profession. He assumes the color and the garb of his host, living on his vitality, receiving everything and giving nothing in return. He lives the life of the parasite and should receive the treatment of the parasite. Many of the best of men may be weak enough to yield to temptation of special influence or other causes to show some of these characteristics in a greater or less degree some time or many times in their professional life, but wherever found, whether in the members or officers of our own medical societies, whether in the professors of colleges or in others, to the extent and in the degree that they are manifested, they become the acts and the methods of the charlatan and the unscrupulous. If the one attitude is right the other is wrong. Which course, followed to its logical conclusion, will prove beneficent and which destructive?

It ought to be better understood and more constantly kept in view that medical science is a field without metes and bounds, is one and indivisible, and all inclusive. There are no schools of medical science any more than there are schools of the science of chemistry or astronomy or law. Even the so-called "schools" or "systems" of medical practice are a mental abstraction, consisting more of traditional and and rhetorical phrases expressive of a subjective mental state than an objective reality. Such a conception was more or less excusable and suitable, perhaps, in the pre-scientific era of the middle ages when metaphysical abstractions and dogma were the stock in trade of the schoolman, the transcendentalist and the doctrinaire, but it is a crime against the light of these latter days of the nineteenth century.

It is not the belief of the medical man or the doctrine which he holds; it is not what he does nor how he practices; it is not what society he is a member of, nor what written code of morals he professes to be guided by, that is the test of his right relation to medical science and the public. Here again it is his attitude by which he is to be judged.

No doubt there are many well informed people in this audience, well informed in other respects, as there are in every community, who persist in believing that this and similar societies require their members to subscribe to and be governed by a code of ethics which is more or less artificial in character and inapplicable in other walks of life. There is no such artificial code. What we have is but the amplification of the golden rule and the sermon on the mount, set to phrase suited to the medical relation. We teach through our code what is taught as good morals and good manners by every teacher of morals from the forum and the pulpit to mankind, from the cradle to the grave—this and nothing more. Whether it should be used for disciplinary purposes and to what extent, or whether it should remain as a formulary of precepts as its language would seem to imply was the original intention, are the only questions that can be or ever have been raised regarding the code of medical ethics.

No doubt also the belief is just as prevalent that we and all similar organizations require our members to subscribe to some set of doctrines, or a confession of faith, and to conform to certain modes of giving drugs. We know of no such doctrines or rules, except as they are sometimes put into our mouths through others. We hold that no truth is final, and that no man should limit his studies or his practice by any confession. We hold that every proposition of doctrine or of practice must stand or fall to the mind of every individual without let or hindrance, and that there are no limitations on what any man may do in the way of practice or hold in the way of belief except such as are due to himself—his own powers and disposition. More than this we could not do. Less than this would change our atti-

tude to medical science, to other medical men and to the public, and place us in the ranks of the sectarian physician. This attitude of mind in the physician in his relation to medical science and the public is in a limited way akin to that of the banker in relation to the coin of his customer. Every coin offered him he must accept or reject by his own mental process on the evidence obtainable. He scans it, handles it, turns it over, tests it ring, weighs it, and receives it for what it seems to him to be worth. If it is counterfeit, it is rejected at once and absolutely. If it is a debased or clipped coin, he ascertains its value and acts accordingly. If the man of science recognizes the falsity or counterfeit character of some supposed new science, new method or new proposition, and rejects it as peremptorily as the banker does the counterfeit coin, or after examining all its claims to being genuine, still rejects it or receives it only for what it is worth, he is likely to be called a bigot or to be charged with intellectual intolerance to a degree which only medical men are supposed to be guilty of.

Indeed intellectual intolerance is a charge which is too often laid at the door of the medical man when he turns away from the sciolist and declines to share with the pseudo-scientist.

An episode in the life of Israel's king, Solomon, affords a lesson and an answer. He proposed with his sword to divide the living child which was in dispute, in order to determine which was the real mother and which was the pretended mother. The latter counted it a liberal proposition, but the real mother surrendered rather than to submit to such a compromise. There are some things which can not be shared and are insusceptible of division.

Medical science appeals for help and wider recognition from the public and the State. It could easily be shown that the greatest discoveries in this field have through all the past and in recent times conferred much greater proportional benefits on every class of the community than on physicians as a class. It could equally be shown that almost all the valuable discoveries and resources for prolonging life, relieving suffering and preventing disease have been due to the individual efforts of those devoted to medical science with little or no aid from the State and the non-medical public. A few notable and honorable exceptions there may be.

Moreover it is not generally appreciated that almost every one of the epoch-making discoveries have contracted the field for the practitioner and curtailed his resources for earning a living. It ought not therefore to be expected that the medical profession be wholly responsible for the future progress of that science which adds so much to the public welfare and at the same time works to the detriment of the medical calling as a calling. It is unreasonable not to expect that some of the increasing wealth of private citizens and the fostering care of the State should share in the work of discovery and application and bear the burdens thereof.

One thing the situation demands: A better education of the citizen; not of the present generation already in the field of active pursuits, for that is practically hopeless; but better education of the present and future youth of the country—that all educational institutions from the lowest to the highest shall take cognizance of the new fields of knowledge and the new methods of thought and investigation which have come into view in the last quarter of the century.

A recent writer on higher education says: "Men may be educated in literature and philosophy and yet only half educated or uneducated in science and thus liable to terrible mistakes because they are color blind as to the half of human knowledge. Some of our greatest orators and most popular writers are simpletons as to scientific methods and arguments." To which sentiment we all say, amen!

And another thing the situation demands, viz.: That the United States Government which professedly represents the most civilized, the most enlightened, the most progressive, the most peaceable and the wealthiest in resources of all the nations of the earth, shall nominally and actively recognize the claims of medical science as a science and in its beneficent relations to the people, and shall serve as a channel through which the energies and the wealth of the people shall be directed to these ends.

A peaceable government which spends eighty millions of money a year on its army and navy in times of peace, one hundred and fifty millions in pensions, sixty millions on its inland rivers and harbors, and many millions more to promote commerce and other material interests of its people, ought to spend more than one or two hundred thousand dollars a year in the interests and in the name of the health of all the people. This small pittance which is now expended in this direction is spent in the name and for the sake of trade and commerce by the Marine-Hospital Service for the purpose of quarantine, one of the subordinate functions of this department, which is itself a subordinate department of the executive branch of the government. We read of some of the minor employes of the government having charge of the inspection of meats and other food products; but we also learn that this is carried on wholly in the interests of our trade relations with other countries and not for the sake of the health of the consumer or producer. How many of even the best informed citizens of this country are aware of the fact that if smallpox existed as it did one hundred years ago, that if cholera and yellow fever could not be controlled better to-day than they were twenty-five years ago, to say nothing of other forms of contagion, pestilence and plague—with the increased means and rapidity of travel and with the hundredfold increase of running to and fro upon the earth, I say who and how many know that with these conditions, the towering industries would be brought low, the mighty channels of commerce would be closed, great cities wiped out, the whole population decimated every decade, and if we believe the testimony of the older days, those of the people who remain would nearly all be defaced with pock marks.

The militant type of government was proper enough in earlier history and is well enough now in some of the nations of the world, perhaps, but our government at least must be readjusted to the industrial peace type which our conditions require. The heads of the army and navy departments, now so prominent in the councils of the government, must give way to those who represent the arts of peace, industry and humanity. In this adjustment, we propose to take part and to be a part with the permission and co-operation of the intelligent people. Hygeia will rise step by step until she strikes hands with Ceres and have an equal voice in the councils of the nation.

Then we shall see tuberculosis, the remaining

greatest scourge of the race, which is now accredited with one quarter of the mortality of our time, shorn of its power and controlled.

To quote from a recent address of President Eliot:

"The public does not use its imagination sufficiently with regard to the future of preventive medicine. Leprosy and smallpox have been measurably conquered; it has proved possible to exclude cholera and yellow fever; and yet the public is not impatient for the conquest of every other infectious and contagious disease, and often not willing to provide the necessary means of deliverance from these evils. Some of the most intelligent communities refuse to establish public disinfecting stations. Bacteriological laboratories are few and far between, when they should be everywhere accessible. Pure water supplies have diminished typhoid fever in urban populations, but the rural populations, through ignorance, still suffer disproportionately from this preventable scourge. The faith and hope of the medical profession should arouse the public from this lethargy, and redeem it from this destructive ignorance and incredulity."

In our own State as well as in the general government, we are not living up to our requirements nor our opportunities. We are lagging behind less favored communities in the matter of legislation, looking to the best things in medical science relating to the control of disease and the promotion of health. We have many laws and fragments of laws which seem to have or to have had at some time, beneficent aims in this direction, but they were mostly enacted from and when enforced at all, are enforced from the standpoint of commerce and the good of some local material interest.

We have nominally a State Board of Health, but it has made little impression on the affairs of the State in the name of health, largely from lack of sufficient appropriations, and from lack of the moral support of the community and the medical profession. More of the intelligent and influential members of the profession should be willing to make some sacrifice of their own interest, and take part either directly or indirectly in legislative affairs.

An over-view in the presence of our legislature when in session, is both instructive and discouraging, but by this I mean no disrespect to the mass of well-meaning men who are there. A veteran in legislative halls summarized his experience epigrammatically by saying that the less one knows of how law is made, the more he will respect the product. Of the several hundred bills introduced into our last legislature, aside from general appropriation bills for current expenditures, nine-tenths of them were for the promotion of some local or special interest. A bill looking to the general welfare is generally crowded out or defeated. It has come to be more and more that a legislature is made up of representatives of interests rather than of representatives of a certain number of people. A sprinkling of intelligent medical men to represent the medical interests and to see that medical questions receive respectful and a due share of consideration, might improve a legislature and its work. It could not affect it seriously otherwise.

When medical men are willing to take part in public affairs instead of staying at home and grumbling, and writing jeremiads, medical questions may be better treated in legislative assemblies and by the public generally.

To quote again from President Eliot:

"The medical profession has before it an entrancing prospect of usefulness and honor. It offers to young men the largest opportunities for disinterested, devoted and heroic service. The times are passed when men had to go war to give evidence of endurance, or courage, or capacity to think quickly and well under pressure of responsibility and danger. The fields open to the physician and surgeon now give ample scope for these lofty qualities.

"The times are past when the church alone asked men to devote themselves patiently, disinterestedly, and bravely to the service of their fellowmen. The medical profession now exhibits in highest degree these virtues. Our nation sometimes seems tempted to seek in war—that stupid and horrible savagery!—for other greatness than can come from vast natural resources, prosperous industries and expanding commerce. The pursuits of peace seem to pall for lack of risk and adventure. Would it might turn its energies and its longing for patriotic and heroic emotion into the immense fields of beneficent activity which sanitation, preventive medicine, and comparative medicine offer it! There are spiritual and physical triumphs to be won in these fields infinitely higher than any which war can offer; for they will be triumphs of construction and preservation, not of destruction and ruin. They will be triumphs of good over evil, and of happiness over misery."

ORIGINAL ARTICLES.

WHAT CONSTITUTES TRUE CLINICAL EXPERIENCE IN MEDICAL PRACTICE AND ITS RELATIONS TO THE PUBLIC HEALTH?

Read in the Section on State Medicine, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

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Clinical experience is to be regarded as the knowledge gained by a direct study of diseases or morbid processes, including their causes, symptoms, progress, natural tendencies and results, and the actual influence of remedies in arresting, modifying them or shortening their duration. If this is correct, it must be obvious that the value or reliability of our clinical experience will depend directly upon the extent and accuracy of knowledge of the nature and modes of action of the causes of disease, the natural tendencies and results of each disease or group of morbid processes, and the actual mode of action of each remedy used in the treatment of such processes. In other words, the clinical experience of members of the profession will be reliable, just in proportion to their knowledge of etiology, pathology and therapeutics.

It was not until the last fifty or seventy-five years that organic and physiologic chemistry and microscopy had attained such a degree of development that many of the exciting or efficient causes of disease could be identified and their mode of action in the living body determined. Patient, persistent observation through the preceding centuries had led the profession to believe that all acute general diseases were caused by specific causes to which the names of malaria, miasms and contagiums were given. But their identification had, in far the greater number of instances, eluded the powers of simple observation; and consequently, neither their mode of development nor their mode of action on the functions or structures of the body could be traced with accuracy. The same remarks are applicable to our clinical knowledge of the action of remedies. Without the aid of the more recent improvements in chemic and microscopic methods of research it was not possible, in the first place, to separate the active agents from the crude materials of the drugs, and then so closely follow the active agents when administered as to see what changes, if any, they undergo, what changes they effect in any of

the functions or structures of the body, and through what channels they are finally eliminated.

So too, in the study of diseases by direct observations at the bedside. Only the knowledge of the manifest symptoms presented during the successive stages in the progress of disease, the greater or less amount of secretions, and the duration of each stage could be determined. And if postmortems were made, they revealed only the *results* of the morbid actions that had been taking place, and not the philosophy of the actions themselves.

It is true that our predecessors, while thus limited almost exclusively to observation, or the use of their own senses, in the study of disease, gave us more minute, painstaking and complete symptomatologic descriptions of the more acute diseases, than can be found in the medical literature of the present day. But as they could neither see nor determine the actual morbid processes or the *modus operandi* of their causes, they were compelled to define diseases by groups of associated symptoms, as fevers, inflammations, etc., and their causes by names that conveyed no real knowledge of their nature or origin, as miasms, septic poison, foul air, hereditary, meteorologic and epidemic influences. They logically assumed that every disease or group of associated symptoms must have a cause. If careful observation proved that a certain group of symptoms originated mostly near marshes or on rich alluvial districts of country, it was assumed that some causative agent was developed to which they gave the hypothetic name of malaria or marsh miasm. If another associated group was found prevailing principally in densely populated districts with crowded and ill-ventilated tenements, dirty streets and impure water, it was assumed that from these conditions another hypothetic poison was evolved, to which was given the name of idio-miasm.

With neither an exact knowledge of the nature and mode of action of the supposed causes of disease, nor of the morbid processes constituting disease, the selection and administration of remedies could not be otherwise than empiric or else aimed at the relief of particular symptoms. And this again necessitated the classification of drugs in the materia medica on a symptomatic basis, as emetics, cathartics, diuretics, diaphoretics, narcotics, stimulants, sedatives, tonics and alteratives, according as they increased evacuations from the stomach, intestines, kidneys or skin, allayed pain and induced sleep, increased the frequency of the heart's action with a sense of exhilaration or excitement, or the reverse; a feeling of increased strength or endurance; or such changes in metabolism as resulted in the removal of adventitious tissues and morbid growths.

It was during this long period of dependence upon simple observation, with very limited means for obtaining more complete and exact knowledge concerning the actual changes taking place in the living structures under either morbific or remedial influences, that all our literature relating to the departments of etiology, therapeutics and practical medicine was developed. And much the larger part of the hypothetic names and words, and phrases of ill-defined meaning, which they necessarily embodied, are retained not only in our text-books, but still more in all the secular literature of the present day, thereby causing an unlimited amount of confusion in both the public and professional mind.

Thus, while dependent on simple observation and our sensations for judging of the action of remedies, we classed all agents that, when taken, induced increased frequency of the pulse, with sensations of warmth in the stomach and general feelings of excitement or exhilaration, as stimulants or restoratives. And as moderate doses of nearly all the narcotic and anesthetic drugs produced just these effects, they were made to constitute the greater part of the class of stimulants, with alcohol in the forms of fermented and distilled drinks at their head. Hence a resort to the latter for relief from weakness, weariness, coldness, faintness, depression, shock, or even apprehension of exhaustion, became almost universal both by the profession and the public. And it is still this underlying fundamental idea of their power to stimulate, restore and sustain, that leads to and perpetuates their use not only in the treatment of all diseases of supposed debility, but also in enormous quantities by nearly all classes of people, to relieve every depression of feeling or apprehended evil, mental or physical. And all this is easily traceable for its support to the simple alleged clinical experience of the profession as found in our standard works.

Thus, in one of the recognized standard works on the nature and action of remedies, we read that alcohol "taken internally, in small quantities appropriately diluted, excites a sense of warmth in the stomach and, if the person is very susceptible, an almost instantaneous glow throughout the body, with increased frequency and force of the heart and pulse, a livelier flow of ideas which are, according to the temperament of the individual, gay or gloomy, and actions which, in like manner, may be playful or malevolent." This, you will perceive, is a simple transcript of the sensations and actions of the individual under the influence of the drug. And the same high authority adds: "The use of alcohol in every age, and by every nation in the world, demonstrates that it satisfies a natural instinct, that it literally refreshes the system exhausted by physical or mental labor, and that it not only quickens the appetite for food and aids in its digestion, but that it spares the digestive organs by limiting the amount of solid food which would otherwise be required."[1] This, the author seems to say, is the actual clinical experience of the whole world in regard to the use of alcohol in appropriate doses, and yet it all rests on the sensations of the user, without any accurate knowledge of the actual changes produced by the alcohol on the constituents of the blood, the sensibility of the cerebral hemispheres, the cardiac and respiratory nerve centers, or on the metabolism of the tissues and organs of secretion.

The "natural instinct" spoken of by the author, and often repeated in popular literature, can be nothing more than the desire of a sentient or intelligent being to be relieved of any or all uncomfortable feelings, whether mental or physical. And as alcohol in moderate doses, like all other anesthetics, relieves, at least temporarily, *all* uncomfortable feelings, whether of grief, despondency, weariness, weakness, cold, heat or pain, it is *that* which constitutes the "literally refreshing" influence it is supposed to exert on the human race; and in *that way only* does it satisfy any "natural instinct" in the human family.

It is clearly apparent, therefore, that all the past and present uses of alcohol in the forms of fermented and distilled liquors, both as medicines and beverages, originated from, and still depends for support upon,

[1] See National Dispensatory, pp. 123–4.

the supposed *clinical demonstration* that in moderate doses it warms, stimulates, refreshes, strengthens and exhilarates all the functions of body and mind. Could there be a more striking illustration of the direct connection between the alleged clinical experience of the medical profession and the interests of public health and morals?

As has been already stated, however, all this clinical experience is based on the sensations, movements and opinions of the patient or person under the influence of the alcohol. He swallows a moderate dose, and its contact with the gastric mucous membrane produces a sensation of increased heat and he says it warms him. Being rapidly absorbed and carried to every tissue in his body, its contact with the nerve structures directly diminishes the sensibility of the sentient nerve cells, and therefore he feels less conscious of weariness, weakness, restlessness or pain, and consequently he thinks it refreshes, strengthens and comforts him. But the same lessening of nerve sensibility extends to the nerve cells connected with both mental and cardiac inhibition, and hence he believes he can think and talk faster, and do more, and the heart beats a little faster. Hence both he and his friends say it stimulates him.

Yet, when we apply the tests of philosophic instruments for accurate measurements, and thereby obtain results independent of the sensations of the individual, just when he thinks a moderate dose of alcohol is warming, strengthening and refreshing him, and enabling him to work and think or talk faster, we find his temperature diminishing, his nerve sensibility less acute, its transmission of impression slower, his mental processes tardy and less accurate, his muscular strength and endurance less, less oxygen and more carbon dioxid in the blood, and diminished metabolic changes generally. And when his period of this kind of refreshment has passed, instead of being invigorated and ready for active work, either mental or physical, he is pervaded by a feeling of dullness and depression that makes him think another dose of the same refreshing liquid necessary.

In other words, we have the complete demonstration that the so-called refreshing and strengthening effect of alcohol depends entirely on its anesthetic properties, by which it diminishes the sensibility of the nerve cells of the brain, the material seat of consciousness, and thereby diminishes the consciousness of all impressions, whether of heat, cold, weariness, weakness or pain, and at the same time lessens every physiologic process taking place in the blood, tissues and organs of the body; thus showing the entire fallacy of all the clinical experience founded upon the patient's feelings or conscious impressions, and enabling us to see clearly how alcohol or any other cerebral anesthetic may cause patients to think they are stronger and better, when in truth all the vital or physiologic processes are diminished. And if the use of the agent is repeated from day to day, even in the most moderate doses, we see how the user is induced to think he is being refreshed or sustained, while all the metabolic processes are being retarded, his power to resist or eliminate toxic agents diminished and molecular degeneration of tissues encouraged.

Then why continue to call an agent a stimulant or tonic, that simply diminishes the patient's consciousness of weakness without adding anything whatever of strength or tissue repair, but really impairs both in direct proportion to the quantity used?

However, it is not solely in regard to the use of anesthetic and narcotic agents capable of diminishing the sensibility of our seat of conscious impression, that our clinical experience has proved fallacious. Only a few years since, the profession were taught to regard the degree of pyrexia or heat as the chief element of danger in all the acute general diseases. Consequently, to control the pyrexia became the leading object of treatment; and whatever would do this promptly, and at the same time allay pain and promote rest, found favor at the bedside of the patient.

It was soon ascertained that antipyrin, antifebrin, phenacetin and other analogous products, if given in sufficient doses, would reduce the pyrexia and allay the pains with great certainty and promptness, not only in continued fevers, but also in rheumatism, influenza or la grippe, etc., and their use soon became popular both with the profession and public. No one undertook to first ascertain by strictly scientific appliances the actual pathologic processes causing the pyrexia in each form of disease, or even to determine whether, in any given case, the increased heat was the result of increased heat production or diminished heat dissipation. Neither were any of the remedies subjected to such experimental investigation as to determine their influence on the elements of the blood, the internal distribution of oxygen, the metabolism of the tissues, or on the activity of the eliminations. Consequently, their exhibition was wholly empirical, and the one that subdued the pyrexia most promptly was given the preference.

Yet we all know that the pyrexia invariably returned as soon as the effects of each dose were exhausted, and in a few years the results showed that while the antipyretics served to keep down the pyrexia, and give each case the appearance of doing well, the average duration of the cases and their mortality were both increased. Step by step experimental therapeutic investigations have proved that the whole class of coal tar antipyretics reduce animal heat by impairing the capacity of the hemoglobin and corpuscular elements of the blood to receive and distribute free oxygen, and thereby reduce temperature by diminishing heat production, nerve sensibility and tissue metabolism. Therefore, while each dose temporarily reduced the pyrexia, it retarded the most important physiologic processes on which the living system depends for resisting the effects of toxic agents, namely, *oxidation* and *elimination*. This not only encouraged the retention of toxic agents and natural excretory materials by which specific fevers were protracted, but it greatly increased the number of cases of pneumonia complicating the epidemic influenza or la grippe as it has occurred since 1888–89. And it contributed still more to the production of that remarkable cardiac, vaso-motor and respiratory debility that has followed very many of the cases of the disease just mentioned.

I might cite other cases occurring both in the present and past history of the profession, showing the entirely fallacious character of the clinical experience founded on simple empirical observation, and the injurious effects of such alleged experience on the public health. But the illustrations already given are sufficient for my present purpose, namely, to urge the necessity of a much more thorough experimental study of the nature and action in the living body, of the toxic agents constituting etiologic factors; the nature, tendencies and results of morbid processes constituting

diseases, and the actual *modus operandi* of the medicines we use in their treatment. The facilities for such study afforded by our chemic, physiologic, pathologic and therapeutic laboratories and instruments of precision, should be so utilized as to speedily impart to the clinical experience of the profession a degree of reliability that, in its reflex upon the public, would greatly improve the public health, both mental and physical.

STATE SUPPRESSION OF INEBRIETY AND CURE OF INEBRIATES.

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Much attention has been given in this country and elsewhere, within the last fifty years, to the subjects of inebriety and the cure of inebriates. Many schemes for the suppression of inebriety and the cure, or reformation, of drunkards have been suggested, adopted and tested experimentally with—notwithstanding much good accomplished—unsatisfactory results. These schemes have consisted mostly of so-called temperance societies, on becoming members of which persons pledged themselves by signature, or oath, to totally abstain from intoxicating drinks; political party organizations, seeking by legislation to prohibit the manufacture or sale of intoxicants within the State; public and private asylums for inebriates; and last, if not least, innumerable gold-cures and other quack pretensions for the regeneration of drunkards.

Promising as some of these schemes were in their inception, that they have all failed to accomplish the desired end is not now a mystery to the more observing and thoughtful.

Such being the fact respecting schemes heretofore tested, it may be rationally affirmed that inebriety is not suppressible to any great degree by social influences, moral suasion, oath-bound obligations, or personal pledges; nor are inebriates, as a class, curable by medication, general or specific, secret or open, if not otherwise restrained; and that "prohibition does not prohibit." But as philanthropists, social scientists and physicians we can not accept this verdict as the end of contention and effort for a "consumation devoutly to be wished."

What further effort then shall be made for the suppression of inebriety and the cure of inebriates? After many years' observation and experience in the treatment of this class of persons, and careful study of the causes of failure already affirmed, it is evident to me that there are but two methods which give promise of much greater attainment than did those already tried and found wanting.

One of these methods contemplates absolute prohibition, or putting all intoxicants out of the reach of inebriates; and the other contemplates putting the drunkard under such (bearable) restraint that he can not reach intoxicants; methods, neither of which can be successfully administered by other than the authority of a State. The question then arises: Can or should the State interest itself in such matters?

It may be again rationally affirmed that the State, being simply the mechanism through which popular energy emanating from the people is transmuted into governmental energy, having in view "the greatest good to the greatest number," should be interested and exercise authority for the suppression of inebriety, because inebriety is offensive to society and beneficial to nobody; and in the cure of inebriates, because inebriates are citizens of a defective class, disqualified for the functions of good citizenship and dangerous to themselves and others, by reason of disease that is not amenable to ordinary, or other, medical treatment.

The first of the foregoing propositions likely to be challenged is that which affirms the incurability of inebriates by moral or medical means. It is rational indeed for persons who see only the factor of vice in the problem of inebriety, to believe in the efficacy of moral suasion, or correction, for its suppression, or the cure of the inebriate. One may be rational, however, and yet very much mistaken. Reason finds in accordance with whatever testimony is before it, and is as facile in confirmation of error as of truth. The ignorant—at all times a comparative term including the greater portion of mankind—and some doctors of medicine—regard all phenomena as supernatural and occult. They ascribe the phenomena of evil to a supreme spiritual embodiment of evil immanent in the universe, between which and a supreme spiritual embodiment of good, also immanent, if less active, poor man is forever being attracted or repelled, as by the poles of a gigantic spiritual magnet, though boasting still of freedom. Inebriety being regarded as a vice, what could be more rational than the supposition that all that is required for its suppression is a renunciation of evil and submission to good? Regarding inebriety as a manifestation of disease, believing disease to be instigated by, or in some way related to supernatural influences, and ascribing the curative virtues of drugs to supernatural qualities, with the blind faith or fetishism of ignorance, what more rational than to suppose the inebriate can be cured by medicine? A wider range of testimony, however, discredits and renders irrational both theory and practice. If the testimony of a single century against these assumptions is not sufficient, the facts of human history stand arrayed in solid columns ready to confirm it. Nor should the more enlightened be impatient because of the credulity and delusions of the ignorant, as out of the same root-conditions they have grown into higher light and broader perceptions. Knowledge of the constitutional history of a man—biologic science, indeed—is a revelation of to-day. The physiologic effects of medicines, as related to constructive and destructive processes effected by them when ingested by living beings, are of too recent recognition to have become generally understood, or accepted as valuable knowledge. No physician of education and experience, however, will pretend that other than exceptional persons suffering genuine pathologic inebriety, have ever been cured by any social or moral influences that could be brought to bear upon them, or by the administration of drugs of any kind. By cure I mean restoration to primary conditions and normal appetites, the establishment of physiologic protection against almost immediate relapse.

Objection to State interference with inebriates, other than punitive, will be made by a class of pious or fanatic religionists, who fear that by consenting to any measures for the suppression of inebriety, or cure of inebriates, that do not express their ideas of sin and reclamation by fear of punishment, they will in some way commit themselves to toleration, if not

approval, of vice and thus become accessory to crime. A class conscientiously opposed to any legal enactments contemplating an amelioration of the conditions of the sinful, or the protection of the innocent, by "regulating" social vices that can not be eradicated under immediate circumstances, because of mistaken notions respecting the relation of vice to material conditions, and the relation of government to social circumstances. Persons incapable of reflection, because void of facts or inconsiderate of their significance, who feel that their whole duty has been done toward their fellow men when they have notified them of their sinfulness, warned them of consequences, and pointed out a narrow way of escape, saying to themselves: "Let them do as bidden, or be damned! If society suffers let society suffer! or join with us and make short work of this iniquity." In close practical alliance with these pious people are the makers and venders of intoxicants, and all of the vicious classes of society which blindly antagonize the authority of State on general principles. Still another class of citizens, pseudo-philosophic politicians, who maintain the rights of individuals as superior to the rights of society, and resent the interference of government in matters so personal as eating and drinking, or the observance of holy days, or any exercise of "paternalism" as a function of State; maintaining the right of a man to get drunk and suffer the consequences, if he so elects, oblivious to the fact seemingly that while the individual alone gets drunk, society is the principal sufferer of consequences. The affirmation that inebriates belong to a defective class of society, correlatable with the insane and criminal, may also be challenged. That they do constitute a defective class so correlatable may be inferred from the fact that, while the appetite for brain-stimulants, or sedatives, is common to mankind, and universally indulged by the use of some natural or artificial product, alcohol, opium, tea, coffee, cocoa, kola, tobacco, and others, but a small proportional number become inebriates, or pathological habitués of such intoxicants, showing that the potentiality of inebriety is as definitely referable to organic peculiarities as is the potentiality of insanity, about which there is no longer room for disputation. Were no distinction of this kind to be made, indeed, were the liability to become insane or inebriate the same for all persons under the same conditions of provocation, but few persons instead of the many, would escape lunacy or inebriety. A few drinks of whisky may determine the fate of a man of neurotic instability of nerve organization; while many others, not so constituted, may drink occasionally or frequently, for years, without danger of becoming inebriates. That inebriates are correlatable with the insane constitutionally may be inferred from the facts that an intemperate use of alcohol is regarded as an efficient exciting cause of insanity, and inebriety is recognized as the manifestation of cerebral disease by which mental capabilities are impaired and disordered temporarily or permanently. So parallel indeed are the psychic phenomena of insanity and inebriety even experts have sometimes to differentiate one from the other by physical signs and commemorative circumstances. What are the psychical characteristics of simple, typical lunacy?

1. Well marked departure from ordinary habits of thinking and acting on the part of the lunatic.

2. Loss of self-control, partial or entire.

3. Deterioration of moral perceptions, inveracity, immorality of conduct and depraved appetites.

4. Deterioration of general intellectual capabilities, disorderly imagination and defective reasoning, stupidity, insensibility, death.

Are these not also characteristics of inebriety? How close the resemblance of periodic mania and periodic inebriety, commonly called dipsomania? Are not the accessions of these two conditions as irresistible as the explosion of epilepsy, and indicative of correlatable neuroses? Was epilepsy ever cured by moral suasion? Did any other than a mercenary quack ever pretend to cure an epileptic by specific medication, who did not, sooner or later, discover the error of his pretension?

The affirmations that inebriety is a manifestation of morbid physical conditions effected by the interaction of intoxicants with the activities of defective structures, practicably irremediable by moral or medicinal treatment, and that the State is justifiable in administering all needful authority for its suppression, and the cure of its victims, because of its offensiveness and their helplessness, being admitted, the only question left for discussion is: By what method can the State accomplish the desired end most effectually and satisfactorily?

Of the two methods already alluded to, namely, putting intoxicants out of reach of inebriates, and its alternative, putting inebriates out of reach of intoxicants, the latter seems to me much more promising than the former.

Prohibitory liquor laws have failed of complete success because they can not be executed with the hearty good will of the people and are therefore imperfectly enforced. They are objectionable to many persons who have no need of protection from them, because of their own infirmities, for the reason that they require a large majority of citizens to forego certain privileges held in high esteem as pertaining to the rights and dignity of freemen, for the benefit of the few who have by viciousness or weakness forfeited such privileges. Furthermore, unless such laws could be made National, State lines are too thin to protect the citizens of one State from the liberality of the laws of adjoining States.

Inhibition of inebriates from intoxicants is less objectionable and more practicable, because laws providing for such restriction could be executed with the full approval of nearly all citizens, as they would deprive no one of liberty that had not forfeited some of the privileges of citizenship, or who would not be personally benefited thereby.

This method of suppressing inebriety, and curing inebriates, contemplates something more than the establishment of asylums, or recruiting stations, where inebriates can recuperate sufficiently to go out and enjoy another season of debauch; it contemplates a colonization, so to speak, by voluntary and involuntary settlement, or admission, of all inebriates within a given district of the State, where not only hospital accommodations and appliances for the treatment of the infirm will be provided, but such a variety of industries, under intelligent supervision, as will enable all persons so far restored as to be able to work to not only earn their own living, but accumulate something to the credit of themselves or dependent families. It contemplates a more or less protracted residence in such colonies of persons committed, and an unremitting supervision of colonists on parole, authorizing immediate return, for increasingly longer terms, on violation of conditions constituting the

basis of privileges granted, so long as the colonist remains within the jurisdiction of the State:

As neither time nor inclination permits a more elaborate presentation of such State provision for the suppression of inebriety, and cure of inebriates, as I have mentally evolved from materials of observation, memory and reflection, I will content myself with the suggestion that such provision should not be regarded as punitive in any sense, but benevolent and beneficent in every feature.

It will require, perhaps, more than one "campaign of education" to interest "statesmen" in such a scheme, but once tested I have no doubt of its success, and that the end will have compensated the labor.

TWENTY-ONE YEARS' EXPERIENCE IN THE NON-ALCOHOLIC TREATMENT OF DISEASE.

Read in the Section on State Medicine, at the Forty-Seventh Annual Meeting of the American Medical Association at Atlanta, Ga., May 5-8, 1896.

BY J. H. KELLOGG, M.D.

BATTLE CREEK, MICH.

On becoming connected with the Battle Creek Sanitarium, an institution of which I have had charge for the last twenty years, and having been connected with the institution for a year or two previous, I established a rule that alcohol should not be relied upon as a therapeutic agent in the treatment of curable cases; that, if used at all, it should be only in those cases which were utterly hopeless, and in which it would consequently be useless to withhold any agent which would afford even temporary relief to the patient's sufferings. These cases have been so exceedingly rare that it may be said that alcohol has been absolutely discarded as a therapeutic agent under any and all circumstances, in this institution, although it had been previously used, sparingly.

The total number of patients treated during this time, of which careful records have been kept, is 16,869. In addition to this, a considerable number of cases who have not been inmates of the institution have been treated by myself and my colleagues in the city and surrounding country, and in dispensary practice in connection with our medical mission in Chicago, of which less complete records have been kept.

The majority of cases treated have been persons suffering from chronic diseases. As the larger proportion have been sent to the institution by their attending physicians, it is scarcely necessary to state that they have been cases of more than ordinary gravity, requiring advantages which they could not receive at home.

A city of nearly twenty thousand inhabitants, in which the sanitarium is located, affords opportunity for a limited observation of acute disease. In the twenty-one years I have been connected with the institution, however, myself and my colleagues have treated 333 cases of typhoid fever in persons of all ages, with nine deaths, or a mortality of 2.7 per cent. Within the same time we treated eighty-two cases of pneumonia, with four deaths, or a mortality of 4.9 per cent. When we recall the fact that under the alcohol treatment of pneumonia and typhoid fever, the mortality rate has been 30 and 20 per cent. respectively, I think it will be conceded that our patients have in no wise suffered in consequence of the disuse of this drug.

Alcohol is much less used in the treatment of chronic maladies at the present time than formerly, but many physicians still cling to the idea that alcohol is a stimulant, a nutrient, or in some way a supporter of vitality, and hence prescribe it in a variety of morbid conditions which are more or less chronic in character. I have demonstrated to my satisfaction the absolute inutility of alcohol for the accomplishment of any useful purpose in the treatment of either chronic or acute maladies.

One purpose of this paper is to call attention to other measures which may be used in the place of alcohol as a means of meeting the therapeutic indications which alcohol has been supposed to meet, but which experiments made by Dr. N. S. Davis long ago, and in recent years confirmed by numerous investigators, have shown it to be entirely incapable of meeting.

ALCOHOL AS A CARDIAC STIMULANT.

I have never found alcohol necessary in any case as a



FIG. 1.—Sphygmographic tracing of a patient before taking a spray at a temperature of 80 degrees F.



FIG. 2.—Sphygmographic tracing of a patient (same as Fig. 1) after taking a spray for two minutes at 80 degrees F., with a pressure of twenty pounds.

cardiac stimulant, and all recent physiologic experiments respecting the effect of alcohol upon the heart go to show that it lessens its force rather than increases it; or, in other words, is a depressing agent rather than a tonic or stimulant. The cold shower bath is one of the most powerful of all means of stimulating cardiac activity. The application of cold water to the surface of the body produces an immediate increase in the strength of the pulse. This is very clearly shown by the sphygmograph, with which I have made a considerable number of tracings for the purpose of demonstrating the influence of peripheral applications of cold upon the heart and circulation. The cold shower bath, however, is by no means applicable in every case, neither is it always convenient. Cold may be applied to the skin in many other ways, as by the cool sponge bath or the short cold full bath; and the force of the application can be graduated to a nicety by varying the temperature of the water employed,

the length of the application, and the extent of surface to which the application is made.

The application of cold to the surface produces its effect upon the heart, both through its influence upon the peripheral blood vessels, and by means of a reflex action through the afferent vasomotor nerves and the sympathetic system. The effect of these peripheral applications upon the heart being almost instantaneous, it is very easy to graduate the dose to suit every possible case in which increased heart vigor is required.

The accompanying reproduction of sphygmographic tracings taken by my friend and colleague, Dr. W. H. Riley, very well show the influence of the peripheral application of cold as a cardiac tonic.

Alternate hot and cold sponging of the surface, or hot and cold sponging of the spine, short applications of dry heat over the heart, are also measures of value suited to particular cases. One would not apply cold to the general surface with the skin in a cyanotic condition or wet with perspiration. In such cases, vigorous hot and cold applications to the spine, hot fomentations over the heart, or general hot sponging immediately followed by a brief cold application, would be more appropriate. Drinking of hot water, the hot enema, and the alternate hot and cold foot bath, even the placing of the hands alternately in hot and cold water, are measures which operate powerfully in increasing the vigor of the heart. The value of applications of this sort in reviving the energies of the flagging heart are more clearly seen in cases of syncope, threatened death from chloroform, ether, cocain, opium, and other narcotic drugs, including alcohol.

I shall never forget the impression made upon my mind by a case of opium poisoning to which I was called some twenty years ago. Half a dozen physicians who were in the room had been applying various remedies, all without avail. I was sent for to bring galvanic and faradic batteries. I found the patient with respiration four a minute, pulse rate twenty, but very irregular. The breathing was labored. The patient had doubtless been unconscious for eight or ten hours. The electric applications slightly improved the pulse and respiration for a short time, but the patient quickly relapsed, and I then resorted to hot and cold applications, applying fomentations the whole length of the spine for one minute, then removing the hot cloths and rubbing the bare skin from occiput to sacrum with ice for ten or fifteen seconds, then reapplying the fomentations. In less than three minutes a change in the patient was noticeable. Perspiration appeared, respiration was increased to sixteen per minute, pulse rate to fifty, the patient moved about in bed, and even uttered a few words, to the astonishment of every person in the room. Although in this case the patient ultimately died, the wonderfully stimulating effect of the revulsive applications to the spine in arousing the activity of the cardiac and respiratory centers was apparent to all present.

I believe I have saved the lives of a number of persons under similar circumstances, by the use of this simple but wonderfully powerful measure.

The most powerful of all means of stimulating the heart is the alternate hot and cold spray or shower bath, applied to the whole surface of the body. In cases of chronic cardiac weakness, applications of this sort must be used with care. In some cases only the gentlest hydrotherapeutic measures should be employed; centripetal friction and carefully graduated joint movements should be depended upon as the most efficient means of gradually developing cardiac vigor.

I have, by the careful use of massage and the Swedish movements, frequently succeeded in bringing a patient suffering from cardiac insufficiency, from what seemed to be the very brink of the grave, to a condition of comparative health and vigor.

ALCOHOL AS A STOMACH TONIC.

In cases of chronic dyspepsia, the use of alcohol seems to be particularly deleterious, although not infrequently prescribed, if not in the form of alcohol or ordinary alcoholic liquors, in the form of some so-called "bitter," "elixir" or "cordial." Nothing could be farther removed from the truth than the popular notion that alcohol, at least in the form of certain wines, is helpful to digestion. Roberts showed, years ago, that alcohol, even in small doses, diminishes the activity of the stomach in the digestion of proteids. Gluzinski[1] showed, ten years ago, that alcohol causes an arrest in the secretion of pepsin, and also of its action upon food. Wolff[2] showed that the habitual use of alcohol produces disorder of the stomach to such a degree as to render it incapable of responding to the normal excitation of the food. Hugounencq[3] found that all wines, without exception, prevent the action of pepsin upon proteids. The most harmful are those which contain large quantities of alcohol, cream of tartar, or coloring matter. Wines often contain coloring matters which at once completely arrest digestion, such as methylin blue and fuchsin.

A few years ago I made a series of experiments in which I administered alcohol in various forms with a test meal, noting the effect upon the stomach fluid as determined by the accurate chemic examination of the method of Hayem and Winter. The result of these experiments I reported at the 1893 meeting of the American Medical Temperance Association. The subject of experiment was a healthy young man whose stomach was doing a slight excess of work, the amount of combined chlorin being nearly 50 per cent. above normal, although the amount of free hydrochloric acid was normal in quantity. Four ounces of claret with the ordinary test meal reduced the free hydrochloric acid from 28 milligrams per 100 c.c. of stomach fluid to zero, and the combined chlorin from .270 to .125. In the same case the administration of two ounces of brandy with the ordinary test meal reduced the combined chlorin to .035, scarcely more than one-eighth of the original amount, the free hydrochloric acid remaining at zero. Thus it appears that four ounces of claret produced marked hypopepsia in a case of moderate hyperpepsia, whereas two ounces of brandy produced practically apepsia.

There would seem to be no further proof needed that alcohol is of no use in the treatment of disorders of digestion. Indeed, Dr. Roberts asserts that alcohol is useful only as a means of hindering digestion, which he considers a very important function in it, owing to the tendency of excessive alimentation, especially in the excessive use of meats. Dr. Roberts' recommendation is perfectly consistent with the results of this investigation, so far as the effects of alcohol are concerned, although it would seem to be more sensible to suppress the excess of nitrogenous foods, or the total

1 Arch. f. Klin. Med., 1886.
2 Zeitschrift f. Clin. Med., 1889.
3 Lyon Med., 1891.

amount of food taken, rather than to indulge in the use of a drug to act as a disturbance and hindrance to the digestive process. The disorders of digestion are easily managed by the rational employment of dietetics in connection with a careful investigation of the stomach fluid by the exact chemic and bacteriologic methods with which we are now acquainted.

Roberts has also shown, and the writer's experiments verify his conclusions, that wines, beers and similar liquors, in even comparatively small doses, prevent the salivary digestion of starch in the stomach. Thus it appears that stomach digestion is altogether interfered with, and inhibited by alcohol in any form.

ALCOHOL AS A TONIC OR STIMULANT.

Nothing could be more absurd than the use of alcohol or alcoholic preparations in the production of so-called tonic effects. Far from being a tonic, alcohol is not even a stimulant. Recent investigations show clearly that the drug is a narcotic and a sedative rather than a stimulant. In a paper presented before the American Medical Temperance Association three years ago, I gave the results of psychologic tests made upon a number of persons before and after taking alcohol, by which I showed that the reaction for the tactile and the temperature sense were both diminished more than 100 per cent., while the muscular strength was diminished more than 30 per cent. Alcohol benumbs nerve structures of every sort, and does not in the slightest degree increase either mental or nerve activity. Nothing could be more absurd than the common prescription of alcohol or of such mixtures as Vin Mariana, when tonic effects are desired. These drugs are simply nerve foolers. They lessen nerve sensibility and thereby diminish the sense of fatigue, exhaustion, weakness, or whatever discomfort may exist.

ALCOHOL AS A NUTRIENT.

It has long been known that the use of alcohol diminishes the elimination of proteid substances in the excretions. This was thought to be an evidence that, if it were not an actual food, it was at least a means whereby tissue degeneration might be lessened and thereby the bodily waste diminished. Careful investigation of this matter shows, however, that alcohol does not actually diminish the amount of the products of tissue activity, but that it prevents their elimination, so that they remain in the tissues.

It is only recently, since the subject of leucomains, ptomains, and toxins has come to be appreciated from a practical standpoint, that the full significance of the diminution of tissue waste under the influence of alcohol could be understood. Instead of being an evidence of tissue preservation, this lessening of the elimination of tissue waste is simply an evidence of the accumulation of waste and poisonous substances within the body, through the lessened efficiency of the liver and the kidneys.

In an experiment made a year or two ago, I found the coëfficient of urinary toxicity to be diminished 50 per cent. in the case of a vigorous young man, by the injection of two ounces of brandy. As I argued in a paper presented at the last meeting of the American Medical Temperance Association, this fact is one of profound significance in relation to the use of alcohol in such infectious maladies as typhoid fever, diphtheria, pneumonia, and similar disorders. In these diseases the system is struggling under the influence of poisons, which the liver endeavors to destroy and the kidneys to eliminate. By lessening the efficiency of the kidneys as eliminating organs, and the liver as a disinfecting organ, it is evident that the risk of death must be considerably increased; hence the use of alcohol in cases of this sort must be condemned.

When we remember that in the majority of chronic cases, as well as most acute maladies, the system is suffering from more or less pronounced toxemia, through the failure of the liver, kidneys, lungs, skin, and other eliminative organs to do their full duty, it becomes apparent that the use of alcohol must be not only detrimental, but in many cases even absolutely dangerous.

The patient suffering from dilatation of the stomach is continually in a state of toxemia, through the development of ptomains, as the result of too long retention of food substances in the stomach, and the consequent action of germs of various sorts upon the food elements. As a rule, a patient suffering from an acute disease requires simply good nursing and such treatment as will aid nature in the elimination of poisons to which the most active symptoms are due. In the treatment of chronic disease, the patient requires not only increased elimination of poisons, but the adoption of such measures as will suppress the development of these poisons, such as careful regulation of dietary, and maintenance of an aseptic or germ-free condition of the stomach. The system of the invalid needs to be generally reconstructed. This requires tissue renovation and regeneration. The use of alcohol in such cases, then, must be evil, and only evil.

I should not omit to mention the Turkish bath and similar therapeutic means, as one of the most effectual means of accomplishing the tissue reconstruction necessary for the cure of various chronic disorders, and particularly that class in which alcohol is so freely prescribed, and most of all in cases of alcohol addiction, in its various forms.

SOME NOTES ON ALCOHOL IN THERAPEUTICS.

Read in the Section on State Medicine, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5-8, 1896.

BY T. D. CROTHERS, M.D.

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Some very strange conceptions of alcohol as a medicine exist, and are repeated in really excellent textbooks of medicine. Evidently they are the repetitions of assertions of authors which have been accepted without question.

One of these precepts is to increase the amount of spirits if the smaller doses do not seem to have the effect desired.

In a given case one ounce of brandy every four hours is increased to the same amount every two hours. Spirits are said to be indicated and the dose and frequency is the measure of its power.

Recent text-books urge that spirits be given freely in certain cases and prescriptions containing large quantities of spirits are presented as guides. In some cases cautions concerning the dose and its frequency are given, but the fact is assumed that large doses have certain definite effects that can be studied and understood. These counsels are not in accord with the observed facts, and in some cases diametrically

opposite. Thus the effects of eight ounces of spirits a day is not double that of four ounces. Where spirits are taken as a beverage the man who drinks a pint of any kind of spirits does not manifest symptoms of double the intensity to one who uses half a pint. Observation seems to be conclusive that a point of toleration is reached beyond which there is no appreciable effects from spirits. In a case of diphtheria an ounce of spirits was given every two hours; this was increased to every hour without showing any alteration in the heart's action except a temporary fluttering. The skin seemed to be intensely stimulated and was bathed in perspiration and the kidneys were active, the exhalations from the lungs were increased, collapse and death followed, and the physician was sure that the poison of diphtheria had overwhelmed the nervous centers causing death. The spirits taken for two days before the end had not been absorbed but had gone on saturating the tissues and forming ptomains which were literally poison centers of greater magnitude than the diphtheria germs.

In a case of pneumonia the consulting physician urged spirits *ad libitum* as much as could be swallowed, for the reason that if the heart's action could be sustained he would recover. Of course the patient died. A quart of brandy was given daily. The skin, lungs and kidneys made a great effort to eliminate the poison of alcohol, but failed.

The real facts were, the process of inflammation which would have been self-limited, was supplanted by paralysis and the presence of a new source of poisoning of greater magnitude than the primary disease.

Beyond a certain point not clearly recognized alacoholic saturation begins and the effects of spirits after this time is not apparent except in general progressive depression and enfeeblement. At times this point of saturation is manifest in vomiting with excessive stomach and brain irritation. This may go on to what is termed delirium tremens and various manias, marked by cell and nerve exhaustion, with explosions of nerve force.

There can be no doubt of the cumulative action of alcohol in health, even when used in small doses and for long intervals. In disease of any form there are no reasons for believing that this effect is prevented or neutralized. The assumption that the anesthetic action of alcohol increases in proportion to the size and frequency of the dose or that any action it may have on the organism likewise increases, beyond a certain point, lacks clinical proof. In my opinion alcohol and its ptomains accumulate in the tissues, and are gradually eliminated beyond the danger point by purely natural processes. This process of elimination has a limit, which varies widely in different persons and is unknown. In disease it is feebler and is reached sooner than in health. The supposed tonic effect of alcohol is no doubt a poison of extreme fatality after a certain period. The point of saturation is reached in which the direct irritant and paralyzing action of alcohol, has reached an extreme limit. Beyond this spirits become a pure chemic poison. The center of new combinations of foreign products, that are not eliminated, but held in obeyance, until some unknown condition expells them, or draws them into the circulation. The clinic experience of the sudden death of persons who are using as a beverage or taking as a medicine large quanties of spirits seem to confirm this view of the sudden absorption of alcoholic products beyond the power of resistance.

A strong man suffering from acute pneumonia had been taking over a pint of brandy daily for eight days. He was given a warm bath and an enema to clear out his bowels. An hour after he died suddenly. In my opinion the bath and enema had roused the absorbent to activity, and the accumulated alcoholic poisons had been absorbed to fatality. Before this the general palsy of the tissues had prevented the absorption of the poisons. Had all the alcohol been withdrawn and the process of eliminating been slowly stimulated this result would have been averted.

In the cases under my care alcoholic paralysis is treated with hot showers and hot air baths accompanied with saline drinks. In most cases this is followed by sharp reaction; a few hours after generally stupor and prolonged semi-partial coma. This I assume to be the absorption of the alcoholic products which have been accumulating in the past. The remedy for which is increased hot showers and hot air baths. This reaction is in some cases sudden delirium and hallucinations or strange morbid impulses. The alcoholic ether odors continue for days after the spirits are withdrawn, which seems additional evidence of this condition. I think the process of gradual reduction of alcohol either in medicine or the treatment of inebriates in direct opposition to experience and rational theory.

On whatever theory spirits may be given as a medicine, to gradually diminish the size of the dose and increase the interval of time of giving it, is without reason or judgment. Whatever special effect of alcohol may be desired, the attempt to reduce this down to a minimum in decreasing doses, is purely fictitious.

In a case of typhoid fever where large quantities of spirits had been given and recovery began, great stress was insisted to discontinue the spirits in decreasing doses. Death followed and no intestinal lesion could be found, hence the diagnosis heart failure. In my opinion it was alcoholic poison, with sudden absorption of accumulated products directly due to spirits. Some of the facts I wish to emphasize are first, anesthesia of spirits has a limit, beyond this there is saturation and accumulation of unknown chemic poisons, of great fatality. The toleration and fatality of excessive doses of alcohol in both health and disease, point to some unknown conserving force and capacity of elimination of great power. The sudden deaths which follow in these cases are additional evidence. The practical fact confirmed in many ways is that whatever the physiologic action of spirits may be, its action is limited, and does not increase beyond a certain point, that the effects on the body are cumulative, principally chemic products that are not readily eliminated.

These and other effects from alcohol seem to check elimination beyond a certain point, and become very dangerous. The exhaling of alcoholic ethers from the lungs is significant of saturation and crossing the danger line that should be heeded. In my opinion there is no remedy known of such uncertainty, and physiologic danger as alcohol. The need to-day is a new critical analytic study of the entire subject of alcohol in therapeutics.

Enormous Sac of Pus in Abdomen.—Eleven liters of thick, green, sterile pus were removed from an enclosed sac in the abdomen of a young female by Maydl of Prague, in which the uterus and annexes had been floating. Complete afebrile recovery.—*Wien. Klin. Rundsch.* August 2.

TEACHING TEMPERANCE IN PUBLIC SCHOOLS.

Read in the Section on State Medicine, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5–8, 1896.

BY CHAS. H. SHEPARD, M.D.

BROOKLYN, N. Y.

That the temperance problem is fraught with imminent consequences both to the present and future generations, none can deny. The educational method of dealing with the subject commands itself to all, for if it is studied from a purely scientific standpoint, then whatever advance is made will be permanent, and leave no room for an emotional reaction.

The use of narcotics has become such an overshadowing calamity that it behooves all to make diligent inquiry if perchance there may be some way of escape for our people. Not those who give way to such indulgences are to become the permanent inhabitants of our land, for such conditions do but bring about an inferiority and degeneration that eventually and surely leads to extinction. We also well know that by studying and obeying the laws of life and health, the term is lengthened and its enjoyment enhanced.

This is a subject that comes home to every man of family. All right-minded parents desire to give their children the best opportunities for the struggle of life, and even the most besotted are frequently known to make a great effort to have their children shielded from the effects of their misdoing. It is rarely that a father who uses tobacco desires his son to do the same. The young man who is to join in the struggle of a boat race, or foot-ball game, knows that it is incumbent on him to conserve all his powers and not waste them on tobacco or alcohol, and he willingly denies himself to any extent for that purpose while in training, but when it concerns the race of his life, he too often becomes prodigal of his vital energies and makes fearful havoc of what he would give thousands to be possessed of in later years, simply because he is not conscious of the injury he is doing to himself.

For this reason it is that the school years are the most important season of the child's life, the formative period, and if at that time basic truths can be inculcated, he will be more likely to avoid many errors and grow up to a more vigorous and useful manhood.

We know that every great emergency brings a man to fill the gap. In this case it was a woman, Mrs. Mary B. Hunt, who has made it her life work to forward this object, traveling over a large part of the United States in its advocacy. Associated with her as an advisory board, are some of the noblest and ablest minds in the land. Through her persevering and unselfish efforts, all but five of the States in the Union have enacted laws requiring scientific temperance to be taught all the pupils in their public schools. Canada has also listened to her voice, and enacted similar laws, and her influence has extended to several of the European governments, notably France, England and Russia.

The saloon element in the cities of New York and Brooklyn is so dominating that it was not strange that a strong opposition was developed, and in some of the daily papers, ridicule was thrown upon the work. But no sane man will maintain that there is anything preposterous about the study of physiology. On the contrary, after mastering the "three Rs" there is no more important study in the curriculum, and the reporters who attempted to ridicule this study were never more mistaken, for it is a well-meant and well-digested plan, and has the sanction and support of some of the best and most self-sacrificing people in the land. It is as surely bound to succeed as the right is to come uppermost in the not very remote future. It is undoubtedly true that the temperance movement is to be promoted more thoroughly and rapidly by an educational course than in a prohibitive way, and it will be like "kicking against the pricks" to oppose the instruction of our children in the action of alcohol and other narcotics.

If a child can be made to understand that the purpose of the stomach is the digestion of his food, and that by its thorough digestion, impeded by no irritating or debilitating element, the vigor of the system can only be maintained, and if it is shown that the use of alcohol impairs all the functions of the stomach and predisposes to disease, he will as much hesitate to use stimulants as he would to use arsenic or any other poison.

Let any unprejudiced man who loves his race observe what a vast amount of effort is given to the production and use of alcoholic drinks; how it permeates every class of society. So, also, the use of tobacco and other narcotics. Are we, as a people or nation, benefited by them, or are they a hindrance to our progress and development? The frequent death of a victim of the cigarette habit would argue that our children could easily find a more profitable field of effort. Many of the parents may be astonished when the children come home from school and tell what they have learned about the effects of the moderate use of alcohol and tobacco, but if it be true, we have not found it out any too soon. The books that have been compiled for use in the schools have had the revision of some of the ablest physicians in our land, and they will stand the test of scientific examination. Dr. Crothers, the eminent specialist in inebriety, says, "I have spent some time on the school books mentioned, and I have not found errors or extravagant statements."

If the facts contained in these books are not adapted to the comprehension of the children who are taught, it shows that the teacher has mistaken his calling. The question of the use of alcohol and other narcotics is one that is sure to come up for discussion more and more, and will never be quieted until it is settled rightly. If it is well for physicians to prescribe narcotics, then should the manufacture and sale be encouraged in every legitimate way. On the contrary, if their use is evil, and evil only, as some scientists claim, then all should know it, that they may avoid the pitfalls, and in no more holy ground can this knowledge be placed than in the minds of our children.

It would not be possible for the race to continue many generations longer in the free and increasing use of narcotics, for it would produce degeneration and wide-spread disaster. The light of science, which is simply increasing knowledge, will dissipate the clouds that now hang over us, and usher in the new era to a regenerated mankind. For these and many other reasons, we are satisfied that the law directing this study by the school children is a most laudable one, and should be encouraged by every right-minded person. It can be opposed only by the saloon element, and its strongest supporter, the moderate drinker, who can not too soon become aware of the

error of his ways. He needs education, not prohibition. If he is past learning anything new, his children are not.

The impressions made in our childhood being the more permanent, lead up to the fact that if our children can be taught the truths about alcohol and other narcotics, the time will eventually and surely come when their daily use will be abandoned.

DISCUSSION ON PAPERS OF DRS. EVERTS, KELLOGG, CROTHERS AND SHEPARD.

DR. GROSVENOR—If alcohol is not a stimulant, then why do we observe the flushed face, the increased intellectual activity, the elevation of temperature, the increased muscular power and the general feeling of well-being which persons, especially the weak and feeble, experience while under the influence of alcohol?

DR. KELLOGG—Alcohol may be very aptly termed a "nerve-fooler." Its effects are in a high degree deceptive. It makes a man who is cold feel warm, while the thermometer shows that his temperature is actually lower under the influence of the drug; it makes the weary man feel rested, and the weak man strong, whereas the muscular strength is actually less under the influence of the drug than before.

In experiments which I reported at a meeting of the American Medical Temperance Association held in Milwaukee two years ago, I showed that the man whose total strength as registered by the dynamometer while in his normal condition was 4,800 pounds, fell to 3,300 pounds under the influence of two ounces of whisky; the depreciation of nearly 30 per cent. makes a man imagine that he is stronger than ever before. Careful psychologic tests which I have made with various instruments of adaptability to the purpose, demonstrate how the tactile, the temperature sense, the sense of weight, etc., are all diminished from 30 to 50 per cent. under the influence of alcohol. A man is more talkative than when in his normal condition, but he uses less discretion in the selection of words. There is an evident lack of intellectual balance.

Under the influence of alcohol the face is flushed, because of the paralyzing and depressing influence upon the vasomotor sense, causing the laceration of the small blood vessels. Prof. Ayres' remarks, that if this were not proven, the surface should be red with blood after death instead of pale, is most absurd, for the reason that every physiologist knows that in death the heart ceases its action before that of the vessel, so that the blood is impelled on into the veins, and the arterial system is completely emptied. This surface cyanosis does not appear until the blood has passed on into the larger veins.

Professor Bunge and most of the authorities pronounce alcohol to be a depressor. Professor Reichert's experiments upon a frog's heart show alcohol to be a depressor. This question is scarcely at all discussed among physiologists, for the reason that recent experiments have been conclusive in establishing the fact that alcohol is a depressing agent, and in no sense a stimulant. It is true, that when first introduced into the body, whether by the stomach or hypodermically, alcohol seems to act as a stimulant. This is due to its irritant effect upon the nerves, whereby a reflex stimulating influence is produced, the same as would be produced by a plaster, a caustic, a hot iron, or any other irritating agent; but as soon as the drug enters the circulation and comes in contact with the nerve centers, its true physiologic effects appear, and there can be no question that these effects are those of a depressing agent, and not those of a stimulant.

DR. GROSVENOR—I have observed the different classes of drinkers, and I have noted the character of the drink which they take and I have never been able to tell by the coloring of the countenance of the drinking man whether he was a beer drinker or a strong drinker.

DR. KELLOGG—I think the temper has very much to do with this. Beer drinkers are thick skinned. So are certain classes of people that are pale while embarrassed, while there are classes who are flushed while embarrassed. There are some who turn pale while still flushing. I am told that is one reason why beer drinkers are more likely to be florid than pale, because the attack is upon the nerve centers, while in the strong drinker there is a reflex action so that the vessels are contracted.

THE CHAIRMAN—I merely wish to add the evidence of what little experiment I have made. I have found that the white corpuscles in some were vastly increased by the use of alcohol. If you put them under the microscope you will find that the red have been supplanted by the white, which was due to the toxin poison, which accounts for the difference in the pale and florid faces.

DR. KELLOGG—Speaking on this subject, I have been disappointed in the results of experiments, more than of the blood in strong drinkers. I have been connected with a missionary movement in Chicago, in which we had 450. We have a little church in the center of the city, and use it for a lodging house, and to catch drunkards in. Most of the men who come there are drinking men. We have a penny lunch counter, free baths and a laundry, and I made last year a careful study of 100 drunkards, 100 hard cases. I am very sorry to be obliged to report the fact that I found very little difference between their blood and the blood of normal character. There was some tendency, of course, to white blood corpuscles, but that was in cases of persons addicted to drinking beer, in which cases the blood is somewhat diluted. I think, too, there must be some other change in the blood than the change of corpuscles. We had no doubts, however, of the red corpuscles. But upon corpuscles of this kind we had small proofs, for the blood has peculiar resisting power against alcohol. Being sent directly into the blood, if not for the great resisting power we would be able to see an ill result at any time. And probably alcohol taken into the stomach is simply absorbed. The blood is itself stored up in the liver and passes out into the intestines and is absorbed and goes through the kidneys.

DR. GARBER—I object very much to the use, in Dr. Crothers' paper, of the word stimulant. The author states that in a case of diphtheria it was given freely, and as a result the child urinated more freely and averted trouble. I claim this action of the alcohol was not one of stimulation but one of paralysis. It so paralyzes the nerve centers that the vessels become dilated, if it is the increase of uriuation.

DR. CROTHERS (Hartford, Conn.)—In Prussia, Austria and in Germany, provisions have been made for drinking people the same as for the insane and the time is very near when we shall in this country be obliged in self defense to take care of those unfortunates and put them in asylums. This is a question we can discuss more thoroughly than the question of respiration, for on the question of respiration we shall differ and put into it our personal experiences; but when we come to great subjects like the care of these unfortunates we can but agree. This is a subject that will be pressed and carried home. What to do with these people who are near to each home circle is a subject upon which too much stress can not be laid. I think Dr. Everts will find long before his work is accomplished that he has undertaken a great work.

DR. QUIMBY—As long as the State institutions, the saloons are State institutions so to speak, if the State cultivates the people in habits of inebriety and establishes schools of drunkenness, which the saloons are, tempting the weak, the young and the foolish into habits of inebriety by her license system, just how long shall it continue to debauch a large percentage of them. If the State is particeps criminis through the laws established by it, she ought to take care of her feeble alcoholic patients. They are all feeble if they drink to excess, and if a man drinks at all he drinks to excess. He has defective qualities and should be taken care of. The law has made him drink or assisted in making him become an inebriate.

DR. KELLOGG—Regarding the paper on the non-alcoholic treatment of diseases, I want to say that the proposition of the paper was to show that there are sufficient means for accomplishing what alcohol is supposed to accomplish. In a great

many thousand cases it has been found entirely successful to treat them without using alcohol.

THE CHAIRMAN—I can add to Dr. Kellogg's statement, that for twenty-five years I have practiced on the non-alcoholic plan and I have been more than gratified with my success, even in the hospital.

DR. WORK—I have not used it for the last ten years except in the preparation of medicine, but not in the way of brandy or whisky or anything of the kind then. I have not prescribed whisky or beer or anything of the kind.

DR. GARBER—I once treated a case of rattlesnake bite without the use of whisky. I was called two miles in the country to see a lady who had been bitten by a rattlesnake. They had sent for whisky, but by the time the whisky came it was impossible for her to retain anything on the stomach, not even the whisky. It was about two hours after the bite, they told me, when I was called in. I used nux vomica and a ligation and cleansed the wound and extracted the blood. I injected a solution into the region of the wound and left the ligature on six hours. In ten days she was out of danger and is living to-day. Not one drop of alcohol was used in that case. I would treat a copperhead bite just as a rattlesnake bite. I learned at school that alcohol was good for most everything. We are taught that in the books, and one of our authors has made a great speech during this session in which he says that 70 per cent. of the cases of typhoid fever will get well without any medicine if treated with alcohol. I failed to see the use of alcohol in those cases. Until our professors teach differently in the class rooms and the authors teach differentlyin their works, it is going to be a hard matter to institute a reform.

THE CHAIRMAN—I had one case come under my observation in the New York hospital, of a man bitten by a species of snake, I think the cobra. He was treated in the most scientific manner and was kept constantly filled with alcohol. They continued that forty-eight hours, when the man died. It has always been a question in my mind as to whether the man died rom the snake bite or from alcohol.

AN APPEAL TO THE FELLOWS OF THE AMERICAN MEDICAL ASSOCIATION IN BEHALF OF DISABLED PHYSICIANS AND WIDOWS AND ORPHANS OF PHYSICIANS, MEMBERS OF THE ASSOCIATION.

Read in the Section on State Medicine, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5–8, 1896.

BY FREDERICK HORNER, M.D.

P. A. SURGEON (RETIRED), U.S. NAVY.

The total number of the fellows of the AMERICAN MEDICAL ASSOCIATION in 1884 according to the JOURNAL, was 4,108. In 1890 the number was 3,779, and in 1894 it was 4,095. From the three groups of figures given embracing a period of ten years, we learn that the growth of this representative body of the American medical profession has been almost at a standstill, though the number of physicians in the United States is about seventy thousand. According to the figures above presented there was a decrease of the ASSOCIATION'S membership of 329, due perhaps, in part, that during this period have been created the Gynecological and Surgical, the Military Surgeons, and the American Public Health Associations, all of which, like the British Medical Association, with its sixty-one branches in England, Scotland, Ireland and abroad are offshoots or branches of the parent association. And yet, such a statement does not allow us to reach the true explanation (as we believe) why the AMERICAN MEDICAL ASSOCIATION has not a larger membership, now that the organization is so complete with its eleven Sections of Practical Medicine, Obstetrics and Diseases of Women, Surgery and Anatomy, State Medicine, Ophthalmology, Diseases of Children, Dental and Oral Surgery, Medical Jurisprudence and Neurology, Dermatology and Syphilis, Laryngology and Otology, and Materia Medica, Pharmacy and Chemistry, and a journal which is the organ now of the medical profession of the United States. If membership with the ASSOCIATION has attained only a minimum number and the majority of physicians have raised the question as to the "*cui bono*" to them individually and to their families, is not the conclusion logical that if membership only involves them in expense during their absence from their spheres of practice, and to some may be an occasion of temptation, a large number of this class decline to enter the ASSOCIATION. Now, our medical brethren in England have wisely incorporated in their organization a section of benevolence, as long ago as 1835–36, a period even prior to the birth of our ASSOCIATION, the members of which have raised thousands of pounds sterling, designated as the British Medical Benevolent Fund. The British Medical Association has since trebled its membership and now has sixteen thousand members; wherefore should not the AMERICAN MEDICAL ASSOCIATION have its "American Medical Benevolent Fund?" Clericals and laymen have theirs, the widows and orphans of deceased clergymen of the Protestant Episcopal Church have had in all a fund of $81,000 for their relief. The operative classes, railroad men, commercial travelers, brewers and distillers, apart from the benefit some may derive from insurance companies, have their own mutual assessment fund; why may not the fellows of the AMERICAN MEDICAL ASSOCIATION? Bishop O. W. Whitaker, in his address at a late meeting of the Mutual Aid Society of Philadelphia said: "A professional man is taught to look after the interests of others before he looks to his own; that is the professional idea and the medical profession has lived up to that idea from the very beginning. As the captain of a ship looks to the safety of his passengers before his own, as the captain of a company of soldiers is willing to die for his country, as the engineer on the engine faces death to save those in his charge, so the true physician is at all times willing to sacrifice himself. A medical aid society has claims for support on the whole community and these claims should be recognized. Finally this recognition of the claims of the widowed and orphaned comes from the Son of God, who by a miracle raised from the dead the widow's son, and commended His own widowed mother to the care of the beloved disciple. Throughout heathendom there is no such sentiment. Jesus Christ taught the world the worth of a child as a child, of a man as a man, and of a woman as a woman. Outside of Christendom, there is no such recognition." In the scriptures as in the records of mankind, are mentioned the wrongs done to the widow and fatherless, evils that we by timely help may contribute to avert. If we fail in such duty, recognized now as a matter of privilege by all classes, the social, industrial and professional, there is One who will not. God, with the force of a commandment in His word says: Leave your fatherless children unto me, and let your widows put their trust in me and in the sweet strains of tenderest melody, comes the assurance "He relieveth the fatherless and widow," but, as Christian physicians let no one fail to remember vital union with the Bestower of life in time and eternity demands of us to recognize as the instruments to provide for the needy, viz., disabled physicians and the widows and the orphans of physicians. The writer could cite any number of examples of worthy physicians who stood bravely at the post

of duty and died, as some did, at Norfolk, Va., in 1855, when the plague of yellow fever decimated the population there, and at the Norfolk Navy Yard and Portsmouth. How common the record is for some faithful physician to be killed by accident—a fall from his buggy, run over by the cars, or as in country practice, drowned in the vain effort to cross a swollen stream and thus injured or perishing leaves a helpless family, if not otherwise destitute, with no accident or life insurance policy, and no stipend contributed by a medical aid society, save in one or two States as in Massachusetts, New York and Pennsylvania, though they may be Fellows of the State and AMERICAN MEDICAL Associations, and physicians of high social and professional rank leaving behind the memories of spotless lives and

"Footprints, that perhaps another
Sailing o'er life's solemn main
A forlorn and shipwrecked brother
Seeing, shall take heart again."

Dr. H. Tuck, Treasurer of the New York Society for the Relief of Widows and Orphans of Medical Men is correct in the opinion that every medical society in the union should have its medical benevolent fund, as well as our National Association, with a united purpose to carry on a systematic method of benevolence annually, however small the stock in hand may be at first. As an example of success may be cited the work of the Royal Infirmary of Edinburgh, Scotland, which shows from the last report that even shilling contributions were accepted among the larger benefactions of the rich, making a total of £4,228, to which were added other sums from public works and establishments, churches, donations, legacies from the counties and cities of Scotland, England, Wales, Ireland and abroad, summing up £9,388, details gleaned to prove how the laity and unprofessional do not fail to make annually a generous and munificent provision for the needy, it may be the insane, and the inebriate. The founders of the Massachusetts Medical Benevolent Society in 1857 can not be too much commended in the declaration that they endeavor to help worthy members of the profession, reduced in circumstances and also their families, should they need assistance and of such other medical members of the society and profession or their families as may be deemed by the society suitable objects of its beneficence, a broad platform on which to do good and worthy of adoption by the Fellows of the AMERICAN MEDICAL ASSOCIATION. But the absolute proof of the trial of an experiment to raise money as a fund for so good a cause, is furnished to the physicians of America by our medical brethren of England as presented by the late annual report of the British Medical Benevolent Fund for 1894–95. The most eminent, noble and titled physicians of Great Britain constitute the officers in charge of this fund: Sir James Paget, Bart., F.R.S., president; Sir William Jenner, Bart., F.R.C.P., Sir Richard Quain, Bart., vice-presidents; trustees, Sir H. Acland, Sir James Paget and Sir Edward Sieveking, Barts.; treasurer, Sir William Broadbent, Bart., M.D., 1884. Bankers, Bank of England.

Honorary local secretaries number seventy-nine, and are located in all the principal cities, towns and counties of England and Scotland and border counties.

This fund the report states is "for the relief of medical men in temporary difficulty or distress and for their widows and orphans, and also, for granting annuities to those who are quite incapable of providing for themselves after sixty years of age. This fund has been in the form of annuities to the aged and of grants of money to urgent cases which required immediate help; such recipients must be members of the medical profession, or their widows and daughters and not less than 60 years of age. The annuities are £20 each, but may be increased to £26 a year, *i.e.*, ten shillings a week; the annuities are paid from the annual income of invested property. Of late years such have been greatly increased by legacies, so that in 1883 the annuities were 51; are now 104. There are special funds, one of £15 for two widows of medical men, and the other £36, to a physician's widow having children to educate. The grants like the annuities are given in monthly installments. Subscriptions for 1894 amounted to £1,083, 14s., 5d., and the donations to £707, 8s., 4d. Grants in sums from £2 to £25, were distributed to 169 applicants. Donations were received from Bath, from the Southeast Branch, British Medical Association of Bristol, the Society of Apothecaries and the Salters' Company; one of the legacies of £500, was from the late Mr. T. M. Stone, Librarian of the Royal College of Surgeons, and the wardrobe, besides £100, was left by will to the Fund. The committee consider the position of the annuity fund safe; a number of applicants could not be relieved because safe investments could not be found, and owing to the falling rate of interest of all trust securities and the low dividend on bank stock; it would lessen the difficulties of collecting the grant's fund for regular subscribers to pay through the bank for which a banker's form of order is given with the report. The collector may be the secretary of the association. The committee appoints medical local secretaries, *e. g.*, Bath, Brighton, Northampton, and in other cities to represent the fund, to collect the subscriptions and to distribute the grants in their respective localities, numbering in all forty-five and including the British Medical Association, Southwestern Branch and South Midland Branch, and great cities—Liverpool being the largest contributor; Edinburgh, Hull, Manchester, Plymouth, Perth, Cambridge and Oxford, Glasgow, Leamington and others. The committee urge that an appeal shall be earnestly made to all interested to make the existence of the fund more widely known and to urge its claims not only upon the members of the medical profession but also, upon others who have the cause of true charity at heart."

In a brief conclusion of this appeal to the Fellows of the ASSOCIATION, we would respectfully claim that an experiment of the kind by the profession in America can not be esteemed an impracticable one in the presence of the facts above presented by the reports of the Massachusetts Medical Benevolent Society, the New York Society for the Relief of Widows and Orphans of Medical Men; the Mutual Aid Society of Philadelphia County Medical Society and of the British Medical Fund Society of England. On the contrary, we claim that now, after a half century's existence of the AMERICAN MEDICAL ASSOCIATION, we firmly believe that to ensure a larger membership with the Divine blessing and to promote a common and widespread fraternity, and to perfect the glorious work of its founders, Drs. N. S. Davis, Chapman, Stevens, John C. Warren, Mussey, Moultrie, Wellford, Gross and others on the occasion of the birth of our glorious ASSOCIATION in 1846, that the capstone needed is the

creation of a section of Medical Benevolence—to be styled by Federal Statute law "The American Medical Benevolent Fund," to be judiciously dispensed for the benefit of disabled physicians and of the widows and orphans of physicians in fellowship with the ASSOCIATION—as donors of the fund, annual contributors or by legacies.

TUBERCULOSIS INFECTION FROM FOOD.

Read in the Section on State Medicine, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5–8, 1896.

BY CHARLES E. WINSLOW, M.D.

LOS ANGELES, CAL.

Preventive medicine to-day, like a gigantic signal light, sends its piercing rays into all the world, guiding medical men upward to a plain above their forefathers which gives advantages unknown before. Old theories have developed into facts, prophecies of the past are now being fulfilled, and hygiene has been clothed in new garments of interest. There is more earnest thought along this line than ever before. We have the benefit of the most advanced laboratory investigations, giving us an understanding of the causes of disease hitherto unknown. With this growing enlightenment comes a greater responsibility and a more urgent need of earnest labor in preventive medicine. Science, as she turns the pages of this new book of knowledge, calls for pure food, pure drink, pure air and better protection from disease and death.

Man seems prone to disease, and of all the ills he is heir to, the most appalling in its dire results is tuberculosis. Like a great octopus it reaches out its tentacles after the human race, blighting all who come within its grasp, sapping the very life blood, making a wreck of noble manhood and bringing misery and despair to its victims. Having a death rate in the United States of over one hundred and seventy-five thousand a year, with one-seventh of all deaths in the world from this dread disease (Harsch), leaving in its wake seeds that will bring care, sorrow and death to thousands more, it becomes a hideous menace to humanity.

There is an increasing anxiety among the thinking medical profession due to the resistance of this disease to the advanced curative remedies, for at present all have come far short in checking the progress of this most formidable of all diseases. Although in respect to curative medicine we are still groping in darkness, the light of progress has illuminated the path of preventive medicine, showing that the enemy must be met and vanquished under its banner.

Comparatively a few years ago a majority of the medical men did not believe in the communicable nature of tuberculosis, but scientific research has proved it beyond a doubt, and the cloud of heredity that has hovered as a pronounced doom over hundreds of lives, shutting out every ray of hope, has been dispelled. Many with the predisposition to consumption have accepted this bow of promise, and by changing conditions have conquered the inherited tendency to the disease, becoming healthy and useful men and women.

That the colonization of Koch's bacilli in the animal tissue causes the disease is the belief of the most advanced investigators. If this be true, beside proving that the disease is infectious, it gives grounds upon which we can work out our own salvation by controlling the spread of the disease. The two great mediums through which it reaches the human system are air and food. While the inhalation of bacilli-laden air affects the lungs more largely, tubercular food usually causes the infection through the bowels. The food of a people is its strength; a poorly fed will be a demoralized people. The more wholesome the diet the stronger is the nation. Among the food products none take the place of milk. There are produced in the United States nearly five and a half billion gallons of milk, more than one billion pounds of butter, and nearly nineteen millions pounds of cheese. How important that an article which forms such a large proportion of the food of the people of this country should be pure and wholesome. Tuberculosis is disseminated more largely through its agency than that of any other food.

The most common disease of the cow is tuberculosis. The close relation that exists between the cow and the human family render it possible for the spread of this frightful disease, and for man's best friend to become his worst enemy. Some writers have claimed that the only nations in the world free from tuberculosis are those that have not domesticated the cow, and that this disease is perpetuated by the domestic cattle. That this is no imaginary danger, but real and menacing has been repeatedly proved by experiment and research.

Human beings and the lower animals, living upon the milk from tuberculous cows, have contracted the disease. In one experiment seven out of twelve calves, and two out of five guinea pigs, fed with diseased cow's milk, developed tuberculosis, while the milk from seven cows infected seventeen animals out of eighty-seven inoculated. Obermuller found that out of forty guinea pigs, into which milk bought from dealers was injected, three became affected and died. In his experiments, using centrifugalized milk mixed with the cream of the same milk, ten out of sixty guinea pigs were infected. Roth and Broferro infected guinea pigs from butter made from the milk of tuberculous cows. In 55 per cent. of the experiments the milk from cows having tuberculosis has conveyed the disease to the lower animals. (Ballinger.)

Numerous cases have been reported before the societies where physicians have directly traced the disease from the cow to the human being. It exists to an alarming extent in our large dairies. Very little milk reaches our cities free from mixture with milk from tuberculous animals. (Bush.)

From 5 to 10 per cent. of the slaughtered animals have tuberculosis. The cooking of the meat used for food lessens the danger of infection from that source. The bacilli introduced into the system may migrate to different parts of the body, forming here and there little colonies, the lungs being most often the seat of attack, the digestive tract next. The infection of the intestinal tract by tuberculosis is more common among children than adults. The increasing cases of tuberculous joints, meningitis and infected bowels and glands in childhood can be largely accounted for by the use of diseased milk.

The majority of people are not predisposed to tuberculosis; the immature child and the invalid are most susceptible to the disease. The bacilli rarely find a home in a healthy human organism. Anything that depletes the system leaves it in a condition to become infected; therefore an impure diet of any kind tends toward tuberculosis, while good, wholesome food will

aid in throwing off the disease. The food of a human being may be full of the bacilli and still the system be so nourished that it will not retain the germs. While this may be true, still if the bacilli can not gain entrance into the organism there will be no danger of infection.

Tuberculosis is not so contagious as many diseases, but it holds its victims more firmly in its grasp than almost any other enemy of mankind. And yet this curse of the human race can be prevented. To accomplish this there must be strict sanitation. More and more attention is being given to the subject, not only by the physicians but by the people at large. To-day the hygiene of our cities is one of the great questions which municipalities have to deal. The sale of food that is infected with disease should be restricted and the punishment made so severe that the dealer will fear to sell such food. Each community should have an inspector, whose duty shall be to carefully examine all food sold. Some of our cities have greatly improved the quality of their milk supply by so doing. Sterilizing milk lessens the danger.

Milk containing tubercle bacilli is a diseased product. Wherever there is this microörganism there is tuberculosis. No tuberculous animal can give pure milk, the disease must affect all the organs of the body. Every cow, private or dairy, should be examined for tuberculosis and other diseases by an expert, and the milk of every new cow entering a herd tested before a drop of it is used. The inspection should be periodical, and carefully and systematically made. There should be a physical examination and the tuberculin test should be used, for it has been proved that milk from cows, which give no physical signs, is often infectious. Although Koch's tuberculin has not been a success as a thereapeutic agent, it has proved a useful aid in the diagnosis of tuberculosis, and no herd can be thoroughly inspected without its use. The healthy cows should be marked, and all tuberculous animals, no matter how slightly affected, destroyed. It is a serious matter to go into a man's herd and kill his cattle, but it is pernicious to let such animals live, a menace to a community.

Not only should the cow be inspected but its treatment and surroundings. The animal from which milk is taken should have the best of care, be fed wholesome food and have stables and surroundings neat and comfortable. The utensils used for holding milk, making butter and cheese should be clean and free from dust. No person suffering with tuberculosis should be employed about a dairy, creamery or where food is prepared or sold.

Only milk and its products from inspected dairies should be placed on the market. There should be abattoirs where the slaughtered animals could be examined by competent experts, and no market should be allowed to sell meat which does not have the inspector's tag.

All articles of diet should be kept from contaminating dust. Even the wrapping paper may infect healthy food. Eating utensils used by consumptives should be disinfected.

Inspection is a necessity. To make it a success the inspectors should be educated men and their decisions enforced by law.

The cost of sickness is great, so immense that we fail to grasp its magnitude, nor can we form a proper conception of the annual financial loss to the nation from this king of terrors. Every life has a financial value, every life saved is so much gained for the community. The child who dies before he is able to be a wage earner, is a loss of just so much as has been expended on him and what he could have earned had he lived. When a man dies of this disease it is not alone the expense of his sickness and the value of his wages that are lost to the world, but the time of those who cared for him, and the expense of the expanding influence of the disease he has left behind him.

With the wonderful development of our country comes increasing danger of infection from the foreign element which, absorbed by our people, by its lack of ordinary sanitary precautions aid in spreading disease. There is a demand for better means of protection.

Every charitable institution in this land is an unconscious recognition by the people of the importance of sanitation and teaches that man should not live for himself alone, but for humanity. It is our duty as physicians to devise means for the amelioration of the human race.

Progress in preventive medicine has given us facts that prove the danger and has shown us a logical means of prevention. With this light to aid us we must impress the truths upon our fellow men.

The people are thinking about these things and are increasing in knowledge; public opinion in all its unmeasured power is slowly progressing.

Education and a wise use of education will do much, but an educated people can not do all. There must be a willing government to enforce. The growth of sanitary science calls for advancement in controlling sanitation. State and local authorities can not shirk the responsibility; they are bound to protect life from the danger of death by disease, as from rapine and murder, no matter how great the expense. For a municipality to pay no attention to the sanitary condition of the community is to become the abetter of crime. Some of the States have taken up the subject and their health officers have done noble work in checking the advance of disease, but in order to do the greatest good to the greatest number there must be more legislation in favor of sanitation. There must be intelligent men at the outposts, guarding hamlet and city, a united action along the line, with a master mind at Washington advising and controlling the entire force.

When advancing civilization shall recognize justice to humanity and give place among our Presidential advisers to a man of science who will guard the common safety and welfare of our nation, lessening sickness and want, sorrow and suffering, wasting and death, then may we hope to see science triumph over disease.

MODERN RESPIRATORY ADVANTAGES.

Read in the Section on State Medicine, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5–8, 1896.

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The worker in the domain of preventive medicine often has occasion to feel that there are excuses for becoming pessimistic and for regarding his efforts as unprofitable. After some acute outbreak of disease, his heart is wrung with disappointment and his mind is distracted. A good remedy for such hypochondri-

asis is to rehearse for himself, or have another review for him, some of the modern respiratory advantages, and trace them to their source. All men are not alike possessed of the "vision and faculty divine," but that man must be indeed prosaic whose soul is not inspired with gratitude and whose heart is not uplifted with hopefulness as he beholds the human body rapidly and surely raised from the abnormalities of life, sublimated, refined and sacred through the avails of modern respiratory advantages. The individual who labors in the realm of preventive medicine is habituated to a life amid the vapors of melancholy and disease, and if no sudden or colossal change dispels those vapors, his mental visualizing is rarely illuminated. However, his efforts are continuously transforming the gruesome abiding places of disease into palaces of good cheer, and he is creating an improved state of existence for himself and his generation. The influence ceases not, but it steeps in splendor the distant human prospect and reaches out its long arms like a benediction toward the ages that are yet to be.

The solicitude with which he guards the youth from the moment he leaves the nursery is like to the fabled spirit of good that keeps from all evil. So unremittingly has he demonstrated the ill influences of bad air and advocated the benefits of good respiration that the school curriculum has been extended to include a study of the laws which govern the respiratory organs, with those which govern other material things. By the intelligent application of the laws of respiration, which the schoolboy is thus taught to understand, there is not only a continuous development of the breathing apparatus, but an extension and versatility of its functions. The schoolboy of to-day knows better how to breathe than does his grandsire. In him is awakened an appreciation of the fact that the respiratory organs were never intended to act as involuntary parts of the body, and it becomes a portion of his daily care to observe that a fair proportion of the 25,000 respiratory cycles are voluntary and forcible acts. This age, so self-conscious in many things, is thus to be secured against lethargic, indifferent and unconscious respiration, which has been the cause of much of the pulmonary weakness of the past. The most casual observer will note that it is not our boys and girls who need reformation from respiratory delinquencies, but the fathers and mothers. It is only the children who have learned from their teachers how to use their respiratory organs who really know how to breathe. The large majority of those in adult life have never yet learned how to take a full inspiration or execute a forced expiration. They are totally ignorant of what is meant by a voluntary respiration. In consequence of this the average adult never employs the lungs beyond that which is essential to existence, and to those engaged in sedentary pursuits this need is exceedingly small. On the other hand, every child, disciplined to-day in the accepted respiratory school, is capable of taking in twice as many cubic inches of air as his parent, and habitually uses his breathing organs with proportionately greater freedom and scope. In comparison with the school children of to-day the parents are a race of pulmonary pigmies.

This constant oversight of the lungs brings with it respiratory fulness with perfect oxygenation that in turn develops material out of which energy proceeds. The augmented lungs and extended respiratory action begets an increased desire for air, and these promote a condition of mind that is emulous of bright surroundings. There is nothing that secures appreciation of hygienic conditions like a personal experience of their benefits. To one thus endowed there is a delicious sense of pleasure in the pressure of the lungs against their confines, and it is not easy to deprive him of his powers to battle with bad air.

These methods of cultivation secure an esthetic and cultured respiratory demeanor and at the same time create a longing for complete and repeated changes of air, much as the cultivated taste of the epicure delights in changes of viands. How young, wholesome lungs do yearn for some new brand of alveola-titillating atmosphere! Moreover the highly educated breathing apparatus has analytical capabilities so that it may appreciate that a molecule of oxygen is an impact of two atoms of the element while it recognizes a molecule of ozone as a combination of three. Furthermore, the lungs feel the corroding energy of the triplet to be many times greater than that of the twin, and the influence it exerts upon the breathing apparatus exemplifies a higher intelligence than mere automatism. An educated pair of lungs observes that the air is not imponderable and notes the thermometric and the barometric rise and fall. The mind and the lungs together grow familiar with the physical character of the air, its invisible inhabitants, the microbes and their potencies for good or ill, as well as the general and specific qualities of the air dust.

If it is true, as is calculated, that in the air of the city a man breathes 37,000,000 spores every ten hours it is not from aerial purity that any of the city denizens continue to live and move and have their being. It is also well known that in the atmosphere everywhere there is an opulence of oxygen and the greatest need is a capacious and intelligently controlled breathing apparatus to utilize it, and at the same time to successfully conduct the hygienic chemistry of the perfect function. The educated and sensitive lungs will isolate the deleterious ingredients more rapidly than the microscopist or the chemist; and those objects entrapped upon the microscopic slide, which appear so interesting and beautiful to the visual sense are altogether unlovable to the breathing apparatus when they gain access within their sacred precincts. This ever-increasing discriminating capacity of the human lungs enables men to remain for a season amid deleterious influences with comparative safety.

It was assumed many years ago that the coëfficient of oxygen needful and belonging to animals was fixed by the animal's intelligence. Thus, a dog required more oxygen than did a hare of equal weight; the chimpanzee, the nearest animal to man in point of anatomic resemblance, needed less than man. Whether these estimates were considered fanciful or not, it is certain that to breathe well to-day is the most modern method of demonstrating advancing intelligence.

Falling in line with this display of wisdom in the exercise and development of the lungs are the efforts that are everywhere made to reduce the aerial threatenings and improve the quality of the air we breathe. But for these efforts the vitiated city atmosphere would be most deplorable in its consequences to those compelled to remain within the urban limits. However, it is only amid such surroundings that we can discover how apparently insensible some persons are to the subtle influence of vicious atmosphere, and

observe the variety of means which contribute to counteract the bad air and unhygienic conditions.

The elaborate and perfect system of interchange that has been going on since the world began between the earth, the vegetable and the animal kingdom, with no waste of material, still continues to command the admiration and thanks of every grateful creature. This is also supplemented by a process of sanitary chemistry—more flexible and variable—by which the actions and reactions of materials and the affinities and aversions of the silent and unseen forces are made to conform in the main to the best interests of human kind through the provisions of the *vis medicatrix naturæ*.

To reinforce these natural efforts at sanitation, every city to-day has in its employ a capable corps of workers whose business it is to look after the various impurities. It is the custom in several municipalities to gather a measure of the atmosphere from different portions of the city and force it through materials in which are entrapped the impurities, and these are carefully isolated and estimated, and the result announced. To afford all who desire to acquaint themselves with the relative impurities existing in different localities a record is made at intervals not exceeding one week.

The use of the microscope and other instruments of investigation has become popular amusement, and there is an individual as well as public surveillance of the atmosphere. Through thousands of channels of observation the intelligent layman is accumulating experience that enables him to trace facts and inferences to their logical conclusions, and the good results are constantly multiplying. Knowing that evils exist he seeks to prevent their influences in himself and others, and though his supremest need demands his presence for a season amid the unwholesomeness, he provides himself with a home beyond its contaminations, where he can retire after his daily duties are over, and render his lungs clean again ere he starts them upon their fresh career of defilement. His household is continuously kept amid the respiratory advantages.

Toward the attainment of these possibilities every recent invention seems to felicitously trend. The proper thing is ever more and more becoming the popular thing. In modern street paving there are some remarkable advantages secured to the respiratory apparatus. The myriad crevices favoring the accumulation of dust and offal in the cobble-stone pavements are replaced by the smoother surfaces of the granite and asphalt. These pavements in the streets of the present city make the dust obvious to the street cleaner, and spontaneous removal by rainfalls is facilitated. The frequent use of the sprinkling cart has a salutary effect in lessening the contamination of the respirable air. We have recently bade adieu to the lumbering horse cars and the thousands of horses which contributed to the filth of every city. The dust, the offal, exhalations, effluvia, gas and odors innumerable incident upon the vast herd of horses upon the streets are no longer with us. By the electric and cable cars thousands of horses in addition to those formerly employed by the horse-car companies are rendered unnecessary. The commodious and wholesome rapid-transit cars are a desirable means of conveyance and the great celerity of travel yields additional advantages by expediting business, social and pleasure trips. By the reduction of evil long prevalent, and the substitution of the most royal good, they contribute to modern respiratory advantages beyond computation.

The more recent methods of city illumination has done much that is favorable to wholesome activity in the breathing apparatus. The old-time fishtail gas jet, capable of consuming as much oxygen as several persons, is substituted by the electric light. This is especially noticeable in assembly rooms. By the use of electric light there is no oxygen waste and no products of imperfect combustion. Its universal employment would cause an oxygen saving to every city sufficient to supply twice the number of its inhabitants with good wholesome air.

In the matter of heating, the respiratory organs are considered. The air is not permitted to become gloomy with smoke and other evidences of imperfect combustion, and the smoke-consumer is voluntarily or legally adopted. In the homes we can have our apartments warmed by the moist or dry methods and can so arrange that there will be an equable continuous dry atmosphere, free from dust. Again, we may imitate the barometric rise and fall to suit our fancy or gratify our wish. In the districts where natural gas abounds the air can be kept free from smoke by its employment as a fuel and without even the annoyance of dust from ashes. Some of the more recent methods of supplying air and heat to modern buildings embrace advantages that are destined to lift us out of the empire of death from aerial impurity. The air is drawn by fans through closely woven silk screens or forced through baths which wash and render it aseptic. The shafts into which the atmosphere is drawn are extended to a high altitude to avoid the dust and contamination. After gaining admittance to the basement it receives the desired barometric and thermometric qualities before it is delivered throughout the building. In each room is placed an indicator with a movable needle by the least motion of which the temperature of the apartment can be changed. This adjustment resembles that portion of our timepieces which enables us to regulate its speed. Hundreds of other aids and means of protection to the developing breathing apparatus can be observed in modern city building.

How eminently fitting that an age which protects and fosters its respiratory good should form a remarkably close alliance between its pastime and its business. Wherever we go on a Saturday afternoon we find the city denizens hastening, by every avenue, from the crowd and tumult into the more rural surroundings. The old dead roadways, that a few years ago were overgrown with weeds and grasses, teem with cyclers, and the little town along the way lifts up its head again as if possessed of a new life. The glorious half-holiday rescues many a failing respiration from the thraldom of disease. To take a stroll or join in some of these methods of oxygen hunting, or spend the Sabbath amid nature's wholesomeness, is to serve God. A half century ago this would have seemed sacrilege and the Saturday half holidays would have been regarded by our grandsires as sinful and profligate. But this is the end of the nineteenth century and the world is growing young again through its modern respiratory advantages.

Cricket, football, baseball, tennis, golf, fishing and athletics generally are familiar to every place and are regarded as suitable pastimes for all young Americans. How they have aided in the resuscitation of some of

the yielding respiratory organs! It is not the schoolboy, neither the idle men of means who are interesting themselves in these sports and pastimes, but the masses. The countless excursions by rail or water are daily inviting a willing humanity to bathe their bodies in the sunlight and purify their lungs in the aerial change. Whatever morsel of air or quality of atmosphere one desires may be secured by application to the numerous competing land or waterways, and he will comfortably, cheaply and with great celerity be transported to the Eldorado of his desire. With these new experiences and ever-changing quality of the respired air the lungs not only develop their vital capacity but acquire a versatility in their methods of accommodating themselves to the aerial circumstances. There is undoubtedly a remarkable adaptability by which the lungs may adjust themselves to the conditions. And this serves their possessor in good stead when it is impossible to select the environments, because the respiratory versatility enables him to breathe the disease-ladened air with comparative impunity. Man is to-day capable, for the most part, of educating and subjugating nature, and when the surroundings are at fault he makes or modifies them; failing in this, he can rely upon the discriminating care acquired by his lungs to render the atmospheric foes inert.

Through all the avenues of hygienic information the truth is being ever more and more impressed that pure air and exercise are equal forces acting in the same direction. The contaminations from disease germs and terrestial impurities are to be met by an equable antagonism vouchsafed through the intelligent employment of the functions of respiration. Meanwhile most of us agree with Lord Beaconsfield that "the atmosphere has more to do with human happiness than all the accidents of fortune and all the acts of government."

The adjustment of the respiratory possibilities to the needs of each individual is largely a matter of his own choosing. There are some who have tarried too long under the lethal influences of indifferent respiration, and have in consequence bartered their birthright. Some again there are whose lungs, like the Scotch farms of which we read, are "poor by nature and ruined by cultivation." There may be no regal duty for such to perform but even these can hold from future human struggle the burden of preventable suffering by negatively remaining away from the current of human life that is to-day flowing so directly toward the goal of physical completeness.

DISCUSSION.

Dr. Kellogg—In a certain school there was considerable difficulty in persuading the Indians to attend. I thought they would be glad to avail themselves of the opportunity. They were still in a primitive state and were running about in the forest absolutely nude. There was a lot of Indians who thought it unhealthy to be in the house, and took their children away on that account. It was instructive to me to see that they were so solicitous about their children's health.

He said we did not know how to breathe unless we learned it at school. It is not even known in school. I found the best teacher for breathing was a baby. The good Lord told them how to breathe and they breathe just right. I have told many ladies that the best of their breathing powers were tied up; and that if they wanted to learn how to breathe to take a baby and lay it on a bed, and notice how it breathes. I say breathe with the whole trunk. When he breathes the whole trunk will be inflated.

Women breathe with the upper and men with the lower part of the body. What all need is full respiration of the entire chest. I have two little boys and I frequently make them run up and down stairs once or twice to make them breathe properly.

I formerly practiced voluntary respiration, but I am convinced it is not a success. Simply breathing or exercising for the sake of it is tiresome. I have not been able to breathe voluntarily more than two or three minutes at a time. The muscles very soon get tired. But if you will compel yourself to breathe by bicycle riding, jumping up and down, room exercising, or anything else that will create a demand for pure air you will find that it is not so tiresome. The lungs will act in the most vigorous and voluntary manner. For the last seven years I have used gymnasiums for my patients with excellent results.

Dr. ——, in some experiments made in the Dangerfield Academy, showed that after six months exercise in the gymnasium he found that the involuntary activity of the lungs was doubled. It became twice as great while the students slept, showing that the effects of gymnasium work are continuous during sleeping as well as waking hours.

There is another point: The position assumed in sitting. A lady said, "I want to talk to you about my lungs. My mother thinks I am to have consumption because I have no chest." I made her stand up and she stood with shoulders and chest contracted. A ruler laid on the chest would have touched the shoulders on either side. I made her bend and look upward, and found she had a well developed chest, but was carrying it all behind instead of in front. The lungs had not been properly expanded. In making her stand straight I entirely corrected the deformity. It is becoming a very common deformity. I think it is largely caused by sitting on the back instead of on the thighs, and it results in people becoming round-shouldered. The body is held in this mold for so long a time that it finally acquires a certain degree of permanency.

The doctors ought to be continuously calling attention to standing straight and raising the chest. While standing straight the lungs are expanded, and the abdominal viscera trained up. Walking, boxing, bicycling are agreeable and exhilarating, and accomplish these beneficial results. They render proper breathing more natural.

Dr. Garber—I have had considerable practice with men who were engaged in blowing window glass, and it has been my experience, that forced exercise will cause great development of the chest. In 500 glass blowers I can not remember a single case of lung trouble. I used a respirometer on some of these men, and found they can inhale 300 cubic inches of air, and I frequently found a difference of five and sometimes six inches between inspiration and expiration. Some people whom I regarded as consumptives have since become well, and lungs predisposed to disease of that kind became strong. I am very much in favor of gymnasium exercise of some kind for all.

Dr. Kellogg—The atmosphere is as important to us as the water that we drink, or the light that shines upon us. I want to ask a question in regard to the consumption of this oxygen; I want to ask the author if he thinks that it would materially affect the health of the city to change to electric lights on account of more consumption of oxygen by gas jets than by the electric lights.

Dr. English—I made, some time ago, an investigation as to the consumption of oxygen by the ordinary gaslight jet, and it showed that one gas jet consumed as much oxygen as would supply three ordinary persons. Assuming, then, that we have 100 lights in the assembly room, and 300 persons. We would have consumed by the lights as much oxygen as would have been consumed by the individuals in that room.

When we build a room the area is usually estimated to accommodate a certain number of people, and a building of

wholesale emporiums is usually conducted upon the principle that so many cubic inches of air must be supplied to every individual. When we use the electric light, especially the incandescent, we consume no oxygen. The incandescence of the carbon must be considered the source of light. It burns in a vacuum, with no possible oxygen waste. In every city we have a certain proportion of people living in one room. Estimate the number of rooms in the city, and in that way we can estimate approximately the amount of oxygen we are consuming by the use of these burners. Then there is another point; just estimate the amount of contaminations, the smoke, gas, odors, and the various emanations which are contributed to the oxygen by these fish-tail gas jets, and the heat that the gas produces, whereas, with electric incandescent lights burning in a vacuum, we have a brilliant light that is satisfactory, comfortable to the eyes, do not have these contaminations, and we have a minimum amount of heat. The consequence is that we do not vitiate the atmosphere. With arc burners on the streets and in the rooms we would have a much larger result, for one arc burner was estimated to be equivalent to sixteen times the power of the ordinary burner, I believe. The comparison is between the two different kinds of light. The arc burner is exposed to the atmosphere, and consumes a large quantity of oxygen; but there is no comparison that would demonstrate the advantage that would be accorded the electric light. When we go back to oil lamps and candles and such devices for lighting purposes, they are often worse, because their contributions to the atmosphere are vastly in excess.

It is a fact that we do not in the schools to-day teach the children how to breathe. We should impress upon them that there are vital organs in the human body and that it is within the capacity of our volition to control these organs, these lungs. We may breathe fast or slow as we choose, and take in as much or as little air. We may suspend respiration, but we can not suspend the action of the mind enough to prevent the use of our lungs. I think Nature has demonstrated by placing these organs within our body it is our duty to use them, or they are indeed not vital organs. By that means Nature secures for us perfect respiration, good sound lungs and a wholesome body.

DR. KELLOGG—I just want to mention three disadvantages: gas stoves, kerosene stoves and gas grates as heaters. A doctor put a kerosene stove in a room and the next day the patient was dead. He told me he was satisfied the patient was suffocated by the odors arising from the stove. The gas stove produces ten times as much impurity as an ordinary gas burner, and a gas grate gives out at least twenty times as much impurity as a gas burner. It seems to me a very dangerous thing.

DR. ENGLISH—I would like to ask the gentleman what gas he has reference to—artificial, natural, illuminating or what?

DR. KELLOGG—It is coal gas. That is a hurtful gas. In natural gas heaters as well as in grates, the opening for the escape of the gases is in some scarcely ⅛ of an inch in width, so when the door was opened it was certain to drive all the foul gases out into the room, so that I think it applies to both natural and artificial gas.

THE CHAIRMAN—I think the general fashion of ladies' dresses is wrong, and that the weight instead of hanging from the hips, as is now the case, should hang from the shoulders. I think until that is done they will never have perfect respiration, and that if Dr. English will start a crusade on this line it will result in much better health in every respect, and especially there will be less falling of membranes which the women complain of so much and which gives the gynecologists so much work. They should also have their dresses made so that two or three inches additional would be allowed for expansion of the chest.

DR. ENGLISH—I think that the efforts of such reformers as Jenness-Miller have influenced the women, and in my experience—and I have had rather large experience in respiratory difficulties because my special realm is the treatment of diseases of the chest—I find that women are disposed to lay aside their pains and corsets and take up more life and health. I really think if I incorporated that subject in my paper I should have illustrated the women of the future. They are growing sensible as well as the men.

DR. DRAYTON—This Jenness-Miller reform is simply a departure from the strict lines of fashion. It is simply an attempt to adapt certain principles of hygiene to fashionable dress. You may get some benefit from it, but it appears to me that the attempt will not be more beneficial than the attempts already made on that line. The new woman will make some difference in this matter of fashionable costume. The new woman likes the bicycle and the woman who rides finds it necessary to adopt a bicycle costume. She finds it is not only good to make muscle in the arms but also in the abdominal region, and after a little practice she would prefer to put her finger in the face of fashion than to give up the wheel. So I think we shall have a great improvement from this cause. I have advised the use of the wheel to a great many ladies. I have studied it and its advantages and I am satisfied its general use will be of great benefit.

DR. J. A. WORK, Indiana—The wheel is not available to all. We should give our women more employment that will have the effect of developing what is claimed for the wheel, which is for amusement, but as a vocation I believe general housework, such as our mothers and grandmothers used to do, would be better for them. I have found that the German servant girls who have not followed fashion have very good breathing apparatus and very good lungs. They stand erect and they have employment that compels them to do it. They have to breathe right and they have to clothe themselves right or not do the work required of them. Two young Swedish ladies came to my office for treatment. One wanted to know what was the matter with her side. I put my hand on the side of the chest and told her to take a long breath and her chest shoved up under her chin. She could not expand it around the base of the lungs one-half inch. Under the armpits above the breast she expanded three inches. I said: "That is the trouble with your side; take off your corset and you will breathe well." Let us give them employment that will make them breathe.

DR. H. E. GARRISON, Illinois—I believe I am the only woman doctor present. I have practiced for twenty years and I can ride and walk as readily with as without a corset. Mrs. J. S. Lane has a book upon the subject and if the gentlemen will read it they will know why we have worn corsets and will continue to wear them as long as we live.

SURGERY OF THE KIDNEY.

BEING A STUDY OF A SERIES OF CASES IN WHICH METHODS OF DIAGNOSIS AND TREATMENT ARE ILLUSTRATED.

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TUBERCULOSIS OF THE KIDNEY.

In this series of cases two appear to have been tubercular, although in neither case was an absolute diagnosis made before operation, and in the second case doubt still remains as to the real cause of the disease. In both cases, however, all the means of diagnosis known, except inoculation experiments, were made, and every step was guided by positive indications for treatment. In the first case, Mrs. S., nephrectomy was contraindicated by the desperate condition of the other kidney, determined by catheterizing the ureters. In the second case, Miss C., unusual

difficulties presented themselves and they were overcome, one by one. The treatment of this patient was most conservative and careful. The full report of these cases it is believed will be useful and suggestive.

Case 1.—Synopsis: Sudden obstruction of right ureter three years ago: pyonephrosis; aspiration, drainage; occasional discharge of calculi through the wound; continued fever and chills with cystitis; catheterization of both ureters showing advanced disease of left kidney; removal of calculus and evidement; death in five months from uremia.

Mrs. S., aged 34, mother of three children, consulted me in August, 1894, and gave the following history: Three years ago, and some years after the birth of her last child, she was taken with chills, fever and pain in the right side. The chills continued for three weeks, when a large tumor appeared in the right side. This tumor fluctuated and was aspirated repeatedly by the attending physician, and a large quantity of pus withdrawn. The puncture was at last enlarged and a tube inserted in the loin for permanent drainage. The temperature became normal and the patient gradually gained in health and strength, but she was continually troubled by the closing of the sinus and the recurrence of the chills. There was considerable irritation of the bladder and almost constant night sweats. Many small pieces of stone were discharged from the sinus, indicating the presence of other calculi. The patient was a thin, slight woman, of a nervous temperament and a quick, intelligent look, a bright, quick eye and expressive, nervous features. She had a well-formed thorax with no show of tubercular disease in either lung, no enlarged lymph glands in the neck or axillæ and no indication of general tuberculosis. The heart had a free, normal and regular pulsation which was rapid, 96, and violent. The apex was farther removed from the median line than is normal. The arteries were soft and flexible. The abdomen presented no abnormality except a tumor three inches in diameter in the right side, which was connected with a sinus opening through the skin halfway between the crest of the ilium and the border of the ribs. This tumor was painful on pressure and was evidently the enlarged displaced kidney. Examination of the urine showed a normal quantity containing from six to eight points of albumin measured by the Eshbach albuminometer, some casts and a large quantity of pus and mucus. Examination of the sediment for tubercle bacilli was made by me without result, though many other bacilli were found. In a vaginal and rectal examination the right ureter was found to be about 1 cm. in diameter, hard and painful to pressure. The left ureter was smaller and softer, but very easily recognized and somewhat sensitive. Still I hoped that the left kidney might be found sound and well. Although the patient's condition was not good, I determined to make an effort to remove the calculus from the right kidney and perhaps close the sinus, and at the same time make a positive diagnosis of the condition of the left kidney. With the assistance of Dr. George Nesbitt and Dr. Harry Wilder the patient was prepared and anesthetized with chloroform, the urethra was dilated and the ureteral sounds passed by touch into the two ureters. From the right ureter a thick pus a few drops at a time passed on pressure above the brim of the pelvis. From the left ureter an average quantity of turbid urine passed in intermittent jets of four or five drops, but the quantity was not measured. This urine contained considerable albumin and was very turbid. It was immediately examined under the microscope. The quantity of pus and its character seemed to indicate an advanced condition of disease in the left kidney and contraindicated any extensive operation upon the remnant of the right kidney. The patient was again brought fully under the anesthetic and the sinus enlarged sufficiently to remove the calculus in the pelvis of the degenerated right kidney. This calculus was 1½ inches long and nearly 1 inch in diameter. The pelvis and ureter of the right kidney were carefully examined with the finger and no other stones were found. Nephrectomy seemed to be contraindiindicated by the condition of the remaining kidney; the granulation tissue, which was evidently tubercular, was therefore scraped away and the wound packed with iodoform gauze. The patient was put to bed in good condition and rallied promptly. The wound was dressed upon the fifth day and daily afterward by Dr. Nesbitt. The temperature, which had been about 100 degrees at night before the operation, gradually fell to normal, but the quantity of albumin in the urine increased for two weeks and then, with a milk and kumyss diet, it gradually fell to a mere trace. The wound healed slowly. The urine, however, began to be scanty three months after the operation, and the patient died in uremic convulsions two months later and five months after the operation. No postmortem was made.

In this case nephrectomy and ureterectomy would certainly have been made, in spite of the thickening of the left ureter, had not catheterization of the ureter demonstrated the advanced disease of the left kidney. Had this operation been done the danger to the patient's life would have been much greater, and the benefit to be expected no more than by the simpler procedure.

Case 2.—Typhoid at 12 years followed by cystitis, bloody urine, pain in side, strangury; slow improvement; after ten years, drainage of the bladder for nine months with slight improvement; catheterization of the ureters demonstrates a healthy and competent right kidney and degenerated and suppurating left kidney; nephrectomy; partial ureterotomy; implantation of vesical end of ureter into the vagina; recovery.

Miss C., aged 40, consulted me in December, 1895, for a pain which she constantly felt in her left side in the region of the left ovary, and for frequent painful urination and occasional attacks of chills and fever. She gave a family history of the best kind. Her ancestors were of healthy German stock and she was herself well until her eleventh or twelfth year, when she had a very severe attack of typhoid fever from which she made an imperfect recovery. Following typhoid fever there was painful and frequent micturition, which at last became so desperate that her clothes became offensive from ammoniacal urine, and it was impossible on this account for her to get any position to work. During this time there was great pain in the side which was relieved by lying down. Occasionally there would be a discharge of bloody urine and at all times, as appears from the history, a considerable quantity of pus at irregular intervals. The symptoms, however, somewhat subsided after two or three years, and the patient was able to go about in spite of frequent attacks of pain and painful urination. Many physicians were consulted without avail, and at last fourteen years ago, the bladder was examined by Dr. E. C. Dudley, who made some operation upon it resulting in drainage of the bladder. This drainage was continued for nine months when

the opening was closed up and the patient had some relief. She frequently rose to urinate nevertheless as many as nineteen times in the night as she discovered by an ingenious method. Every time she rose she took a match from her match box, laid it on the table and counted the matches in the morning. About once in two or three months during the past ten years she had attacks of "pain in the side" of a very severe character. During these attacks there was a high temperature and rapid pulse. She used the thermometer and frequently found the temperature 105 degrees F. Vomiting often accompanied these attacks, and they usually passed off after two or three days with a discharge of urine containing half or two-thirds its bulk of pus. She could give accurate information upon this point from the fact that she collected the urine in a wide-mouthed bottle, and allowed it to stand long enough to see the amount of sediment. During the past five or six months the attacks have been more painful and more frequent than heretofore. They had appeared as often as once in three weeks.

When I first saw her she had just recovered from an attack of this kind. The specimen of urine which she gave me at the time had only a small sediment of pus, and contained only a small amount of albumin, there were no casts or other evidence of nephritis. The patient was large and covered with a thick layer of fat making examination difficult. The lungs were perfectly healthy, and the heart free from murmurs but enlarged considerably, so that the apex beat lay 3½ inches from the median line. The spleen and liver could not be palpated, and the area of hepatic dullness seemed to be less rather than more than normal. There was no tumor to be felt in the abdomen, but there was a region of very marked tenderness commencing at the edge of the left short ribs and extending downward into the left pelvis. The points of greatest tenderness seem to be at the upper and lower extremity of this line. The region of the bladder was also distinctly tender upon pressure. The vagina was found to be normal and very small, and the infantile uterus was found lying in its normal position and perfectly movable. In the pelvis there could be easily palpated a distinct tumor upon the left side which seemed to be quite hard, apparently cystic and excessively tender to pressure. The meatus urinarius was red and on pressure a small amount of pus could be forced out of the numerous folds of the mucous membrane. The patient's temperature at this time was normal and her pulse 72. There were 1200 c.c. of urine passed in 24 hours and this urine was alkalin and had a specific gravity of 1.011 and contained 28 gramms of urea; there was a considerable quantity of pus present but no casts. On February 15, the patient was put in the knee chest position, the urethra dilated, the bladder cocainized and inflated and the silver ureteral catheter successfully passed into the right ureter. She passed 6.5 c.c. of urine through this catheter in fifteen minutes. This urine contained absolutely no pus, no epithelium, no albumin and it registered 40 milligrams of urea to the c.c. It was of acid reaction but the quantity was not sufficient to allow me to take the specific gravity. It was not perfectly clear, but was slightly turbid with a sediment of amorphous urates and phosphates. At this time it was impossible to find the left ureter and the patient was so much exhausted that no farther examination was made. The bladder appeared perfectly normal except for a rather pale and anemic patch where the left ureter would naturally be looked for. A day or two afterward a second attempt was made to find the left ureter but without avail. The right ureter was catheterized again with practically the same result. For nearly two weeks attempts were made on each succeeding day to find the left ureter, but no trace of it could be made out, although at each sitting the orifice of the right ureter was plainly visible. Search was made for an abnormally placed ureteral orifice in the urethra also. Various positions were tried and various methods of catheterization were equally unsuccessful.

Although a diagnosis of suppurative disease of the left ureter and kidney had been made it seemed necessary to make this diagnosis positive before so grave an operation as nephrotomy or nephrectomy should be undertaken. There was indubitable evidence of a painful tumor in the left side of the pelvis about where the ureter ought to be found, and this was also the location of occasional spasmodic pains accompanied by a desire to urinate. The possibility of a calculus in this portion of the ureter was kept in mind and on March 11 the patient was prepared for an anesthetic. On March 12 after a comfortable night, during which about three pints of distilled water had been taken by the mouth, and after the colon had been flushed with very hot water, the patient was anesthetized with chloroform and with the assistance of Dr. Fletcher, Dr. D. H. Galloway and Dr. Mary Bates the bladder opened along the line of the old sutures by an incision long enough to allow the finger to be passed into the bladder. The location of the right ureter could not be felt. The orifice of the left ureter was recognized by a hard mass in contact with the wall of the bladder and by the resistance of a line of scar tissue which extended about an inch upward from the normal location of the orifice of the left ureter to this hard mass. By means of a small probe passed into the bladder under the point of the finger the end of the scar was recognized as the contracted orifice of the ureter into which the probe passed with difficulty. The sound was withdrawn and a silver ureteral catheter passed in its place. Three ounces of a clear, watery fluid with a few shreds of pus then passed out the catheter with considerable force. Two ounces of this fluid were first secured for examination and then the region of the kidney and ureter was kneaded and one ounce of almost pure pus was forced out by manipulation. A long flexible ureteral catheter 2 mm. in diameter and fifty centimeters long was then passed in the place of the silver catheter and pressed forward until it was believed to be in the pelvis of the kidney and until it met a distinct resistance. Through this catheter three ounces of warm sterilized water was easily carried by gravity into the pelvis of the kidney and then allowed to run out. This was repeated several times. The catheter met with no obstruction in its course through the ureter. It was decided to leave this catheter in the ureter and wash out the kidney for a day or two, hoping in this way to save the kidney. This catheter and the irrigation produced no pain.

The patient was put to bed in good condition. The two ounces of fluid removed from the distended ureter at this operation contained a considerable amount of pus, a trace of albumin and some carbonates and less than one-seventh the amount of urea which normal urine contains. This pus was laboriously examined for tubercle bacilli by methods that

proved adequate with sputa, but none could be found. This examination seemed to me to indicate a nearly complete destruction of the left kidney. For the first time I had in my possession the information necessary to warrant the complete removal of this kidney and its ureter. During the succeeding week the patient's temperature never rose above 99.3 F. and her pulse varied between 82 and 96 as shown in the accompanying chart. (Fig. 1). She slept well. The kidney was washed three or four times a day with sterilized water or with a solution of permanganate of potash. During all this time a thick green pus poured out of the catheter at the rate of about one and one-half ounces per day but no urine escaped. After trying this irrigation for a week without any diminution in the amount of pus the catheter was carefully removed. The urine and the antiseptics which had been used had produced a hardening of the catheter so that it was no longer flexible but continued to keep the shape it had been in during the week. This made a very interesting cast of the ureter and showed that the kidney was displaced forward and that the ureter made quite a sharp turn about one and one-half inches from the end of the catheter

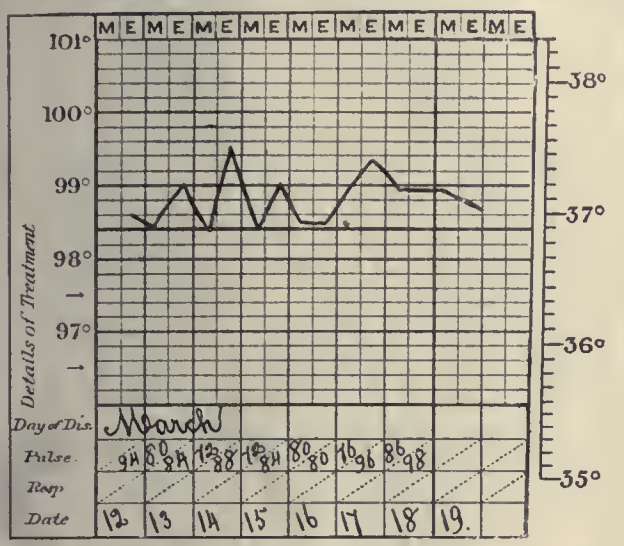


Fig. 1. Miss C.

and that it maintained during the rest of its course to the bladder a rather broader excursion from the spine than is normal. A drawing of this catheter on a reduced scale with the supposed position of the kidney and bladder is given below. (Fig. 2). While in bed with the catheter in place an attempt was made to take a skyagraphic picture of the region of the kidney, hoping to demonstrate the presence or absence of a calculus, but this experiment was without result. The patient went home for a rest and was put on a full diet with one quart of milk and a quart or more of lithiated water each day.

On the first day of April the patient returned to my care in St. Luke's Hospital for the removal of the kidney. Examination at this time showed that 82 ounces, 2,624 cubic centimeters, of palo alkalin urine with a specific gravity of 1.004 and no albumin, no sugar and only a trace of pus and bladder epithelium, were passed in twenty-four hours. This urine contained 22.5 grams in twenty-four hours. The total solids for twenty-four hours was 44 grams.

Her temperature on the night before the operation was 98.8 degrees F. and her pulse 82 to 94 and her respiration 24 per minute. Several small doses of calomel were given during the afternoon followed by castor oil and in the morning an enema. The patient was anesthetized with chloroform and an oblique incision was made below the margin of the last rib in the lumbar region and curved forward over the crest of the ilium and then downward. The muscles and fascia were divided down to the kidneys. The kidney was carefully separated from its surroundings by breaking up the adhesion and drawn up into the wound. During this manipulation the wall of the kidney was ruptured and a considerable amount of clear fluid apparently containing pus escaped into the wound. A clamp was placed upon the very small renal vessels and the kidney with the ureter attached was separated and drawn forward. The ureter was dissected out as low down into the pelvis as possible, where it was found about the size of the patient's middle finger, thin walled and at least 15 mm. in diameter. The ureter was grasped with forceps, cut off and its edges caught with catgut sutures and turned in and the raw edges brought together with sutures and tied. The end of the ureter was then dropt into the pelvis. The patient stood the operation very well but took the chloroform with some difficulty.

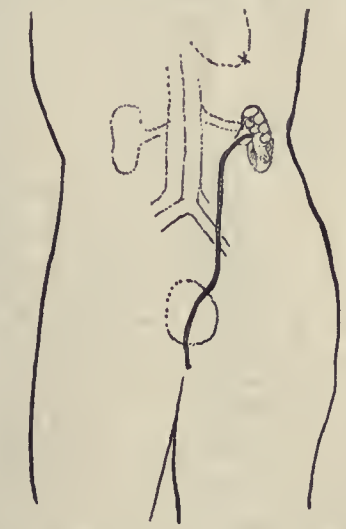


Fig. 2. Showing supposed position of catheter.

The temperature record during the succeeding four weeks is given in the accompanying chart. (Fig. 3). The wound healed up rapidly but there was a tender and painful spot in the pelvis which was supposed to be the end of the suppurating ureter and another operation was undertaken for the purpose of implanting it in the vagina if it was found impossible to remove it. This operation was done April 27. After the ordinary preparation the day before, the patient was anesthetized and an incision was made in the left cul-de-sac of the vagina and the finger pressed in. A catheter was again with great difficulty passed into the greatly contracted orifice of the left ureter and distinctly felt by the finger in the vault of the vagina. With the finger-nail and a dissecting forceps the ureter was loosened up as high as possible, but it was found to be impossible to remove the upper end of the ureter from its attachments. An artery forceps was passed into the opening in the vault of the vagina by the side of the finger until near the bladder it was felt to grasp the ureter with the ureteral sound in it. The sound was then removed, the artery forceps clamped and the ureter cut off on the bladder side of the

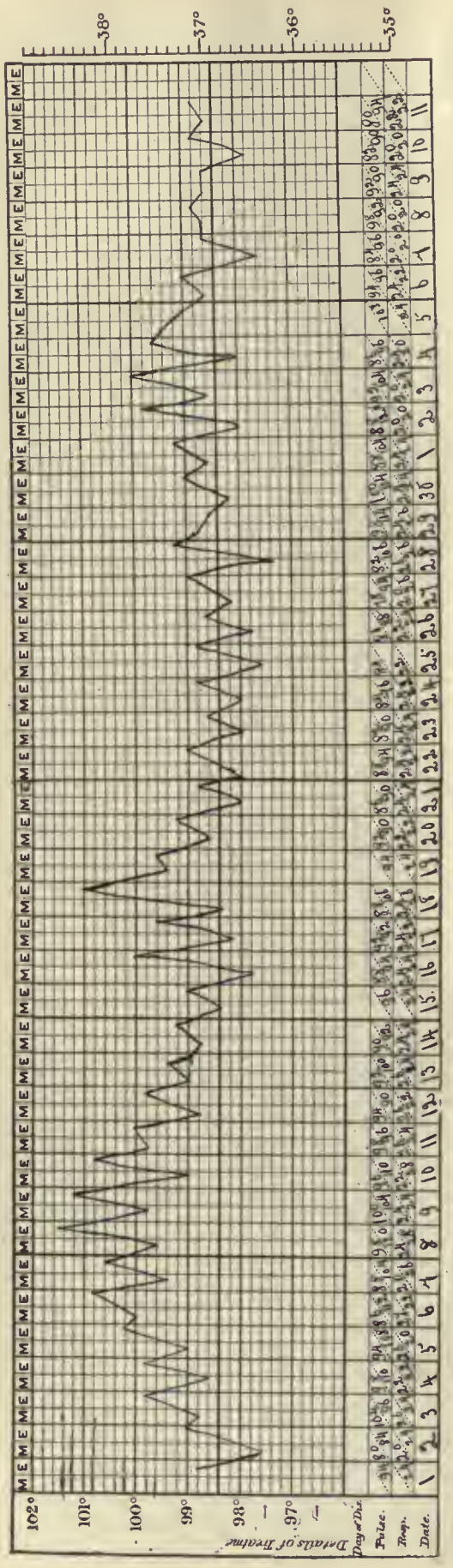


FIGURE 3.

forceps. By means of several sutures the end of the ureter was pulled down and fastened into the vagina. The contracted orifice of the left ureter in the bladder seemed to promise closure without any manipulation and it was let alone. The incision in the bladder through which the left ureter had been catheterized was then partially closed up and a catheter was left in the urethra for drainage.

The patient again suffered a great deal from the anesthetic, but otherwise did well. The temperature chart shows her condition after this operation as long as she remained in the hospital. The ureter remained firmly attached in the vagina and no urine passed from the bladder into the wound and there is every reason to believe that the left ureteral orifice in the bladder is closed up. The suture of the bladder, however, was not successful and it all opened in three or four days. After so many examinations and so much operative procedure the patient lost spirit and strength and she was sent home to recuperate. The urine has

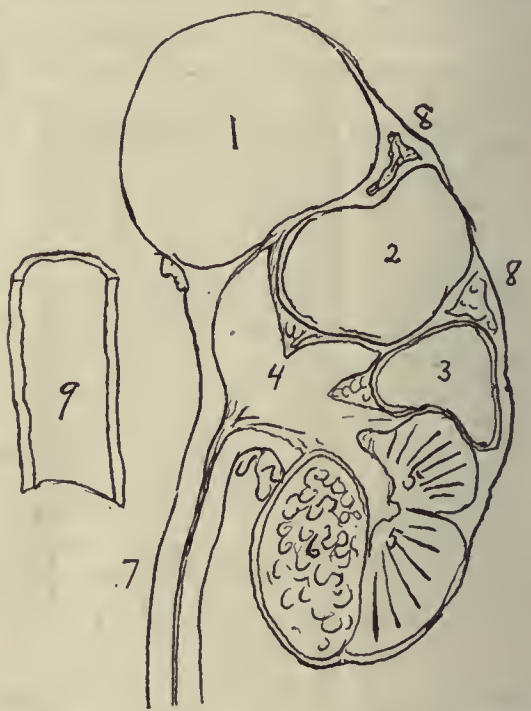


FIG. 4. Diagram of Kidney and Ureter. 1, 2, 3, Cysts not connected with ureter; 4, slightly dilated pelvis; 5, partially functionating remnant of kidney; 6, eucysted fatty degenerated material; 7, greatly thickened ureter; 8, masses of fat and connective tissue; 9, the relative size and thickness of dilated ureter.

been examined several times since the operation and it is entirely free from abnormal constituents.

The accompanying sketch (Fig. 4), gives a fair idea of the cystic condition of the kidney. The upper two-thirds of the kidney were entirely destroyed and the place of the normal elements of the kidney was filled with eight or ten cysts, some of them, at least, did not open into the pelvis of the kidney at all. One cyst contained a white cheesy substance which was insoluble in either cold or boiling hydrochloric acid or in dilute hydrochloric acid cold or boiling, or in cold or boiling nitro-hydrochloric acid, but turned yellow in the latter, or in cold or boiling water; or in cold or boiling alcohol; or in cold or boiling carbon disulphid. It was disintegrated and partly soluble in 5 per cent. solution of caustic potash. Its color was not changed by iodin. Under the microscope it was granular, but on pressure of the

cover glass it became homogenous like lard. Tubercle bacilli could not be found in the cyst contents. In the lower part of the kidney there was a mass of fatty degenerated substance and close to it, marked 5,5, two bits of functionating kidney substance. No valve formation could be demonstrated in the case of the single cyst which opened into the pelvis of the kidney and the other cysts were certainly entirely separated from the pelvis and from each other. The ureter as it left the pelvis of the kidney had a diameter of 1 centimeter and a caliber of less than 1 millimeter. Three inches lower down the walls of the ureter were 1 millimeter only in thickness and the diameter of the ureter was 13 millimeters. A segment of this ureter near the pelvis of the kidney is shown in (Fig. 5). In the section of the ureter, the plications of the mucosa occupy a little more than half the thickness of the tube. The mucous membrane is



FIG. 5. Segment of the ureter an inch from the pelvis of the kidney drawn with the camera lucida and half-inch objective. This drawing shows two defects in the mucosa and adjacent inflammatory areas, reaching out beyond the muscular layer. Atheromatous arteries are also shown and lymph spaces filled with leucocytes.

intact for the most part and is covered by a regular layer of cylindrical epithelium overlaid by a fold of elastic connective tissue. This is surrounded by a double layer of muscular tissue in which are blood vessels and lymph channels. The pathology of this ureter seems to consist in increase in all the tissues beyond the cylindrical epithelium, in defects in the mucous membrane in places, and in masses of inflammatory tissue containing lymphoid cells which have infiltrated the muscular tissue outward from these defects in the mucosa. The active cells seem to penetrate between the bunches of muscle fibers and fill the intermuscular spaces. The blood vessels in places show advanced endarteritis and they are surrounded by inflammatory tissue, the cells of which take on a strong stain. Even outside of the outer layer of muscles are masses of leucocytes grouped about defects or openings in the bundles of muscular tissue.

"Of the 63,000,000 persons living to-day in the United States 9,000,000 or more will die of tuberculosis. This would mean about 150,000 deaths from this disease each year." (Victor C. Vaughan). It is probable that one out of every sixty of the inhabitants of this country or of the world is in the process of dying of this disease. The number of persons actually infected is much greater. Probably one-half or three-fourths of the inhabitants of cities are tubercular. It is not a wonder therefore that renal tuberculosis is a common disease. Dickinson[1] gives the result of the examination of 600 consecutive post-mortems in two London hospitals, 300 were individuals over 12 years of age and 300 under 12 years of age; 180 of these individuals were tubercular, 126 under 12 and 54 over 12; 66 had renal tuberculosis, 49 under 12 and 17 over 12. In the young, males and females are attacked by renal tuberculosis with equal frequency. Among adults men are much more frequently attacked than women. Dickinson saw 44 cases in men and 23 women. Emil Palet[2] says that of 100 cases of renal tuberculosis studied by him only 16 proved to involve both kidneys, while in another series of 42 fatal cases operated upon, all were onesided except 12. Two thousand two hundred and thirty-one cases were treated in St. Thomas's Hospital[3] during the year ending Dec. 31, 1890, among which were the following:

Sarcoma of the kidney, 1; tubercular disease of the bladder, 2; hematuria, 4; pyuria, 2; renal calculus, 1; tubercular kidney, 1; pyonephrosis, 4; renal sinus (tubercular?) 1.

During the six months ending July 1, 1890, there were 3,860 patients treated in the Cook County Hospital,[4] among which were the following:

Perinephritic abscess, 1; movable kidney, nephrorrhaphy, 4; cirrhosis of kidney, 4; acute nephritis, 8; chronic nephritis, 34; pyelitis, 1.

During the six months ending December 31, 1890, 3,823 cases were treated, among which were the following:

Movable kidney, 3; perinephritic cellulitis, 3; rupture of the kidney, 4; cirrhosis of the kidney, 1; acute nephritis, 7; chronic nephritis, 56; pyonephrosis, 3; renal abscess, 1; renal colic, 1; tuberculosis of kidney, 1.

This disease begins as a metastatic focus in the kidney usually after an injury or at a time when the vital resistance is reduced by some intercurrent disease, or it arises from an extension upward of a tuberculosis from the epididymis or seminal vesicles through the prostate, bladder and ureter in the male, and from the urethra through bladder and ureter in the female. The greater number of cases are of renal orgin. There may be some doubt of the secondary metastatic nature in some cases, but the frequency of a preceding injury, a preceding infectious disease and a latent tuberculosis elsewhere speaks strongly for the metastatic origin.

Much has been written of gonorrhea and tuberculosis acquired at the same time. There is reason to look with some suspicion on these observations on account of the difficulty of distinguishing the tubercle bacillus from the smegma bacillus.

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[1] Dickinson, W. H.: On renal and urinary affections N.Y. Wm. Wood & Co. 8 p. 87.

[2] Palet, Emil: Des résultats immédiats et éloignés de la nephrectomie dans la tuberculose rénale. Thèse, Lyons, 1893.

[3] Hadden and Anderson: St. Thomas Hospital Report, Vol. 20, 1892

The clinical history of these cases is illustrated in my cases and in those which every physician will revive from the memory of his own practice or from his reading. The beginning is insidious. There is usually a slight rise of temperature and some discomfort, sideache, backache, dragging or burning pains in the abdomen; but in other cases these symptoms are entirely wanting and the first symptoms are cystitis and pus in the urine. The diagnosis of renal tuberculosis presents the greatest difficulties and until very recently its absolute accomplishment has been declared by nearly all authors impossible in its early stages. Since the ureteral catheters of Pawlik and Casper have come into use an absolute diagnosis is certainly possible in many cases and in all cases the diseased condition of the tubercular organ can be detected and the healthy and competent condition of the opposite kidney can be established. This method is illustrated in my cases. On men it is necessary to use Casper's instrument.

The symptoms of renal tuberculosis are easily recognized, the fever, the pain, heaviness or tenderness, the cystitis, the pus in the urine and the granulating or inflamed condition of that portion of the bladder into which the ureter from the infected kidney opens.



FIG. 6. Renal vessels divided and ureter freed down to brim of the pelvis.

The urine should be allowed to settle and the sediment precipitated by the centrifugal machine. The precipitate should be examined for tubercle bacilli. They may be found and then may be overlooked. If they are found it must not be forgotten that some of the best observers have mistaken the smegma bacillus for the tubercle bacillus. Mendlesohn[5] lately demonstrated a kidney removed a few days previously from a patient with the following interesting history. She had noticed that there had been some pus in the urine for months. There was some pain but no tenderness. The urine was found full of pus, fatty acid crystals, red blood corpuscles and oxalate of lime crystals. The Casper cystoscope was used and the normal rhythmic flow of urine from the right ureter was observed, while from the left ureter there passed out a steady stream of thick greenish pus that settled down into the bottom of the bladder. The ureters were catheterized and the urine from the right ureter found to be normal, clear and abundant, while pus alone was secured from the left kidney. Tubercle bacilli could not be discovered in this pus though they had been found in the urine before catheterization of the ureters. The diagnosis was, however, considered absolute, namely a tuberculosis of the left kidney with complete destruction of its function and a healthy and competent right kidney. The left kidney was extirpated and the kidney substance found almost completely destroyed. Two stones were found in the pelvis.

Professor Leyden in discussing this case called attention to the great difficulty of making a positive diagnosis of renal tuberculosis by examining the excretions from the kidney and finding the tubercle bacillus on account of the almost omnipresence of the smegma bacillus in pyelitis and the great similarity of this organism to that of tuberculosis. It is true there are differences; the smegma bacillus is more delicate and does not exhibit the granular divisions that the tubercle bacillus does, but the staining reactions are the same. Leyden thinks that the only reliable method of identifying the tubercle bacillus in such cases is by inoculation of animals. Senator and König agreed with Leyden.

Casper[6] gives an account of an interesting case illustrating the proper method of making an accurate and absolute diagnosis and as it brings out some new points it may be well to briefly abstract it here.

The patient was a woman 42 years old who had been well until six months before. At that time she took cold and had a catarrh of the bladder with painful urination and turbid urine. Then followed pain in the right side, with a sensation of tension. Irrigation of the bladder was tried without avail and at last through palpation some disease of the right kidney was diagnosed. When Casper first examined the patient he found her an undersized, delicate but apparently well-nourished and sound woman. She complained of pain in the abdomen, especially on the right side. The pain, she says, comes on with exercise and motion, and she is free from pain when resting in bed. Turning in bed, however, brings on the pain. Sometimes she is entirely free from pain whatever she does. She urinates oftener than formerly, during the day every three hours and two or three times at night.

The urine removed from the bladder with a catheter was slightly turbid, acid, specific gravity 1.018. It contained many pus corpuscles, some caudate epithelium, but neither red blood corpuscles nor casts. Albumin was present in considerable quantities. Tubercular bacilli were found in the sediment thrown down by the centrifugal machine. Palpation disclosed nothing abnormal. The kidneys could not be palpated. Neither the kidneys nor the region of the bladder were tender on pressure. The genital apparatus was apparently sound.

Casper's cystoscope was used to introduce 200 cubic centimeters of boracic acid solution into the bladder. This solution by irrigation quickly became clear and the surface of the bladder, except in the neighborhood of the right ureter, was seen to be perfectly smooth, whitish-yellow and glistening. Under the mucosa, the blood vessels could be seen as usual. In the locality where the right ureter ought to have been found, however, there was a granulating mass and the mouth of the ureter could not be seen. The mouth of the left ureter could be easily observed giving out every few seconds a spurt of clear urine. In the neighborhood of the granulation tumor around the

[4] Mitchell, Louis J.: Medical and Surgical Reports, Cook County Hospital, Vol. 1, 1890: Vol. 2, 1891.
[5] Mendlesohn: Berlin klinische Wochenschrift, April 27, 1896.

[6] Casper, L.: Die frühe und exacte Diagnose der Tuberculose des Harntractus, Berlin, klinische Wochenschrift, April 27, 1896.

mouth of the right ureter occasional whirls of fluid could be seen as if the ureter was discharging there.

On the following day the left ureter was easily catheterized and a clear normal urine removed. The right ureter was also catheterized by manipulation, though the mouth of the ureter could not be seen. Turbid urine containing pus and albumin was withdrawn, but tubercle bacilli could not be found in this specimen. Three days later the right ureter was again catheterized and the urine found to contain tubercle bacilli and a larger proportion of urea than the bladder urine. A diagnosis of tuberculosis of the right kidney and circumscribed tuberculosis of the bladder was made This patient was operated upon afterward and the right kidney removed. It was covered with tubercles and two cheesy foci were found in the parenchyma. The patient recovered and is well. The pain is gone and the urine clear.



FIG. 7. Opening of vaginal vault to bring the extremity of ureter into vagina. The assistant's hand and scissors in vagina, operator's hand in lumbar wound after removal of kidney and abdominal portion of ureter.

When an absolute diagnosis of tuberculosis of one kidney has been made and when an equally positive demonstration of the healthy condition of the opposite kidney is at hand, then alone are the indications positive and absolute for the removal of the diseased kidney and ureter. This diagnosis may be tabulated as follows:

a. Tuberculosis of one kidney (absolute) secreting little or no urine.

b. Healthy condition of the other kidney secreting a normal amount of urine containing average amount of normal constituents.

c. Bladder only slightly involved near the ureter of sick kidney, patient otherwise in good condition.

Indications. Prompt removal of diseased kidney and ureter.

It may be asked on what data these indications depend; this study is of sufficient clinical interest to go into it more fully. The following questions will be asked and answered:

1. What is the course and duration of primary tuberculosis of one kidney if left to itself or treated medically?

Dickinson says all his cases terminated in death within four years after the onset of the disease. Belfield [1] says the disease always tends to a fatal termination; this end may, however, be delayed several years and cases are known in which the disease lasted ten, fifteen and seventeen years.

Tuberculosis elsewhere in the body is a progressive and destructive disease. It begins in the parenchyma of the kidney and advances through the ureter into the bladder. Then it advances up the other side, but before this is accomplished the peri-renal tissues are invaded by the lymph channels, or the toxemia of secondary infection of the tubercular urinary tracts comes on together with temporary renal insufficiency and the exhaustion of cystitis.

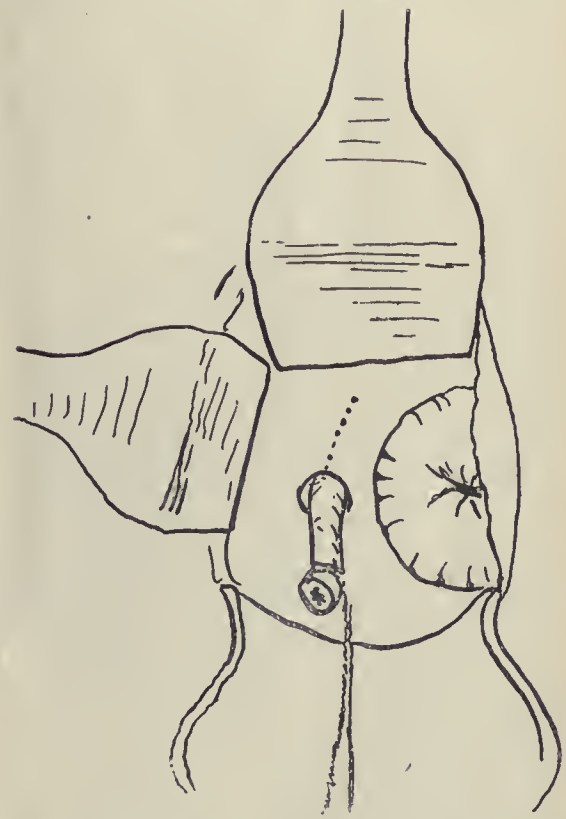


FIG. 8. Removal of the lower end of the ureter through the vagina distended with three retractors. The entire remnant of the ureter to be removed through incision in vault of vagina marked by dotted lines.

2. What is the prognosis under nephrectomy? Very little statistic material is at hand. Palet (l. c.) records eight cases of death from general tuberculosis during the first six years after operation out of a total 136 cases operated upon, but the methods of diagnosis in those cases were imperfect as is shown by the fact that in seventeen cases nephrectomy was done with

[1] Belfield, W. T.: Diseases of the urinary and male sexual organs, N. Y., 1884, p. 254.

the other kidney so diseased that death from anuria followed immediately. In twelve of these seventeen cases the disease of the other kidney was tubercular.

There is an analogy which may be useful in this connection. The removal of local tubercular disease elsewhere in the body gives very good results. Tubercular foci in bones, tubercular lymph-glands and tubercular disease of the skin and mucous membranes can show a very large percentage of permanent recoveries after local mechanical removal.

Since there is only a small chance of life and that a very painful and miserable life, if the disease is let alone, and since the removal of the diseased kidney promises both theoretically and practically a great increase in the length of life and a greater improvement in its quality through relief from pain and the toxemia of secondary infection, *therefore in descending tuberculosis of one kidney with a competent kidney on the other side nephrectomy should be promptly performed.*

The 136 cases reported by Palet had so high a death rate that one would be slow to undertake the operation even on the above indications. When we come to analyze the deaths a different conclusion may be reached. Of the fifty-one deaths, seventeen died of anuria through disease and resulting incompetency of the other kidney. All of these cases could have been eliminated by the use of the ureteral catheters. Shock was the cause of death in eleven cases and usually in abdominal nephrectomy. The statistics are all against this method, which was used twenty-two times in Palet's series. In four cases death was due to unforeseen accidents, and in seven cases no postmortem was made.

In fifteen of Palet's cases fistula remained a long time, due, he thinks, to the tubercular stump of the ureter. On account of this unpleasant sequela and the danger which the tubercular stump might be, Howard Kelley's method of removing the ureter through the vagina should be used in all cases of nephrectomy for tuberculosis of the kidney in women.[8] This is done by following the ureter down with the fingers after tying of the renal vessels and bringing out the kidney. The stages of this operation are beautifully described and illustrated by Dr. Kelley. A reproduction of sketches of these pictures and a synopsis of one case will best give an idea of this exquisite procedure.

The patient was an unmarried woman, 23 years of age. As a child she began to complain of pain and weakness in the back, which compelled her at 9 years of age to remain in bed six weeks. She suffered from frequent urination, which was markedly worse after an attack of scarlet fever when she was six years old. For four years she has urinated so frequently that she could pass but a few drops at a time with great pain. A year ago she had an attack of spasmodic pain in the region of the left kidney, accompanied by vomiting and followed by pain in the bladder. These attacks have been frequent since, some time occurring as often as once a week. The attacks lasted from one to three hours.

Repeated examination of the urine showed it to be always acid, amber colored, containing albumin, pus, hyalin and granular casts, and had a specific gravity varying between 1.015 and 1.020. By vaginal palpation the left ureter was found transformed into a cord three times the normal size. On the right side the ureter was not sensitive and not enlarged. The left kidney could not be palpated. The left ureteral orifice was found by cystoscopic examination deeply injected and surrounded by an area of granulation tissue two centimeters in diameter and extremely sensitive to touch and bleeding easily. The ureteral catheter was passed into the right ureter and normal urine obtained, but it was found impossible to catheterize the left ureter, either by sight or touch. No tubercle bacilli could be found.

In view of all these facts it was nevertheless decided to remove the kidney and ureter and that portion of the bladder that seemed to be infected with the tubercular disease. The operation was performed Dec. 18, 1895. The incision commenced just in front of the vertical muscles of the back at the costal margin and downward toward the middle of the ilium crest, and then in a gentle curve around the anterior spine and two centimeters from it and from this point in an oblique line downward to the lower terminus of the left semi-lunar line an inch above the symphysis pubis. The upper third of the wound was first made, the kidney detached, the renal vessels tied, the kidney removed and the ureter separated down to the pelvis. The lower portion of the incision was then made, the ureter freed with the fingers, the round ligament pushed aside, the uterine artery and veins ligated and divided, and the ureter clamped and tied two centimeters from the bladder. The kidney with ureter 23 centimeters long was then removed. The assistant then punctured the vault of the vagina and the lower end of the ureter was brought into the vagina as shown in Figs. 7 and 8. No ligatures were used except those on the renal vessels and the uterine artery and vein.

The pathologic examination demonstrated advanced tuberculosis of the kidney, but tubercle bacilli could not be demonstrated in the caseous material nor in the milky fluid in which it was suspended. The healthier portions were filled with many small white tubercles. The upper portion of the ureter showed a slight infiltration with leucocytes near slight defects in the mucous membrane.

There are reasons enough to make the following summary:

1. Tuberculosis of the kidney is a relatively common disease.

2. It usually begins in the kidney itself, descends through the ureter to the bladder and ascends to the opposite kidney.

3. It is, therefore, for a long time a unilateral disease.

4. It is a progressive and destructive disease not subject to improvement through medication, offering an unfavorable prognosis as to life and comfort and subject to extension downward by the urinary tract and outward through the peri-renal lymphatics.

5. Diagnosis can be made through the symptoms of cystitis, with a low temperature, rapid pulse, dilatation of the heart, the detection of tubercle bacilli in the urine, tuberculosis of the bladder about the orifice of the ureter of the diseased kidney, pus or blood with tubercle bacilli and diminished normal constituents in the urine from the diseased kidney; normal urine in increased quantity from opposite kidney; sometimes tenderness, pain and tumor *in situ* of diseased kidney and ureter.

6. The indications in case of an absolute diagnosis of tuberculosis of one kidney and healthy opposite

[8] Kelley, H. A.: Nephro-ureterectomy, extirpation of the kidney and ureter simultaneously. Johns Hopkins Hospital Bulletin, 1896, p. 31.

kidney are immediate removal of the diseased kidney *and its ureter;* in case of disease in both kidneys, no operation should be performed.

7. The competency of the healthy kidney should be proved by repeated catheterization of the ureters before nephrectomy and the removal of all toxic elements from the blood should be secured by a liquid diet, irrigation of the colon and hydration of the whole system for some days before the removal of the kidney.

8. Lumbar, extraperitoneal nephrectomy is the safer operation.

9. In women the removal of the ureter should be completed through the vagina.

10. Any remaining tuberculosis of the bladder should be treated locally by curetting or cauterization.

11. Catheterization of the ureter is not a dangerous procedure and it may easily be accomplished in women with the simple cystoscope of Simon, Pawlik or Kelley, and in men with the more complicated instrument of Casper.

A FEW REMARKS ON THE PATHOLOGY OF SYNOVITIS HYPERPLASTICA GRANULOSA OF THE SHOULDER JOINT.

BY E. J. SENN, M.D.

Instructor in Surgery and Assistant to the chair of Practice of Surgery, Rush Medical College.

CHICAGO.

Tuberculosis, which has such great predilection for bones and joints, appears to prove the rule by its exception as regards the shoulder joint. Its comparative infrequency is shown from the fact that in the surgical clinic of Göttingen from the years 1875 to 1891, there were only sixty instances of shoulder joint tuberculosis; while during the period from 1875 to 1882 there were 174 cases of tuberculosis of the knee. In the great majority of cases of tuberculosis of the shoulder joint, caries sicca, that peculiar manifestation of this disease which was first so accurately described by Volkmann, is almost invariably found. Caries sicca is a very mild form of tuberculosis, consisting of molecular decay with a consequent cicatrization, and very frequently terminating in a spontaneous recovery. Synovitis hyperplastica granulosa was called by Billroth fungous synovitis. The tuberculous nature of this affection was determined by Köster in 1869. While it is very frequently found in the knee joint, and is characterized externally by the white spindle-shaped swelling, the well-known tumor albus of the old authors; on the other hand, it is extremely rare in the shoulder joint. The shoulder joint is a peculiarly constructed joint. It differs from the other enarthrodial joints in that it has numerous bursæ, which may communicate with the joint proper, or if the communication is not complete, they form points of least resistance for the dissemination of disease, the three most important of which are the bursa synovialis subscapularis, bursa synovialis intertubercularis and the subacromial bursa. The capsular ligament is of considerable laxity and admits of great distension. It is composed of closely interwoven fibers, and is fixed to the scapula above by being attached to the margin of the glenoid cavity and the root of the coracoid process. Posteriorly it is attached to the rough surface of the glenoid process. Below the glenoid fossa, the capsule blends with the origin of the long head of the triceps. Below it is fixed to the anatomic neck of the humerus. The capsule is strengthened materially by the tendons of the shoulder muscles which pass over the capsule from the dorsal and ventral surfaces of the scapula, and are inserted into the tuberosities of the humerus. With a brief review of the anatomy of the region, it is more comprehensible to understand the emigration of the tubercle bacillus into surrounding structures. Fungous synovitis of this joint is found in adult life, as a rule. The primary focus may be in the epiphyseal line of the head of the humerus, and secondarily cause a synovitis fungosa of the joint cavity and its adnexa. Osteal tuberculosis of this joint is almost without exception found in early life, when the embryonic tissues of the epiphyseal line are undergoing great transformation. The blood vessels are then immature and favor localization of the specific microbe; but even if the primary focus be of osteal origin, fungous synovitis following is the exception, as osteal tuberculosis of this joint is very prone to be of the caries sicca type. On the other hand, synovial tuberculosis irrespective of location manifests itself during adult life, and synovitis hyperplastica granulosa of the shoulder joint is no exception. The primary focus is in the innermost layer of the capsular ligament or of one of the bursæ. The disease is inaugurated by a slight hydrops, due to a pathologic secretion by reason of microbic irritation. This catarrhal stage does not last long before here and there the continuity of the membrane becomes studded with minute tubercles, the catarrhal synovitis now having merged into a synovitis hyperplastica, s. pannosa. The membrane becomes very thick and hyperemic, and in due course of time the minute tubercles undergo casca-



tion. If this pathologic process is not interfered with, the endothelial cells assume great proliferative power, and as a result the capsule becomes filled with tubercular granulations; the evolution from a catarrhal synovitis into the pannus type, and lastly into the synovitis hyperplastica granulosa. The granulation masses do not only extend into the joint cavity itself, but also infiltrate into the subsynovial layer; especially is this the case where the subsynovial fat is abundant. The para-capsular tissues become edematous. If any of the bursæ have direct communication with the joint there is immediate extension of the disease, while if there are delicate septa intervening, they give away to the pathologic pressure. As a consequence, the whole shoulder region becomes immensely swollen, the normal contour being entirely lost. If the subacromial bursa is concerned, the prominences of the acromion and coracoid can be elicited only with great difficulty. The consistency of the swelling is variable. It may be quite tense, reminding one of the tumor albus of the knee joint; or it may be fluctuating, manual palpation giving the hand the sense of a cavity containing fluid. This is not true fluctuation, but pseudo fluctuation caused by intra- and extra-capsular granulation masses. Upon exploratory puncture with a trocar, there can be forced out of the canula a few granulations, fibrin and detritus intermingled with synovial fluid, if a portion of the synovial membrane remains intact. Akido-peirastic gives information as regards the density of the swelling. The supra-clavicular and axillary glands in the course of time become hyperplastic. There is often great pain in the region of the brachial plexus due either to a neuritis or pressure. The swelling in this region should not be confounded with sarcoma of the epiphysis of the humerus, a very rare disease indeed. Here the capsule is also filled with effusion. After the capsular ligament and the bursæ become destroyed, the cartilages and even the bone itself become implicated.

The case illustrated is a patient who was in my care a few months ago. It is typical of this disease and is especially interesting in that both shoulders were affected. The swelling and edema were enormous on the right side, the disease being in its incipiency on the left. The principal bursæ were involved, also the para-articular structures, especially those posterior to the joint.

ANTISTREPTOCOCCUS SERUM IN THE TREATMENT OF CONSUMPTION.

BY W. H. WEAVER, M.D.
CHICAGO.

For the past decade and more the tubercle bacillus has been studied and discussed to such an extent that the presence and activity of other germs as factors in the pathologic processes occurring in consumption were entirely disregarded. That the tubercle bacillus is present and determines the general character of the disease by initiating the inflammatory action is admitted. Tuberculosis of itself is not a suppurative process, hence the appearance of pus in the sputum must be considered as the beginning of a secondary infection which is more rapidly destructive. I believe that a simple tuberculosis of the lung is a mild disease and easily cured if proper antiseptic and hygienic measures are pursued. But it is seldom that a case of simple tubercular phthisis in the earlier stage comes to the physician. It is only after the complications begin that the patient feels sick enough to consult his medical adviser. It is a question just when the streptococcus complication occurs in any particular case; but with the onset of fever and purulent expectoration may be found the streptococcus in the sputum. Dr. Prudden last year showed that the rapid inflammatory symptoms with cavity formation were due to the pyogenic action of the streptococcus. . These destructive processes are slow or rapid according to the activity of these pyogenic germs. This germ activity must be checked and if possible abolished if the physician is of any assistance to his patient.

When the streptococcus infection accompanies the tubercular process from the beginning with high temperature and active germ life the invasion and destruction of lung tissue is rapid, and the case is one of rapid phthisis. Just why this germ activity is greater in one case than another, is a matter for future determination.

Now, antistreptococcus serum as prepared by Marmorek has the property of killing the streptococcus in the blood and the tissues while it is absolutely harmless to the patient. It can be used in conjunction with any other treatment, and gives immediate results. It may be expected from the administration that by the following day the temperature will be greatly reduced; also there will be a considerable reduction in the amount of expectoration. By the end of two weeks the expectoration will be reduced from 50 to 75 per cent. less offensive and less purulent. The cough will also be less harassing and frequent and the patient improved in every way. These results must be the more permanent when the serum is used early in the case. The cases in which I used it were all necessarily fatal cases, one having intestinal tuberculosis and the other two far advanced, with large cavities, and great emaciation.

Case 1.—Mrs. N. D., age 28, a case of rapid phthisis with extensive cavity formation in the right lung and consolidation of the left upper lobe. Temperature range of 7° F. and pulse 120 in the morning to 150 in the afternoon. Examination showed the sputum to be almost a pure culture of tubercle bacilli. June 25th, antistreptococcus serum was given and repeated every second day for three doses. After this the temperature remained below 100 for two weeks and the expectoration and cough was greatly reduced. The patient's general condition was greatly improved by the use of serum.

Case 2.—H. C., age 20, has had consumption for about six years, with a large cavity formation in the right lung, constant cough and expectoration, emaciation and loss of appetite. There occurred in this case a peculiar form of septic absorption which resulted in multiple inflammatory foci about the face, scalp and neck, which would certainly have resulted in abscesses but for the use of antistreptococcus serum. After a single dose of the serum the deposits disappeared, the temperature which was above 101 F. reduced to below 100 F. Expectoration was greatly diminished and considerable general improvement established.

Case 3.—Mr. E. E., age 22, had consumption for about one year, tuberculosis affecting the right upper lobe. For over one month has had tubercular diarrhea. The use of the serum in this case reduced the cough and expectoration about one-half and gave great relief, which continued up to the day of his death, two weeks later.

It will be observed from the nature of the disease under consideration and the remedy itself that it is not proposed as a cure for consumption in the sense of a specific, but as a valuable remedy for some of the most terrible complications which occur in the course of the disease. I am thoroughly convinced that by the intelligent use of this serum together with other appropriate treatment the ulcerative complications as well as the disease itself may be robbed

of at least some of their terrors and disastrous results. With this serum as with serum therapy in general the earlier it is used the better the results attained.

126 State Street.

RESECTION OF TWO INCHES OF THE HUMERUS AND WIRING, WITH A REPORT OF A CASE OF WIRING OF THE CLAVICLE FOR UNUNITED FRACTURE.

BY STEWART L. McCURDY, A.M., M.D.

Orthopedic Surgeon to Presbyterian Hospital, Member American Orthopedic, American Medical, and Allegheny County Medical Societies; Professor Anatomy and Oral Surgery, Pittsburg Dental College, etc.

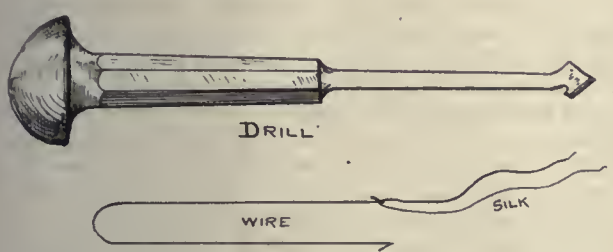
PITTSBURG, PA.

It is a matter of selection, after excision of joints or resection of bones, whether nails are selected to secure the bones, or whether wire is used.

Possibly I am stating the facts, when the statement is made that the majority of surgeons prefer spikes to wire. Especially is this true for excisions of the knee.

It is not the adaptation of bones after excisions for chronic tubercular disease, I desire to consider, but rather the use of wire for the treatment of compound and irreducible fractures.

Fig. 1.



That it is possible for me to secure a more perfect adaptation of bones by the use of wire goes without further discussion. That other operators can not get as perfect results with wire and use spikes instead, also goes with saying. Whether these men have tried wiring and discarded it for the nails, I am unable to say. To attempt to do a bone wiring without the proper instruments would be as difficult as to do a vaginal hysterectomy without an equipment.

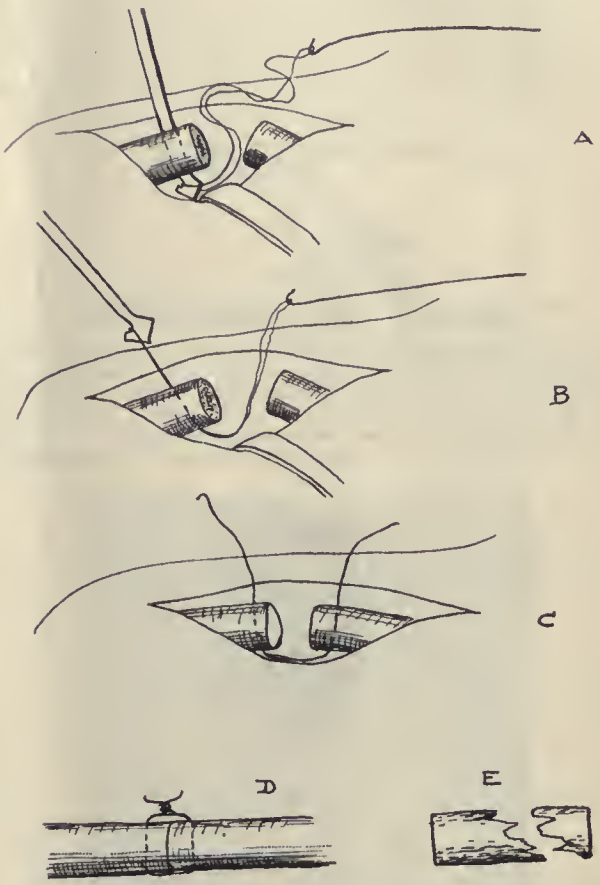
To Dr. Wm. F. Fluhrer of New York, must be given the credit for perfecting instruments for bone wiring. In order that bone wiring might be speedily done it is necessary to use a notched drill. It is an easy matter to pass a drill through a bone, but it is not such an easy matter to keep the drill hole pervious or reënter again after the drill has once been withdrawn.

As will be observed the drill is notched near the point. After it passes through the bone a silk thread is thrown around the point and allowed to engage in the notch, after which it is withdrawn. The drill hole once loaded with silk, the wire is attached and drawn through either way as desired.

Case 1.—Mr. P. F., aged 35, was thrown from a carriage and received a dislocation of the left shoulder and fracture of the left clavicle. After reduction of the dislocation the shoulder recovered promptly. The displacements of the fragments in the fractured clavicle were so great that no effort was made by nature to repair the injury. About six months after the original injury he was again injured and the shoulder was dislocated. The ununited fracture of the clavicle was more or less disturbed.

The fracture was painful at all times when the arm or shoulder was moved. The internal end of the external fragment appeared to be sharp and the patient, if he had had the

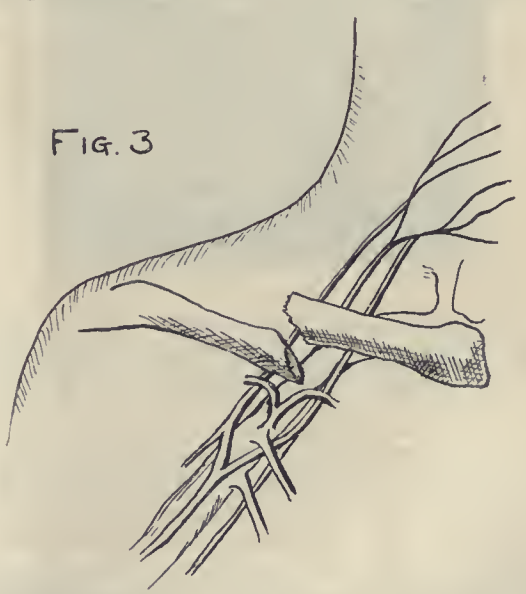
Fig. 2.



power in the arm, could not work on account of the pain caused by the motion.

A study of the anatomy of the parts (Fig. 3) shows that the free end of the under fragment was pushed down on the tissues overlying the subclavical artery and brachial plexus, when

Fig. 3



even the arm was elevated. Operative interference was advised for two reasons: 1, that union of the bones might be

secured; 2, that the pain caused by the projecting end of the bone might be relieved.

Operation: Free longitudinal incision was made along the clavicle and the ends were dissected out. The ends were sawed off by the use of a chain saw. The bones were drilled and brought together with silver wire.

Result: Union was perfect, and the wound healed without suppuration. The arm is practically as good as before the injury. The wire was subsequently removed.

Case 2.—H. B., aged 30, brakeman, received an injury of his left thumb while making a coupling. The muscles of the palmar surface of the thumb were squeezed through the skin, and the bone was broken; the thumb was practically torn off. Preparation was made to amputate. While my assistant was

FIG 4.



anesthetizing the patient, it occurred to me that wiring might save the thumb, and the latter operation was done. In six weeks the wound had entirely healed and in three months the thumb was as well as before the accident, save some limitation in extension as a result of the extensive laceration of the muscles. This was my first wiring and was done in June, 1885.



FIGURE 5.

Case 3.—D. W. C., aged 37 years. The contents of a shotgun had passed through the arm internally to the thickest portion of the biceps and making its exit near the insertion of the deltoid. The humerus was entirely torn off; the patient favored amputation at my first visit, but we concluded to adjust fracture and wait for results.

The bones showed no signs of union, and the case was complicated by a severe hemorrhage three weeks after the injury, and at this time the patient insisted upon amputation. I assured him that amputation was not demanded, but instead I would advise excision and wiring, which operation was done, three weeks after the injury.

Two inches of bone were removed (Fig. 4), and the bone adjusted the wire. The ends of the bone were ragged and showed no evidence of repair.

The case from the date of wiring did not have an unfavorable symptom, and in six weeks was entirely healed.

The man is a farmer and has made a full hand at every kind of work ever since. The two inches of shortening did not interfere with this in the least. (See Fig. 5.)

Description of cuts: Fig. 1 shows notched drill, the wire and silk and the method of attaching them. Fig. 2 shows, diagrammatically, the method of loading the drill hole with the wire as the drill is withdrawn, as well as other steps in wiring. Fig. 2 E shows the bone removed in the clavicle case.

SELECTIONS.

The French National Population Alliance.—The London *Times* states that an organization, with medical men at its head, has been formed in Paris to stay the French population's decline. The organizers are Dr. Jacques Bertillon, chief of the bureau of statistics of Paris, Dr. Charles Richet, professor of the faculty of medicine in the same city, and Dr. Javal, member of the Academy of Medicine. For years these men have noticed with regret that the population of France was not increasing proportionately with the population of other countries, and now they come forward with what they believe to be an infallible remedy for this evil. That some drastic remedy is needed they insist, as otherwise France must soon sink to the rank of a second rate, or even a third rate nation. A hundred years ago the great countries, in other words, the great powers of Europe contained 98,000,000 inhabitants, of whom 26,000,000, or 27 per cent., were residents of France. To-day these same countries contain 300,000,000 inhabitants, of whom 38,000,000, or only 12 per cent., live in France. These figures speak for themselves, and the obvious conclusion, according to Dr. Bertillon and his colleagues, is that if the births continue to decrease at the same ominous rate, France, which was once one of the most powerful countries in Europe, will soon be one of the weakest. These gentlemen have begun their novel campaign by founding a society which is styled "The National Alliance for the Relief of the French Population." The defensive measures which they propose to adopt are numerous, but for the immediate present they will confine their attention to three points: 1, they will try to get the laws relating to inheritances greatly modified; 2, they will try to get all direct taxes removed from those families which have more than three children, and 3, they will try to have the laws relating to succession duties thoroughly reformed. As it is manifest that the nation's treasury would be seriously affected by the removal of taxes in the case of all families which have more than three children, it is proposed to place a tax of 1-5 per cent. on all families which are childless, or have only one or two children. There is said to be excellent reasons for these proposed reforms. The larger a man's family is in France, we are told, the more he is taxed, both directly and indirectly, with the result that thrifty parents do not care to have many children. Moreover, the parents' property must be divided among the children, and if the children are numerous and the property small, the disastrous results can easily be foreseen. In other countries the law of entail is maintained pretty rigidly and though its operation seems hardly equitable or natural, as regards younger children, it certainly seems to act in some degree as a preventive of depopulation. "Remove all burdensome taxes from fruitful families," say the members of the National Alliance, "and let Frenchwomen and Frenchmen know that even from a monetary point of view, it will be fortunate for them to have many children. Then as the national treasury must be supported, let us tax those adults who have few or

no children. Persons who have no children, or only one or two children, may reasonably be required to contribute a goodly quota toward the support of the state, whereas it is improper and unjust to expect any support from those parents who have to provide for numerous children. Do this, and France will soon become, as she was in the past, one of the greatest powers in Europe; fail to do this, and France will soon sink to the level of Denmark, Belgium or Holland." The members of the alliance intend to hold several public meetings and to publish several pamphlets setting forth their views. They offer membership to all who care to assist them, irrespective of creed or political opinions. Many persons throughout France have already announced their adhesion to the program of the Alliance, and it is confidently expected that in the near future the necessary bills in regard to succession duties and the abolition of taxes will be presented to the French legislature.

Cumol as a Sterilizing Agent.—The *American Therapist*, July, contains an interesting abstract of the work done at the Johns Hopkins Hospital, by Drs. Clark and Miller, with the agent above named. In January, 1893, a very serious reign of infection occurred in the gynecologic wards of the Johns Hopkins Hospital, which was believed to be due to catgut prepared by boiling in alcohol under pressure. The most perfect means of sterilization of catgut for surgical purposes is, unquestionably, by heat. Until the method of Benckisser and Reverdin, 1888, it was considered impossible to raise any form of animal ligature material to a temperature sufficient to render it sterile without making it brittle. Reverdin demonstrated that it was not the oil, as previously supposed, but the hygroscopic water in catgut, which caused it to become brittle when heated. If this is driven off by dry heat at a temperature of 70 degrees C., it can be carried safely up to a temperature of 250 C., without impairing its integrity. The complicated apparatus, consisting of a hot-air oven and a thermo-regulator, however, prevented the general adoption of the methods of these writers. Brunner found that the boiling point of xylol was 136 to 140 degrees C., and at once adopted it as a sterilizing medium, but Kronig found spores occasionally present in catgut, which were more resistant than the anthrax spores, with which Brunner had experimented. "After a further research Kronig found that the boiling point of cumol, a hydrocarbon compound, ranged between 168 and 178 C., and substituted it for xylol. After a careful review of Kronig's article, his method was adopted in the gynecologic department of the Johns Hopkins Hospital. Kronig's method is as follows: 1. Roll the catgut in rings. 2. Dry it in a hot air oven or over a sand bath for two hours at 70 C. 3. Heat it in cumol to a temperature (165 C.) a little short of the boiling point, for one hour. 4. Transfer it to petroleum benzine for permanent preservation, or if desirable, leave it in benzine for three hours, and transfer the sterile Petri dishes. A bacteriologic study of this method by the writers shows that the sterilization by this method is perfect, but that the transference from boiling cumol to benzine is open to serious objection. Clark and Miller have found from this investigation that benzine is not a germicide, also that it can not be rendered sterile by heat without danger and, therefore, have found it necessary to modify the method of Kronig as follows: 1. The catgut, twelve strands, is rolled in a figure-of-eight form, so that it can be slipped into a large test-tube. 2. Bring the catgut up to a temperature of 80 C., and hold it at this point for one hour. 3. Place in cumol, which must not be above 100 C., raise it to 165 C., and hold it at this point for one hour. 4. Pour off the cumol, and either allow the heat of the sand bath to dry the catgut, or transfer it to a hot-air oven, at a temperature of 100 C., for two hours. 5. Transfer the rings with sterile forceps to the test tubes previously sterilized, as in a laboratory. In drying or boiling, the catgut should not come in contact with the bottom or sides of the vessel, but should be suspended on slender wire supports or placed upon cotton loosely packed in the bottom of the beaker glass. Cumol, which is of a clear limpid or slightly yellowish appearance when procured from the chemist, is changed to a brownish color by boiling. The catgut is allowed to remain in the sand bath until the excess of cumol is driven off and it appears entirely free from any oily matter. A period of one to two hours is usually sufficient to dry it thoroughly. From the sand bath or hot-air oven it is transferred with sterile forceps to sterile test tubes, such as are used for culture media, in which it is preserved from contamination until ready for use. Small quantities should be placed in each tube, to obviate the necessity of opening them too frequently. In conclusion, it is well to bear in mind that while cumol is not explosive it is very inflammable, and great care should be observed in lifting the wire screen from the beaker glass to prevent drops of the cumol from falling in the flame or on the heated piece of metal on which the sand bath rests, as it will take fire, flare up and ignite the fluid in the beaker glass. Such an accident has occurred three times in our experience." There has been about one year of practical experience in the wards of Dr. Kelly and others, and this has left the distinct record of this agent as being the most satisfactory substance that has come under their observation for the purposes above described.

The Relation of the Urine to Disease.—Dr. M. D. Hoge, Jr., brings together in the August number of the *Virginia Medical Semi-Monthly* a collection of diagnostic points showing the effects of different diseases on the urine, with hints on treatment.

Acute renal hyperemia.—Blood; albumin (10 per cent. by bulk); small hyalin casts; quantity increased; sp. gr. reduced; reaction acid. Treatment: Produce a skin reaction—warm baths, pilocarpin, nitroglycerin, large quantity of pure water.

Passive renal hyperemia.—Quantity diminished; sp. gr. 1.025–1.030; color dark; reaction acid; urates increased; uric acid crystals; mucus increased; albumin present, but small in amount; small hyalin casts; a few blood corpuscles. Treatment. Increase the arterial tension, digitalis.

Acute Bright's disease.—Quantity diminished (at first); if quantity increases, either recovery or chronic nephritis follows; sp. gr. increased (1.025–1.030); color dark red (blood); reaction acid; urea diminished; albumin considerable; hematuria; renal epithelium; dark granular casts; hyalin casts; epithelial casts. Treatment: Non-nitrogenous food, milk, digitalis, lithia waters, small does of calomel, diaphoretics, hot bottles.

Chronic parenchymatous nephritis.—Quantity diminished; sp. gr. normal or diminished; color lemon or dark brown; cloudy by transmitted light; albumin in large quantity; urea diminished; chlorids diminished; fatty degenerated kidney epithelium; dark granular casts; hyalin casts; fatty casts. Treatment: digitalis, large quantities of water, small repeated doses of calomel, warm baths, jaborandi, nitroglycerin, non-nitrogenous food, milk, iron, strychnin.

Chronic interstitial nephritis.—quantity increased or normal; color pale and transparent; reaction acid; sp. gr. below normal; albumin, very small quantity; very few hyalin casts; granular casts; crystals of uric acid and calcium oxalate; urea diminished; phosphates diminished. Treatment: Symptomatic, bichlorid of mercury in minute doses.

Amyloid kidney.—Quantity increased; color pale; sp. gr. low (1.012); reaction acid; albumin considerable; hyalin casts; waxy casts. Treatment: That of causative disease.

Tuberculosis of the kidney.—Quantity increased; pale milky color; sp. gr. lowered; reaction alkalin; pus suspended; hematuria; bacillus tuberculosis. Treatment: Symptomatic; improving the general condition.

Cancer of the kidney.—Hematuria; albumin in small quan-

tity; quantity increased; pus; acetone; kidney débris. Treatment: Palliative; extirpation.

Renal gravel.—hematuria; quantity normal; color dark red; reaction acid; pus; urates and oxalates; small concretions; epithelium. Treatment: Restrict meat diet, no alcoholic or acid drinks, bodily exercise, vegetable diet, milk, large quantities of water, phosphate of soda, carbonate of lithium, anodynes.

Uremia.—Urea diminished (200 to 50 grains); uric acid diminished; quantity diminished; sp. gr. diminished; albumin; casts. Treatment: Diuretics, hydragogue cathartics, diaphoretics.

Diabetes insipidus.—Quantity enormously increased (ten to fifty pints); sp. gr. diminished; no sugar, no albumin; color pale and clear; reaction faintly acid; urea increased; phosphates increased; indican. Treatment: Tonics; valerian.

Diabetes mellitus.—Color light yellowish; sp. gr. much increased (1.030 to 1.045); reaction acid; quantity much increased; sugar 1 per cent. to 8 per cent. (half a pound per day); urea increased; acetone and diacetone; albumin (occasionally). Treatment: Strict diet, opium, Fowler's solution, cod liver oil, Silurian spring of Waukesha water.

Pyelo-nephritis ("surgical kidney").—Color, dirty yellow, pale and cloudy; foul odor; sp. gr. diminished (1.008—1.016); quantity diminished; reaction acid; rapidly undergoes ammoniacal fermentation; urea diminished; albumin present; pus, blood, epithelium; casts of bacteria. Treatment: Astringents, tannin, alum, lead, antiseptics, salol, chlorate of potash, milk in large quantities.

Pyelitis calculosa.—Quantity increased; color pale straw; sp. gr. diminished; reaction acid; pus; albumin; spindle-shaped epithelium; odor very offensive. Treatment: As above for surgical kidney.

Cystitis.—Pus; blood; albumin; color light; reaction alkalin (chronic); sp. gr. diminished; triple-phosphate; bacteria; bladder epithelium. Treatment: Bodily rest; light diet, large quantities of fluids, chlorate of potash, salol, gelsemium, turpentine, warm applications, washing out of the bladder, opium, suppositories.

Febrile diseases.—Quantity diminished; color dark; sp. gr. increased; urate deposits; hyalin casts; albumin: acetone and diacetic acid; urea increased; hemoglobin; grape sugar; phosphates diminished.

Anemia.—Quantity diminished; color pale; sp. gr. diminished; reaction neutral or alkalin; albumin (occasionally); hyalin casts; urea increased, kreatinin.

Leukemia.—Reaction acid; uric acid increased; albumin; phosphates increased.

Chlorosis.—Reaction alkalin; kreatinin.

Scurvy.—Reaction acid; pepton (constant).

Gout.—Uric acid diminished; phosphates diminished; albumin; hyalin casts; oxalate of lime crystals.

Cirrhosis of the liver.—Quantity diminished; urates (large quantity); urobilin.

PRACTICAL NOTES.

Use of Argon in Gonorrhea.—Dr. George K. Swinburne recommends the use of a 10 per cent. solution in the acute stages. The inflammation is quickly allayed and the discharge rapidly diminished.—*Jour. Cut. and Genito-urinary Dis.*, August.

Indications for Use of Papain.—Papain has been found beneficial in gastric troubles caused by a lack of sufficient HCl (dose from ½ to 1 gram three times a day), but it is absolutely injurious where there is excess of HCl or an ulcerous lesion.—*Semaine Méd.*, August 5.

Lactophenin.—Dr. H. D. Peterson says clinical tests have shown it to be of special value in relieving pain and reducing temperature gradually and maintaining it at a lowered degree, without frequent repetition. It is readily taken by patients who can not take antipyrin. It is not disagreeable to the taste and is easily administered.—*Med. Recorder*, August.

Results of Treatment of Whooping Cough with Ichthyol.—In eight cases treated it materially diminished the frequency and the severity of the attacks and shortened the course of the disease. No inconveniences follow its use and the general health improves. Dose, according to age, from 0.05 to 0.20 centigram a day, increasing to 0.60 and 1 gram.—*Semaine Méd.*, August 5.

Section of the Sympathetic in Exophthalmic Goitre.—Jaboulay of Lyons recently cured the exophthalmus, palpitations and trembling in a case of exophthalmic goitre in a young girl by cutting the cervical portion of the sympathetic on each side, above the middle ganglion on the right and below it on the left. A slight, transient local congestion was the only inconvenience.—*Semaine Méd.*, August 5.

Experimental Extirpation of the Stomach and Intestines.—Monari has been experimenting on dogs since 1892 to determine the effects produced by removing the stomach and intestines. He announces that the metabolism of the organism is not essentially affected, permanently, by total extirpation of the stomach. He also states that as much as seven-eighths of the small intestine can be extirpated without injury. The colon partially assumes the functions of the absent intestine. If more than nine-tenths are removed the animal succumbs to inanition. Monari concludes that man can have at least half of the small intestine safely removed.—*Cbl. f. Chir.*, August 1, from *Beiträge zur klin. Chir.*, No. 2.

Formalin Gelatin as an Antiseptic.—This is a hard, transparent substance, affected neither by heat, acids nor alkalies, but decomposed, when pulverized, by the action of the living cells of the organism in such a way that the antiseptic properties are being constantly liberated. Schleich of Berlin asserts that it will arrest in twenty-four hours any acute suppurating process and insure absolute asepsis to the course of every wound. It is passive on necrosed tissues unless moistened with the following solution: Pepsini, 5.0; acid. hydrochlor., 0.3, and aqu. dest., 100.0, when the disinfecting process goes on as usual. It is made by adding 25 drops of Schering's pure formalin solution to 500 g. of dissolved and cleansed gelatin. When dry the hard sheets are pulverized ready for use.—*Wien. klin. Rundsch.*, August 2, from *Therap. Monats.*, No. 2.

Treatment of Cholelithiasis with Potassium Iodid.—Dunin announces that we have in potassium iodid a most powerful remedy for this obstinate disease. He has employed it in over 100 cases with results which he calls "not merely satisfactory, but amazing." It is especially efficacious in those cases where the attacks are not so severe, but are almost continuous, which is usually the most difficult form to conquer. In one week the patient is relieved from pain and the region is less sensitive to pressure, while appetite, sleep and peace return. Dunin administers 0.3 to 0.6 potassium iodid twice a day for four to five weeks, and then a systematic course of mineral waters (Carlsbad) completes the cure.—*Therap. Woch.*, July 19.

Treatment of Enteroptosis with "Yeast" of Beer.—This morbid condition is extremely difficult to cure and often resists every treatment, even external appliances. Dr. Günzburg has obtained excellent results by the administration of a piece of dried beer yeast, the size of a pea or bean, three times a day. It produces an intestinal tympanism not diagreeable to the patient, which lifts and holds up the viscera, counteracting the tendency to displacement. The gases are due to the formation of carbonic acid, and do not resemble the gases of putrefaction in their effect on the intestinal absorption. The usual constipation is relieved and the appetite improves, while the patient soon begins to gain in weight. As this trouble is more

apt to occur in thin persons, this latter point is of much importance in securing a permanent cure. The only contraindication is actual gastrectasia.—*Semaine Méd.*, July 15.

Efficacy of Stypticin in Arresting Uterine Hemorrhages.—Stypticin possesses no oxytocic properties, but it has been found very valuable in arresting uterine hemorrhages, climacteric, uncomplicated and after retroflexio uteri. No inconveniences followed its use. It resembles hydrastinin in its chemic composition.—*Wien. Klin. Rundsch.*, August 2, from *Therap. Monatsh.*, No, 2.

Treatment of Hand Injuries.—Dr. William P. Nicolson says the beauty of an operation should be sacrificed to the more practical work of conservatism. Cut away with scissors such tissue as may be hopelessly destroyed, leaving whatever shreds of skin remain to cover stumps, even though skin may slough afterward. If a finger has been crushed completely off, remove projecting point of bone with forceps, covering the end, if possible, by means of any remaining shreds of skin. After securing fragments of fractured bone as nearly in position as possible and inserting sutures absolutely necessary, he treats practically all hand injuries by saturation, under rubber tissue, with listerin, camphorated phenol or similar antiseptics.—*Atlanta Med. and Surg. Jour.*, August.

Further Success with Serum Treatment of Syphilis.—Boeck of Christiana reports seven cases of recent syphilis cured by hypodermic dorsal injections of serum from a tertiary hydrocele. The effects were most favorable; the primary manifestations rapidly passed away, and the secondary period was shortened and attenuated much more than is the case with mercury or iodin although the latter are more effective in the primary stage. The amount injected at one time averaged two to three grams a day or every other day, with a total of 32 to 92 grams in each case, although one received a total of 300 grams. There was no other medication. Experiments five years ago with serum from a patient in the secondary stage failed entirely.—*Semaine Méd.*, July 15.

Cysticotomy, the New Operation.—In the *Progrès Méd.* for July 25, Baudouin describes what he calls "the new operation with a future." cysticotomy, which is for the cystic duct what choledochotomy is for the common bile duct, and requires the same technique. Only one of the ten observations reported resulted fatally, and that was accompanied by cholecystectomy. The indication is a large calculus engaged in the cystic duct, which it is impossible to dislodge by manipulation, or to crush without injury to the walls of the duct. The retention is sometimes due to a stricture. The abdomen opened, adherences released, the duct well in view, the calculus under the finger, the cystic duct is slit lengthwise above the calculus, and the opening made large enough to extract it without tearing the edges, as the walls are generally inflamed and easily lacerated. The only question is whether to drain or not, in a simple cysticotomy, when the adherences have not been numerous; of course a complicated operation requires draining and even tamponing. The operation is usually simpler than choledochotomy on account of the more accessible position of the duct. The operation is new to France, the observations being gathered from English, German and Belgian sources.

How to Sterilize Instruments without Danger of Rust.—Iron, steel and nickel only rust when exposed to the combined action of carbonic acid, moisture and oxygen. If any one of this triad is absent or neutralized the metal remains unaffected. Certain alkalies neutralize the carbonic acid in water, and when this is neutralized no rust forms on metals when immersed in it. After careful experiments, Lévai has found that the best alkali for the purpose is natrium hydrooxydatum causticum (NaOH). He adds a small quantity of the crystals to boiling water, and after they are entirely dissolved and mixed, he immerses the instruments and boils them *ad libitum*, with never a trace of rust nor tarnish when they are taken out. One-fourth of 1 per cent. or even less of the natrium is sufficient, but it must be pure, with no sulphur, as this causes rust. If knives and scissors are wrapped in gauze to protect the edges, they can be effectively sterilized in this way without the slightest injury of any kind. It is equally effective and non-injurious for drainage tubes, etc., but it is not adapted for aluminum nor silk and it softens brushes. If the instruments are left afterward wet and exposed to the air rust will form, but they can be kept several hours, if necessary, in sterilized water to which 1.5 to 2 per cent. of the natrium has been added.—*Wien. klin. Rundschau*, August 2.

Malignant Orbital Tumors.—Dr. C. S. Bull's conclusions in regard to their course and prognosis, as influenced by surgical operations for removal, are as follows: 1. The prognosis of all forms of malignant orbital tumors, whether primary or secondary, is unfavorable; and if the tumor be primarily in one or more of the deep facial bones or their sinuses, the prognosis is positively serious. 2. Except in the case of encapsulated tumors of the orbit, surgical interference is almost invariably followed by a return of the tumor, and the growth of the secondary tumor is more rapid than that of the primary lesion. With each succeeding operation the period of quiescence in the return of the tumor grows shorter, and the rapidity of the growth increases. 3. The patient's family, and in certain cases the patient himself, should be told of the serious nature of the trouble and be warned that complete removal of all the disease germs is an almost hopeless task. The burden of the decision as to surgical interference must rest upon the shoulders of the patient. 4. Repeated operations in these cases undoubtedly shorten the life of the patient. While it is our duty to operate in order to relieve severe or unbearable pain, we should be slow to operate merely for the sake of relieving temporarily physical deformity, especially if we are convinced that by so doing we shorten the life of the patient, even if that shortened life is rendered more bearable.—*Am. Jour. of Ophthalmology*, August.

Two Tumors on the Head of an Infant.—The *Clinical Journal*, June 3, has remarks on the above subject, made before the North West London Clinical Society by Mr. Jackson Clarke. He showed an infant with two tumors on the left side of its head. The child was brought to him in the out-patient department, and its functions appeared quite normal. The tumors were situated over the upper part of the squamous suture. One measued 1 by ¾ inch, the other ¾ by ½ inch. Three possibilities arose in cases of congenital tumors of the scalp, viz., meningocele, encephalocele and dermoid tumor. Dermoids were generally single and subcutaneous, although often connected with the dura mater. It was necessary to remember that the brain was merely an epidermic structure, and that some dermoids were quite shut in by the skull and dura mater, lying occasionally in the substance of the brain. Meningocele ought to be more or less completely reducible within the cranial cavity; but in the child before them that was not the case. Moreover, meningocele, being fluid, should fluctuate, and should become tenser when the child cried. This child's tumors were firm, and the skull appeared deficient at their bases, while a piece of cartilage or bone covered the convexity of the tumor. The only fluctuating spot was at the back part of the larger and anterior tumor. The tumors did not pulsate, therefore he had concluded that something had formed under the skull and elevated up what could be called normal Wormian bones, and there was a gap in the skull where that bone would have fitted in had it not been so elevated. Probably the source of the displacement was the growth of a meningocele, but the two other kinds of tumor he had mentioned could not be excluded, because the Wormian bone would mask any pulsation. The tumors were not due to the use of

instruments at birth, the labor having been a natural one. Cephalo-hematoma in a newborn baby was generally subperiosteal, and followed the shape of one of the bones, stopping at the sutures. In the child exhibited, not only was a margin felt in the skull, which might be simulated by hematoma, but there was a definite cap of bone to the swelling. Mr. Clarke said that the treatment was, in the main, on the expectant plan. He would watch the progress of the case, instructing the mother to prevent the child receiving knocks or bumps on the head. If his view was correct, he hoped the Wormian bone would spread out as the child grew, and the gap thus become sealed up by the bone.

Injections of Salts of Iron in the Treatment of Anemia.—Riva Rocci of Turin, has a careful study of this subject in the *Policlinico* for May. His conclusions are that injections of the salts of iron produce improved conditions in anemia, but they do not cure it. They affect the consequences of a pathologic process, but not the process itself, and the anemia returns if they are discontinued. They stimulate the reformation of the active principles of the blood, and also excite a hyperemia more or less transient, in various organs, which is the greatest danger from their use. The dose varies according to the case and the preparation used. The possible inconveniences that may result are, in the order of their frequence: nausea, vomiting, cephalea, fever, diarrhea, albuminuria, cylindruria, hemoptyeis, lypothymia and syncope. They are indicated whenever there are anemic conditions, when the anemia itself is of long standing, and other means have been tried and exhausted, when the condition of the alimentary system forbids the probability of successful internal medication, and also when it is urgent to have the anemic condition terminated as soon as possible. The injections are contraindicated when they produce gastro-intestinal disturbances, or symptoms of nephritis, or excessive fever, or when there is danger of hemoptysis.—*Revue Int. de M. et de Chir.*, July 25.

First Trials of Frigor Therapeutics.—The results of these new experiments with the excessively low temperatures secured by Professor Pictet of Geneva are paradoxical and inexplicable. The patient is lowered into a well in which the temperature is 105 to 110 degrees below zero, centigrade. It is not quite two meters in depth, and is about 65 c. in diameter. He retains his clothing and remains in the frigor bath ten minutes, his head uncovered and a warm covering about his shoulders to prevent the escape of the cold air and to protect his lungs. The sensation of this extreme cold is merely a refreshing stimulation, similar to that of a tepid bath, with an afterglow that lasts several hours. Instead of an increased dis-assimilation the quantity of urea was diminished 24 grs., 15 to the liter. The amount of uric acid fell from 0.52 to 0.33; of phosphoric acid from 4.9 to 2.1, the phosphates from 9.1 to 3.9; while the temperature in the mouth rose from 36.5 (normal) to 37.4 degrees. The pulse increased (one observation) from 87 to 102 in three minutes. In every case the temperature rose more or less, and the refreshing sensations with warmth and invigoration were experienced. Five baths cured Cordés of his gastralgia, improved his appetite, stimulated the functions of the skin and improved a tobacco bronchial cough. In one experiment the bath was not as cold as usual, and rose to -40 degrees during the ten minutes. The sensations were entirely different from those of the other baths and the cold seemed intense, possibly owing to the fact that there was more humidity, and the skin therefore more susceptible. Further reports are awaited with interest—*Jour. de Méd. de Paris*, July 26.

Reported Rapid Recovery from Phthisis Under the Maragliano Serum.—The London *Lancet*, July 4, reports through the medium of its correspondence from Rome that one of the early cases of the above kind and treatment has been progressing most favorably. The report in part is as follows: An authentic, well-certified case of treatment of tuberculosis by the Maragliano-method comes from Spezia. A native of that seaport, A. B., aged 21 years, an able seaman by occupation, had since 1893 been suffering from phthisical symptoms, and on examination was found to have both pulmonary apices infiltrated with tubercle. The disease was not largely diffused, but it made steady progress, and by the beginning of 1894 the area of destroyed tissue was considerably increased. Both lungs were very seriously affected and A. B. was placed under Maragliano's treatment in the clinical wards of the Genoa Hospital. The injection of the serum was practiced continuously for two months till the close of Maragliano's summer course, by which time the patient had so far improved as to return to his native place. Convinced of the benefit he had received he returned to the ward as a patient in November of the same year and was once more subjected, under Maragliano's care, to the serum treatment. The case, though the progress of the malady had been arrested, was still a very serious one, and it was not till the close of July, 1895—eight months from the resumption of treatment—that substantial cure was effected. Several hundred injections had been practiced, and in the latter weeks of the treatment it was evident that A. B. was conquering the malady "hand over hand." He left the hospital at the end of July, as has been said, absolutely cured and since then has for six months been regularly on duty in the service of the royal navy. At present he is at Spezia, the object of no little professional interest, and described by the physician who last saw him as "sano come pesce." Maragliano has some severe critics among his compatriots, chiefly of the Neapolitan school. But is fair to add it that even in that quarter testimony in favor of his treatment is gaining in volume and authority.

Bacterial Diarrhea of Children.—Dr. L. E. Rardon of Cincinnati, in the *Lancet Clinic* thus refers to the summer diarrhea of infants: Astringents formerly extensively used have very properly been relegated to the waste dump as useless. 1. Summer diarrhea is caused largely by improper and unclean feeding, and is usually preventable. 2. Bacteria play a very important part in its development. 3. Hot weather has to do only in an indirect manner, as it promotes the growth and development of bacteria in the food supply. 4. Treatment consists, first, in eliminating all decomposing food from the bowels by cathartics, lavage and colonic irrigation. 5. Drugs judiciously administered are of great value, but are secondary in importance to prevention and management.

Gastro-Intestinal Catarrh.—In the treatment of cases of acute gastro-intestinal catarrh, due to indiscretions in diet, and attended especially with nausea, vomiting, diarrhea and abdominal pain, good results are secured in the clinical service of Dr. Eshner from the employment of the following formula:

℞ Extract of hematoxylon 8.0
Aromatic sulfuric acid 8.0
Camphorated tincture of opium 96.0

Dose: A tablespoonful every three hours if the bowels are moved that often; at longer intervals if the bowels are moved less often.—*Phila. Polyclinic*, August.

Intestinal Fermentation with Constipation.—

℞ Ext. aloes. . . . . gr. vi
Pulv. rhei . . . . . gr. vi
Benzosol . . . . . gr. ix
Ext. hyoscyami. . . . . gr. vi

Misce et ft. Caps. No. xii. Sig. One after meals.—Thos. Hunt Stuckey, M.D., in *Am. Therapist*, August.

Beri-Beri.—

℞ Aquæ. 150.0
Tinct. scillæ. 8.0
Tinct. digitalis. 2.0
Syr. quiniæ. 30.0
Ammoniaci (liquid). . . . . gtt. xii

Misce. Sig.—Two tablespoonfuls in water every three hours.—J. Dias Ribeiro, M.D., in *Dunglison's Coll. and Clin. Rec.*, August.

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SATURDAY, SEPTEMBER 5, 1896.

THE U. S. MEDICAL PROFESSION AND THE MONTREAL MEETING OF THE BRITISH MEDICAL ASSOCIATION IN 1897.

The British Medical Association will meet in 1897 in Montreal. At once upon learning the fact, there will arise in the mind of every member of the medical profession of the United States the thought: What can we do to make the visit to America of our English confrères more enjoyable and useful, and to aid in deepening the professional unity, respect and affection which these two parts of our guild entertain for each other? Two things are prerequisite: The first is the establishment of a committee to take in charge the entertainment of our British and Canadian friends, and the second is the securing of funds to defray the necessary expenses.

To this end we suggest that the proper officers of the AMERICAN MEDICAL ASSOCIATION at once appoint three members from the ASSOCIATION to act with three members to be appointed by the Executive Committee of the Congress of American Physicians, the six to organize themselves as they may deem best and to have entire charge of the collection of funds and the plans and execution of the same for the entertainment, etc. As to the subscription we have no doubt sufficient contributions can be obtained from the various medical organizations of the country or even from private persons (the writer will give $25). We should be moved by every honorable motive to make the American tour of our visitors one of the most enjoyable and profitable for all concerned. But there should be no delay in getting to work.

THE USE OF PUBLIC MEDICAL SOCIETIES TO PAY PRIVATE GRUDGES.

Many years ago we knew of the following case: A physician of the best standing applied for membership to the principal medical society of the town. He was vouched for and recommended by the best members; there was absolutely nothing said or to be said against him as a reputable physician; no objection was made to him; he had in many ways shown himself strictly ethical in professional and private life, and his scientific ability was certainly equal to that of the average of the members. And yet he was "blackballed." Three members came—were careful to come!—sat silent when objections should have been raised, sat silent when the balloting went on, and voted against the admission of the candidate proposed. By the antiquated rules of the society three members were sufficient to exclude, although a hundred should vote in favor of admission. By one of the old-time fictions of the society, it should be said, the candidate did not ask for membership, was not allowed to apply—that would be beneath the dignity of the body—but instead of this simple, frank method, he asked his friends to sign his application, or if fully wise, asked some friend to get the signatures of others, and then asked the friend to present it. The applicant was supposed to be in profound ignorance of the desire of his friends to make him one of their corporate number. It thus came about that the three blackballers "turned down," not the applicant, but his fellow members who wished the applicant admitted. By another figment of the corporate machinery the ballot was supposed to be thoroughly secret, but in reality it was not so, and the three dissenting balloters were at once known not only to all the society's members, but to the applicant, supposedly in complete ignorance even of the fact that he had been proposed; and not only to them and him, but of course to all professional brethren, and finally to the lay public. This old individual case we are using only as a text and type of more general principles, but in passing it may be added that the motives of the blackballers soon became evident. They were recognized as unsuccessful rivals of the candidate in a private occupation, and were simply jealous of the candidate's success in the private work, and they determined to injure him by their secret ballot. These poor dupes of their own envy had used a public medical society to settle private scores. They cared nothing for the injustice to the individual or of the wrong to the society.

But what of the rules of the society that permitted such proceedings, and what of the plan of using an organization presumably founded and existing for strictly professional and scientific purposes? If the example we have used to typify a method were single or rare, or existed only in prehistoric ages, there would be nothing to say, but to any one familiar with medi-

cal politics and organizations it is a well-known fact that similar practices are by no means unknown in our modern world. It is possible that the antiquated rules governing present-day medical organizations have not been abrogated, and that self-seeking members, in many ways, use them and the societies they control for their hidden schemes.

If the fanciful figments and supposed ignorances, and presumed confidences or secrets of the council chambers and boards of censors were not the shams they are, it would be a very different matter. But who does not know that they are most ludicrous farces? The candidate hears, sees, feels forever the fact that he has been considered unworthy of membership, and his professional and public reputation is injured. If he is of a sensitive nature, the fact can not help harming his own character, rendering him morbid, perhaps, and in various ways preventing the best purposes and realizations of his life. If he "braves it out," he becomes unduly callous, and perhaps this injury is greater than the other. Possibly he may be strong enough to recognize the true status, and large-minded enough to prevent his indulging in anything but pity and a good-humored contempt of the foolish performance. This is the proper course, but it may be doubted if it often results so. He may even find not a little pleasure in the boomerang his unwise enemies prepare for themselves, and laugh at the fact that one prominent member advises him, after the custom of the French Academy, to call on the members of the committee or board of censors having his application under advisement, while another member vows if there is any such "solicitation and advertisement" he will surely blackball him. He may even enjoy the feeling that he is barefoot and attempting to walk a floor strewn with needles and tacks. But we question his enjoyment!

But if he has any innate sense of dignity and worth, he will have a disgusted contempt for the imaginary figments and open secrets of the guarded portals. Every member knows that he applies, and if he gets in at all, he does it by "politics" that all ignore and are supposed to despise. No single word of recognized or official reply comes from his application, and the irony of the situation is heightened by the fact that the society hugs its pompous "dignity" in silent satisfaction while proceeding to the utmost length of impoliteness and discourtesy. A society or a man has no genuine dignity without just as genuine courtesy and kindness, and when these latter qualities are wanting, a man of innate dignity may wisely reason that the assumed dignity of the society is—*assumed*. Discourtesy is undignified, and corporate discourtesy is none the less so because, as SIDNEY SMITH said, the corporation has neither body nor soul for proper treatment. It is just as incumbent upon an organization to be dignified to an applicant (or supposed applicant) as it is for the applicant to respect the corporation. It would be infinitely more manly to have the application made openly and frankly, and if it is refused to say so officially. A *no*, ever so blunt and brutal, is in every way superior to the savagery of no reply whatever to an inquiry.

And societies are none the less absolved from the duty of justice! Every member knows the blackballing becomes at once common talk despite the hundred fictions of assumed ignorances and secrecies. The machinery of these circumlocutions and mysteries and "supposeds" is arrant nonsense, and deceives nobody. It would not be an absurd thing if some day some indignant candidate should enter suit for damages against the organization that had refused him membership without a single objection raised or exposed, and thereby injuring his professional and social reputation. To be sure, no large-minded man would care enough for the affair to do so, but all men are not so strong in the estimation of the public or of themselves to thus contain themselves.

It would appear that some of the rules of some medical societies need thorough overhauling; that manly, truly dignified frankness displace sham and pomposity and a silly secrecy; that societies be as jealous of their justice and kindness, as of their "dignity;" that they think what effect their action and manner of action may have upon the candidate by refusal of membership, as well as of their own rights and privileges; that they devise methods of preventing the use of the organization by greedy, cranky or stupid members for paying private debts and grudges; or, of punishing such when obviously guilty. The welfare of the profession stands above that of societies, and the welfare of the society must be placed above that of the piques and bickerings of its members.

We by no means argue against care in the admission of new members to a society. We advise greater care. Objections to a proposed man should be brought out and discussed, not hidden; blackballers and cranks who fraudulently use the society in secret ways to settle personal or clique enmities should themselves be blackballed before they get in; if the figment of the society that it *chooses* and elects its new members is to be any longer worshiped as a fetich, the society should see to it that there is no wily and sneaky "politics" upon the part of members or applicants in getting in. (In the illustrative example we have used, the candidate could have easily "blocked" or neutralized the scheme of his blackballing friends if he would have stooped to something like their methods.) In these days of specialism, it may also be noted, the profession in a city is divided up into cliques and parties, and the hatreds and deep grudges and jealousies of rivals often become so intense as to override all sense of decency or justice, and men thus actuated

should not have it in their power to exclude and injure one they hate or fear. The envies and hatreds of rival medical schools, or the infinitely worse ones of rival professors in the same school, accentuate these internecine quarrels, and often reduce the general medical society of the place to a simple stamping and fighting ground where men may come to battle out their wraths, but with which the society should have nothing to do. There is room for much amusement and irony when a blackballed applicant is told by *these men* that he is unworthy their professional company!

THE BACILLUS OF PARESIS.

That paretic dementia, or, as it is more commonly designated, paresis, has in the vast majority of cases syphilis as its antecedent, is coming to be a generally accepted fact. The exact relation of the two disorders to each other are, however, still in question, and the syphilitic or parasyphilitic nature of paresis is maintained by some and as strongly disputed by others. If the infection of syphilis were as definitely known as is that of some other diseases, tuberculosis for example, the question would be more simple; we could search for the specific microbe, and if found the identity would be established. Other like questions have been settled in this way; the failure to find HANSEN'S bacillus in syringomyelia has been considered as conclusive against ZAMBACO'S theory of its identity with leprosy, and still other instances could probably be cited. With the present uncertainty as to what is the real nature of the syphilitic infection, there is no possibility of a definite conclusion as to the identity of it and that of paresis on purely bacteriologic grounds. but a very recent Italian contribution is very significant and suggestive. In the latest issue of the *Annali di Nevrologia*, Dr. PICCININO, one of Professor BIANCHI'S assistants, reports the results of a bacteriologic study of paresis in the laboratory of the Istituto Psichiatrico of the University of Naples. He examined the cortex in five cases, some of them with clearly syphilitic histories, others with it suspected or denied, using all antiseptic precautions and taking the specimens through openings made in the skull by trephining before the removal of the calvarium, as an additional security. Culture experiments and the usual staining methods gave only indeterminate or negative results; nothing very characteristic or noteworthy was discovered. The use, on the other hand, of a staining method only slightly modified from that of LUSTGARTEN for his syphilis bacillus, revealed a great abundance in all the tissues, and especially in the pericellular spaces, of a form apparently not very different from that described by the above author. The same method was tested as a control experiment in other brains than those of paretics, but with a uniformly negative result, and it was only by this staining reaction that these bacilli could be detected in the paretic cortex.

This paper has a special importance, in view of the question of the parasyphilitic nature of paretic dementia, and reflexly, as it were, also on that of the value of LUSTGARTEN'S discovery. It is a little remarkable that the research had not been made before. Had there been more faith in LUSTGARTEN'S bacillus as the cause of syphilis, or had the notion that paresis is only a late manifestation of that disease been earlier accepted by physicians, the very obvious suggestion of this special investigation would undoubtedly have been sooner taken up. It will be in order now to repeat PICCININO'S observations and to prove their value by widespread and careful investigations by our asylum pathologists.

STRENGTHEN THE ASSOCIATION.

The great increase in the membership last year should be only a beginning. We appeal to each member to use his influence to secure a new member by application. Let the good work go on until every regular physician in the United States is enrolled in the membership. Of this issue we print 9,000 copies and it is contemplated to continue to print not less than that number each week. The extra numbers will be sent to physicians who are eligible to membership in our ASSOCIATION in the hope that they may join us. Secretaries of local medical societies in affiliation with the AMERICAN MEDICAL ASSOCIATION, are requested to use their influence to increase the numbers of the great representative organization. Blank applications for membership will be furnished in any desired quantity on application.

The great improvement in our JOURNAL is solely due to the increasing interest taken by the members in making it better and to the large additions that have been made to the membership.

The object lesson furnished by the success of our JOURNAL, should be a sufficient demonstration of what it means to increase the number of members of the ASSOCIATION and the readers of the JOURNAL. Let us unite to make it the greatest medical weekly on the habitable globe. We have reason to be proud of the advance made in the past, but let that be as nothing to the improvement in the future. It could be made the greatest medical weekly in America in one week, if every present member would secure one additional one; and if that process were repeated the next week, the JOURNAL would in two weeks have the greatest subscription list of any medical weekly in the world. Will you, dear colleague, favor the ASSOCIATION in this way? Cut out an application blank from the advertising page of your JOURNAL and get your medical friend to sign it and send it on with the fee to Treasurer Newman and the object will be gained. Try it and let the semi-centennial report at Philadelphia next year show more than 10,000 actual members. It can be accomplished easily, will you do it?

We may strengthen ourselves and improve our JOURNAL by strengthening the ASSOCIATION, than which no organization ever had nobler aims or purposes, and every member will feel happier when he can truthfully say that he has done all he could to bring the whole profession in line under the banners of our ASSOCIATION, marching shoulder to shoulder in the sacred cause of humanity and science, and keeping step to the music of fraternal sympathy.

CORRESPONDENCE.

Unilateral Orchotomy.

NAVASOTA, TEXAS, Aug. 4, 1896.

To the Editor:—I herewith give in brief the history and operation of two cases of castration: C. S., aged 15 years; contracted continued malarial fever, which continued with no peculiar history until the third week, when orchitis developed in both testes without any disease of the genito-urinary organs, either during this attack of fever or previously. Later, it became complicated and terminated in orchi-epididymitis, becoming exceedingly painful. During the fourth week I was called in consultation, finding the morning temperature ranging from 102⅕ to 103 degrees; evening from 103 to 104 degrees, with considerable tympanitis, great emaciation, prostration, intense suffering, a suppurating testicle of left side and the right one enlarged and painful. Castration being determined upon, antiseptic precautions were rigidly enforced. Patient being anesthetized I cut away the suppurating portion of the scrotum, turned out the testes and ligated the spermatic cord, nerve and vessels in mass with catgut. All capillary oozing was then arrested by hot compresses and the wound closed with silk sutures, leaving no drainage. The wound healed by adhesion, the other testicle rapidly improved, temperature declined and general convalescence followed.

A. M. C., aged 65 years. Gave history of slight hydrocele from boyhood, very gradually increasing. Patient contracted gonorrhea, which gave him no little trouble, but finally terminating in orchitis, which kept him confined to bed for about three months; during which time he became very weak and emaciated. Temperature ranged from 101 to 103 degrees, due to pathologic condition of the right testicle. At the end of third month I was called in consultation. Removal of the diseased organ was decided on. The cystic portions of the testis was relieved by the use of the trocar. Then the scrotum was laid open and the testicle dissected out, as there was almost a continuous adherent tubercular attachment existed between it and the scrotum. The spermatic plexus was considerably enlarged and indurated, containing small cysts of pus. The cord and vessels were ligated as in first case, though much higher up above the tubercular tissue. The scrotum was then closed with silk sutures. No drainage was established, no suppuration followed; temperature declined and in ten days patient was able to be about his business.

D. F. PEEPLES, M.D.

Dr. Carl Wagner Disclaims Connection with the "Milwaukee University."

CHICAGO, Aug. 28, 1896.

To the Editor:—In regard to the article in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION of Aug. 22 ("Another Diploma Mill in Wisconsin") I would like to state the following:

On August 19 an article came to my hand which contained my name in connection with an *unlawful* institution called the Milwaukee University. I immediately sent a letter, of which I enclose a copy, to the said corporation. I also sent on the very same day letters to the States Attorney of Wisconsin, to the Secretary of the Board of Health of Wisconsin and to Dr. McDill, a prominent physician of Milwaukee, saying that I had nothing to do with that institution whatsoever, and asked the latter to make this known to his friends as far as lay in his power and to the medical society at large as far as possible; which he kindly promised to do. Then I begged the aforesaid parties to kindly inform me what means I should take to protect my reputation. I need only add that I will be pleased to appear in court to testify whenever I am summoned.

Very respectfully, CARL WAGNER, M.D.

[COPY.]

To the Milwaukee University: Gentlemen—Having learned that you used my name in your announcements as a director of the Milwaukee University, I ask you to withdraw my name from the list of your members immediately. I have never given you my consent to what you have done. I demand that you take all means within your power to see that my name in the future will be in no way connected with your enterprise, and also demand that all legitimate means be employed to recall the announcement already issued containing my name. If the above request is not complied with, I will instruct my attorney to proceed against your institution. Respectfully,

Aug. 20, 1896. DR. CARL WAGNER.

PUBLIC HEALTH.

Medical Inspector for Schools.—The Macclesfield (Eng.) School Board has passed the following resolution in regard to the question of medical certificates: "That, with a view to secure the more regular attendance of children at school, on the one hand, and to avoid unnecessary prosecution of parents on the other, a medical officer be appointed, whose duty it shall be to examine all children sent to him by the clerk, and to report as to their fitness or otherwise to attend school; and that the clerk keep a counterfoil record of children so sent; and that the medical officer be paid half-yearly at the rate of one shilling for each child so sent."—*Brit. Med. Jour.*

A Quaint Hygienic Decalogue.—The *Medical News* attributes to the late Dr. Frank H. Hamilton, of Bellevue Hospital Medical College, the following decalogue of health precepts: "1. The best thing for the insides of a man is the outside of a horse. 2. Blessed is he who invented sleep—but thrice blessed the man who will invent a cure for thinking. 3. Light gives a bronzed or tan color to the skin; but where it uproots the lily it plants the rose. 4. The lives of most men are in their own hands, and, as a rule, the just verdict after death would be—*felo de se.* 5. Health must be earned—it can seldom be bought. 6. A change of air is less valuable than a change of scene. The air is changed every time the wind is changed. 7. Mold and decaying vegetables in a cellar weave shrouds for the upper chambers. 8. Dirt, debauchery, disease and death are successive links in the same chain. 9. Calisthenics may be very genteel, and romping very ungenteel, but one is the shadow, and the other the substance, of healthful exercise. 10. Girls need health as much—nay, more than boys. They can only obtain it as boys do, by running, tumbling—by all sorts of innocent vagrancy. At least once a day girls should have their halters taken off, the bars let down, and be turned loose like young colts."

Attempt to Copy Michigan's Progress.—In the *British Medical Journal*, August 8, is a short article by James Adam Dick, M.D., vice-president Eastern Suburbs Medical Association, Sidney, New South Wales, relative to "An Experience in the Voluntary Notification of Diseases in Sidney." He says: "Having observed in the pages of the *British Medical Journal* since August 31, 1895, the accounts of the movement to establish a national system of registration of sickness in Great Britain initiated by Dr. Arthur Newsholme, the Medical Offi-

cer of Health of Brighton, it occurred to the writer that a brief note describing an effort made in the same direction at the antipodes, might be of interest to those who are working at this most important subject. . . . The movement in Sidney had for its origin the example of the sickness statistics of that progressive body, the State Board of Health of Michigan, U. S. A. Correspondence was entered into with the secretary at Lansing, Mich., who very kindly supplied several valuable pamphlets and books. The Eastern Suburbs Medical Association of Sidney resolved to initiate a scheme for the voluntary notification of those diseases causing sickness in the area comprised by the association." Instead of having weekly reports, as in Michigan, the attempt was made to get monthly reports. This was unsuccessful because, while it is quite possible for a physician to remember to make a report every week, it will generally be found impossible to remember to make a report at a given time after a much longer interval; therefore, unless a central office regularly notifies all the observers at the time the monthly report is due, there is a probability of a general failure. And, in Michigan, what was commenced made successful for a time as a voluntary service by leading physicians, has since been supplemented by weekly reports required under the law to be made by local health officers; and in recent years more attention has been given to the securing of such official reports than to those by volunteer physicians. The writer hopes that the discouraging experiences in Sidney may not tend to abate the enthusiasm with which Dr. Newsholme has taken up this subject. This important scheme is one that the British Medical Association should again take up earnestly and urge its adoption upon parliament.

Difference in the Death Rates Between the Sexes.—Tables made up from Massachusetts census reports, covering a period of more than a quarter of a century, show that from birth to 10 years of age the male death rate is in excess of the female. From 10 to 40 the female death rate is in excess of the male, while the next ten years the rate is about the same. From 50 to 60 the percentage of deaths is largest with the males, while beyond that time the excess is with the females. Among insurance companies men over 50 are regarded as better risks than women of that age, and a strong man of 50 is preferred as a risk to an equally strong woman of 45. Dr. J. M. French, in the *Medical and Surgical Reporter*, May 9, calculates that out of 1,000,000 persons born 511,745 are males and 488,255 are females, making an excess of 4.81 per cent. of males. Of this number he estimates that 83,719 males and 65,744 females die during the first year, which would reduce the per cent. of excess males to 1.31. At 8 years of age the per cent. of excess has been reduced to 1 per cent. From then to 18 years of age the male excess increases to 1.18, at 39 to 2.08, while at 50 the excess has declined to 0.93 per cent. At 53 the number is equal. It is believed to be proved by statistics that while more women than men reach old age, there are more men than women reach the century mark. In Massachusetts between 1880 and 1890 there were 203 deaths of persons over 100 years of age, and of these 153 were men and 50 were women. Thus it seems that while more males than females are born, and while more males die between certain ages, the percentage is yet in favor of the males. The fact that men go to sea and to war, that they engage in more hazardous vocations than women and are more exposed is urged as an explanation for the greater death rate between certain ages. The fact also that women suffer from want of exercise, impure air and faulty modes of dress is cited to show why more women than men die at some ages.

An Epidemic of Enteric Fever Among Children.—Dr. A. K. Bond of Baltimore contributes to the *Virginia Medical Semi-Monthly* a brief report of "an epidemic of twelve cases of enteric fever which occurred in a home for destitute children in Baltimore. The patient's ages in years were, respectively, 12, 7, 9, 3, 8, 4, 5, 7, 4, 4, 5, 19. The fever lasted from fourteen to eighteen days in the five youngest, whose ages ranged from 3 to 5 years. The temperature ranged between 102.3 and 103.5 degrees. In the next older group it ranged between 104 and 105.5 degrees. Headache was a frequent symptom at the beginning. There was no delirium worth noticing, only one or two patients wandering in thought a little at night. The hearing of several patients was temporarily dulled while in bed. Nosebleed occurred in several cases at the onset of the disease. Rose spots were observed in all but three cases. They came in successive crops, and were very well marked even in the little boy, aged 3 years, who for five days had from two to three spots, old and new, upon the abdomen. The abdominal walls in all twelve cases were usually natural to sight and touch; tympanitic tendencies, as well as gurgling and pain in the right iliac fossa, being found only for a short time in two or three cases. There was a strong odor about the bodies of several of the patients, suggestive of intestinal fever. The bowels were not decidedly loose nor costive. In only a few instances were characteristic typhoid stools observed. Enlargement of the spleen so that it reached beyond the ribs was evident in only one or two cases. The following conclusions were drawn: That children often bear high temperatures well in this disease; that full baths should be very carefully and judiciously applied, if at all; that the disease in children under 5 years of age may easily be mistaken for other digestive disorders or for bronchitis; that albuminuria coming on during the fever does not necessarily lessen the chances of recovery; that gangrene of the mouth, if superficial, may in some cases be cured by permanganate of potassium washes, without caustics."

Prevention of Measles.—Dr. F. J. Waldo, the Medical Officer of Health in the St. George's, Southwark, London, district advises the use of more strenuous measures for the prevention of measles. He writes: "Medical science has not discovered any means of special protection against measles. Judging from the signs of the times, however, it seems not unlikely that some means of conferring in unity against the disease may be attained in the near future. Such a discovery, by striking at the root of the evil, would do much to lighten the labors of the sanitary reformer." The foregoing passage was written in 1890, and three years later we find the following important counter statements from Dr. Armstong, of Newcastle, a leading authority in all health matters. In his 1892 report he writes: "By early knowledge of first cases in an outbreak we shall be enabled to check the spread of measles and whooping cough in schools, by preventing children of infected houses from attending school. Cases of measles would, wherever possible, be removed to hospital. The fact that measles is infective during the pre-eruptive period is no argument against the necessity for taking active preventive measures for the three or four weeks following, during which time infection still continues. The magnitude of the existing epidemics of measles and whooping cough and possible expense incurred in notifying those diseases in future, is surely no reason for turning our backs on this most important subject. The same argument would have applied with equal force to scarlet fever, smallpox, and typhus fever in 1882, when the question of notification was under your consideration. That argument, if it had been admitted, and acted on then, might perhaps have prevented the reduction of the mortality from smallpox to nil; that from scarlet fever to about one-fourth; and that from typhus to one-eighth of their magnitude; . . . which has followed the notification of these diseases in Newcastle." In conclusion, it is not too much to say of measles and its death toll that the question is one of national importance. Its satisfactory solution is one of the great problems of latter-day preventive medicine. Whether it is to be let alone, as heretofore, or to be

dealt with in a manner worthy of this scientific and progressive age, must to a great extent be decided by the verdict of educated public opinion. Experience has shown again and again that the health reformer can not travel far beyond the popular standard of enlightenment in these matters. That general rule holds good even in a matter so closely affecting the common welfare as the control of measles, one of the most deadly of the preventable diseases that devastate the populace of Great Britain. See the *Sanitary Record*, London, July 24, 1896.

Excessive Mortality by Measles.—The *Medical Press and Circular*, in its editorial columns, emphasizes the fact that measles is not a trivial disease, but on the contrary is the disease first, after tuberculosis, demanding the attention of the sanitarian. The editor says: "Among the preventable causes that swell the mortality rates, and are at present practically unchecked, measles and whoopingcough take the foremost place. The question of the prevention of measles has been discussed in the current number of the *Nineteenth Century* by Drs. Waldo and Walsh. They estimate that the case mortality from the disease in a poor district of the metropolis averages about thrice that of a rich quarter. They point out that in 1894 measles headed the zymotic death rate in London with 3,293 deaths, as against 2,670 due to diphtheria, and 2,097 to whoopingcough. But their chief emphasis is laid on the remarkable statistic deduction that during the year mentioned measles killed in the metropolis nearly twice as many persons as scarlet fever, fevers generally (including typhoid) and smallpox put together. In considering whether or no the disease should be made notifiable they pertinently remark: 'The wisdom and necessity of these (preventive) measures have been admitted in the case of smallpox, of diphtheria, of scarlet fever and other specific fevers, and of erysipelas. It seems illogical to exclude measles, which has been shown to cause a greater mortality than any of the diseases named. . . . Why it should be right to notify and control, or attempt to control, diphtheria, while measles and whoopingcough are left untouched, is somewhat of a mystery.' About the main facts advanced in this timely article there can be no dispute, any difference that may arise will be on the main conclusion that measles should be added to the list of notifiable diseases. As to this important question, it may be broadly stated that if it is the duty of the legislature to endeavor to prevent the loss of life by preventable causes, such as scarlatina and smallpox, it is difficult to see why a similar obligation should not apply to measles and whoopingcough. The cost of preventive measures in the case of measles would be, on the face of it, enormous. An outlay of this kind, however, many economists regard simply in the light of a national insurance. So far as the people who die and the folks who pay the direct and indirect costs of sickness are concerned, it matters not one jot whether the destroyer comes in the shape of cholera or smallpox, or the more homely, but far more fatal, measles. Whatever views be taken upon the advisability of notification, every one must agree with the concluding remarks of the authors above quoted. 'In conclusion,' they write, 'it is not too much to say of measles and its death toll that the question is one of national importance. Whether it is to be let alone as heretofore or to be dealt with in a manner worthy of this scientific and progressive age, must to a great extent be decided by the verdict of the educated public opinion. Experience has shown again and again that the health reformer can not travel far beyond the popular standard of enlightenment in these matters. That general rule holds good even in a matter so closely affecting the common welfare as the control of measles, one of the most deadly of the preventable diseases that devastate the populace of Great Britain.'"

Disinfection Difficulties at Cairo.—According to the London *Lancet*, Cairo and Alexandria with their hopelessly ignorant public, a virulent epidemic and a government not habitually accustomed to repressive acts at variance with the habits of the people, have all the elements necessary to hamper the work of sanitary officials. The first instance of rebellion was an attack in Alexandria upon a cholera ambulance wagon, and a free fight at old Cairo between an Italian disinfector and a hostile mob. Fortunately, the native court of justice sentenced six men to prison for periods varying from two to six months for this attack. Then came the revolution of about 500 Syrian students in the crowded and very sacred university of El Azhar with its 12,000 graduates, of all ages from early manhood to gray old age. A Syrian from this turbulent section was attacked by cholera and removed to hospital, where he shortly died. The old myth was at once started that the doctors had poisoned him, and when a second case occurred the doctor was not allowed to remove him. The sheikhs of the mosque were all absent, and refused to come when invited by the police to quell the riot. Both doctors and police seem to have behaved with the greatest moderation, and fortunately they were all Mussulmans, but when they found that the governor, who very pluckily went alone to expostulate with the rioters, was severely stoned, it was obviously time to put an end to the disturbance. Coles Pasha arrived with twenty picked men with loaded rifles and vainly essayed to open the mosque door, exposed to a storm of paving-stones from the windows of the precincts. He got the door slightly ajar and then fired into the mosque over the heads of the crowd. This was answered by yells and stones, and reluctantly the order was given to fire at the crowd. This produced an immediate dispersal and the Syrians flew to their bedrooms to hide. The police dragged them out, arrested about 500, and marched them at once to prison. The next day the bulk of them were released, sixty-five are now being exiled, and fifteen are going to be brought to justice. The Khedive has, moreover, decided to close the Syrian section of the university for one year. The greatest credit is due to both Coles Pasha and the governor for a successful ending of a very dangerous episode, and they have both been publicly thanked by the Egyptian government. Since that day there has been no interference with sanitary officers in Cairo. "In order to make thoroughly understood the serious and regrettable side of this incident, we must remind readers that the theological university of El Azhar is the most renowned in all the East—for the pious a Rome and Jerusalem combined. A hundred years ago no Christian was allowed even to pass before its door, and one of the most hated incidents of the hated French occupation of this country was that Bonaparte converted the mosque into a temporary stable. It is difficult to believe that we shall not hear of this incident again. A very widespread belief is, unfortunately, current in both Cairo and the provinces that low-class Europeans are going about with sweetmeats to poison the faithful, and that this instead of cholera is the real cause of the epidemic. One despairs of finding any method to counteract an unfounded belief of this kind. With the exception of the English workers nearly all sanitary officers are Mohammedans, and the greatest care is being taken to avoid offending any religious feelings."

Health Report.—The following reports of mortality from smallpox, yellow fever and cholera have been received in the office of the Supervising Surgeon-General U. S. Marine-Hospital Service:

SMALLPOX—UNITED STATES.

Tennessee, July 1 to 31, 13 cases, 2 deaths.

SMALLPOX—FOREIGN.

Alexandria, Egypt, June 11 to 17, 3 deaths.
Bombay, India, July 21 to 28, 4 deaths.
Cairo, Egypt, June 11 to 17, 6 deaths.
Guautanamo, Cuba, July 1 to 31, 43 deaths.
Licata, Italy, August 1 to 8, 3 deaths.
Liverpool, England, August 8 to 15, 1 case.
London, England, August 8 to 15, 2 cases.

Madras, India, July 17 to 24, 1 death.
Madrid, Spain, August 4 to 11, 28 deaths.
Nantes, France, July 1 to 31, 2 cases.
Naples, Italy, August 1 to 8, 8 cases, 5 deaths.
Odessa, Russia, August 1 to 8, 18 cases, 2 deaths.
Osako and Hiogo, Japan, July 11 to 26, 78 cases, 25 deaths.
Paris, France, August 1 to 8, 1 death.
Pernambuco, Brazil, August 4 to 18, 362 cases, 58 deaths.
Prague, Bohemia, July 31 to August 7, 4 cases.
Rio de Janeiro, Brazil, July 18 to August 1, 27 cases, 4 deaths.
St. Petersburg, Russia, August 1 to 8, 7 cases, 1 death.
Tuxpan, Mexico, August 1 to 8, 1 death.
Warsaw, Russia, July 25 to August 8, 7 deaths.

CHOLERA.

Alexandria, Egypt, June 11 to 17, 16 deaths.
Bombay, India, July 21 to 28, 17 deaths.
Cairo, Egypt, June 11 to 17, 91 deaths.
Calcutta, India, July 11 to 18, 10 deaths.

YELLOW FEVER.

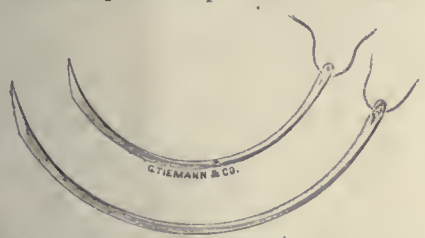
Fort de France, Martinique, W. I., August 3 to 6, 2 deaths.
Guantanamo, Cuba, July 1 to 31, 13 deaths.
Matanzas, Cuba, August 12 to 19, 29 deaths.
Manzanillo, Cuba, July 15 to 31, 8 deaths.
Sagua la Grande, Cuba, August 8 to 15, 85 cases, 11 deaths.
Vera Cruz, Mexico, August 13 to 20, 3 cases.
Rio de Janeiro, Brazil, July 18 to August 1, 8 deaths.

NEW INSTRUMENTS.

A NEW SUTURE NEEDLE. MODIFICATION OF THE HAGEDORN.

BY J. A. DIBRELL, JR., M.D.
PROFESSOR OF ANATOMY, ARKANSAS INDUSTRIAL UNIVERSITY, LITTLE ROCK, ARKANSAS.

A great number of forceps have been devised during the last few years. The almost endless variety seem to have grown largely out of attempts to adapt them for the use of both the



The above cut illustrates the modified needle as correctly made for me by Tiemann & Co., of New York City.

ordinary and Hagedorn suture needles. But in this respect all of them seem to be, to a great extent, failures. The transverse and oblique grooves in forceps for the flat Hagedorn needle, require both of one's hands for its accurate adjustment, and when this is done, the needle generally turns or rolls much to the annoyance of the surgeon. I have endeavored to obviate this difficulty and the necessity for so many needle forceps, in changing somewhat the form of the Hagedorn needle, which many surgeons prefer to all others, and at the same time I think, without impairing its usefulness, so that it may be used in almost any holder.

Simple as is the change in its form, I have had much trouble in getting it properly made, and then only after numerous trials by instrument makers in this country, and by one in Vienna.

The needle has given satisfaction in my own work, and to professional friends who have used it.

I have persisted in having it made for this reason, and because I have been informed on extended inquiry that no needle like it had been made, or is to be found in the market.

It has the Hagedorn point, but unlike that needle, is not "curved on the edge," but is flattened in the antero-posterior direction like the ordinary suture needle, from near the point to, and beyond the eye, which is in the same direction, and not on the side, as in the Hagedorn.

This flattened surface on the shaft, enables one to seize the needle firmly at any place, except near the point and at the eye.

The cutting point being exactly like the Hagedorn, the wound made with it is the same, and is not altered in form by the non-cutting portion of the needle behind the point. It also appears to penetrate the tissues with as much ease as the Hagedorn.

The needle can be made in any of the usual sizes or curves.

Most of the needles sent me by the instrument makers, for approval, were entirely too heavy, contained too much metal, with the cutting points unnecessarily large, and the eyes too small.

NECROLOGY.

WILLIAM R. CAMPBELL, M.D. (Starling Medical College, Columbus, Ohio, 1863), at Vanceburg, Ky., of rheumatism, August 19, aged 58 years. He served as a soldier during the civil war.

LUCINDA KEY, M.D., one of the leading women of the colored race and the second woman graduate of the Tennessee Medical College, at Shelbyville, Tenn., August 27. She was a successful practicing physician of Chattanooga.

THOMAS KILLOUGH, M.D. (Northwestern University Medical School, Chicago, 1873), at Hanover, Ill., August 25.

PROFESSOR PAJOT of Paris, aged 80; retired ten years ago. Founder of the *Annales de Gynécologie* and the first president of the Société d'Obstétrique et de Gynécologie.

J. C. WORTHINGTON, Surgeon, U. S. A., long stationed at Fort Thomas, Newport, Ky, died at Louisville, August 11. He was in strong affiliation with the profession of the neighboring cities and left a large circle of friends.

ARGYLE MACKEY, M.D., of Washington, D. C., at the City Hospital, Baltimore, Md., August 28, from a self-inflicted pistol-shot wound. To the physicians he explained most minutely the character of his wound and the causes that were leading to his demise. He even tried to feel his own fluttering pulse. He repeatedly felt the tips of his fingers and noted the slowly decreasing power of circulation and the peculiar sensations of approaching death. He was as calm as if he had been one of the professors of the hospital delivering a clinic lecture at the bedside of a dying patient. He graduated from the University of Maryland School of Medicine, Baltimore, in 1890.

GEORGE D. HOLSTEN, M.D., at New York, August 21. Dr. Holsten was born in New York in 1857, entered the University of New York in 1879, and was graduated in 1882. Subsequently he became a specialist in dermatology, and won much success in his chosen line of work. He was president of the Brooklyn Dermatological Society and editor of a paper devoted to the interests of the science. Dr. Holsten was at different times connected with the Eastern District and Brooklyn Throat Hospitals. He was also a member of the Long Island Medical Society, Alumni Association and Amphion Musical Society.

E. M. NELL, M.D., warden at the State penitentiary at Frankfort, Ky., at that place August 21, aged 49 years. He had been ill about three weeks with typhoid fever. He was born in Adair county near Gradyville and received his early education in the common schools. At the age of 17 he entered the Union Army, serving about two years in the Thirteenth Kentucky Cavalry. He graduated at the Nashville Medical College, and soon had a large practice. He entered politics in 1885, when he was elected as representative. When he was appointed as warden of the State penitentiary he was serving his first term as State senator. Dr. Nell in the short time he was warden had made many friends at the capital, and proved himself extremely efficient as an official.

ELSWORTH F. SMITH, M.D., of St. Louis, Mo., at Fort Missoula, Mont., August 19. Dr. Smith was born in St. Louis

seventy-three years ago. His early education was obtained in a college in St. Charles County, Mo., from which he graduated and went to St. Louis. In that city he entered the St. Louis University, and, after graduating, attended the St. Louis Medical College, from which he graduated in 1848. He went abroad to complete his medical education, and spent four years in Paris. On his return to St. Louis he began the practice of medicine. Through the smallpox and cholera siege he manifested great courage and indomitable perseverance, and won golden opinions from hosts of grateful citizens. In 1852 he received the appointment as health officer, and four years later was offered and accepted the chair of physiology in the St. Louis Medical College, which he held until 1870. He was a member of the AMERICAN MEDICAL ASSOCIATION, St. Louis and City Hospital Medical Societies.

JACOB ROSENTHAL, M.D., of Chicago, after an operation for appendicitis, August 24. Dr. Rosenthal was born at Philadelphia, Dec. 7, 1862, the third son of Morris and Jenetha Rosenthal. He received his education at the public schools of Philadelphia, graduating with highest honors from the Central High School in the class of 1878, being of the few awarded the teacher's certificate for high average. In 1882 he received the degree of M.A. while a student of the Jefferson Medical College, Philadelphia, from whence he graduated with honors in 1888. After graduation he began practicing medicine in Chicago, and in 1891 stopped practice to take up special courses of study in gynecology and obstetrics, spending considerable time at various universities of Germany and Austria, especially with Leopold of Dresden. He returned in 1893 and renewed his practice in Chicago. Dr. Rosenthal was a member of several medical societies and fraternal organizations. He was attending gynecologist at the Cook County Hospital, advisory surgeon of the Standard Accident Association of Detroit, physician to the Hebrew Charities and attending physician at the Jewish Orphans' Home. He has written extensively for medical journals here and abroad, and was generally beloved by his colleagues in the profession. A host of friends mourn his loss.

BOOK NOTICES.

Proceedings of the Nebraska State Medical Society. Twenty-eighth Annual Session, 1896. Pp. 344, cl. Published by the Society.

It contains thirty-five carefully prepared and interesting articles, and is embellished by the portrait of J. E. Summers, Jr., M.D., President of the Society for 1895-96.

Transactions of the American Academy of Railway Surgeons. Annual Meeting, 1895. Vol. II. Edited by R. HARVEY REED, M.D., Columbus, Ohio. Pp. 221, cl. American Medical Association Press. 1896.

President C. K. Cole, in his address, congratulates his associates on the evidences of the success attained by the Academy in the short period of one year. There are nineteen carefully written articles on injuries, sanitation and medico-legal subjects. It contains numerous fine illustrations, including portraits of the officers of the Association and views of the Plant System hospital car.

Eleventh Annual Report OF THE STATE BOARD OF HEALTH AND VITAL STATISTICS OF THE COMMONWEALTH OF PENNSYLVANIA, 1895. Pp. 729, cl. Printed by Clarence M. Bush, State Printer. 1896.

President of the Board, Pemberton Dudley, M.D.; Secretary, Benjamin Lee, M.D., Philadelphia. It contains the report of the Secretary, minutes of the meetings of the Board, reports of inspections, quarantine, disinfections and epidemics; reports of conferences and conventions; circulars and forms in use; organization, by-laws and regulations of the Board; laws of the State relating to the protection of life and health, passed in 1895, etc. It is illustrated with numerous drawings showing drainage and water supply of various towns, maps prepared by the State Weather Service showing mean temperature, rainfall and prevailing direction of the wind for each month, plans of the hospital for contagious diseases at Harrisburg, etc.

SOCIETY NEWS.

Pennsylvania and Maryland Union Medical Association.—The ninth annual reunion took place at York, Pa., August 27. The following officers were elected: President, Dr. Joseph Price, Philadelphia; vice-presidents, Drs. C. A. Rahter, Harrisburg; Charles G. Hill, Baltimore; secretary and treasurer, Roland Jessop, York.

Sheboygan County (Wis.) Medical Society.—The annual meeting was held August 24 at Sheboygan Falls. Dr. H. Reineking of Sheboygan read a paper on aseptic surgery, and there was a general discussion on tuberculosis. The officers elected for the ensuing year were: President, C. W. Pfeifer; vice-president, Charles Schaper; secretary and treasurer, O. B. Bock. The next meeting will be held at Plymouth.

Society of Doctors and Lawyers.—The Medical League Society of Indiana was organized August 28 at Indianapolis by a number of physicians and attorneys from various sections of the State. The object is mutual interest and the avoidance of friction between the two professions in the giving of expert testimony. Major C. L. Holstein of Indianapolis was elected president; Dr. J. F. Hibbard of Richmond, Judge Cyrus F. McNutt of Terre Haute, Dr. G. W. McCasky of Fort Wayne, John B. Cockrum and Dr. M. V. B. Newcomb of Indianapolis, vice-presidents; Dr. J. F. Hodges, Anderson, secretary; Dr. A. E. Sterne, Indianapolis, treasurer, and John B. Elam, Indianapolis, heads the executive committee. A committee reported constitution and by-laws, which will be still further revised at a meeting to be held in Indianapolis the first Tuesday in December.

Transportation Arrangements for the Pan-American Medical Congress.—Dr. H. L. E. Johnson, 1400 L Street N.W., Washington, D. C., has been elected chairman of the Special Committee on Transportation. All communications relative to rates, reservation in the special trains, etc., should be addressed to him. A rate of one fare for the round trip has been secured between St. Louis, New Orleans and trans-Mississippi points and the City of Mexico. It is confidently expected that this rate will be extended over the entire territory of the United States. Arrangements are in progress for a splendidly equipped special train of sleeping and observation cars, with first-class dining-car service. Dr. Johnson will presently be in position to announce a rate which will include railroad fare, sleeping and dining car service both ways and in the City of Mexico, and covering the expense of various side trips to the most important historic points in the Republic. Charles A. L. Reed, M.D., Secretary International Executive Committee.

American Association of Obstetricians and Gynecologists.—The ninth annual meeting of this association will be held at Richmond, Va., Sept. 22-24, 1896. The following papers will be read: "Principles and Progress in Gynecology," president's address, Joseph Price, Philadelphia; "Vaginal Hysterectomy by the Clamp Method," Sherwood Dunn, Los Angeles; "Further Experience with Appendicitis," A. Van der Veer, Albany; "Relation of Malignant Disease of the Adnexa to Primary Invasion of the Uterus," A. P. Clarke, Cambridge; "Treatment of Puerperal Septicemia," H. W. Longyear, Detroit; "Treatment of Posterior Presentation of the Vertex," E. P. Bernardy, Philadelphia; "Relation of Local Visceral Disorders to the Delusions and Hallucinations of the Insane," W. P. Manton, Detroit; "Differential Diagnosis of Hemorrhage, Shock and Sepsis," Eugene Boise, Grand Rapids; "Movable

Kidney; Local and Remote Results," A. H. Cordier, Kansas City: "Pathology and Indications for Active Surgical Treatment in Contusions of the Abdomen," W. G. Macdonald, Albany; "Some Causes of Insanity in Women," George H. Rohé, Sykesville; "Shall Hysterectomy be Performed in Inflammatory Diseases of the Appendages," L. H. Dunning, Indianapolis; "Dynamic Ileus; with report of cases," J. W. Long, Richmond; "Faradic Treatment of Uterine Inertia and Subinvolution," Charles Stover, Amsterdam; "A Plea for Absorbable Ligatures," H. E. Hayd, Buffalo: "Treament of the Stump," J. F. Baldwin, Columbus; "Limitations in the Teaching of Obstetrics and Gynecology as Determined by State Medical Examining Boards," William Warren Potter, Buffalo: "The Philosophy of Drainage; Treatment of the Pedicle in Hysterectomy or Hystero-myomectomy in the Abdominal Method," George F. Hulbert, St. Louis: "Removal of the Uterine Appendages for Epilepsy and Insanity; a Plea for its more General Adoption," D. Tod Gilliam, Columbus; "Albuminuria of Pregnancy," A. Fr. Eklund, Stockholm; "Unnecessary and Unnatural Fixation of the Uterus and its Results," James F. W. Ross, Toronto; "Sarcoma of the Urethra," Charles A. L. Reed, Cincinnati; "Appendicitis as a Complication in Suppurative Inflammation of the Uterine Appendages, L. S. McMurtry, Louisville; "Gunshot Wounds of the Abdomen with the New Gun," J. D. Griffith, Kansas City: "Tubo-ovarian Cysts with Interesting Cases," A. Goldspohn, Chicago; "Obstruction of the Bowels Following Abdominal Section," George S. Peck, Youngstown; "Memorial of Dr. Hiram Corsen," Fraill Green, Easton.

Papers are also promised by John Milton Duff, Pittsburg; Rufus B. Hall, Cincinnati; George Ben Johnston, Richmond; Walter B. Chase, Brooklyn; Lawson Tait, Birmingham; Walter B. Dorsett, St. Louis; W. E. B. Davis, Birmingham; E. Arnold Praeger, Los Angeles. Dr. George Ben Johnston, 407 E. Grace street, Richmond, Va., is chairman of the Committee of Arrangements, who should be addressed in regard to hotel accommodations and railway fares. Joseph Price, president; William Warren Potter, secretary.

MISCELLANY.

Appointment.—Dr. S. S. Bond of Washington, D. C., was selected as surgeon general of the Union Veterans' Union, at its meeting held in Binghamton, N. Y., August 20.

The House of Mercy Hospital, Springfield, Mo., has received a handsome gift from Garratt Barry, for the equipment of a surgical ward of five beds. The ward will be for men, for general operations.

Fruit Seeds in Appendicitis.—Only two fruit seeds were found in the appendix in the course of 200 operations by Roux for appendicitis. Sixty-five calculi of fecal origin and concentric formation were found, their peculiar shape showing that they had developed in the appendix.—*Cbl. f. Chir.*, August 1.

Infection by Pets.—Cats have been suspected of conveying the infection of diphtheria, and scarlet fever has been traced to them. To this may be added the unwelcome news that a health officer has reported a case of smallpox which has been brought about in the same way; that is to say, by a cat from an infected house entering a neighbor's.—*Pop. Science*, September.

A Vegetable Meat.—In Japan they have what may be called vegetable meat. The substance is called in the vernacular "*torfu.*" It consists mainly of protein matter of the soya bean, and is claimed to be easily digestible and as nutritious as meat. *Torfu* is as white as snow and is sold in tablets; it tastes somewhat like fresh malt.—*Popular Science*, September.

St. Margaret's Memorial Hospital, Pittsburg, Pa.—Ground was broken August 25. The buildings which will form the hospital are located on Forty-sixth street, between Lawrence and Davidson streets. The front elevation will be 350 feet and the depth 100 feet. The cost $200,000. The hospital was provided for in the will of John H. Shoenberger. It is to be a memorial for his wife.

Unusual Case of Syphilitic Infection.—The *Annales de Derm. et de Syph.*, July, describes a case of syphilitic infection which, starting from the initial chancre, produced in turn pleurisy, icterus, phlebitis, acute rheumatism and dermoneuropathy, all in the course of four months, and only yielding to mercurial treatment.

Elect the Doctors.—The profession throughout the State should see to it that every physician who is a candidate for the next legislature is elected this fall. Dr. Yett, the nominee for the senate, and Dr. Hill, nominee for the house, from the Austin district, will be elected without doubt.—*Texas Medical News.*

Dittel's Method of Elastic Ligatures of Hemorrhoidal Nodules.—The *Wiener Med. Presse*, No. 20, reports the invariable success of this method in 269 cases treated. Average length of treatment, twelve days. The nodules dropped off with the ligatures in five to twelve days. If the surrounding skin can be left out of the ligatures, the pain is slight, otherwise local anesthesia may be required.—*Cbl. f. Chir.*, August 1.

A New Parasite.—A gentleman residing in a comfortable country home in France, exceptionally careful of his person, has been infested with a parasite since his return from a short trip in 1891. It seem to belong to the genus *seira*, but is not identical with any of the species described in the text-books. It does not produce any lesions of the skin, but merely annoys by its presence in the hair and by crawling around on the neck and body. It disappears in the winter, but reappears each spring in spite of the most determined efforts to exterminate the pest. It is confined to the gentleman himself, the servants being almost completely exempt.—*Union Médicale*, August 1.

The Asiatic Ant a Surgical Adjunct.—According to the *Independent*, Dr. Miltiades Iasigonis, of Smyrna, a Greek naturalist, has sent a paper to the Linnean Society of London, on a remarkable use of ants in Asia Minor. It was stated that the Greek barber-surgeons of the Levant employed a large species of ant (camponotus) for the purpose of holding together the edges of an incised wound. The ant, held with a forceps, opens its mandibles wide, and being then allowed to seize the edges of the cut, which are held together for the purpose, as soon as a firm grip is obtained the head is severed from the body. The author had seen natives with wounds in course of healing with the aid of seven or eight ants' heads.

Treatment of Malignant Tumors with Toxins of Erysipelas and Prodigiosus.—Dr. William B. Coley has reported 160 cases treated, extending over a period of four year: Total number of cases of sarcoma were 93; carcinoma and epithelioma 62; sarcoma or carcinoma 10; tubercular 2; fibro-angioma 1; mycosis fungoides 1; goitre 2; keloid 1. Of the cases of sarcoma nearly one-half showed more or less improvement; the variety that showed the greatest improvement was the spindle-celled; the melanotic showed the least. Next in order of benefit was the mixed celled—round and spindle; then round-celled, while osteo-sarcoma closely approached the melanotic in showing but little change. In a series of nine cases of melanotic sarcoma no improvement was noticed in six; very slight in three. Most of the cases of osteo-sarcoma failed to respond to the treatment; many showed slight improvement, and one case, a very large osteo-chondro-sarcoma of the ilium, apparently disappeared and the patient remained well for nearly a year, when a recurrence occurred. One case of round-celled sarcoma of the neck of very rapid growth showed very marked decrease during the first week's treatment, after which

time it continued to grow in spite of large doses of the toxins. He was of opinion that a series of upward of twenty successful cases of inoperable sarcoma (four of which had remained well upward of two and one-half years), the diagnosis of which had been established beyond question according to accepted methods of diagnosis, ought to be sufficient to demonstrate the real and positive advance that had been made in a field which, up to this time, had been regarded as absolutely hopeless.—*Johns Hopkins Hos. Bul.*, August.

Laughter as a Symptom of Disease.—From Austria comes a curious account of a man suffering from a nervous disease that manifested itself in paroxysms of laughter. The patient, whose case was described before the Psychiatric and Neurological Society of Vienna, was 30 years of age, and had been subject for three years to fits of laughter, which occurred at first every two or three months, gradually increasing in frequency to a dozen or more a day. The attacks occurred especially between 9 P.M. and 6:30 A.M. Some occurred also during the day, however the patient happened to be occupied. In the intervals between the attacks, and immediately before and afterward, the man appeared perfectly well. The attacks commenced with a tickling sensation arising from the toes of the left foot, and the patient would fall to the ground unless he could reach some place to lie down. When this feeling reached the level of the left nipple the patient lost consciousness for a few seconds. Often the patient lay upon his face. The mouth and eyes were closed spasmodically, the eyeballs turned upward; the pupils were dilated and unresponsive to light. At the height of the attack the patient at first smiled, and then laughed aloud without other sign of merriment. The entire attack occupied about two minutes. On two occasions there was protracted loss of consciousness.—*Pop. Science*, September.

Permanent Baths.—The *Journal de Méd.*, August 2, contains a description of the permanent baths at the General Hospital at Vienna, for the treatment of various skin diseases and cases of extensive destruction of the epidermis. The baths are of copper in a thick wooden case, and the patient is kept completely submerged, floating beneath the surface of the water, sitting up or reclining on a covered trellis, which can be raised and lowered at will. He remains in this bath day and night for weeks and months, and is only lifted out to attend to the calls of nature. Some patients were observed who had been in the bath for two years. The temperature of the water is the same as that of the body; medicaments are added as indicated. The functions of the organism do not seem to be affected by this prolonged soaking. The palms and soles swell and wrinkle at first, but the rest of the sound skin is not altered, except in rare cases an eczema is produced on the arms or throat. Where there is great loss of epidermis, as in dermatitis exfoliacea and pemphigus foliaceus, extensive burns and suppurating wounds, the water takes the place of the numerous bandages required, which would fatigue and weaken the patient. It keeps the surface moist and disinfected, and forestalls complications. It also soothes or prevents the pain when the papillæ are exposed. Similar results are obtained in gangrenes, fistulas, syphilis, cutaneous tuberculosis, psoriasis, lichen ruber, pityriasis universalis, ichthyosis, etc. No other means can be compared to the permanent bath in the prompt relief afforded, the rapidity with which the necrosed tissues are thrown off, inflammation, pain and fever subdued and granulation and cicatrization accelerated. Erysipelas is the only skin disease which it does not seem to benefit.

A New Question to be Decided.—According to the *American Law Review*, an action at law is pending in the circuit court of the city of St. Louis, involving a new question of law, which is of importance to the teaching medical profession. The action, it says, was brought by Anita May George, an infant, by her next friend, against Dr. Augustus C. Bernays, a very eminent surgeon of that city. The plaintiff, when two years of age, had swallowed a quantity of concentrated lye, by reason of which the esophagus became closed, so that for four years she received her nourishment through rectal injections and through a fistula established by a successful operation of gastrotomy. The defendant then took the child into his charge and succeeded in opening the esophagus, and enabling her to take her nourishment in the natural way. His principal operations were performed at the Marion-Sims College of Medicine, in the presence of a number of surgeons and medical students, as well as of the mother of the child. And he afterward published a description of these operations, accompanied by a photograph of the child stripped to the waist, showing where the various incisions in her body had been made, and illustrating the printed description given of the operations; but he did not give the name of the child in the pamphlet, using instead false initials. Now the mother of the child has taken it into her head to try to recover heavy damages for the latter, on the ground that the defendant violated her right of privacy in two particulars: 1, in allowing outside parties to witness the surgical operations which he performed upon her; 2, in publishing in the pamphlet in question a description of the operations, together with a photograph of the patient. The result will be awaited with interest, and it is to be hoped that the case will not be allowed to rest until it is finally passed upon by the supreme court of Missouri. Upon the foregoing meager statement of facts it hardly seems possible that it can be anything but a judgment for the defendant. At the same time it will be a decided advantage to have the law on the subject authoritatively laid down.

Experimental Explorative Operations on the Brain.—A series of experiments in cerebral explorations for diagnostic purposes has been recently conducted at the Albert Clinic at Vienna, which are described in detail in the *Cbl. f. Chir.* of August 1. The subjects were dogs, and the instruments used were an improved drill, the point forming an angle of about 100 degrees, 1½ to 2 mm. in diameter, with a gauged guard to prevent its penetrating too far; a double spoon harpoon, closed to a small point or spread apart at will, and the usual Pravaz' needles, harpoons, etc. The object of the experiments was to determine whether and how far it is possible to explore accumulations of fluids in the substance of the brain or under the membranes, without injury to the patient, and also to secure portions of the brain and fluids for histologic investigation, through the smallest possible opening. After narcosis, the skull of the dog was drilled through in several places, and portions of the dura mater and cerebrum brought up by means of the spoon harpoon or needles, curved and straight. The operations were successful in every case; there was no hemorrhage, and the small drill holes in the bones and soft parts healed perfectly without inflammation. None of the dogs showed the slightest symptoms of cerebral disturbance, but were as lively and hungry the next morning and afterward, as if nothing had happened. Those killed later showed that the wounds had healed by first intention in both bone and tissue, and that there had been no bleeding and no adherences. Roser and Braun have asserted that lack of pulsation in the dura mater usually indicates an accumulation of pus or a splinter of bone, under or near it. By means of a small glass tube inserted in the hole drilled, and half filled with water, the pulsations of the dura mater were distinctly perceptible as they were communicated to the water. This effect was also obtained by a closed glass tube, with the upper end drawn out into a delicate glass thread at right angles to the tube, which vibrated with the pulsations of the dura mater.

A Remarkable Operation in Intestinal Surgery; Recovery.—An article headed "The resection of ten feet of the small intestine of a small boy," by Dr. Guiseppe Ruggi, in *Il Policlinico*,

Rome, will attract attention. The patient was a lad of 8 years, who received his injury by being accidentally but violently struck on the abdomen. The abdomen being opened, a loop of intestine was found constricted by a bridle of the omentum. This was divided, and the gut being apparently uninjured, the wound was closed. For a few days the boy did very well, but then all the symptoms of obstruction returned in aggravated form. One week later the wound was reopened and the intestine was found to be stenosed at the point where the constricting band had been divided. The intestine was incised longitudinally for a distance of 6 or 7 centimeters, freeing the stricture, and an anastomosis was effected. For some time after this the child did well, but complained, as he had before the first operation, most bitterly of hunger during night and day, in spite of the facts that large amounts of food were given, in addition to rectal feeding. But in two weeks the meteorism, pain and other signs of intestinal obstruction returned, and it was determined to open once more the abdomen. A large mass of the small intestine was found agglutinated together and adherent to the abdominal wall. On attempting to break down these adhesions it seemed to be effected with comparative ease, but it was soon seen that the freed parts were deprived of their mesenteric attachments. Instead of closing the abdomen as had been done in similar cases, Dr. Ruggi determined to resect the injured part. He removed successively three portions of the gut, the entire length being ten feet, nine inches, until sound gut above and below was reached. The lower incision was six inches from the ileo-cecal valve. The extremities of the intestine were united by silk sutures. There were no bad symptoms after the operation, and within a few days the boy was again crying for food. For three weeks, in spite of many imprudent concessions being made to him, the boy was teasing night and day for something to eat. Gradually, however, the food taken seemed to afford some nourishment, and five weeks after the last operation the child was discharged perfectly well. At the time of the report, fifteen months later, he was in perfect health.

Character of Locality Considered.—The supreme court of Michigan thinks that it may reasonably take judicial notice that a surgeon's skill depends somewhat upon his experience and opportunity for witnessing operations, and it is to be expected that the degree of surgical skill met with in different localities will be affected by these things. However, a man with no skill, or inconsiderable skill, should not shelter himself behind the claim that he is the only practitioner in his neighborhood, and therefore that he is possessed of the ordinary skill required, although shown to possess less than the ordinary skill to be met with in such localities, or, as the books sometimes say, in the general neighborhood. And, recognizing that the character of the locality has an important bearing upon the degree of skill requisite, the court holds in the case Pelky v. Palmer, decided June 2, 1896, that while the instruction of the circuit judge, taken abstractedly, that a physician charged with malpractice was bound to use only such care, skill and diligence as physicians and surgeons in the neighborhood where he resided and practiced, and who were engaged in the same general line of practice, ordinarily have and exercise in like cases, was perhaps not strictly accurate, yet, in view of evidence showing that the physician in question resided in a city where there were other physicians, presumably of average ability, when compared with similar localities, the party suing was not thereby injured so as to entitle him to a reversal of a judgment in favor of the physician. There was also an instruction in this case that the plaintiff could not recover unless he showed, by a preponderance of the evidence, a state of facts from which no other rational conclusion could be drawn that the defendant was unskillful and negligent, which was the proximate cause of producing the result complained of; and that it was not enough to show a state of things equally consistent with unskillfulness and negligence or the absence of them. The latter part of this instruction, the supreme court holds not objectionable; for, where the inferences to be drawn from the facts proved are as consistent with skill and diligence as with unskillfulness, the plaintiff should fail. But it can not properly be said that the plaintiff can not recover where it is possible to draw a rational, or reasonable conclusion other than that of negligence. Therefore, because the language in the first part of this instruction excluded probability, and required too high a degree of proof, the court directed a new trial.

Breaking Up of One of the Hospital Corps Companies, U. S. Army.—One of the results of the recent tour of inspection of Surgeon-General Sternberg among the Western military posts has been the breaking up of the company of instruction at Fort Riley Kas., and the distribution of the men in small detachments at some central post in each of the military departments west of the Missouri River. In 1891 schools or companies of instruction were established at Fort D. A. Russell, Wyo., Fort Riley, Kas., and at Fort Keogh, Mont. The intention was to train men for service in the corps by instructing them in all duties which the non-commissioned officer or private is liable to be called upon to perform, such as nursing, first aid and hospital corps drill, dispensary work, cooking, mess management and the preparation of official papers pertaining to the hospital. The organization proposed for Fort Keogh was not completed, but companies were formed at the two other posts which did excellent educational work and kept at the disposal of the surgeon-general for an emergency a number of men who could be cut loose from their school duties until the emergency was passed. During the railroad strikes of 1893 men were detailed from these schools for duty with the troops on active service. Later, a hospital corps company was formed at Washington Barracks as of value in connection with the army medical school recently established in Washington, D. C., and as a suitable center for the distribution of trained men to posts in the Department of the East; and the company at Fort D. A. Russell was permitted to lapse by failing to recruit it. For the past two years the centers of Hospital Corps education have therefore been Fort Riley and Washington Barracks. The great objection to the continuance of the former company appears to have been the expense of transporting men from it as a center to posts on the Pacific coast and in the far north. This was so great as practically to debar those distant posts from participation in the benefits to be derived from the system of instruction. By breaking up the company into detachments and attaching these for instruction to the hospital department at certain large posts well scattered over this large territory it is proposed to retain the advantages of the school method and have spare men in each military department available for assignment in emergencies without involving so much expense as heretofore in getting them where they are wanted.

Nurses as Non-Experts.—In the case of American Accident Co. v. Fidler's Administratrix, which was an action on a policy of insurance against death by accident from external causes, the main question was whether the insured died from typhoid fever or whether his death was caused by his body coming in contact with a telephone wire that threw him some ten feet on his back and seriously injured him. The case was twice before the court of appeals of Kentucky, May 12 and June 17, 1896. On the first occasion it reversed a judgment for the plaintiff, because of the admission of testimony of non-experts to prove that the deceased died from the effects of the fall, and not from typhoid fever, as the attending physician and other medical men testified; and on the second a petition for rehearing was overruled. It seems that the widow of the dead man, her sister and mother and also another party were permitted to testify, not only to the symptoms of the patient such

as would necessarily come to their knowledge when nursing him, but from those symptoms, to give it as their opinion that the deceased did not have typhoid fever. They did not pretend to be experts in medical science or to have nursed more than two or three typhoid patients. The symptoms manifested by the patient from day to day and such as one of ordinary observation could detect, the court says, were properly allowed to be detailed by the witnesses and to go to the jury as evidence. And on these statements a hypothetic case could be, as was done in this case, presented to those skilled in the character and treatment of diseases and their opinions given as to the cause of death; but the court holds that these four witnesses mentioned were clearly not entitled to express any opinion on the subject, though it cites the case where the opinion of one who had been a professional nurse for half a century and his familiarity with the disease was unquestioned, was received as entitled to great weight. On the rehearing the court said that the opinion of one having no experience in the science of surgery should have no weight when eminent surgeons are present and have testified that a limb was improperly amputated, or that it was not necessary to save the life of the patient; nor, where the disease is pronounced to be typhoid fever by educated physicians, is it competent to prove by one inexperienced in the treatment of diseases, and who had never made a study of medicine, that the physicians were mistaken.

Water Famine Among the East London Poor.—The water famine in the East End of London has become a great source of complaint. Many children, it is said, have died, others are sick and others are becoming ill owing to the scarcity of water. Few houses are allowed a supply of more than an hour daily, and the water furnished has an unpleasant deposit. The result is that scarlet fever, diphtheria and other diseases caused by uncleanliness have seriously affected the section. While the East End has thus been deprived of water, the fountains in the West End, or fashionable part of London, have been running, thereby wasting water which would most likely have saved the lives of many poor children in the unaristocratic portion of the metropolis, although this must be remembered that the companies that have the water rights in these different sections are not the same.

Medical Longevity.—The London *Lancet* for June 20 states that Dr. Salzmann of Esslingen has recently devoted his attention to determining the average duration of life among members of the medical profession. After an exhaustive examination of all accessible archives referring to the last four centuries, the following are the results arrived at by the zealous antiquarian. The average duration of a medical man's life during the sixteenth century was 36 years, 5 months; in the seventeenth century it was 45 years, 8 months; in the eighteenth century 49 years, 8 months, and in the nineteenth century 56 years, 7 months. It would appear from these data that, whether the survival be of the fittest or not, the duration of medical life has been increasing in a marvelous manner. Should the same rate be maintained practitioners of medicine may ere long all look forward to centennial honors, by no means a rosy prospect from the point of view of the neophyte who, as it is, finds it sufficiently hard to make good his footing within the densely crowded ranks. According to Dr. Salzmann the addition of over twenty years to the average medical lifetime is due to the advance in medical science, preventive and curative; so the ironic apophthegm, "physician, heal thyself," can no longer be launched with any effect. In a speech delivered some time ago the present leader of the House of Commons alluded to the possibility of normal human life becoming extended "to the patriarchal term of 120 years."

Alleged Medical Hardships in Russia.—The London *Lancet* refers to the hard lot of the profession in Russia, and to the many cases of suicide among the physicians in that land. Italy in suicide, as in homicide, maintains a bad preëminence; but in professional suicide, in the self-destruction of votaries of the liberal arts, particularly medicine, she would appear to be out-distanced by Russia. From a statistical return lately published, suicide among the practitioners of the healing art in Russia has reached alarming proportions—a distressing feature of the return being the comparative youth of the victims. The majority of them average between 25 and 35 years of age—all of them in the prime of life and full flush of their powers. An explanation of the phenomenon is sought in the fact that the Russian medical man's lot is a particularly hard one. As in Italy the profession is vastly overstocked in all the cities of the empire, and in consequence competition is exceptionally severe—so severe that a physician has been known to hold consultations from 8 A.M. to 11 P.M. in order to gain the reasonable income of 600 rubles a year. Besides the Russian municipalities, seconded by the lay press, have instituted gratuitous consultations in public ambulances, by which the wealthy city of Kiev, for example, withdraws from the legitimate fees of the profession as much as 27,000 rubles per annum. There the poverty of the practitioner is such that he has been known to give advice for 20 kopecks (8d.) for each consultation.

Hippocrates the Founder of an Enduring Ethical System.—It can not truthfully be said of the Father of Medicine that he is a "back number." On the contrary a perennial bloom graces all his decisions about the medical life. Men may come and men may go, but his wise eloquence flows on forever. The editor of the *Scalpel* enlarges upon this thought as follows: "The Father of Medicine, Hippocrates, has laid down our ethical code for all time. It is the only one we can recognize and have recognized. It over-rides all modern definitions, whether framed by colleges or leading members of the bar. It is not a question of *autres temps autres mœurs*. This old Pagan knew his duty, and his words, sounding along the corridors of time, appeal to us to-day with all their freshness, because at the root of his words there is the one great element which makes all words valuable and vitable, viz., their truth. The practice of medicine in ancient times was much as it is in the present day; human nature has been much the same in all ages, especially where sex is concerned. Hippocrates knew probably just as much as the College of Physicians of London about abortion and about all the secrets connected with it, and not only about abortion but about the thousand and one secrets which are brought under our notice, for the life currents have hardly changed; the same fears are here, the same weaknesses, the same suffering, the same vices, the same repentance, and the physician who hears all the sad stories of human frailty is still the same. We have followed the teaching of Hippocrates and not of modern men and modern manners; we intend to follow it, and we strongly advise all younger members of the profession to read the Hippocratic oath and to adopt it. Hippocrates said: 'I swear whatever in connection with my professional practice or not in connection with it, I see or hear in the life of men which ought not to be spoken of abroad, I will not divulge, as reckoning that all such should be kept secret. While I continue to keep this oath unviolated may it be granted to me to enjoy life and the practice of the art respected by all men and in all times, but should I trespass and violate this oath may the reverse be my lot.' The word 'men' here is used in the generic sense and also includes women, and the word abroad also admits of definition, for Hippocrates did not say anything of the law which even in his time demanded civic duties of the doctor. In France, Germany and all civilized countries, the professional secret is not only privileged but sacred. In England, with the old school of practitioners, we have been brought up in the same traditions. There may be a younger school, but we hope it is a very limited one, holding different tenets."

Practice of Medicine in West Virginia.—Section 9 of chapter 150 of the code of West Virginia was amended in 1895, so that the following persons, and no others, shall hereafter be permitted to practice medicine in that State, viz.: 1. All such persons as were legally entitled to practice medicine in that State Feb. 22, 1895. 2. All such persons as shall pass an examination before the State board of health and shall receive certificates from such board, as provided. The State board of health, it is further enacted, shall, at such times as a majority of them may deem proper, hold examinations for the licensing of practitioners of medicine. Such examinations shall not be less in number than three during each year and shall be held at such points in the State as shall be most convenient to those presenting themselves for examination or to the State board of health. At such examinations written and oral questions shall be submitted to the applicants for license, covering all the essential branches of the sciences of medicine and surgery, and the examination shall be a thorough and decisive test of the knowledge and ability of the applicants. The president and secretary of the State board of health shall issue certificates to all who successfully pass the said examination, and such certificates, after being duly recorded, shall be deemed licenses to practice medicine and surgery in all their branches in West Virginia. The State board of health shall give timely notice of the time and place of holding each such examination, by publishing such notice in at least three newspapers of general circulation in the State, and all persons wishing to present themselves for examination should notify the secretary of the State board of health to that effect. No applicant for a license to practice medicine in West Virginia shall be rejected because of his or her adherence to any particular school or theory of medicine. The State board of health shall call to their assistance, in the examination of any applicant who professes the homeopathic or eclectic school of medicine, a homeopathic or eclectic physician duly licensed to practice medicine in the State, and such homeopathic or eclectic physicians so called to the assistance of the State board of health, shall be allowed per diem and actual expenses incurred as allowed to regular members of the State board of health; provided, however, that the provisions of this and the preceding section shall not apply to physicians living in other States and duly qualified to practice medicine therein, who shall be called into consultation into West Virginia, by a physician legally entitled to practice medicine in West Virginia under these sections. Section 17 of the same chapter of the code is amended so that all moneys received from the State board of health as fees for examination, under section 11 thereof, shall be placed to the credit of the State board of health by the treasurer of the State, and shall, with other moneys appropriated to the said State board of health, be used to defray the expenses of its meetings, examinations, etc.

Changes in Virginia Health Law.—Sections 1714, 1715, 1717, 1724 and 1725, code of Virginia, were amended and reënacted by an act approved March 3, 1896. The provision, in original section 1714, that the State board of health should not in any way be a charge upon the State, was dropped. Section 1715 had introduced into it a provision that the board shall have power and authority, as further directed, to adopt such rules and regulations, and issue such orders as may be necessary to prevent the spread of contagious or infectious diseases, and to confine persons infected therewith or who may have recently been exposed to the same, within prescribed limits. Section 1717 had the provisions added that the salary of the secretary shall be fixed by the board and that the other members of the board shall receive no salary, but shall be paid the sum of $4 per day while engaged in the discharge of their duties, and their traveling expenses incurred while so employed. The expenses of the State board of health, which shall not in any one year exceed the sum of $2,000, shall be paid by warrants drawn on the auditor of public accounts, signed by the president of said board, and countersigned by the secretary, out of any money in the treasury not otherwise appropriated. Section 1724, as now amended, provides that if any member of the State board of health or a justice of any county shall have complaint, on oath, made to him, or if he shall have reason to think that there is on any lot, tenement, or plantation, or on board any vessel in said county, any person infected with smallpox, or other dangerous disease, it shall be the duty of said member of the board of health, or of said justice to issue a mandate in writing, addressed to two physicians of said county, requiring them to go to the place so suspected and to examine the persons diseased, if any, and to report in writing their opinion of such disease, and whether the public's interests require any action. If it appear to said board of health or said justice from said report that such person or persons are infected with smallpox or other dangerous disease, then said board of health or justice, whichever has first taken cognizance of the case, shall prescribe such rules and regulations as may be deemed necessary to prevent the spread of such disease; but the action of said justice shall be subject to the review of the local board of health, and for this purpose said board of health or justice may establish a quarantine at the place or places where such disease exists, and inhibit any ingress or egress to or from the same. They may, by proper orders, prevent any railroad train, steamboat or other conveyance from taking on or putting off passengers or freight at any point or points in or near the infected district. For the services required of the physicians under this section, a reasonable allowance shall be made to them by the board of supervisors at the next county levy thereafter. Section 1725 is amended, extending power to the State board of health to have infected persons removed to a hospital or other proper place.

Lord Wolseley on the Army Medical Officer.—It may be remembered that six months ago at the close of the 71st session of the Army Medical School, Netley, England, the speech of Adjutant General Sir Redvers Buller to the graduating class created much dissatisfaction in medical circles, civil as well as military, on account of the low place which he gave to the army medical officer in the military hierarchy, defining his duties as those of the doctor merely and overlooking those of the sanitary officer, although speaking under the roof of the medical school and in the presence of the faculty instituted to teach the young officer these very duties. The impressions created by that speech can not but be effaced by the spirit of comradeship evinced by the Commander-in-Chief, Lord Wolseley, in his remarks on distributing the prizes, July 31, at the close of the 72d session. He eulogized the medical department and raised the army medical officer officially and socially to his proper plane. According to a summary in the *Lancet* of August 15: During the course of a long military career he could most conscientiously say that some of the greatest friends he had had in the army had been medical officers. . . . As they (the young officers) went out to their duties he could assure them that they would find that no man appreciated the services of officers—certainly of the medical officers—of the army more thoroughly than the private. He was extremely grateful for every kindness; and he would remind them that no body of men in the army were more capable of doing acts of kindness than the medical officers of Her Majesty's service. When he thought of that building (the Royal Victoria Hospital) he could not help remembering the two men to whom he thought they were mostly indebted for it. He knew them both well and had the greatest admiration for them. He was referring to Dr. Parkes and Sir Thomas Longmore. The name of Dr. Parkes called to his mind the book which he wrote on Hygiene, which when it first appeared created quite a revolu-

tion in that science not only in the medical service but throughout the various parts of Her Majesty's dominions. It was their duty not only to heal disease, but to do their best to prevent it, and Dr. Parkes was the first man to show them how disease might be kept away from their barracks. Dr. Parkes had passed away from them, but his memory would always be fresh in the minds of those studying there, and his name would be remembered in the army so long as the hospital continued to exist. Members of their profession had not only been distinguished for their medical services. He had on many occasions seen some of the greatest acts of heroism performed by gentlemen of the department; and if he was asked to name a dozen of the very bravest men he had ever met he should have to include two or three who had been in the medical department. He would name one at once, because he saw him, quite lately. Perhaps they had heard of Sir Robert Jackson. He was with him for a long time; and if he had to lead a storming party to-morrow he did not know any man he would sooner have with him than his friend Dr. Jackson. He went to Lucknow with his regiment, and the senior medical officer of the battalion was equally brave and won the Victoria Cross on the occasion. There were many acts performed by medical officers which deserved to be recorded on any pages of history devoted to heroism. He related the dying act of Surgeon-Major Landon, who, when lingering under what proved to be a fatal gunshot wound, asked the enemy, into whose hands a batch of wounded had fallen in an unfortunate expedition, to prop him up while he injected morphia into a soldier who had been seriously wounded in order to relieve his suffering. After which service he fell back and expired in half an hour. Such an act as that should be talked of and read of in the medical school and should be known throughout the army. In conclusion he begged to wish them the best fortune in the profession in which they had embarked and to hope that he might have during the remaining portion of his life many opportunities of meeting them again.

Gleanings.—Fatal pneumonia immediately following a fall into water; pneumococci must have been inspirated into the lungs with the water. Finkelstein ascribes follicular enteritis to a new bacillus he has discovered. (*Therap. Woch.*, July 25.)——Query whether the "ainhum" of the negroes and some cases of syringomyelia, sclerodactylia, etc., may not be forms of leprosy. Cancer of the stomach arrested and pains and cachexia cured by exposure to the Roentgen ray half an hour, twice a day for a week, supplemented by milk diet, condurango and injections of artificial serum. Absolute cure of congenital incontinence of urine (age 22 years) by inductive static current (Morton's current, six to eight sparks a second) introduced with a bougie into the urethra to the vesical sphincter. (*Sem. Méd.*, July 29.)——Acute appendicitis treated with opium and ice; fifth day the appendix was passed entire in the feces, with evidences of a circular abscess where it had been joined to the intestine; recovery. (*Wratsch*, No. 22.)——Fatal peritonitis; two pins found in appendix. (*Cbl. f. inn. M.* No. 20.) Goitre experimentally produced by water from the beautiful Vale of Aosta, noted for its many cases of endemic goitre. (*Wien. Klin. R.*, July 23.)——Four grave cases of infective disease cured by letting out blood and substituting in its place an equal amount of serum. (*Bull. de l'Acad. d. M.*, July 21.) ——Arnheim reports sanoform (di-iodin-salicylic acid methyl ether,) non-toxic and fully as effectual as iodoform; 72 ulcers, etc., treated; used as powder, gauze, salve and collodium. (*Cbl. f. Chir.*, July 11.)——Borger has invented a thyroid gland hook to simplify tracheotomy. (*Zeit. f. prakt. Aerzte*, No. 8.) ——As a means to prevent adulterations it is proposed to hang up in a prominent place in an offender's establishment the analysis of the article adulterated, with a notice calling customers' attention to it. (*St. Pet. Med. Woch.*, July 18.)——The healthy skin and vagina do not absorb medicaments added to baths; erythema of the surface must first be produced by chemic or mechanical means before there is absorption. (*Nouveaux Remèdes*, July 18.)——Experimental "washing" of the blood (dogs), leads Bosc and Vedel to conclude that the action of the intravenous injections of 7 per cent. salt solution is by the osmotic action of the NaCl, by the diuretic action of the salt, direct and indirect, and by elevation of the pressure of the blood; it also acts on the red corpuscles, promotes the nutrition of the organism, and diminishes the globulicide power of the pathologic serum; a medium dose injected at the first symptoms of infection promptly cures; large doses resulted fatally; the preventive action of early injections suggests the existence of a superactivity of the organism, revealing itself in reactionary phenomena, already noticed in normal dogs, resembling a natural crisis reaction. (*Bull. Méd.*, July 29.)

THE PUBLIC SERVICES.

Army Changes. Official List of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from Aug. 22 to Aug. 29, 1896.

A board of medical officers to consist of: Col. Dallas Bache, Asst. Surgeon-General; Lieut.-Col. William H. Forwood, Deputy Surgeon-General; Lieut.-Col. David L. Huntington, Deputy Surgeon-General; Major Walter Reed, Surgeon; Capt. Charles M. Gandy, Asst. Surgeon, is constituted to meet at the Army Medical Museum Building on Wednesday, Sept. 23, 1896, at 10 o'clock A.M., for examination of candidates for admission to the Medical Corps of the Army.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending Aug. 29, 1896.

Medical Director David Kindleberger, placed on the retired list September 2.

Asst. Surgeon H. La Motte, ordered to the naval hospital at Norfolk.

Surgeon C. Biddle, detached from the "Monongahela" and placed on waiting orders.

Medical Inspector J. C. Wiae, Surgeons J. C. Byrnes and C. Biddle ordered as a board to convene at Annapolis September 3, to examine candidates for admission to the naval academy.

Change of Address.

Durant, G., from Branford, Conn., to 12 W. 46th St., New York, N. Y.
Earles, W. H., from 655 3d St. to 259 11th St., Milwaukee, Wis.
Fraser, J. N., from 3100 Wentworth Av. to New Era Bldg., Cor. Blue Island Av. and Harrison St., Chicago.
Hagens, G. J., from 6058 S. Halsted St. to 6053 S. Halsted St., Chicago.
Jones, W. A., 630 Walnut St. to 221-222 Spitzer Bldg., Toledo, Ohio.
Kober, G. M., from Winchester, Va. to 1819 Q St., N. W., Washington.
MacDonald, Chas. E., from Liberty Falls to St. John's Hospital, Long Island City, N. Y.
Niles, J. W., from 355 Dearborn Av. to 390 N. Clark St., Chicago.
Penton, A. B., from 275 Harrison St. to 134 Ash St., Detroit, Mich.
Percy, J. F., from Mantorville, Minn., to Galesburg, Ill.
Smith, S. L., from Chicago to Neenah, Wis.
Simpson, Irwin, from Anamosa, Iowa, to 5034 Washington Av., Chicago.
Watts, G. W., from 361 W. 65th St. to "The Yale," Station O, Chicago.

LETTERS RECEIVED.

Atwood Mfg. Co., Amesbury, Mass.; American Medico-Surgical Bulletin, New York; Abbott, W. C., Ravenswood, Ill.; Alma Sanitarium Co., Alma, Mich.; Alexander, H. M. & Co., Marietta, Pa.

Brown, Sauger, Chicago; Bittman, Chas. W., St. Louis, Mo.; Blackwell, Emily, New York; Burr, C. B., Flint, Mich.; Bovee, J. Wesley, Washington, D. C.; Bernd, Henry & Co., St. Louis, Mo.

Cook, T. H. G., Stone, Ala.; Clare, M. W., Eureka, Mo.; Crofut, Martha M. Chicago; Chicago Polyclinic and Hospital, Chicago; Cox, C. C., College Park, Ga.

Davidson Rubber Co., Boston, Mass.; Dewey, Richard (2), Wauwatosa, Wis.; Darling, C. G., Ann Arbor, Mich.; Detroit College of Medicine, Detroit, Mich.; Drevet Manufacturing Co., New York.

Eve, Paul F., Nashville, Tenn.; Earle, T. T., Greenville, S. C.

Freeman, Leonard, Denver, Colo.; Foster, Eugene, Augusta, Ga.; Foltz, G. W., Lima, Ohio.

Graham, H. G., Chicago; Goffe, J. Riddle, New York; Gotham, The Company, New York.

Hall, C. H., Salem, Ore.; Hummel, A. L., Advertising Agency (2), New York; Holland, J. W., Philadelphia, Pa.; Haggard, W. D., Jr., Nashville, Tenn.; Hines, W. Frank, Chestertown, Md.; Holgate, J. R., Allaboro, Ala.; Haldenstein, J. (2), New York.

Jackson, Edward, Philadelphia, Pa.; Just's Food Co., Syracuse, N. Y.

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Marshall, Clara, Philadelphia, Pa.; McLean, R. A., San Francisco, Cal.; Marshall, John, Philadelphia, Pa.; Mudd, H. H. St. Louis, Mo.; Maltine Mfg. Co., New York; MacDonald, J. W., Minneapolis, Minn.; Meany, W. B., St. Louis, Mo.

Nash, A., Joliet, Ill.

Park, J. Walter, Harrisburg, Pa.; Prentiss, Spencer B., Washington, D. C.; Pantagraph Printing & Stationery Co., New York.

Randall & Becton, Boston, Mass.; Reynolds, F. R., Ft. Clark, Texas; Rose, Wm., Columbia, Ill.; Rosenthal, Edwin, Philadelphia, Pa.; Roosa, D. B. St. John, New York; Rogers, H. W., Cleveland, Ohio; Rio Chemical Co., St. Louis, Mo.; Randall, J. N., Decatur, Ill.

Shearer, G. H., Philadelphia, Pa.; Spagl, A., Frankfurt a. M., Germany; Stowell, Chas. H., Washington, D. C.; Seville, F. F., Chicago; Selling, L. M. Agawam, Mass.; Sampson, F. E., Creston, Iowa; Saxlehner, Andreas, New York; Shepard, Chas. H., Brooklyn, N. Y.; Shidler, G. W., York, Neb.

Travis, B. F., Chattanooga, Tenn.; Trnax, Chas., Greene & Co., Chicago.

Willson, H. B. & Co., Washington, D. C.; Whelpley, H. M., St. Louis, Mo.; Wathen, W. H., Louisville, Ky.; Wingate, O. U. B., Milwaukee.

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ADDRESSES.

CHAIRMAN'S ADDRESS.

Delivered before the Section on Ophthalmology at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

BY LUCIEN HOWE, M.D.

BUFFALO, N.Y.

It is one of the duties of the chairman of each Section of this ASSOCIATION to present an "Address" at the opening of the session in his department.

Perhaps this custom would be more honored in the breach than the observance and in the present instance the time would be better employed by proceeding at once to the inviting list of papers which the Executive Committee has prepared. But when one has been complimented by election to the chairmanship of the Section which is generally conceded to be the most active of all the Sections in this ASSOCIATION, it ill becomes him to avail himself of any excuse and fail to acknowledge the honor thus conferred upon him.

Indeed, he assumes a definite responsibility in accepting this position. For while it is manifestly impossible for him to present the barest outline of the year's advance even in this one small corner of the field of medical science, still, it is his duty to observe the trend of ophthalmologic thought, to point out, if he can, the directions in which the lines of progress may be advanced, or, what is yet more important, to sound the alarm if there is danger of any in our ranks going so far and so fast in their eagerness for achievement as to overstep the limits of scientific accuracy, with the inevitable result of retreat, in confusion and in shame, to a more moderate and secure position. With this in view, I feel impelled to ask your attention, very briefly, to a growing tendency among us to regard difficulties of the accommodative and muscular apparatus as entirely local. I would fain say a word for that nearly forgotten factor, the "general health." This introduction again of a threadbare subject almost demands apology, especially as, for the sake of clearness later, it is necessary now at the outset to repeat definitions which have been agreed upon long ago. Thus, when we say that the pathologic conditions above mentioned produce asthenopia, it is essential that we remember not only what that means, but also the three shades of its meaning.

We must remember that asthenopia is simply the name of a certain group of symptoms, namely, difficulty or discomfort when attempting to use the eyes for near work, occasionally a little redness or smarting of the conjunctiva, and nearly always headache—then called ocular headache. Moreover, we must remember that this group of symptoms may be dependent upon at least three distinct causes. These we have long ago recognized as:

1. Accommodative asthenopia, which, being due to some variation from the normal shape of the typical eye, as near- or far-sightedness, or to astigmatism in some form, necessitates an unusual action of the ciliary muscle and is, of course, to be corrected with a concave or convex glass.

2. Muscular asthenopia. While this is often associated with the accommodative form, it may occur when the globe is perfectly normal. It is due to an unnatural action of the muscles on the outside of the eye, to the recti and possibly to the oblique; it is recognized by the various tests for unequal muscular balance, and is corrected by means of prisms, by tenotomies, partial or total, or by muscular advancement.

3. Central or neurasthenic asthenopia. In this condition no variation from the normal standard can be discovered either as regards the action of the ciliary muscle or the recti or oblique muscles. Or, indeed, if any such abnormal condition did exist, the asthenopia persists after the patient has received full correction of the difficulty by means of glasses or otherwise.

While it may appear puerile to repeat elementary facts at a meeting of ophthalmologists, it is better to err in that respect than to risk the confusion that arises from nebulous ideas defined in vague terms.

This, especially for the reason that, in order to establish the point in question, it is more important to arrange in proper sequence a few facts already well known than to bring forward any that are new.

Now, the object of this paper, as above stated, is to call attention to the too great tendency with most ophthalmologists to consider their cases of asthenopia as belonging to the first or second class. In other words, we look upon the causes of the symptoms as more local than general, as is natural enough with those who, like ourselves, are obliged to focus their entire attention upon a small field of practice. Especially is this true because we naturally see a large proportion of cases of asthenopia which do require only local treatment. Indeed, in a few rare instances, ametropia or a faulty muscular balance may produce by reflex action pathologic symptoms in distinct organs, which symptoms have apparently been relieved by the use of suitable glasses. But let us ask ourselves more exactly concerning accommodative and muscular asthenopia and it will be evident, I think, how often we deal with the third form, how often this becomes in the history of the case what the *Tiers Etat* was to the French Revolution, the element unrecognized or reluctantly acknowledged at first, but dominant in the end.

Take accommodative asthenopia first. In high degrees of far-sightedness or especially of astigmatism, we learned long ago to expect ocular headaches or their allied symptoms. We have prescribed suitable glasses and the asthenopia vanished, as if by magic. Then, later, we learned that in certain individuals lesser degrees, even very minute degrees, of variation from the normal type also gave rise to the

same symptoms, and required likewise to be corrected with glasses. This is the positive evidence. But we should look at the negative evidence as well. For if these same anomalies, which are mathematically definite, produced invariably the same effect, as we ought to expect if the asthenopia springs from local causes, then there would be but very few men, women or children not wearing glasses. I know of no figures more instructive on this point than those obtained by Roosa in his examination of the refraction of a hundred persons who supposed their eyes to be perfectly normal. These individuals, it will be remembered, were of various ages and occupations, and no person had both eyes absolutely perfect, as shown by the combined tests of the ophthalmometer, ophthalmoscope and test glasses, while only 1 per cent. had one eye in that condition. Among them, too, several persons were found having as high as one and one-half or two dioptries of either myopia, hypermetropia or astigmatism, who were blissfully unconscious of their defects.

While thus on the one hand, we find constantly such variations from the normal standard to exist without headache or any symptoms of accommodative asthenopia, so, on the other hand, are we unfortunately familiar with the fact that when the very best and most exact corrections have been made, even under atropin, this asthenopia obstinately persists in almost as great a degree as without the correction.

Next, let us glance at the state of our knowledge concerning muscular asthenopia and arrange before us, in similar sequence, a few well-known facts. We can formulate these in the same manner by saying that while asthenopia usually exists with unequal muscular balance, the same symptoms also frequently persist when that fault can not be detected by any methods of measurement now at our command, or when, having been present formerly, it has been corrected. On the other hand, eyes which have always been considered perfect, which never gave their owners a suspicion of asthenopia, have occasionally been found, on examination, to be in a state of exceedingly unequal muscular balance. In these cases, even though exceptional, of course, I am careful not to include those in which any existing error of refraction had not been previously fully corrected under a mydriatic, no matter how slight that variation from the normal had seemed to be. Moreover, in this connection, I do not ignore at all that very important distinction which I think should always be made between the sthenic and asthenic varieties of muscular asthenopia.

In other words, we have for muscular asthenopia just what we found before for accommodative asthenopia, namely, that some considerable variations from the normal type, which theoretically should be corrected, do not demand that, the owners of these eyes being perfectly comfortable without glasses. And on the contrary, in many individuals when the variations from that type are very slight, indeed, practically not measurable, the asthenopia continues in spite of every effort, the patients wandering from one office to another in a vain search for relief.

Now, the question naturally arises, why are we obliged to make such an exact adaptation of glasses, or to correct the muscular condition so carefully, with one class of individuals, and not with the other? Under these circumstances we fall back upon our third factor, so conveniently indefinite just then, by saying that the difference is in the "accommodative power" of the individuals, or in the "strength of the muscles" or "*vis a tergo*," as we variously term it. Evidently, though, this is simply using a phrase to cover our ignorance.

In this dilemma, unfortunately too common, we must simply ask ourselves honestly what other condition exists, or what conditions combine, in that individual, to produce the asthenopia? This is a branch of pathology which, as I said at the outset, is too much neglected, and in regard to which I venture to speak only with caution, but it seems safe to say that what we understand in general as anemia, as imperfect assimilation and as nerve exhaustion, are three important elements which, in varying degrees, separately or together, produce central asthenopia.

Several years ago I measured, with the spectroscopic bands, the amount of hemoglobin present in individuals suffering from certain forms of eye disease, a portion of the results being published then in the Transactions of the Medical Society of the State of New York. It was quite surprising to observe how frequently improvement in these cases corresponded with a return to the normal condition of the blood. I can speak with no such certainty concerning the relation between the condition of the blood and central asthenopia, but it is fairly reasonable to infer that the pallid specimens of humanity who come for glasses and who find relief from a half or possibly a quarter of a dioptrie, or from correspondingly weak prisms, would have strong eyes if they had also more nearly normal blood.

Next, as to imperfect nutrition. There is but little doubt that this also plays an important rôle in aggravating the asthenopia in certain individuals. In order to test this, about three years ago I placed in a corner of my office a pair of the small size Fairbanks scales, noting the weight of those patients to whom very weak glasses proved beneficial, and was not surprised to find that as appetite improved and weight was gained, the glasses could often be dispensed with.

Finally, as to the effect of the so-called "nervous" condition of the individual. It would require too long a digression to discuss that in any detail, nor is it necessary, as I think it will be admitted that this is one element, and an important one, in relation to asthenopia. In this connection the so-called psychic effect of glasses, of manipulations or of "operations," can not honestly be passed by without some notice. It is probable that the mere wearing of a pair of spectacles with simple plane glasses has an effect upon the minds of certain individuals, similar to that produced by a hypnotic suggestion. This observation was made by Dr. Holt at a recent meeting of the American Ophthalmological Society, and acting on this hint I provided myself with a number of pairs of plane glasses. These have been lent to those who imagined they should have spectacles, or have been exchanged for weak glasses before prescribed, in a sufficient number of instances to prove beyond question this psychic element. Moreover, I have yet to meet with the person who fails to appreciate the advantage of such a trial, or one who is not glad to be rid of any glasses, when the reason for the experiment has been frankly and fully explained. Most practitioners also have heard reports of improvement from their imaginative patients almost before treatment was begun, and certainly the results from some of the methods of making partial tenotomies, can be

accounted for more rationally in this way than in any other.

There are, of course, other general causes tending to produce central asthenopia which might be considered in this connection, but which must of necessity be omitted. It should be noted, however, that while the error of refraction which produces accommodative asthenopia remains nearly the same through life, and while, also, the unequal balance belonging to muscular asthenopia varies comparatively little, on the other hand, those conditions of the general health which accompany central asthenopia do change readily. The application of this fact is practical and familiar. Convex glasses or prisms which once gave the patient relief can be changed for those which are weaker, or are voluntarily laid aside altogether when the health of the patient has improved. In certain cases after we have gone through the usual exact routine with ophthalmoscope, ophthalmometer and various muscular tests, it is true we do succeed in detecting some slight anomalies which have existed perhaps for years, and which are aggravated only temporarily by some such fault in the general condition as has been indicated above, and which the family physician himself has overlooked. Under such circumstances if we then also neglect the general health of the patient and set ourselves at work to correct only the error of refraction or the muscular balance, we may be sure of obtaining little or no improvement at first. But as the patients are patient, and consent to rest, or to exchange a sedentary life for fresh air, or a life of hard work for one with more relaxation, in such cases relief does come, but comes very gradually, and this improvement must be accredited more to nature's tonics and time than to any skill in prescribing glasses or to "exercises," or to any of those measures which in other individuals are undoubtedly of benefit.

I know that this will be considered by many as heresy, but it is none the less the truth. It behooves us to recognize it frankly and to be on our guard accordingly.

We have reason to congratulate ourselves upon the advances made during the last few years, especially in America, in the methods of determining and of treating accommodation and muscular asthenopia. But let us beware of rapid progress in these two lines, at the neglect of a third often equally important.

To avoid that, for our own credit, and for the greater comfort of our patients, I venture to recall these facts, already familiar, concerning the relation of the general health to asthenopia.

CHAIRMAN'S ADDRESS.

Read in the Section on Laryngology and Otology, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

BY G. V. WOOLEN, M.D.

INDIANAPOLIS, IND.

Gentlemen of the Section:—It is especially pleasing to me to meet so many of you again, and in this fair city of the South already noted for its activity in promoting the general welfare of mankind.

I again wish to express to you my sincere thanks for the high honor conferred in selecting me to preside over this part of our work so dear to us all. Whatever may be our ideas relative to specialties and the organization of special societies, it must be conceded that the unity of the profession must be preserved, and that much of our best work should be performed in connection with the meetings of this ASSOCIATION. It is, therefore, fitting that we meet annually with the profession for special as well as general work, and the consideration of matters pertaining to the general welfare of the fraternity.

It will be a sad day for specialists when this is neglected. We can not afford to ignore these claims and I am persuaded that it is the purpose of you who have helped to further the interests of this section from its beginning to have no thought of forgetting this AMERICAN MEDICAL ASSOCIATION, now old and honored in its usefulness.

In view of the length of our program, and the desire of your Chairman that a full discussion of its merits may be secured, without which our meeting will be robbed of much of its interest and profit, it is not his intention to furnish an extended address. In this respect, and in the preparation of the program it is desired to depart from former customs somewhat, hoping thereby to increase the interest of our meeting.

By collecting papers on allied subjects for individual sessions and following them with a speaker specially chosen to open the discussion it is hoped the interest will be direct, and much useful information secured, and thus justify the departure. Indeed it has been a question with me if this department might not be extended by the selection of a single individual to furnish a paper for each session of our future meetings and of one or more to open the discussion and so confine attention, thereby securing more exhaustive work than can be had by our present methods.

Our specialty is young, but its field is broad, vastly more so than the uninitiated can know, and our very best endeavors should be given to bring it up to the high plain of its importance, and not the least of these efforts should be put forth annually in this section here in close contact with our fellows of the other departments.

ORIGINAL ARTICLES.

SUBCONJUNCTIVAL INJECTIONS.

Read in the Section on Ophthalmology at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5-8, 1896.

BY EDWARD J. BERNSTEIN, M.D.

BALTIMORE, MD.

Like all other remedial agents, subconjunctival injections must run the gauntlet of ill-considered judgments, both favorable and adverse, until its place shall have been firmly assigned.

Few men, like Abadie, Darier, Deutschmann, Gepner, Schmidt-Rimpler, Pflueger and Zossenheim have yet had sufficient personal experience to entitle them to give conclusive verdicts. In the main, these men assert, we have in this method a means at our hand, swift, sure and intense, which under proper precautions and indications should stand us in good stead, whether employed alone or in conjunction with general treatment.

That it is a panacea or infallible, not even an enthusiast will contend. Much adverse criticism comes from those who declare that we have no precise indication for its employment. Certainly we must, *in part*, admit this contention, but should one expect a hard and fast demarcation in a method so novel?

Even Darier, who has been working in this line since 1888, admits that he must still often work in the dark. But are we uniformly successful with opium, quinin, or the bromids? Shall we give up the use of the Eustachian catheter because of discouragement and occasional failure?

Though Rothmund, in 1866, and Segondi, in 1871, were the pioneers in the use of subconjunctival injections, it is to the persistence and zeal of M. A. Darier we owe the present status of the question.

Though rather unfavorably impressed with the method when I observed it in the fall of 1891 under Darier, that opinion has been greatly modified during the past sixteen months. My task shall be to supplement the work of Valude (*Annales D'Occulistique*, August, 1893) and to record my own experience.

Upon technique I shall only touch, referring for more complete data to the original articles and the many translations, but the following points are worthy of consideration:

1. Observance of every practical aseptic precaution —sterile ground, solution and instruments.

2. Thorough anesthesia of conjunctiva with 4 per cent. (sterile) cocain solution.

3. Use of cyanid of mercury instead of sublimate. Cyanid hydrargyri is compatible with cocain muriate. Adding 1 per cent. of cocain increases anesthetic effect. Cyanid is less irritating than sublimate, and is taken up as such by the tissues instead of being converted into the slowly soluble albuminate,

4. The injection is to be made *subconjunctivally*, and as far as possible at a tangent with the globe. and *not* under Tenon's capsule.

We can avoid the larger vessels by simply rubbing the lid over the eye once or twice, when they become visible, and one can readily choose a clear spot. We are not so fortunate with the fine nerve twigs, and should we puncture one of these pain will be quite severe for twenty-four hours.

Muttermilch (*Annales D'Occulistique*, September, 1894) asks: "Why resort to injections when we know that fluids reach the interior of the eye by simple instillation into the sac?" Even if sublimate so given were absorbed, which he questions, basing conclusions on Tichomoroff, the dose would be so infinitesimal that its effect would be *nil*. "Say you inject one-twentieth mg., the beginning dose, two-thirds of the fluid is lost (?) in the conjunctival sac, leaving but one-third, or one-sixtieth mg. (0.000017), to enter the eye. Now reckon the volume of the eye at 7 c.m., you then obtain a dilution of 1 to 400,000 which can hardly be called an antiseptic solution." Furthermore, he believes whatever good results is from suggestion.

To these we may reply that the action of drugs injected is intensified, and it is a more exact method of dosage. Pflueger converted the crystallin lens into an emerald mass by so injecting solution of fluorescin. Cocain thus used produces a rapid and thorough anesthesia of the iris, which simple instillation does very unsatisfactorily, if at all. But it is objected that this does not hold true for sublimate, which is converted into the slowly soluble albuminate in the body. Does this latter not apply equally as well to its hypodermic use, and who can gainsay its superiority in accuracy of dosage, rapidity and intensity of action over the administration per ora? Yet here we use the cyanid, which is not, or but feebly so, transformed. Admit even that all the mercury is so changed, it will none the less be absorbed. Bocchi demonstrated microscopically the presence of mercury in the tissues after injections under the conjunctiva.

The assertion that but one-third of the fluid injected enters the eye is a flight of the imagination and not founded on fact. Let us even admit this to be true, yet are his calculations and conclusions erroneous.

Say we inject hypodermically 0.01, the usual dose, of $HgCl_2$ for a person of 60 kgm. Remember much of the hydrargyrum is carried off by the excretory organs; the liver takes up and retains a larger proportion; then come the other glands, especially the salivary glands; next, the skin, and finally the other organs and tissues. Now, how much of this 0.01 goes to the eye? And have we not all seen specific lesions actually melt away under its influence? Does it not look on the face of it that a larger proportion of hydrargyrum enters the eye by this means than by systemic medication? And is it not also likely that hydrargyrum acts in a much smaller dose than we generally credit? You can not estimate the quantity, as you see, by saying, "If the eye weighs 6 gm. and the body 60 kgm. then one-ten-thousandth goes to the eye."

I propose during the summer to make the actual experiment, using some such method as suggested by Dr. Rudolph Winternitz, and promise to report later.

Are we at all sure that drugs injected subconjunctivally enter the eye? Of this there can be no doubt. "Let us inject a solution of K_2FeCy_3 subconjunctivally, and after a short time enucleate the eye and fix the eye in an alcoholic solution of ferric chlorid (Fe_2Cl_6). On making sections we can show that the first solution entered by way of the lymph channels, for these show colorless on a blue background. The connective tissue retains the K_2FeCy_3 with great tenacity" (Schwalbe, *Anat. Des Auges*). Ovis and Pflueger have demonstrated China ink—in the lymph channels —which had been previously injected under the conjunctiva.

As several writers contend that the main action of subconjunctival injection is limited to the anterior portion of the eye, and therefore preferred to inject, if at all, under the capsule of Tenon. Carl Mellinger and Domenico Bossalino determined to find out just how far fluids so injected would enter the eye and its neighborhood; they made a series of injections with sterilized mixtures of China ink. These were well borne and produced no inflammatory reaction. The staining particles were found in the lymph channels, the leucocytes could not be demonstrated as charged with the material to any considerable extent. They showed that the particles did follow the large lymph channels of the whole globe and optic nerve, and that not only was the eye and nerve surrounded by such, but the supra-choroidal spaces (by smaller communicating channels) and the intervaginal spaces (Zwischenscheidenraum) as well.

Sublimate thus injected entered the eye as albuminate. Neither Bach nor Hess could discover any sublimate in the interior of the eyes they experimented on, though Bocchi, Brugnitelli, Gallemaerts and Jolly always recovered small quantities by electrolysis.

Pflueger employs solution trichlorid of iodin (1 to 1,000). His results in general are not so good as those obtained by the use of hydrargyrum. Still in retinal detachment, macular retino-choroiditis, he reports good results where others meet failure with hydrargyrum.

Is it not likely an indication to employ iodin trichlorid in some of these cases and hydrargyrum in others? Or are they not at least worthy of trial? Marti following in the line of Mellinger found equally good results from the use of weaker solutions of hydrargyrum. He declares that subconjunctival injections act not through any germicidal influence, but by action on the lymphatic circulation (stimulating its rapidity) thereby causing resorption and elimination of pathologic products, thus hastening healing. That his results with salt were equally as efficacious as with hydrargyrum, with the advantage of greatly diminishing pain, and furthermore avoiding the adhesion of the conjunctiva to sclera at site of puncture

To this Darier replies that adhesions only occur when puncture is made too near the limbus or too deep under the conjunctiva. Pain is a variable quantity even in the same individual. Sometimes in one patient an injection will be perfectly painless, while the next time it will be excessive. He had one patient who went through a whole course of hydrargyrum injection without pain, and who complained bitterly when he once injected distilled water. Darier had tried salt solution, iodin trichlorid, soda salicylate and various other drugs, but is convinced that hydrargyrum is most reliable in his hands.

As soon as Mellinger, Pflueger and the rest prove their assertion by an array of sufficiently conclusive observations, Darier says he will be among the first to admit their utility, and will follow their lead. At any rate, these men obtain good results from this procedure, and this is a gain in the right direction. We must not forget that it is not intended to do away with general treatment; all that is claimed for it, is that it intensifies the action of hydrargyrum and hastens cure.

Mellinger declares the action of subconjunctival injections to be alterative; possibly hastening the flow in the lymph channels, thus carrying infectious particles away more quickly. Gepner is satisfied that it is the hydrargyrum which is beneficial, because in two instances he used salt solution with no result; improvement began immediately after substitution of hydrargyrum.

Gutman condemns the method. He says it is not only painful and gives no good results, but often works positive injury. He characterizes Darier's work as insufficient and inaccurate. No one who has observed Darier will question his accuracy or sincerity. As to insufficiency, this is in a measure true, as Darier admits, but consider that under his hands, the work has gone on steadily since 1888, that Deutschmann has made some 2,000 injections, that between Gepner, Peunow, Picunoff, Bergmeister, Schmidt-Rimpler and Grossman some three hundred cases and more are reported, and we must admit that it is not wholly an untried experiment.

Yet, Gutman, from the standpoint of experience gained in twelve cases, would sweep away this whole structure. Let us examine his own report, and we see that his results are better than his conclusion, and that they bear out the utility of this method. He obtained good results with iodin trichlorid; had he continued this remedy doubtless his results would have been better; at any rate we will await the results of his experiments with NaCl. solution and trust they will be more extensive, and that he will come to modify his former opinions.

Gallenga found that corneal ulcerations artificially produced in rabbits' eyes were quickly healed by subconjunctival injection. This, Muttermilch declares is without significance, as such heal quickly when nothing is done, and were it really due to hydrargyrum, he might have obtained equally good results from simple instillation.

According to Muttermilch, "Should one use this treatment for sympathetic ophthalmia, one would make the double mistake of using an innocuous means against a microörganism which does not exist (proceeding from the standpoint of Deutschmann), for he says the microbian theory is not alone not proven, but every pathologic and physiologic experiment, as well clinical experience, is against such a theory. In reference to the two cases myopic choroido-retinitis reported by Gepner as benefited, he is of the opinion that the rest which the patients obtained in the hospital would have done the same. As to prevention of post-operative purulent infection, he has the greatest doubts, for we know even without this new treatment few wounds now suppurate, and that it is rare for iritis to be transformed into irido-choroiditis." In these latter he is in a measure correct, but when purulent infection does start often sad havoc is caused before its progress is checked, and it is right to be on the safe side. We know Jaeger and Arlt had a percentage reaching 95 and 97 in their cataract extractions in pre-aseptic days. Does this release us to-day from taking the most stringent precautions? As a matter of fact, his whole criticism is based on an experience gained in three cases: One ulcus serpens cum hypopyon, one kerato-iritis traumatica and one of ophthalmia sympathetica. In his ulcus serpens case he ruptured the cornea, most likely because he did not observe the rule not to inject too near the limbus, and in the other two he desisted on account of pain. He further attributes many of the reported cures to suggestion. The pain induced and a glance at the list of cases reported cured by this treatment is sufficient to negative any such theory. A criticism based on so wide (*sic*) an experience can hardly be upheld in the face of so much positive clinical proof to the contrary. My own personal experience was gained from seven cases.

Case 1.—Hypopyon keratitis; J. S., 20; recent injury, his anterior chamber one-fifth full of pus; marked photophobia; much ciliary pain; lachrymal ducts normal. Typical case. Patient has been under atropin, pressure bandage and iodoform treatment for sixteen days: is worse and in more pain. Under these circumstances injected one portion of a Pravaz syringe full cyanid of mercury (1-3000); continued the pressure bandage. Next day hypopyon had decreased and he had the first night's sleep since his present illness began. Four days later repeated the injection and four days thereafter the third, when ulcer was covered with epithelium and case went on to recovery under simple bandage.

Case 2.—April 2, 1894, M. L., age 26. Keratitis ulcerativa cum hypopyon. Typical case, in a very much reduced individual. Resulted from having baby stick finger-nail into cornea. Case progressing very unfavorably for eighteen days. Hypopyon beginning; whole cornea cloudy; injection of cyanid on April 20, followed by three more at intervals of five days. Recovery began from the first injection. Cloudiness clearing up from day to day. Cure with small peripheral macula of cornea.

Case 3.—J. W. Had had several attacks of iritis in each eye; no luetic history; borth irides bound down by many adhesions, the right one almost completely. Could allay pain and inflammation, but could not break up synechia, so performed iridectomy on right eye. Was told to return immediately if any symptoms of trouble in left eye. In six months some exposure brought on another attack of iritis. In the face of his old synechia I feared a total occlusion and offered the alternative of iridectomy or subconjunctival injections. The latter was

accepted, and as result of four injections the old adhesions yielded to the atropia and his pupil is now round.

Case 4.—Keratitis punctata. W. T., aged 30. Typical case of acquired luetic keratitis punctata. Had been under care some three weeks and was progressing very slowly. Suggested subconjunctival injections, which were accepted. After five injections at intervals of five or six days, patient could return to work. In this case I can only claim that the injections hastened the progress, as it was beginning to show signs of recovery when I began.

Cases 5 and 6 were cases of optic nerve trouble. One, H. J., positive luetic history. Came when vision of right eye was reduced to light perceptions, of left eye to counting fingers at 6 m. Field of vision narrowed and contracted; color sense also very defective for blues and greens. Typical atrophic discs in both eyes, showing lamina cribrosa. After routine treatment had been instituted for more than six weeks, subconjunctival injections to the number of twelve were administered, but, except for a light transitory improvement, to no avail.

Case 6.—Typical tobacco amblyopia, in which cure was hastened by seven injections and the length of treatment reduced to six weeks.

Case 7.—Is a case of old choroiditis disseminata in left eye, with total loss of vision, and detachment of retina in right. This case is being treated with iodin trichlorid and result will only be known in the future.

Let us now turn to special indications for the employment of subconjunctival medications and see when and by whom they are endorsed.

In keratitis parenchymatosa general treatment is the first and most constant indication. Above all hypodermic injection of sublimate, not neglecting atropin, warm compresses, etc. Special indications calling for subconjunctival injections are keratitis benigna, keratitis circumscripta, keratitis atonica or at least with a very moderate reaction; here the results are absolutely marvelous; with each injection one often sees the gradual recession of the area of infiltration. When limited to the center of the cornea massage with lanolin ointment of mercury produces active resorption of old maculæ. (This I have tried in a number of cases with most excellent results.) At the period of decline, when the bulbar conjunctiva has regained its normal state, these injections will often clear up in a few days what would otherwise have taken months. In the acute, violent pannus of keratitis parenchymatosa all local irritating treatment is absolutely contraindicated, and this is also true wherever there is stasis of the ocular circulation.

Deutschmann and Zossenheim (Beitraege zur Augenh. XV, 1894) agree "that we can often shorten the treatment to four weeks, while it usually takes twice or thrice as long."

Gepner would expect good results, though must acknowledge one of nine cases was cured, the other eight merely benefited.

Peunow treated twenty-three cases with good results, best however in those of specific origin.

Picounoff treated between twenty and thirty; commends treatment under above conditions.

Veasey treated two cases. Cured one, stopped treatment of the other on account of pain.

Abadie endorses all Darier says in this regard.

Chibret, Mellinger and Gosetti have used the method and approved of it.

Motais was "impressed by the rapidity of recovery."

Gerasimos Materangos treated a number of cases of traumatic and infectious keratitis in conjunction with general treatment, best results.

Schmidt-Rimpler treated nine cases, and does not recommend.

Haab, ten cases, no result.

Keratitis ulcerativa cum hypopyon.—Its utility is here questioned because it has not been applied with sufficient discernment.

In mild cases, it will produce cures quicker than by the classic treatment. In those of average intensity the galvano-cautery to the edges of the ulcer is the first indication together with antiseptic dressing. In grave cases where the globe or cornea is threatened Saemisch incision or galvano-cautery, or both are necessary. Cure is hastened when followed by subconjunctival injections (five to ten divisions of the syringe) made as far as possible from the cornea and above all not under Tenon's capsule. In great hyperemia the artificial leech applied to temple helps.

Failure to observe these points produced rupture of cornea in Muttermilch's case. Any such formula as "ulcer of cornea, subconjunctival injections" will result in numerous failures, while observance of the above indications will hasten cure.

Gepner "employs it most frequently in ulcerative forms of keratitis and with best results."

Gagarin—"Good and rapid results up to the clearing of hypopyon; after this not much further improvement is noted."

Peunow—"Considerable help, but does not neglect routine treatment."

Veasey—"As good as other methods."

Abadie—"Highly extols."

Mellinger had brilliant results.

Bocchi—"First injection brought process to a halt."

Gossetti—"Very efficacious from the first injection."

Grossman and Rogman and myself had excellent results.

Chibret—"Results doubtful."

Masselon—"Altogether negative."

Schmidt-Rimpler—In thirteen cases of ulcerative keratitis hypopyon. Good results in three. Questionable in eight. Two of simple ulcerative keratitis gave negative results. He thinks very little of it in this latter and hypopyon keratitis.

Deutschmann prefers galvano-cautery, which in his hands works surer and quicker.

In keratitis lymphatica, Darier, Doufer and Segondi coincide that the yellow ointment fills every indication except in grave cases, when the new method gives good results.

Coppez and Gallemaerts give preference in vascular keratitis to subconjunctival injection of potassium iodid solution.

In iritis the indications and the contraindications are very subtle. While in many the results are beneficial, in others it is not only useless, but positively harmful. Whenever iritis is lighted up with violence, and is accompanied by brisk reaction (deep pericorneal hyperemia, chemosis, photophobia, etc.) an energetic antiphlogistic treatment is the first indication in connection with general treatment of the proper character. Only after the violence has abated is subconjunctival injection indicated. Failure to observe this might provoke an aggravation of symptoms in an eye already inflamed, and is no doubt, the cause of much of the reproach heaped upon this method and the consequent ill success, whereas those who have instituted treatment in relatively benign cases, either at their beginning, their relapse or their decline have according to Darier obtained conclusive evidence of its efficacy, but in benign cases, the older methods are less annoying and often equally as satisfactory.

I coincide with Gepner, who finds its main indica-

tion in assisting to break up old iritic synechiæ, or in the very beginning of the malady, for as Zossenheim says it cures so quickly that complications have no chance to manifest themselves. It may be used with advantage according to both these men in occlusion of the pupil and where we find hypopyon in the anterior chamber. Peunow treated twenty-eight cases with good results. Picounoff also had the same uniformly good results in a large number of cases. Veasey seven cases, prompt and effectual results in all, as also in cases of chorio-retinitis.

Schmidt-Rimpler nine cases. Cured two cases of plastic iritis, other results divided as follows: One cured after thirteen injections; four relatively good results; two slightly benefited; he recommends further use of this method in iritis and irido-choroiditis.

Grossman, Alt and Mellinger also commend its use.

Bergmeister two cases. Both cured after the fourth injection.

Bocchi and Masselon do not recommend it in iritis.

Irido-choroiditis.—What applies to iritis applies with greater force in this. In a disease so difficult to treat and holding out such poor promise, we often proceed as though groping in the dark, for at times we see one of those eyes apparently quiescent, react with an extreme violence to the slightest local irritation. These are the cases in which we are often led to prematurely perform iridectomy.

With injections one is often surprised to observe not only amelioration, but at times cure, where one would not expect such. In certain grave cases, we are obliged to keep the patient under continuous treatment, often alternating between general and local, so as to give the patient a relative rest.

Grossman treated two cases with good results. Alt also reported success. Pflueger treated his cases with iodin trichlorid and reports: one case of serous iritis, result beneficial; in another no effect; in a third stopped on account of pain and increasing intra-ocular tension.

Matarangas—Good results in conjunction with general treatment.

Deutschmann—Iritis specifica, as well as non-specifica, this method was at its best. He uses no atropin. Posterior synechia disappeared, and in four to eight days the pupil was quite round, dilating and contracting freely and the eye quiet. Saw no recidives; completed the treatment with mercury internally.

Choroiditis and retinitis.—When structural lesions have occurred, it is impossible to speak of cure in the sense of complete restoration. Much can be done for those who seek our aid early, to avoid such destruction by active and prompt methods, among the foremost of which stand subconjunctival injections.

Often an appreciable effect is noted from the first or second injection, and again not until a great number have been made. In macular choroiditis before central vision has been irremediably destroyed, we can restore if not normal vision, at least bring a considerable amelioration, and in so short a time there can be no doubt of the relation of cause and effect. Darier claims favorable result in at least 25 per cent. of his cases, and in 10 per cent. a result which "I can call surprising."

Abadie claims its efficacy in all degrees of chronic chorio-retinitis. He condemns the use of potassium iodid alone or with mercury as manifestly injurious. Injections of pilocarpin had no effect except when due to myopia; certainly not in infectious forms. In obstinate cases he uses subcutaneous injections in addition.

Venneman—Results excellent.

Grandclermont—Best effect in serious or desperate affections of middle (vascular) coats of the eye. Above all in irido-choroiditis.

Gepner—Improvement in many cases of chronic choroiditis. Decided in two cases of myopic choroiditis.

Peunow—Thirty-one cases choroiditis cured by these means.

Deutschmann—Especially good results in specific chorio-retinitis. In non-specific choroiditis best results from potassium iodid kept up for months.

Schmidt-Rimpler—One good result in choroiditis; two doubtful in chorio-retinitis; thinks this is one of the conditions in which it is worthy of further trial.

Bergmeister—Not specially praiseworthy but recommends further trial.

Alt—Good results in choroiditis exudativa and centralis.

Bocchi—No specially good results; in this he is sustained by Masselon, Lacquer, Dianoux.

Bull—Positive effect in allaying severity of symptoms, and shortening the duration of acute irido-choroiditis non-specifica.

Seggel reports a cure in irido-cyclitis.

Optic Nerve.—Darier says in all infectious inflammations of the nerve, results are encouraging often after classic treatment proves unavailing. In retro-bulbar neuritis often excellent results, though in hereditary form we secure neither better nor worse results than by other means. Does not include tobacco and alcoholic amblyopia which tend to recovery *sublata causa.* Where actual atrophy of nerve fibers has set in it is useless to expect results. In retro-bulbar neuritis of rheumatic (?) origin, better results than by salicylates or mercury.

In compression neurites, obtained very rapid cure. In specific neuritis, and in one secondary to chorio-retinitis greater amelioration than by old method.

We may expect good results in recent infectious inflammations.

"No results to be expected in gray atrophy of tabes, in white atrophy following old inflammatory processes occasionally a slow increase of vision is manifest, but generally only transient."

Grossman, De Wecker, Lindsay Johnson and Matarangas corroborate these opinions. Deutschmann's results negative in every case. In commenting on this in his journal, Hirschberg reports a good result in chronic optic neuritis, also in one of recent origin.

In sympathetic ophthalmia, Darier found subconjunctival injections available in a number of cases characterized by uveitis.

Abadie says: If the injury is not so serious as to preclude all possibility of recovery, the surface of the wound should be touched with the galvano-cautery, and hydrargyrum bichlorid injected under the conjunctiva. It is often thus possible to arrest sympathetic ophthalmia already declared in the other eye, but if the traumatism is such that there is no hope of saving, or if disorder continues in spite of all these means, we should enucleate the offending eye. The other one will be benefited by the injections. Personally, I should hesitate to temporize with an injured eye which is likely to cause sympathetic ophthalmia. We all know how many such eyes may remain quiescent for as long as fifteen or twenty years, to suddenly light up inflammation in the other eye.

Gosetti reports remarkable success in a severe and recurrent case.

Deutschmann also reports good results in a number of cases.

Picounoff especially recommends it, here, where we can usually avoid enucleation.

In scleritis De Schweinitz, Bull, Veasey and others report some good results among a number of negative ones.

Many, Abadie and Coppez among the number, declare that they have thus avoided panophthalmitis in many cases of cataract and iridectomy operations, and indeed have checked the disease when it had actually begun. Rogman corroborates this latter statement.

Gepner says he resorts to subconjunctival injections in all cases of serious injury where there is still hope of saving the globe, for two reasons: 1, because we can not foretell where we have wound infection before we see our patient; 2, because in every deep injury we can not foretell whether sympathetic ophthalmia will result. Germicidal agents in the lymph channels lessen that danger. Seggel reports cure of suppuration of vitreous after cataract extraction, one case of threatened destruction of the whole cornea and vitreous from infected wound with prolapsed iris, and also cure of a case of orbital phlegmon.

Deutschmann says: "As a preventive of post-operative infection it is of a special utility. Cases that usually resulted in loss of the eye were by this means saved useful vision." In this he is upheld by Gepner and others. He further says: "We can not compare results of experiments made on animals to clinical results in man. In animals large deposits are at once introduced into the eye, which condition bears no relation to that in post-operative infection."

DISCUSSION.

DR. G. E. DE SCHWEINITZ, Philadelphia—I have used the subconjunctival injections since 1892 and also advised my chief of clinic, Dr. C. A. Veasey, whose results have been quoted, to employ them. My experience is that exactly the same results are obtained whether the bichlorid of mercury or the physiologic salt solution is used, each being equally efficient in suitable cases. I have secured good results in iritis, no matter what its type, provided there is no high inflammatory action. Good results were also obtained in episcleritis and some types of keratitis. I have failed, however, to secure good results in corneal ulcers and in diseases of the deeper coats, *e.g.*, choroiditis. I would call attention to the promptness with which these injections, either salt or mercuric, relieve pain and advance resolution in certain cases of inflammatory disease of the iris and episcleritis, but would also suggest that a relapse is more likely to occur than when ordinary constitutional measures are thoroughly employed. I believe that subconjunctival injections deserve a permanent place in ophthalmic therapeutics, but not to the exclusion of constitutional measures.

Case 1.—A. M., a male Italian, about 40 years of age, presented himself at the eye dispensary of the Jefferson hospital for treatment of sore eyes. Upon examination he was found to have a double syphilitic iritis, plastic in character, the initial lesion having been present four months. There were present the usual symptoms of marked pericorneal injection, intense pain, photophobia, lachrymation and a contracted pupil with posterior synechiæ, these symptoms having been present, according to the patient's statement, for four days. In the right eye the iris is attached to the lens capsule by its entire pupillary border, except a small portion in the upper and outer quadrant, this being the only part that would dilate with atropin. The media were hazy, and there was an indistinct view of the fundus which showed an oval disc, with rather large veins, filled with dark blood, but there were no gross lesions. In the left eye there was also almost complete annular attachment of the iris, there being a small free portion on the temporal side, while the ocular fundus presented practically the same appearance as the other eye. His vision was 10-200 in each eye. Atropin was instilled for twenty-four hours without any improvement in the pain, and with very limited dilatation in the pupils. He was then given a subconjunctival injection of mercuric chlorid (5 minims of a 1 to 2,000 solution) in one eye, and a subconjunctival injection of sodium chlorid (2 to 10 of a 1 per cent. solution) in the other eye, and returned on the following day with the pupils dilated ad maximum, the pain entirely gone, and said that he had spent the night free from pain, the first for about a week. There was absolutely no difference to be detected between the effect on the two eyes. This treatment was continued, he being given an injection of mercuric chlorid in one eye and sodium chlorid in the other, at intervals of two or three days, until he had received five injections of each, no other medication being employed except the solution of atropin. At the expiration of this time the pupils were completely dilated, there had been no pain since the first injection, and it was impossible to say that there had been the slightest difference in the results of the two solutions. His vision was 20-30 in each eye, there being some pigment on the capsule of the lens where the iris had been attached.

Case 2.—C. B., a male, aged 35 years, came to the eye dispensary of the Jefferson Medical College Hospital complaining of sore eyes that had been present for two days. Upon examination he was found to have a syphilitic plastic iritis in the right eye, the initial lesion having been present about six months. There was a small synechia up and out, the vision was 20-100 and there were the usual symptoms of the disease present. In the other eye there was a slight conjunctivitis, the vision being 20-20. He was suffering from severe pain and was given an injection beneath the conjunctiva of the solution of sodium chlorid; atropin was instilled into the eye, and he returned on the following day entirely free from pain, the pupil dilated, the peri-corneal injection much less and the photophobia less severe. He was given similar injections on alternate days until he had had four, no other treatment being employed beyond the instillation of the atropin solution, when the inflammatory condition of the eye had entirely disappeared. No difference could be observed between the promptness with which the disease yielded to the injections of sodium chlorid and the promptness with which other cases had yielded to the injections of mercuric chlorid. The vision in this case returned to the normal.

Case 3.—H. F., male, aged 31 years, consulted me in February of this year for a rheumatic iritis. There was no specific history, and he had had several attacks of the same character before, each time being treated by a competent ophthalmic surgeon who had pronounced it rheumatic in character and relieving it each time by the use of the salicylates, in addition to other treatment. The pain was intense, and desiring to see what effect an injection of salt solution would have, one was made at once, and other treatment, excepting the instillation of atropin, withheld. On the next day he returned with a complete cessation of pain, except when exposed to bright light, the pupil entirely dilated and a marked reduction in the inflammatory condition. He was given five other injections, after which the iritis was practically well, when he was placed on the anti-rheumatic treatment. Other cases of iritis, syphilitic or rheumatic, treated by myself with injections beneath the conjunctiva of mercuric chlorid, have not shown any advantage over the injections of the solution of sodium chlorid. Indeed, it is my experience that the latter causes less pain, and relieves the pain of the iritis just as speedily, if not more so, than the injectione of the mercuric chlorid.

DR. G. C. SAVAGE, Nashville—I have used only the bichlorid, but found it too painful. When opportunity offers I shall use the cyanid of mercury. I wish to condemn the practice of not using atropin in iritis, although subconjunctival injections of cyanid of mercury may be capable of accomplishing much. Atropin should never be omitted in the treatment of iritis, whatever else may be done. I want to go on record as believing that it would be a grave error to neglect bringing the iris under the influence of atropin, whoever may recommend to the contrary.

DR. D. S. REYNOLDS, Louisville—I am not persuaded that any local method of treating iritis, except the persistent use of an efficient mydriatic, has ever accomplished any desirable result. The subconjunctival injection of a solution of chlorid of sodium in cases of synechia following iritis from all causes

is undoubtedly valuable, but I should certainly avoid the use of any subconjunctival injections during the active stages of any form of iritis.

Dr. A. W. Stirling, Atlanta—I watched the use of this method in a fair number of cases in London and Paris and have tried it myself, but gave it up because it was so painful. It will not take precedence over the older methods.

Dr. A. R. Baker, Cleveland—Having used the strong solutions of bichlorid of mercury and found the injections painful, I estimated the amount of mercury which would reach the eye from a subcutaneous injection as generally used, and determined that a much weaker solution would probably prove efficient, I tried a I to 10,000 solution with excellent results in a large number of cases, notably interstitial keratitis and central choroiditis. The injections were never painful and the results appeared as good as from the stronger solution. In private practice it has been found necessary to combine its use with the accepted methods of treatment, but with more rapid recovery than when its use is omitted.

Dr. Dunbar Roy, Atlanta—I use the method largely in my clinic, where the patients consist largely of the colored race, who have a great deal of corneal trouble. In ulcers of the cornea I have had good results, but no better than when I use hot fomentations and iodoform. In post-suppurative trouble and panophthalmitis and in cases of suppurative iritis I have used it with success. I have used 1 to 1,000 bichlorid with an ordinary hypodermic needle, sterilizing both the instrument and the field before the operation. In iritis I have not seen adhesions break up and have had no results in choroiditis, but my experience leads me to say that in ulcerative and suppurative forms of conjunctivitis or keratitis the results are as good as those obtained by other methods.

Dr. E. J. Bernstein—I have no experience as yet with relapses, but one must not forget that neither atropin nor general treatment are to be neglected in iritis. As to pain, my patients had none, or very little, as the result of subconjunctival injections. I am now treating a case of detachment of the retina by this means without much hope of cure, but because no other treatment has availed. I believe no one should follow Abadie in not using atropin in iritis. I should hesitate too implicitly to follow his lead. In phlyctenular keratitis I should not think of using this method, as I believe most men agree that the yellow ointment is all that is needed.

EXTRA-DURAL ABSCESS FROM MASTOID EMPYEMIA.

Read in the Section on Laryngology and Otology at the Forty-seventh Annual Meeting of the American Medical Association held at Atlanta, Ga., May 5-8, 1896.

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When the presence of a "mastoid abscess," declared by the occurrence of a fluctuating collection of pus on the surface of the skull behind the ear, only caused the surgeon to incise and evacuate the abscess, we heard little of extra-dural or cerebral abscess except as a curiosity of the postmortem room. Even when the farther step of opening the mastoid became more common, it was so often merely in the interest of better evacuation and drainage that exploration for the remoter extensions of the lesions was rare. It is only since we have more generally adopted the idea urged by all experienced operators, that every possible trace of the pathologic condition shall be extirpated at the operation in the effort to secure immediate cure, that the relative frequency of extra-dural abscess has been recognized. The earlier operators looked upon the middle cerebral fossa and the sigmoid sulcus as regions dangerous to approach, and perhaps held their hands as they followed some purulent track lest it should lead them into these dreaded cavities. The impetuous entered them oftener than they meant, and the careless oftener than they knew, while the careful and conscientious surgeon was gradually learning the innocuous and beneficent effect of hunting down the disease even into these and deeper regions. With the abandonment of the trephine and drill in favor of the gouge and spoon, much of this fear has died a natural death. There is less chance of unintentionally and blindly penetrating the inner table of the mastoid and wounding or infecting the important structures within. Mastoid anatomy is being better learned and the rule has grown more common to operate in each case as though the relations were the most disadvantageous possible, and to assume no safety that has not been demonstrated. And with this knowledge that the middle lobe of the brain may extend down as low as the upper margin of the meatus and the lateral sinus be separated by hardly a film of bone from the back wall of the canal or the mastoid surface at the usual point of attack, there has grown a proper confidence in the wisdom of opening the intracranial cavity in appropriate cases. It should always count as a bungling step when accidentally these cavities are opened, or an officious one when needless; but the futility of half measures grows more evident with experience. One who formerly looked askance at the radical procedures and views of Schwartze and others who chisel open the mastoid in scores of cases yearly, finds his tendency to follow this lead to be limited principally by his lack of a like material. And since the grippe epidemics few of large aural practice but have had growing opportunities to learn the need of such measures.

We can no longer look upon "mastoid trephining" (as we may still call the operation whether done with chisel, burr or spoon) as permissible only as a life-saving step; nor can we rest content to leave to long after-treatment the completion of the cure which might have been more safely as well as more quickly secured by more heroic thoroughness. It is to be hoped that American aural surgeons will continue truly conservative in their choice of cases, methods and efforts after thoroughness, eliminating all cases that might be cured by less radical procedures and sacrificing to brilliancy of immediate result no function that patience might have saved; but it is also to be hoped that they will give little basis to the charge sometimes made by the surgeon, that they are too timid in their work and shrink from doing their full duty when half measures are insufficient.

The past decade has seen the publication of hundreds of cases in which there has been extension of caries from the tympanic inflammation to the dural surface of the temporal bone, with pachy-menigitis and outpouring of pus between the bone and dura. In itself it constitutes no great menace to life, and the prognosis after drainage is generally excellent. So little may be the head symptoms caused by it that its presence is a total surprise to the operator; and one marvels that lesions so extensive may be wholly undeclared by the usual signs.

Surprisingly innocuous as the extra-dural abscess has generally proved if drained outward by nature or art, the story is wholly different in no small group of cases. Most of the thrombotic lesions of lateral, petrosal or cavernous sinus have been secondary to extra-dural abscess. Many cerebral and cerebellar

abscesses are due to the previous existence of pus outside of the dura. Raised here above the normal level, the dura may present no visible farther disturbance in the form of injection, etc.; yet the overlying brain is apt to show a discolored depression with pial injection and commencing softening. Again there is ulceration of the dura with rupture of the pus either into the arachnoid space or through the agglutinated tissue into the brain substance. In other cases the exact path of the process can not be traced; yet the extra-dural abscess must be held responsible for the serious or fatal occurrence.

It is no new matter to point out the dangers of acute or chronic aural suppuration in these directions, although the importance can never be overstated in any truthful setting forth of the matter. It is not so generally known how rapid the process may be. A good illustration was met last year when a boy came to me with mastoid abscess, supervening upon a light blow on his chronically suppurating right ear. Nausea and general malaise immediately followed and persisted in less degree on the fifth day, when I first saw him. No changes were visible in the eye-grounds to suggest intra-cranial involvement; but fever was marked and operation promptly needed. This could not be carried out until the second day following, when the very hard mastoid was very freely chiseled open, all carious bone in the antrum and adjacent cells curetted away and smooth, firm walls left toward the middle and posterior cerebral cavities. His fever fell, to rise again almost immediately; pleurisy and then pulmonary inflammation quickly declared themselves, and he died on the sixth day after operation. Autopsy showed a septic pleurisy and pulmonary abscesses; while in the cranium a cerebellar abscess as large as a plum ruptured on removing the brain, at the point where it was adherent to the sub-dural collection which extended backward from the tegmen down upon the posterior aspect of the petrous. Section of the bone showed no microscopic connection of the intra-cranial collections with the the tympanic spaces—the intervening bone being firm and intact, if not healthy. The nearly total destruction of the ossicles marked the otorrhea as of long standing; but all the other lesions had probably developed within the thirteen days after the aggravating blow. The parietal lobe, where it rested on the subdural collection was injected, depressed and softened and would doubtless in a few days have been the site of a cerebral abscess.

Numerous other instances have come to my knowledge, sometimes only on the postmortem table, rarely, I am glad to say, in my own patients. Of some thirty whose mastoids I have opened in the past year, nearly one-third have had caries which compelled me to uncover the dura, and in a number of them the granulations upon its surface, if not the gush of pus as it was exposed, revealed the fact that it had been separated from the bone by a layer of pus. In several cases what seemed at the time a complete operation left bone of too little vitality behind and a later operation had to be carried still farther under the dura; and in one there was death, probably from a cerebellar abscess which could not be found.

Doubtless other aural surgeons are meeting the same experience as myself in these directions and find their field extending inward deeper than they can cheerfully follow. The dangers and difficulties of brain surgery can try the stoutest heart and may well appall the beginner. But we should not forget that the general surgeon has only recently entered this field and that his bravery is sometimes foolhardiness. No one should better know the territory to be invaded than the aural surgeon, who must often guide the hands that he has called in to wield his instruments. And if he does not feel equal to meet the exigencies of such intra-cranial work when first he encounters it, he will not generally be doing his full duty if he does not utilize every opportunity to master the technique of head surgery on the cadaver and on the living, and be prepared to act for himself unless a distinctly better man is at his side.

PRIMARY INFLAMMATION AND ABSCESS OF THE MASTOID; REPORT OF CASE.

Read in the Section on Laryngology and Otology, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5–8, 1896.

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Cases of the above pathologic condition are by no means frequent, hence my apology for presenting the following:

Mary H., colored, age 10 months, was brought to my clinic at the Southern Medical College on account of a swelling behind the left ear, which the mother said had been forming for the last five or six days. To all outward appearances the child presented a fairly healthy and nourished condition. The mother was very positive in her assertions that there had been no discharge at any time from the auditory canal. She was a strong, healthy woman, and with the exception of enlarged post-cervical glands, no abnormal condition could be found. The child presented numerous glandular enlargements over various parts of the body besides a well-marked case of "snuffles." No history of tuberculosis or syphilis in the family could be ascertained from the mother, as all the other children were healthy and the father could not be seen.

Nothing is more uncertain, however, than the histories usually obtained from the negro race, so that I rarely place any confidence whatever in their statements.

The child was very fretful, especially when the region of the left ear was touched. Behind the auricle and over the mastoid a distinct fluctuating tumor could be diagnosed. The auditory canal was freely patulous with no moisture upon its wall or any signs of a previous discharge such as a smooth, hardened condition of the dermoid layer. The drum membrane was clear and of normal reflex, showing absolutely nothing pathologic. The temperature was practically normal, which still further strengthened the diagnosis of the abscess being syphilitic or tubercular in its origin.

The treatment consisted of a thorough evacuation of the abscess by incision, followed with a curetting of the mastoid cells which communicated with the abscess superficially and which was undergoing a disintegrating process, packing the wound with iodoform gauze, and securing the whole with a protective bandage. Internally the child was put upon syrup ferri iodidi 5 m. three times daily. Under this treatment the wound healed perfectly in ten days, there was no rise of temperature and the child's general health was much improved.

Six months after the patient was again brought to the clinic with an abscess behind the right ear similar in all respects to the one which had occurred behind the left. The history was about the same as previously and absolutely no inflammatory signs could be seen in the auditory canal or upon the drum, nor any signs of a previous discharge. The treatment was the same with excellent results. Since that time the mother reports that the child has much improved and there has been no further trouble with the ears.

Perhaps no single bone in the body, if it may be so called, has received the attention from surgeons and anatomists in the last few years as the temporal bone, and especially that portion of it known as the mastoid. And justly has it deserved this attention on account of the frequency with which it is involved in all severe inflammations of the tympanic cavity, and its importance often in the future life of the patient. In inflammations of the tympanic cavity it is impossible to conceive of an absolute freedom on the part of the interior of the mastoid from the same inflammatory congestion on account of the close proximity and contiguity of the mucous lining. This participation of the mastoid in the inflammatory process of the tympanum may not always be recognized by objective signs, nay, even by the subjective symptoms, yet pathologic anatomy and operative procedures teach us that the interior of the mastoid did become affected simultaneously with this inflammation in the middle ear as is recognized by the obliteration of the pneumatic cells and hyperplastic condition of the antral mucous membrane. For instance, Zuckerkandl, in the examination of 250 temporal bones, found only 36.8 per cent. of the mastoids pneumatic throughout, in 43.2 per cent. he found the same partly diploetic and partly pneumatic, while in 20 per cent. of the total the mastoid presented fatty degeneration, diploetic or sclerosed condition of the bone substance itself.

So it happens that one can readily trace the origin of a mastoiditis or a mastoid abscess when there has been previously or at the same time a severe purulent otitis media, but when a mastoid abscess exists without any discoverable involvement of the tympanic cavity, the etiology is more obscure. Cases of primary mastoiditis or abscess of the mastoid are among the rarities, yet such cases have been reported and for this reason are never without interest.

When I say *primary* I mean an inflammation or an abscess originating in and confined exclusively to the mastoid process, when no inflammatory signs are discernible in the tympanic cavity either at the present time or any time previous which could give the existing process a causal dependence.

Politzer in his last most excellent text-book speaks of primary inflammation of the mastoid as among the rarest affections in aural disease. He divides the inflammation in this region as being limited either to the periosteum or to the pneumatic cells of the mastoid bone proper.

Primary periostitis is extremely rare and is observed more frequently among adults than among children. Such cases have been reported by Voltolini, Blake, Knapp, Jacobi, Turnbull, Swan Burnett, Hotz and Kirchner.

Dench, in his late text-book, speaks only of *primary mastoiditis* without any subdivision, as does also Blake in Burnett's System of Diseases of the Ear, while Politzer makes the more minute subdivision as stated above.

According to this latter author the most frequent causes of periostitis are cold and trauma, while occasionally no cause whatever can be discovered. The usual course and termination of this process is either for inflammation to reach its height in a few days, and the the infiltrate be reabsorbed without pus forming or an abscess results with spontaneous bursting through the walls into the antrum, as observed by Roosa and Ely, Webster, Knapp and others, or the pus may find its way into the auditory canals as in a case reported by Burnett, or finally the inflammatory process may produce a painless carious condition of the superficial lamillæ of the mastoid to be thrown off with the evacuation of the abscess. The same author also recognizes a condition of primary abscess of the mastoid, and in addition to the causes already given mentions syphilis, but fails to mention tuberculosis, which must certainly be placed in this category.

Knapp has reported a case of "primary tuberculosis of the mastoid," where there was an abscess of the mastoid while both the canals and tympanic membrane presented a normal appearance. This writer in quoting Schwartze, who says that primary ostitis and especially primary tuberculosis of the mastoid process is extremely rare, declares that "this assertion may be true in general, but on the other hand as far as bone tuberculosis of the temporal is concerned the rarity with which we diagnosticate this affection may be owing to the omission of special bacteriologic examinations of carious bones of the ears."

To my mind it would certainly be very difficult to tell whether the abscess thus discovered over the mastoid originated in the periosteum or in the bone proper, especially when upon opening the abscess you find the bone substance itself involved. In very young children, like the case reported by me, the communication between the antrum and the overlying superficial surface is much more pronounced than in adults on account of the semi-embryonic condition of the bone substance; hence in such cases it is almost a matter of impossibility to tell whether the abscess is of superficial or of deep origin. In the newborn, according to Hartman and Bezold, the mastoid process is a mere shell surrounding a large antrum, which shows the ease with which the walls would be broken.

My observation and opinion is that in primary inflammation limited entirely to the congestive period, its origin is most frequently in the periosteum; while in abscesses, especially those not manifesting any severe inflammatory swelling over the mastoid cells, I am in full accord with Clarence Blake who says that primary mastoiditis is exceedingly rare, and is usually the result of injury or exposure to cold, or may occur in the course of syphilitic diseases and, I may add tuberculosis. He believes that in the reported cases there has existed, some time prior to its appearance, an inflammation of the tympanic cavity. Yet it is conceivable, where the system is thorougly impregnated with a specific poison, whether congenital or acquired, that there might be a primary mastoiditis just as an ostitis is liable under the same conditions to occur in any other portion of the body. I believe that all primary mastoid abscesses are nothing more than an ostitis the result of either syphilis or tuberculosis, and by close examination the histories will bear out this conclusion.

There is one especial point which I have noted in mastoiditis in children, and that is where the abscess

is due to syphilitic or tubercular ostitis, the temperature has always been practically normal, while in those cases where the cause has been an extension of the inflammatory process from the middle ear to the mastoid cells, the temperature is usually elevated above the normal at some time during the inflammatory process.

Before closing I wish to mention similar cases which have been published by three American confrères: S. C. Ayers of Cincinnati has reported two cases of the so-called primary abscesses, but admits that there had previously existed an otorrhea, which to my mind excludes these from the cases of primary mastoiditis. Würdemann of Milwaukee has also reported two cases which were thoroughly cured by means of incision and packing. Connor of Detroit reports a case in a child 10 years of age. The drum presented a perfectly normal appearance, and there was no history of a previous discharge. The abscess was thoroughly opened, parts curetted with the final result of perfect healing.

In studying the literature of these cases my conclusions are as follows:

1. Primary abscess of the mastoid is more common than a periostitis.
2. That this pathologic condition is more frequent in children than in adults.
3. The most common causes are syphilis and tuberculosis, and the latter is much more frequent than the text-books would lead us to believe.
4. That the prognosis is nearly always favorable, and a full restoration of the parts is the usual result.

CEREBRAL DISEASE FOLLOWING MIDDLE EAR SUPPURATION.

Read in the Section on Laryngology and Otology, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5–8, 1896.

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Having lately observed three instances of fatal cerebral complications occurring in individuals suffering from suppurative disease of the middle ear, I accept this opportunity of narrating their histories, hoping they may prove of some interest.

When we recall the anatomic arrangement of this cavity, we are impressed with its immediate proximity to vital structures. The partition that separates the middle ear from the brain and its coverings, is but a thin portion of bone, with no diploe. Having little or no illumination, but being sufficiently supplied with heat and moisture, the middle chamber is an ideal incubator for the propagation of pathogenic microörganisms. Diseases of a suppurative character affecting this locality, have many factors to augment their vitality, but comparatively little resistance to limit their spread. It requires no stretch of imagination to picture a purulent inflammation extending through the roof of the tympanic cavity, and attacking cerebral structures.

Observers agree to three forms of pyogenic intracranial invasion arising from middle ear suppuration, *i. e.*, brain abscess, meningitis, and sinus thrombosis. According to Koerner,[1] almost all brain abscesses, originating from purulent aural disease, are situated near the primary collection of pus, in the ear or temporal bone. Jansen, however, could not discover an extension of the disease from the temporal bone to the brain in any of the cases of abscess of the temporal lobe upon which he had operated, though the collections of pus were directly over the tegmen tympani. To reach them, the posterior and upper wall of the mastoid had to be removed. In 184 instances of intracranial involvement observed by Jansen, in three and a half years, at the Berlin Clinic, 148 were extra-dural abscesses, 35 were thrombosis of the lateral sinus, and only five were brain abscesses. In the extra-dural lesions, the purulent matter was more often found occupying the posterior cerebral fossa. He has observed that extra-dural abscesses are the most frequent complication of acute suppurative otitis media. In cases of doubtful diagnosis he recommends exploratory operations, and further remarks that deep seated collections of pus are best reached after removal of the entire posterior wall of the mastoid process.

It is not always a simple matter to differentially diagnose the presence of existing cerebral disease. When the abscess occupies the motor zone, the direct functional symptoms resulting, assist materially in arriving at a conclusion. If, however, this area is not involved, it requires careful observation to localize the seat of trouble. Picque[1] remarks, that a persistent cephalalgia, referred to a distinct region, with coma and slowing of the pulse, indicate cerebral suppuration. If the lesion points to an involvement of a motor zone, this locality should be trephined at first, and the mastoid opened later. If on the contrary, indistinct cerebral symptoms arise, the mastoid should be primarily attacked. Should the unpleasant symptoms still persist, further exploration must be carried out.

In endeavoring to illuminate the haze, which at times obscures a positive diagnosis in otitic-cerebral cases, a statement has been made that where bone conduction is present, the abscess is probably situated in the cerebrum; if the bone conduction is absent, the disease is presumptively in the cerebellum. This theory was deduced from the supposition that the pyogenic organisms reach the cerebellum by way of the internal ear. In this manner the infectious process spreading along the auditory nerve and its covering, abolishes bone conduction. Macewan[2] claims that as a rule, the cerebellar abscess arises from the disease extending from the sigmoid sinus, and not from the internal ear, so that the seventh and eighth nerves in the internal ear remain unaffected, and are capable of performing their function. If the mechanism of hearing is not disturbed, the auditory nerve will conduct sound both by air and bone, even though the cerebellar abscess exists. Should, however, the septic process extend to the cranial cavity through the internal ear, bone conduction may still be present. This fact was demonstrated by a case, reported by Macewan. In this patient auditory conduction was absent, but bone conduction was more acute on the affected side, than in the normal ear. Postmortem examination revealed extensive purulent leptomeningitis, chiefly marked in the posterior fossa, surrounding the right internal auditory meatus. The seventh and eighth nerves passing through the occluded internal auditory meatus, were swollen and compressed; while on the healthy side, the same nerves occupied only one-half of its caliber.

1 Annals of Ophthal. et Otology. Vol. iv. No. 4.
2 British Med. Journal 1820–1895.

Both aerial and bone conduction may be absent without being the result of cerebellar disease. This may occur if some affection of the auditory nerve previously existed. In such a case seen by Macewan, the brain lesion was found to be a cerebral abscess. From his observations he concludes that whether bone conduction be present or not, it is not a reliable sign in localizing the cerebral complication. These contradictory experiences clearly demonstrate that no symptom can be taken as a *vade mecum*.

Otitic-cerebral abscess is more apt to be the result of a prolonged suppuration and not of an acute affection. Eulenstein,[3] after collecting authenticated cases, could find but eighteen of brain abscess originating from acute disease of the temporal bone. To this number he adds one of his own, operated upon with a good result. In all these cases the cerebral disease was situated upon the side of the affected bone; the greater number being on the left. Koerner, on the other hand, found the right side to be most frequently attacked. In two of my cases the disease was on the right side. Of the eighteen cases above mentioned, thirteen abscesses were found in the temporo-sphenoidal lobes and four in the cerebellum; the situation of the other one is not given. Among the symptoms observed in connection with cerebral abscesses were: Irregular fever; persistent headache (being one of the most constant symptoms, due to intracranial pressure); retardation of pulse; choked disc; interference with speech (in the left-sided disease); paralyses (facial, hemiopsia, ptosis, abducens on the same side). Other manifestations were, incontinence of urine, photophobia, increased tendon reflex, hemi-anesthesia and hyperesthesia. Eleven patients were operated upon. Of these, five died (two cerebellar, three temporo-sphenoidal); and six were successful (one cerebellar and five temporo-sphenoidal).

During past years there has existed a tendency to wait for pronounced symptoms before attempting to discover the cerebral complication. Clinic experience has shown us that temporizing under such circumstances is not only unjustifiable but frequently productive of fatal consequences. It matters not in what portion of the economy a septic focus exists, our efforts should be directed toward the prompt limitation of its activity. Accepting this axiomatic principle *pro vero* we should unhesitatingly attempt to check the stride of an infectious process when it has reached so vital a region. Under present antiseptic precautions, surgical treatment can be undertaken without much fear of external contamination. It is not my intention, however, to sanction hasty and premature operations in these cases, but rather to suggest the prompt employment of effective measures, when indications arise. Suppurative otitis media should not be treated (as is often the case) in a nonchalant manner. Its serious aspect should be vividly pictured to the patient, and the possibility of threatening dangers should be emphasized.

Case 1.—M. C., female, 8 years of age, had a chronic discharge from the ears for three years. Under local treatment the suppuration was checked and no further trouble was noticed. About two years after the cessation of the aural trouble the child fell and struck the back of the head with considerable force. At the time of the accident the child was unconscious, and on recovery complained of pain in the head. Three weeks elapsed before any further symptoms appeared. At this time the mother discovered that her daughter was not feeling well and Dr. Charles Hoffman was called. As nothing definite could be found, the condition was treated symptomatically. Irregular temperature became apparent and some pain was complained of in the region of the left ear. Recalling the former otitic trouble, Dr. Hoffman asked me to see the case with him. No local signs of an inflammatory process could be seen. The temperature was 101 degrees F. rectum. No swelling or tenderness of the mastoid or jugular region existed at this time. Treatment was continued as before.

A few days later convulsive seizures together with a somnolent condition of the child was observed by Dr. Hoffman. Applications of ice were ordered to the head and neck. Drs. L. Weber, Hoffman and myself saw the case in consultation and agreed that meningitis existed, but that the character of the disease could not be definitely diagnosed. As no active ear symptoms were found at this visit, a tubercular manifestation was suspected. Temperature of a septic character persisted and the semi-stupor was rather more marked. Forty-eight hours after our consultation pressure over the mastoid revealed some tenderness. We decided to operate at once. The usual opening was made under ether. The cortical layer of the mastoid process was found sclerosed, but in chiseling more extensively some pus was discovered. The quantity evacuated was very little. Repeated hypodermic stimulation had to be given while the operation was in progress. The patient's serious condition at this time did not justify further exploration, so the wound was packed with iodoform gauze. On the following morning I trephined an opening into the middle cerebral fossa, three-quarters of an inch above the external auditory canal. The dura was bluish in color, but did not pulsate. A hypodermic needle was introduced and about a drachm of pus withdrawn. Two more buttons of bone were removed with the trephine, and the connecting bridges of bone were cut away with the rongeur. An incision was then made through the membrane, and fully three ounces of fetid pus escaped. Gentle antiseptic douching was carried out and the parts packed with gauze. As in the previous operation frequent subcutaneous stimulation was found necessary.

Paralysis of the right arm and leg had appeared. Pupils reacted to light in the evening of the day of the second operation. Coma continued, paralysis of the sphincters was observed, and on the following day dissolution occurred.

Case 1 is an illustration of the irregular course a temporo-sphenoidal abscess may run. Though previous ear trouble had existed, no symptoms pointed to this organ at the beginning of the fatal complication. The quantity of pus present in this cerebral abscess demonstrates that such a state of affairs may exist for some time without producing characteristic symptoms. It is possible that the traumatism in this case may have been an exciting factor. The question arises, whether we are justified in opening the mastoid process or cerebral cavity, in cases presenting a similar train of symptoms which give evidence of previous suppurative otitis media, though presenting no active manifestations.

Case 2.—F. M., aged 16 years, white, was admitted to the Manhattan Eye and Ear Hospital, Oct. 5, 1895, with the following history: For the past twelve months had chronic suppuration of the right ear, resulting from the measles. The discharge was not constant, but whenever it stopped severe pain set in, which ceased when drainage was reëstablished. About three weeks before his appearance at the hospital, after an exposure, he was taken with severe pain over mastoid, in and around the ear. Pain had been constant since. At this time the external parts were considerably swollen and tender; temperature 100 degrees F.; pressure in front of tragus caused pus to flow freely. Under local treatment the patient progressed nicely until about 2 o'clock A. M., Oct. 6, 1895, when becoming delirious, he was then sent to the hospital.

Condition on admission: Delirious, restless and anxious expression. Temperature 104 F.; pulse 110. Right mastoid swollen; slight redness extending well down over neck. Marked tenderness over mastoid, front of ear. Decided pulsation in right cervical region. On slight manipulation with probe and cotton profuse offensive discharge came from ear. Meatus perforated in postero-inferior quadrant.

Patient was etherized and a mastoid operation done under strict antiseptic precautions. Small quantity of pus was found in cells. Wound cleansed with bichlorid solution and packed with iodoform gauze. Morphin hypodermic was necessary to quiet during night.

[3] Monat. für Ohrenheilk. 1895.

October 6. Very restless this A. M. Temperature 100 F., pulse 110; complains of sick stomach, but does not vomit; does not take nourishment.

October 7. Temperature 98 F., pulse 110; still restless; takes little nourishment.

October 8. Extremely restless; constant tendency to get out of bed. Temperature 99.6 F., pulse 110. Dressing removed. Considerable pus in canal and mastoid. Cleansed and irrigated with bichlorid solution, 1-10000; packed with gauze and bandaged, leaving external auditory canal exposed for douche, every two hours. Morphin to quiet; strychnin and spirits frumenti ordered to be given at the discretion of the house surgeon.

October 9. Still restless; temperature 100 F. Takes nourishment quite freely. Mastoid dressed as before. Wound clean and healing.

October 10. Temperature 98 F., pulse 110. Not quite so restless. Voids urine in bed.

October 11. Temperature 97 F., pulse 120; restless; no chills; stimulants increased.

October 12, 8:30 A. M. Some signs of left hemiplegia. Not so restless; breathing slightly stertorous; 9:30 A. M., will not take stimulants. Died with symptoms of compression at 12:15 P. M.

Postmortem examination showed an extensive cerebral abscess of the temporo-sphenoidal lobe. A large quantity of pus escaped after the dura was incised. Four finger tips could be readily introduced into the abscess cavity. The dura was thickened and on the cerebral surface of the tegmen a necrotic area was found. No involvement of the sinus was observed, the extension of the disease being by continuity of tissue, and not through the lymphatics.

On Oct. 11, 1895, the patient was doing so well, even though the temperature only registered 97 F., that further operative interference was contraindicated. Had an opening been made on this day into the middle cerebral fossa it certainly could not have saved the patient, as the disease had then assumed extensive proportions.

Case 3.—Phoebe B., deaf mute, 62 years of age, was referred to me at the Manhattan Eye and Ear Hospital, May 6, 1895, for mastoid operation, with the following history:

For past year has had pain in right ear, with scanty discharge. Three months ago, facial paralysis of right side occurred suddenly. The patient had been operated upon for aural polypi, which completely filled the external canal. There was a profuse and very offensive discharge from the right canal, which was somewhat benefited by the removal of the granulation tissue. These growths rapidly reappeared so that repeated attempts at their eradication had to be made.

On May 5 the mastoid process became boggy and very tender. Treatment failed to relieve the pain and swelling, so patient was turned over to me for operation.

May 6, 3 P.M. A Stacke operation was performed, together with the removal of almost the entire tip of the mastoid. The osseous destruction was very extensive, the dura being encountered on passing the probe upward. Thorough curetting of the posterior and inferior surfaces of the diseased tissue was carried out. Fearing perforation into cerebral cavity, gentle manipulation in the upper portion of the wound had to be observed.

May 7. Temperature 99.4 F. Patient doing well.

May 8. Temperature normal. Dressing removed. Some discharge from the canal which was not offensive. Otherwise wound clean. Packed as before and ordered cleansed with peroxid of hydrogen and corrosive sublimate solution.

May 11. Some slough on posterior wall of cavity. Discharge increased, with some odor. The slough was removed and Labarraque's solution ordered as a cleanser.

May 18. Improving; wound clean and rapidly filling. Temperature normal.

May 20. Granulations exuberant. Touched with caustic.

May 25. A small sinus was found on inner wall of cavity, filled with pus; probe showed necrotic bone. Sinus curetted, cleansed, and packed with gauze.

May 30. Improving; wound clean; slight odor from sinus.

June 9. Odor becoming offensive. Some débris curetted from the wound. Inability to move left arm and leg was noticed.

June 11. In the morning, a hemorrhage occurred from the mastoid, appearing through the ear, nose and throat, and saturating the dressings. 7 P.M. Severe hemorrhage through naso-pharynx. Post-nasal tampon applied. Source of bleeding could not be discovered.

June 12. Another hemorrhage, which was checked by tamponing mastoid opening. Hypodermic stimulation.

June 14. Patient gradually grew weaker from the loss of blood, and died at 6:30 P.M.

The autopsy revealed marked necrosis of the petro-mastoid portion of the temporal bone. The probe could be readily passed into the posterior and middle cerebral fossæ. Ulceration of the sinus was found to be the cause of the severe hemorrhage. Softening of the right temporo-sphenoidal lobe of the brain was recognized.

Owing to the congenital condition of the patient, subjective symptoms were not readily ascertained. There can be no doubt as to the chronic character of the destructive process, as the facial paralysis had occurred three months previous to the case coming under our observation. So extensive was the disease, that after the operation, a probe could be passed into the mastoid opening for a distance of almost two inches, measured from the external surface.

Case 4.—Though this case can not be positively classed as a cerebral involvement, nevertheless I mention its history for the purpose of emphasizing the difficulty we meet with at times, in arriving at a correct diagnosis.

James B., 34 years old, had scarlet fever twenty-five years ago, which resulted in a chronic suppurative otitis media, which has been more or less active ever since. During the past four years the discharge has been more profuse, and frequent attacks of severe pain have been experienced. Relief from the pain was noticed, whenever the discharge flowed freely. Blood was at times found in the discharge. On May 24, 1895, he was admitted to the Manhattan Eye and Ear Hospital, with intense pain in the left ear, from which a scanty flow of pus was observed. Some infiltration of the soft tissues of the external auditory canal existed. A small perforation in the postero-inferior quadrant could be seen on careful inspection. Anterior to tragus, the parts were tender, but no pain or swelling over mastoid.

General condition.—Patient is anemic, and seems to be suffering severely. Tongue heavily coated; bowels constipated; temperature 103 F.; pulse 140.

May 25. Bulging of membrane. Tympanum liberally incised. Hot douching every two hours, and boroglycerid tampons were ordered; also calomel, until bowels moved freely.

May 26. Slight improvement. Temperature 101 F. Some headache and pains in back of neck. Leeches applied. No definite conclusion could be reached.

May 30. Temperature still high. Griping pains in bowels; calomel stopped. Marked tendency to constipation.

June 1. Great pain in back of neck. Temperature 102 F. Counter-irritation applied.

June 2. Pain somewhat less, but still present. Ice to neck ordered. Bromid was prescribed.

June 4. Considerable pain in neck. Peculiar discharge from bowels resembling that of enteric fever. Temperature 104 F. Our medical consultant examined the patient, and suspected thrombosis of the lateral sinus.

June 5. Chill lasting twenty minutes. Patient much exhausted. Strychnin and whisky freely administered. Temperature 104.2 F.

June 6. Chill lasting fifteen minutes. Quinin and fluid extract digitalis given continuously. Temperature 103 F. Dr. A. H. Smith advised surgical interference. At 8 P.M. I operated. Periosteum was detached from mastoid with great difficulty. The bone was found sclerosed throughout its entire extent. No pus was discovered. On opening into the lateral sinus, nothing abnormal was found. Sinus and mastoid were packed with iodoform gauze. During the operation patient received hypodermic injections of strychnin.

June 7. Recovered nicely from operation.

June 9. Symptoms of abscess of liver appeared, with great exhaustion.

June 12. Temperature still elevated. Occasional chill followed by pronounced depression, which finally terminated the patient's existence. Unfortunately no postmortem was allowed. We were inclined to believe that the liver symptoms were the result of metastasis. A cranial lesion in the form of a cerebellar abscess was suspected.

We must not overlook the fact that disintegration of osseous tissue may take place, without causing painful symptoms. This is especially characteristic

of a tubercular process; and in the region of the ear, marked destruction may occur without involving the integrity of the membrana tympani. Such a condition is more apt to affect children of a strumous diathesis. In such instances the ulceration may soften the roof of the tympanic cavity, and so attack the brain. It furthermore may generate miliary tuberculosis of the lung and other organs, by entering the circulation, through the antrum and mastoid cells, or by penetration into the jugular fossa or sigmoid sinus.

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DISCUSSION.

Dr. Max Thorner, Cincinnati—The papers are of more than usual interest, because the question of operative interference and topographical relations are comparatively new. Ordinarily topography of the temporal bone is insufficiently treated in text books.

The antrum is ordinarily larger and the floor of it is so much below the level of the aditus that pus can not flow out according to the laws of gravitation. Thus it happens that in cases where the inflammation is violent, before we think it possible, we have the whole mastoid process converted into a pus cavity. It has often been said that the ordinary acute otitis media will, if attended to at once, never lead to serious complications. This is, however, not my experience. Sometimes serious complications will ensue in spite of all that we do.

Dural abscesses, the essayist stated, may exist some time without distinct symptoms. Only seven weeks ago I had a case of acute otitis media following influenza, which was very serious from the start. The temperature was never lower than 102 and the discharge was profuse for weeks. At the same time severe pain developed over the temporal bone. All the symptoms of a mastoiditis were present when, after six weeks' treatment, I opened the temporal bone. It was one large cavity filled with pus and granulations. When cleansed thoroughly I found that a small amount of pus had collected below the posterior and anterior wall of the enormously large antrum and the dura-mater. About five or six drops of pus escaped from this location, after enlarging the pin-hole opening which existed in the bone. The patient made an excellent recovery. I believe that in a case where we have mastoiditis, which is not primary, we can not cure it by simply making an incision through the integument, but only by entering the cavity and removing the pus. But in cases of primary or secondary periostitis of the mastoid process, without any accumulation of pus, I do not see why Wilde's incision should not suffice.

In regard to that part of the paper referring to cerebral abscesses as one of the possible complications, I will report one case which I had, only a few months ago, under my observation. It is interesting on account of the enormous size of the cerebral abscess. The patient had been in a comatose condition for three weeks when received at the Cincinnati City Hospital. The history was meager, but it was found that there had been suppuration for some time previous. It was stated by relatives that a little piece of bone had been discharged into the auditory canal. There was a profuse purulent discharge from the right ear which was exceedingly offensive; caries of the attic could be determined. Upon opening the antrum I found it filled with pus and granulations, and the tegmen tympani bare; in this a very small perforation was found, through which a few drops of pus escaped. This opening was gradually enlarged, when a great amount of pus, very offensive and of a green color, came out. The abscess cavity was large. After establishing thorough drainage the wound was closed. The patient recovered from the comatose condition, but died in thirty-six hours after the operation. It was the largest abscess that any one connected with the hospital ever saw, being about the size of a small orange and occupying the right temporo-sphenoidal lobe. The brain tissue within one-fourth and one-half inch of the walls of the abscess cavity was softened and discolored.

Dr. Myles—My experience has taught me that nothing but frequent demonstration of these practical anatomic points will fix them permanently in the mind. The topography of the antrum and mastoid varies in different cases, and in different ages. The doctor has presented some remarkable specimens, but I would have presented them in a little different way. I leave all the external landmarks on the specimens, that will not be detrimental to them, as I find that in this way the mind is better enabled to grasp the situation. A complete analysis of the relation of every structure is essential in the proper comprehension, and in the teaching of this department. It is well to instruct the student so that he can operate safely, and without penetrating the lateral sinus under any topographic condition. One good rule in operating is to cut carefully and deliberately, and to start by chiseling a broad beveled opening rather than a round narrow hole. If he clings closely to the auditory canal, and cuts in a spiral direction upward, inward and forward, he will reach the antrum quickly and surely. If you wish to be a little more direct, you may start a little higher in the suprameatal triangle and chisel directly inward. The chief thing to avoid is injury to the facial nerve, which usually comes outward near the junction of the floor of the antrum and the posterior superior walls of the tympanic cavity.

In regard to children and to the paper of Dr. Roy, a great many cases of swelling posterior to the ear, and over the antrum or mastoid, can be cured by a Wilde's incision. In that class of cases where there is no pus discharge in the canal, it is usually due to periostitis or caries either of traumatic or tubercular origin, or extends through a small venous aperture from the antrum, and in certain cases the pus burrows from the attic along the external auditory canal, and causes local abscess on the roughened area of the mastoid process. A great many of these cases recover after simply incising and draining, without curettage or interference with the middle ear.

Dr. Frank Allport, Minneapolis, Minn.—I must take issue with what has been said concerning the unnecessary frequency of such operations. My own tendencies are somewhat conservative, especially where serious operative procedures are contemplated, but in this line of cases I emphatically believe we do not operate enough. The history of the mastoid operation, and now the history of operations for otitic brain abscess, leads us through the uncertain maze of the past, when such procedures were regarded with mingled feelings of awe and aversion, to the triumphant place now universally accorded them in the modern annals of surgery, and I predict for them, and especially the latter, a much higher and more exalted position than that at present possessed. The time will come when the human brain will no longer remain a *terra incognita*, but will be successfully explored by the progressive modern surgeon.

No man should venture upon such surgery unless thoroughly prepared therefor by accurate anatomic, topographic and pathologic studies, both theoretic and practical; but when thus fortified, and then brought face to face with a case of this character, he should not hesitate. In a correctly recognized case of brain abscess there is no other course to pursue, and the patient may as well die from an unsuccessful operation as from a timorous and too conservative therapeusis. It is astonishing how much interference the brain will endure, as is instanced by a case I will briefly recite: The patient was a man injured in a trolley car accident, producing a basal fracture and bleeding from the ears, followed by some discharge. Cerebral symptoms ensued, and I was called to diagnose a mastoid abscess, which I could not do. The consulting physicians and myself thereupon diagnosed a probable brain

abscess and the patient was accordingly trephined. Thorough exploration was made in many directions, starting from the temporo-sphenoidal lobe, but no pus was found. The wound was closed and death speedily expected; but the patient quickly and completely recovered, whether from relief of pressure we do not know. So, death need not always be expected, even when an operation is made and no pus found. I do not repeat this instance to encourage reckless operating, but to endeavor to dissipate the reluctant attitude assumed by surgeons when cerebral operations are mentioned.

It is not necessary for a man to be an aurist to open the mastoid process. Any surgeon properly qualified may undertake it, but it should be remembered that the operation has developed from a mere gimlet-hole opening or vent to a thorough removal of the outside mastoid shell, and a conscientious following up of every pus avenue, *no matter* where it may lead. We never know, therefore, when we open a mastoid process, what may be the ultimate issue involved, and we should be prepared to meet and care for any and all emergencies; and to treat pus deposits in this locality upon the same general principles observed in other portions of the body.

In regard to the method of operating, I prefer the dental engine, with fresh, sharp burs. It is gentler, quicker and smoother than the chisel, and the field of operation can be observed with great accuracy.

Concerning Wilde's incision, I believe it to be indicated but seldom, but when used, unless a pus deposit upon the outside of the mastoid is evident, the incision should be made in the inner, upper and posterior portion of the meatus, as the mastoid cells are here much more in evidence than at the hard external mastoid plate. At best, however, the Wilde's incision is usually but a temporizing procedure, through which valuable time is lost; and still I can not say I have *never* seen benefit ensue through its agency.

DR. CLINE—I have seen some remarkable cases of mastoid disease and I have been fully persuaded that too many extensive operations are performed on these cases. I was called to see a man seventy years old who had a discharge of pus from his ear for ten weeks, and for eight days and nights could not lie down on account of pain. On making Wilde's incision the knife passed into the bone, which seemed soft and pulpy. Pain subsided immediately and he was able to lie down. A draining tent was introduced, and the second day there was a free discharge of pus. I prescribed iodid of potassium and he made a rapid recovery without any scraping or chiseling away of the bone.

In another case the ear had been discharging for fourteen weeks. The ear was very painful and over the mastoid the tissue was very much swollen and of a very dark purple color. His condition was such that, with his previous history, I considered an operation was indispensable. I directed him to return home and send for a surgeon in his town and have the operation performed at once. The doctor who took him in charge decided to wait a day or two before operating. He put him on ten-grain doses of iodid of potassium every two hours. The patient began to improve, in three days the pain had disappeared and in seven days the discharge from the ear ceased, and since then (two years) he has had no further trouble.

I might detail other cases but these will suffice for the plea for conservative, early extensive operating and the free use of the iodids in these cases.

DR. T. H. SHASTED, Galesburg, Ill.—I am inclined to believe that Politzer's ideas on this point are correct. He says that in the chronic mastoid troubles the thorough operation should be done. The antrum should be opened, and, if then found necessary, the tympanum also. In acute cases, however, the thorough operation is seldom necessary. The abscess usually lies in the vertical portion of the process and does not, as a rule, communicate with the antrum. If in such cases, we cut down to the antrum, we shall infect those parts when there is no necessity for it. In those cases where the pus bursts through the cortex spontaneously, there is very little to be done. We can easily remove whatever comes away and that is about all there is to be done. It is seldom necessary in such cases to make a thorough operation on the ground of preventing chronic fistulous discharge. I have frequently seen such cases and they almost invariably do well in the course of two or three weeks at the longest.

Dr. Roy's case reminds me of my own, that of a lad about 18 years of age. There was no suppuration from the ear, nor sign or history of former suppuration. At the operation I found very little pus, but some carious bone. I had the case diagnosed as primary mastoiditis. But afterward I was somewhat surprised to receive from his parents a history decidedly different from what they had first given me. He had had a slight discharge of short duration some years before. No doubt in all these cases there has been previous tympanic trouble, of which the membranic signs have been effaced and the history forgotten.

DR. B. ALEXANDER RANDALL, Philadelphia, Pa.—I wish merely to refer to the point already made that these mastoid and tympanic cases are the hot-bed of tuberculosis. Cases that are not primarily tubercular are here transformed, and we have the tubercular infection passed into the whole body.

While I do not believe in Wilde's incision, I think the whole matter can be set down as largely one of technique; and the way in which we proceed will depend upon our instruments.

DR. EDWARD J. BERNSTEIN, Baltimore, Md.—I do not believe that the relative impunity with which one can enter the brain constitutes any warrant for the frequency with which some undertake these operations. I have operated a number of times with a good percentage of successes; on the other hand I have had cases, of late, where everything indicated the necessity for operation, and I plead with the patient for the necessary permission, but owing to their persistent refusal, I was forced to keep to less radical means. Many of these latter patients recovered and are apparently well. They are not safe from recurrences, as are those who submit to the radical procedure, but an immunity from attack for one or two years speaks well for their side of the question. I have never used Wilde's incision, because Leiter's coil, mercurial ointment, and other local applications have always served me where the regular mastoid operation was not indicated.

ELECTROLYSIS FOR THE REDUCTION OF SPURS OF THE NASAL SEPTUM.

Read in the Section on Laryngology and Otology, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5–8, 1896.

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A year ago I gave the results of recent experience with electrolysis for the reduction of spurs of the nasal septum, in a paper read before the section of Laryngology and Otology of the AMERICAN MEDICAL ASSOCIATION,[1] and later in another paper before the American Laryngological Association,[2] and it is not my purpose in this supplementary report to repeat the technical details of the procedure or to recite cases at length, but simply to formulate conclusions bearing upon the exact limitations of this method.

The bibliography having been presented in previous papers, will be omitted at this time; suffice it to

[1] JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 1895.
[2] Transactions of the Am. Laryn. Assoc., 1895; New York Medical Journal Aug. 31, 1895.

say, that a few European operators have advocated the method and some have praised it with seeming extravagance.

Customarily spurs or excrescences of the septum narium are removed by surgical means, by the knife, saw and drill, and these are the methods employed by myself in the majority of cases. In skillful hands they are more rapid, more precise, and in the case of large, bony spurs, certainly more effective than is electrolysis. The surgical method, however, is more or less sanguinary and otherwise far from agreeable to contemplate or experience. In cases of major degree, where the excrescence is of bone and of large size, occasioning pronounced occlusion of the nostril, together, perhaps, with serious secondary catarrhal symptoms, pressure neuroses, middle ear affections, or impairment of the general health, one should not hesitate to sacrifice the spur and if need be by the surgical method. The operation, the discomfort subsequently for a few days of an iodoform gauze packing as a preventive to hemorrhage, and even the substitution for normal mucous membrane over the operated area of a cicatricial mucosa with its tendency to dry crustation, are but trifling inconveniences in comparison with the benefits conferred in properly selected cases.

But there are cases of minor degree, small spurs of cartilage or of cartilage and bone and thickened areas which seem scarcely deserving of surgical treatment, but which one would like to see resolved for the sake of the additional nasal space and better drainage which would thereby accrue to the patient. There are also patients of delicate physique and those of highly sensitive and uncontrollable nervous organizations, and bleeders, also, whom one hesitates to subject to the regular operation. And, again, there are patients who willfully refuse an operation, however needed or suitable the case may be.

To what extent can electrolysis be utilized for the relief of these subjects and what sort of spurs can be completely removed, and in which can reduction in size only be expected?

Concerning the physics of electrolysis it is only necessary to state that it is a process of chemic disintegration of tissue under the influence of a direct or galvano-electric current by which water and salts are separated into their component parts, oxygen and acids being attracted to the positive needle and hydrogen and the alkalin bases to the negative needle. With one exception I have employed the preferable bi-polar method by which two needles, one representing each pole, are inserted into the spur. My needles are made of iridoplatinum, which is nearly as stiff and hard as steel, twenty millimeters in length, about one-half millimeter in thickness, soldered parallel three millimeters apart to copper bars, which run through a light handle. Steel needles are perhaps more commonly employed and I have used them somewhat.

The process of electrolysis is not to be confounded with galvano-cauterization. While fine electrolytic needles can be made to burn by a sufficiently strong current, my needles as used with a current adequate for the purpose of electrolysis do not cauterize. The current strength necessary for electrolysis of nasal spurs is from fifteen to forty milliampères, measured with the resistance of the spur in the circuit, and to supply this current from fifteen to twenty cells of a galvanic battery would ordinarily be used with a corresponding electromotive force of from twelve to twenty volts or more. The inconvenience of this apparatus and especially its unreliability when called into use only at irregular and prolonged intervals, has deterred many from trying the electrolytic method. I sought to avoid these annoyances by adapting the Edison electric light circuit to the purpose by means of lamp resistance and the McIntosh current controller. It is as easy and readily applied as the galvano-cautery, except for the few minutes' additional time that its energy needs to accomplish the work. When used it is necessary only to adjust the milliampèremeter and insert the needles.

A current suitable for electrolysis should be characterized by moderately high tension or voltage and comparatively low current strength or ampèrage. The Chicago-Edison current has an elecromotive force of 110 volts, which must be reduced by the current controller. During the last year I have used only eleven volts or less. The ampèrage depends on the amount of resistance in the circuit, but it also can be correspondingly reduced by the resistance of a lamp and the controller so that with the spur in the circuit it measures the requisite number of milliampères. The current controller was described at length in my preliminary report. It is designed only for the continuous current and can not be employed with the alternating for the purpose of electrolysis, nor is it adapted to electro-cauterization.

I now employ the controller with only one lamp [in series] as additional resistance in the circuit, which aside from the action of the controller reduces the initial electromotive force to fifty-five volts. During the year I have used a current of only eleven volts or less, secured by advancing the decimal slide of the controller to 1 before the needles are inserted into the spur, which removes coil resistance sufficient to provide one-tenth of fifty-five volts or five and one-half volts. Then, after insertion of the needles, the centesimal slide is advanced gradually, each point removing coil resistance in fractions of hundredths, which occasion little shock, until if need be ten one-hundredths, or another five and one-half volts are added. With this arrangement the meter will usually register from ten to thirty milliampères, which with an exposure of seven to twelve minutes is adequate.

The chief difficulty in the reduction of cartilaginous spurs is to determine exactly when sufficient destruction has been effected, and no rule of guidance in this regard can be formulated, experience and delicate judgment only being of service. Nor can one always foretell the range of action or distance from the needles in all directions to which the destruction will extend. The ideal action is to produce just enough disintegration within the spur to lead to subsequent absorption without total destruction of the surface mucosa, which will therefore be reproduced in the process of cicatrization more perfectly than is usual after the cutting operation. If, however, the action be more intense and the slough produced be large it will separate as a whole with corresponding complete destruction of the mucous membrane. In the same manner by too intense an action a slough extending through the cartilaginous septum can be caused and perforation result. This is especially apt to occur while electrolizing a spur which surmounts the convexity of a bent or deflected cartilage.

A simple deviation or bending of the septum can not be corrected or straightened by electrolysis and its use in such a case can only result in perforation.

If in addition to the deviation there is also a spur, that is, conjoined deviation and excrescence, the thickening may be reduced or removed by electrolysis, but the deviation will remain. These distinctions should be held clearly in mind when considering in any given case the applicability of electrolysis. It is true that perforation is prone to happen when operating on similar cases by the surgical method, for it is not always possible to estimate exactly the degree of concavity of the opposite side, and a closely reduplicated deflected septum can be mistaken for a spur and perforation result on cutting it off. But with electrolysis, in addition to these there is the further uncertainty of being unable to tell in advance exactly how far the action will extend. A close watch should be maintained in the opposite nostril and the electrolytic action discontinued on the slightest mottling in hue or escape of gas from that side of the septum. But there is reason to think that too great destruction can be effected even short of the production of these danger signals and other safeguards, such as not inserting the needles too deeply or permitting the treatment to endure too long, should be kept in mind. The duration necessary depends somewhat upon the current strength, but with the meter registering from fifteen to forty milliampères I have not found it necessary to exceed from six to eight minutes for the devitalization of cartilage. The continental authors mention fifteen to twenty-five minutes as the duration of their séances, which would seem unnecessarily long for a single insertion of the needle, although I sometimes, in order to act upon a larger area, make two insertions at one sitting, which must then endure for about fifteen minutes.

I have accidentally made one small perforation out of a total of sixteen cases treated by electrolysis. In nearly this proportion they will likewise happen from the surgical treatment. In this one case no appreciable harm resulted, although I object on esthetic grounds to perforations and think that all possible care should be taken to avoid them. Beside, by encouraging incrustation, they sometimes do occasion annoyance.

On the other hand, if one is too timid in the application of the remedy, inserting the needle too superficially, using too small a quantity of electricity and for too brief a time, one will accomplish little or nothing beyond occasioning a disagreeable inflammatory reaction for a few days. Pain during the treatment need be but trifling, but the sensation is peculiarly disagreeable and tends to cause syncope. This tendency might be avoided by making the application in the recumbent position. My arrangements have not been suitable for this.

As to whether large spurs or ledges of bone can be resolved by this process of electrolysis opinions differ. My own experience is decidedly in the negative. I have been unable to penetrate even by steel needles the bony parts of spurs and failed to cause their resolution, even when the needle could be forced into approximate position. This experience is confirmed by Newcomb,[3] Chiari cited by Lowman,[4] and others. On the other hand, Moure [5] and also Bresgen,[6] lead us to infer that they are successful with bony spurs, which contention is confirmed by Ballinger,[7] who, however, fails to give particulars in this regard. Bone differs in degree of hardness and, also, it is quite conceivable that spurs, which consist chiefly of cartilage with small spicula only of bone running through the center, that in addition to the cartilage the bone, by having the needles run into its immediate proximity, may be devitalized; but large spurs which consist chiefly of bone, often of iron-like hardness, will certainly resist this method.

I have treated by electrolysis sixteen cases, and these may be classed in three types according to the composition and location of the spur and the degree of success attained. With the exception of a case representative of each type they will be tabulated without detail and with mention only of salient features:

TYPE I.—STRICTLY CARTILAGINOUS SPURS.

Case 1.—Mr. H. H. C. M., somewhat advanced in years. He complained of nasal stenosis and distinct paroxysmal asthmatic symptoms. Examination disclosed hypertrophic rhinitis, conjoined with a cartilaginous excrescence of the right side of the septum, well in front and sufficiently large to approach the collapsed ala. The galvano-cautery applied to the turbinated bodies restored the patency of the left nostril, but on the right side the spur interfered with the attainment of a perfect result and the symptoms in part continued. Feb. 10, 1896, electrolysis applied to the spur, thirty-five to forty milliampères, for seven minutes. The result is very satisfactory. A slight prominence farther back remains, but the space gained by the reduction of the spur is adequate for comfortable respiration. It could be wholly removed by a second application, which, however, now seems unnecessary. He reports entire freedom from asthmatic symptoms, disposition to "colds" and nasal discomfort, and while this happy result can not be wholly attributed to the reduction of the spur, that was an essential part of the treatment. The case exemplifies a considerable class of individuals, who if the less formidable procedure of electrolysis were not utilized to reduce the excrescence, would continue indefinitely to bear with the discomforts incidental to the presence of a spur rather than undergo the surgical treatment. The surface shows cicatricial markings, but mixed with natural mucosa and there is no annoyance from crustation.

Case 2.—Mr. R., right nostril entirely occluded by a cartilaginous spur five or six millimeters in thickness, which is implanted upon a slight convexity of the quadrangular cartilage. Electrolysis, 40 milliampères for eight minutes, when the larger part of the spur had assumed a mottled bluish and whitish aspect. The large slough separated in two weeks as a whole. This is the case referred to above, in which a small perforation ensued. The result was otherwise satisfactory.

Case 3.—Mr. A. G. M. The cartilaginous septum was deflected to the right and in addition, situated toward the base of the convexity was an excrescence which projected sufficiently forward to approach the partially collapsed ala and so close the nostril. Electrolysis was selected because of the nervous disposition of the patient, he having so little self-control that the surgical method might have involved unusual difficulties. Three treatments, fifteen to twenty-five milliampères each, for six minutes were given, special care being taken to avoid a perforation. By the removal thus of the excrescence, the deflection remaining, enough space was gained for comfortable respiration.

Case 4, Mr. M. H. B., and *Case 5*, Mr. W. M., present few features not already noted in connection with the others; in one somewhat advanced age, and in the other trial purposes only were the reasons for the selection of this method. The results were satisfactory in both.

TYPE II.—MIXED CARTILAGINOUS AND BONY SPURS.

Case 6.—Mr. L. C. C. This excrescence is of the kind which commences anteriorly and runs upward and backward, following the sutural line of the vomer and cartilaginous plate of the septum, gathering volume and thickness and terminating opposite the middle turbinal or pressing into the middle meatus, reaching quite across the nasal space. January 4 and January 11, electrolysis to the anterior and middle segments respectively by the bi-polar method, twenty to thirty milliampères, for seven minutes each. January 18, mono-polar method applied to the last and most prominent segment, a single steel needle being used for greater penetrating power, this part of the ridge being largely of bone and rather thin to accommodate double needles. The needle would not penetrate into the

[3] Transactions of Am. Laryn. Assoc., 1895, p. 54.
[4] Transactions Am. Laryn. Assoc., 1895, p. 56.
[5] The Journal of Laryngology and Rhinology.
[6] The Journal of Laryngology and Rhinology, January, 1895.
[7] THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, Jan. 11, 1896.

depths of the ridge and consequently it was passed into its cartilaginous surface. This treatment was much more painful than the prevous bi-polar applications, ten to fifteen milliampères only being tolerated for ten minutes. The final result is satisfactory, the spur being much reduced in prominence, the reduction in volume being probably commensurate with the proportion of cartilage contained in it.

Case 7, Mr. M. J. H. and *Case 8*, Mr. W. G. H., had spurs similar in location and composition to the last described; in both of them the opportunity has been accorded to inspect the parts a year after the cessation of treatment and in both the degree of reduction of the spur and the amount of nasal space gained thereby was found to be greater than was anticipated. Evidently shrinkage continues until cicatrization is complete, for a period of several weeks at least.

Case 9. Master G. P., a youth with a similar spur, received three treatments, bi-polar method. It would seem that young persons should be especially amenable to electrolysis on account of the softer state of the bone.

Case 10.—Mr. W. G. B. had had a spur removed by the surgical method some years ago; between the bulge which had redeveloped and the opposite inferior turbinal an adhesion had formed. This was divided and space gained by making a gutter-like excavation through the bulge by electrolysis.

Case 11. Miss E. P. is a bleeder, at least I was once compelled to pack the naso-pharynx to check hemorrhage after a trifling operation for adenoids. Her spur of mixed cartilage and bone has been reduced, not wholly removed by electrolysis.

Case 12.—Master D. P., was a failure, because the patient fainted and was slightly convulsed. I purpose using the surgical method in his case.

Case 13.—D. C.; presented no noteworthy features beyond a fairly satisfactory result; and in one other (*Case 14*) of this type the treatment is not yet completed, but the indications point toward a partial reduction only.

TYPE III.—BONY SPURS.

Cases 15 and 16 have previously been reported in detail. They were large bony spurs of ivory-like hardness, into which needles could not be made to penetrate and upon which electrolysis made but slight impression. In all such I have since recommended the surgical method.

Conclusions.—There is little occasion to modify the opinion expressed in conclusion a year ago, that while effective in many instances, its scope of application should be limited in accordance with the following principles:

1. Strictly cartilaginous spurs can be thoroughly removed by electrolysis; one, two, or even three operative sittings being required. It is more tedious and less brilliant than the surgical method, but it is not accompanied by liability to hemorrhage. It is not to be indorsed as a universal substitute for the surgical method in even this limited class, but it is a serviceable measure for exceptional individuals of both this type and Type II, *e. g.*: *a.* For quite small spurs and thickened areas. *b.* For patients of delicate physique and those of highly sensitive or uncontrollable nervous organization. *c.* For "bleeders." *d.* For those who decline the surgical method.

2. As demonstrated by the cases reported under Type II, it will not thoroughly remove spurs which belong to that large class of mixed cartilaginous and bony substance; but it will reduce them in size. The majority of such cases would therefore better be treated surgically, as being the more thorough method; but instances will arise as above indicated in which the surgical method being inexpedient, benefit may accrue from the use of electrolysis.

3. As demonstrated by the cases reported under Type III, large spurs composed mostly of hard bone can not be successfully treated by electrolysis. for the reason that needles can not be caused to penetrate properly, and further, it is doubtful if the process is adequate, even if the needles should penetrate, to the resolution of hard and dense bone *en masse*.

4. Spur or excrescence, and not deviation of the septum, is the subject of this paper. Electrolysis is powerless to correct deviated septa of any form.

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DISCUSSION.

Dr. John O. Roe, Rochester, N. Y.—The point that Dr. Myles has made in regard to the ill-advised attempts frequently made to enlarge the vestibule of the nose by cutting out the interior of the passage, is well taken. This procedure invariably results in decreasing the size of the opening instead of enlarging it, for the reason that when a portion of the constriction is cut away, the circumference of the uncut portion is correspondingly lessened, and when the cut edges become coaptated during the process of healing, the lumen of the passage is made smaller. The vestibule of the nose may become narrowed by a variety of causes. In those cases in which it is obstructed by an exostosis which we frequently find in the floor of the vestibule, this exostosis should be removed subcutaneously in order to leave the mucous membrane uninjured, thereby avoiding the contraction of the passage. This is best done by making an incision in front of the eminence down to the bone and raising the mucous membrane together with the periosteum over the entire elevated portion of the exostosis. By cutting through these tissues on the posterior side they can be raised out of the way and the bony growth removed either by drill or saw. When this is completed, the mucous membrane of the periosteum can be replaced, leaving the passage of the nostril unobstructed. The vestibule of the nose is often also very much narrowed by the collapse or dropping inward of the alæ of the nose from a weakening or partial paresis of the dilator naris muscles, thus allowing the alæ to be drawn inward against the septum during inspiration, thus increasing the obstruction to ingress of air. I have removed this difficulty by making one or two incisions through the cartilage of the ala, and inserting a dressing into the nostril sufficiently large to distend the alæ quite widely until the cut made through the cartilage has become firmly healed and fixed in this position, thereby maintaining the nostril freely open and preventing the collapse of the alæ on inspiration. I was also much interested in Dr. Casselberry's paper on the reduction of spurs of the nasal septum by electrolysis, although I have never employed that method. I have not done so for the reason that I have always disposed of spurs and ridges of the nasal septum by what seems to me to be a very much easier and simpler method—by simply cutting the spur away. If the spur is located on the cartilaginous portion, I employ a suitable small cartilage knife for its removal, and if located on the osseous portion of the septum I remove it with a saw or the Curtis drill. I have not attempted the more complicated methods because my patients do not object to having these obstructions removed in this manner. In the case of removing a small enchondroma, it can be so easily and quickly done with the knife that if the parts are thoroughly anesthetized with cocain the patient is neither alarmed nor incommoded by the operation, and sometimes scarcely realizes that anything unusual is taking place. In regard to the danger of denuding the parts of mucous membrane, I have never experienced any difficulty in this respect after a cutting operation, if but a limited portion of the membrane is removed. Even in some cases where quite an extended area of mucous membrane is removed, I have observed it from day to day spread over the parts when maintained thoroughly aseptic, so that in a short time the site of the operation, from the loss of the mucous membrane, could not be perceived. After the use of the cautery, however, I have observed extensive scars and areas in which the mucous membrane had been replaced by fibrous tissue, thereby causing much annoyance from the dryness of the nose and the formation of scabs and crusts over the parts

in which there were no mucous glands to lubricate the part.

DR. MAX THORNER, Cincinnati, Ohio—I would like to refer to Dr. Myles' paper. The obstruction of the nasal vestibule is by all means the worst thing that can happen after operations. In the operation advocated by Dr. Myles I think we have means to prevent such occurrence. One case I had was that of a young man who had been kicked on his nose by a mule, and there was entire occlusion of the right nostril. I made the incision and occlusion followed, and it was as bad as before, if not worse. Later on I made a flap from the upper lip, turned it upward into the nose and sewed it to the inner surface of the ala nasi, after having loosened it from its adhesions. Then I packed the nostril with iodoform gauze. The result was not an ideal one, but the improvement was great and permanent.

In regard to Dr. Casselberry's method, I have used it in about eight or nine cases and my results and experience were about the same as his. I use it only in cases where the patients are timid and nervous. The current in Cincinnati is stated to be about 110 volts, but it varies from 108 to 115. I cut it down to eight volts, and use from three to six milliampères. The apparent difference in strength of current used by Dr. Casselberry and myself is that I use a different meter, one made by Hirschman of Berlin, which is extremely delicate and accurate. His whole apparatus is very reliable, no shocks of any kind are experienced by the patient, as the increase or decrease of strength of current is very gradual. A water rheostat is used. My experience as to results corresponds closely to that of Dr. Casselberry. Bony spurs are not at all affected by it; the best results are seen in soft cartilaginous excrescences. No pain is felt by the patients, although in one case, that of a very nervous woman, peculiar, dizzy sensations were complained of. Only the bi-polar method should be used.

DR. HANAU W. LOEB, St. Louis, Mo.—I was impressed with the statement of Dr. Myles in regard to maintaining an opening. I remember one case in which there was complete stenosis as a result of smallpox; there was complete adhesion of both edges to the septum. To maintain the opening I used two rubber tubes, which were made after the fashion of Simrock's spectrum. These were worn without discomfort for six months, later being worn only at night, and at present there is a complete opening.

DR. W. E. CASSELBERRY, Chicago—I tried to make it plain in my paper that it was not my custom to attempt to reduce all spurs of the nasal septum or even all cartilaginous spurs by the process of electrolysis; that I selected the cases for this method of treatment in accordance with the size, location and composition of the spur and somewhat in accordance with the degree or timidity or nervousness of the patient, some cases objecting or being unsuited to the surgical method. I was led to test electrolysis for two reasons: First, on account of previous disagreeable experience from hemorrhage by the surgical method even in trivial cases, and second, by the remarkable results that seemed to have been obtained by Moure and others by electrolysis. I examined it to find out what was in it, and I regard it as a useful addition to my resources for the treatment of this class of cases, but by no means worthy of exclusive reliance. Regarding secondary hemorrhage, of course, it is possible, but I have not met with it. Electrolysis should not be confused with galvano-cautery; they have nothing to do with each other and I do not use them for the same purposes.

To Check a Sneeze or a Cough.—Dr. Brown-Sequard, in one of his lectures, said: "Sneezing can be stopped by pressing on the nerve of the lips near the nose. Pressing on the top of the mouth very hard is also a means of stopping coughing, and many say the will alone has immense power."—*Pop. Science News*, August.

NEW MEXICO AS A HEALTH RESORT.

Read in the Section on State Medicine, at the Forty-seventh Annual Meeting of the American Medical Association at Atlanta, Ga., May 5-8, 1896.

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The Rocky Mountain region, especially the mountains and the upland plains of New Mexico, is a land lifted up by nature into the pure serene for the general invigoration of the race. New Mexico belonging to the Rocky Mountain crest, its eastern slope and a larger portion of Arizona belonging to their western slope, has perhaps, the most equable climate known. There are no extremes of winter cold or of summer heat; while there is a notable absence of dampness in air and earth. Little moisture is left for this region after the hot winds of the Southern Pacific are wrung dry by the coast ranges. The elevation of this country from four to eight thousand feet is just sufficient to prevent that oppressiveness of summer heat which otherwise would be severely felt in these latitudes from 32 to 37 degrees north. The winter months throughout this region owing to the ever present sunshine, and the positive shelter of the mountains, afford the most satisfactory retreats for invalids.

The purity of the air is shown by the absence of atmospheric dust and disease germs. Its notable clearness over the plains has been remarked for many years. Objects are clearly seen at great distances which in ordinary atmospheres would be hidden by fog and dust. The sun is visible nearly every day of the year and often for months without a cloud-fleck to obscure its radiance. The sun's heat is really grateful instead of oppressive. The native when enfeebled by illness or age basks in the sun. It is the best medicine that he knows. It renews his youth by renewing life at its springs. The invalid or valetudinarian feels at once the mild stimulus. Simply to breathe the air seems a luxury and a delight.

A noted peculiarity of this upland country is the coolness of the nights, even in the extreme of summer. The earth heated by the sunshine freely radiates its surplus at night, there being no blanketing clouds to intercept or confine. Uninterrupted and balmiest sleep is thus insured, bringing healing on its wings, while the absence of insects to torture is an additional security. It is certain, that change of climate as a curative measure, promising though it be, requires means in abundance to secure its best results. But, as though nature were willing to bestow her best resources, on the poor as well as the rich, the benefit of this climate is open to all at a minimum of cost. The least expensive structures afford ample security and shelter at all seasons. Nourishing food can be obtained on an average at its cost at our great population centers. Fuel too, cheap and abundant, is largely unnecessary where the sun's largess is so ever present and grateful. Not to mention the beautiful and abundant building stone, the Mexican adobe houses are delightfully cool in summer and warm in winter. These can be made with materials at hand, or by larger outlays, can be constructed as luxurious as could be wished. Along the leading routes of travel such might be conveniently located and nowhere be more than an hour from skilled physicians and needed supplies. While the elevations of New Mexico from four to eight thousand feet all possess the same general climatic features, each altitude has some especially desirable quality. The plains are more uniformly dry and

their winters are less vigorous than in or near the mountains. In all these sections the atmosphere has the same characteristic clearness save for occasional dust storms. The mountains catch the greater part of the rain and snow, and furnish the chief water courses and supplies for irrigation, etc. The summer rains from July 15 to September are chiefly seen in the mountains and are usually transient. In the plains they are much less frequent and there is an almost entire absence of dew. Nature as though to confound the wise, shows vegetable life in hundreds of native species flourishing in the plains with wonderful healthfulness, unvisited by mold fungus and vermin so inimical to plant life in damp regions. The cryptogamous plant world which elsewhere sends its spores and disease producing germs across the world is almost unrepresented in the mountains and plains. Fungi, mosses, ferns, lichens and liverworts, which thrive so signally in the damp and dark, find small encouragement in the sunshine State. The experiments of Tyndall to demonstrate the purity of the atmosphere in Alpine glaciers can be repeated most satisfactorily in the plains and foothills of the Rocky Mountains at an elevation of from four to six thousand feet. At such elevations in the plains putrescence is almost impossible. The ordinary ranchman knows he can, with impunity, hang his venison or beef under a tree or shed for weeks even in the summer. The manifold vermin of the infusiorial and insect world are not tempted to climb or fly to this region from their eastern homes.

Most men believe that in the general upbuilding and economy of the earth "some steadfast purpose runs."

Have not these mountains been pushed up in accordance with a plan which involves the general good of the race. The genius of modern civilization may be maritime, but that of the most ancient periods certainly was not. The early home of the Caucasian race was in the uplands of Asia. The shepherds on the oriental mountains studied and named the stars ages before the first frail shallop was launched from the shore. The early Phœnician navigator had learned elsewhere to trust the stars before he ventured his fortunes upon the waves. The Aztic and Peruvian civilizations originated in the mountains and upland plains of the western continent. It may well be that those influences which led them to cultivate religion, art and science in the early periods still remain as a heritage to future mountain dwellers. History in certain broad senses repeats itself. It is at least certain that nature has upreared these mountains in order to diversify the conditions of mankind to vary their industries, their resources and character. The physical well-being of the race as well as its moral and intellectual nature, may here again find its highest expression. It is certainly possible for such as can not have the privilege in crowded and stifled cities to live clean and healthful lives in our mountains. Even in the most prolonged summer heats sunstroke is unknown in New Mexico. Diseases associated with malaria are excessively rare. Acute rheumatism, pleursy and pneumonia seem only incident to special and unnecessary exposures to cold night air and subterranean damps peculiar to a miner's and cow-boy's life.

The diseases for which the mountain climate may be claimed as a prophylactic are first, those deadly diseases of infancy, summer complaint and cholera infantum. Abdominal disorders are rare. Typhoid fevers are but feebly represented by the dreaded "mountain fever," which is neither so deadly or common as those dreaded diseases are in the East. There are some neuroses like chorea which seem to be aggravated in this country.

I have observed among native New Mexicans that heart disease, functional or organic, does not seem in any respect more common than in the Mississippi Valley and pursue much the same course. Pure neuralgias seem positively benefited by this climate. Tuberculous, bronchial consumption, and asthma are most uncommon among the native population. Invalids with lung disease seem often greatly relieved and cured by simple residence. But, where the lungs are riddled by disease and tied down by adhesions, the very rarity of air becomes a great disadvantage. Such cases are the great opprobrium of traveling patients who succumb to the inevitable "heart failure" of which so very many die before they reach a secure haven. The striking feature of the mountain country is the diathermancy of the air. Less heat is absorbed by the atmosphere than in lowlands. This obviates in great measure the oppressiveness of the air. Moreover, there is on this account an immediate and gerat difference between temperatures in the sunshine and in the shade. This difference has been calculated as equal to 1 degree F. for every 230 feet vertical ascent. This gives for elevations of 6,000 feet above 20 degrees F. difference. But the effect of sunshine in the absence of aqueous vapor in overcoming its direct depressing influence is something for which there is no accurate measure. Perhaps there is at the crest of the continent an electric or other earth aura which ameliorates the sunshine and causes it to quicken the pulses of life.

Statistics have proved that the West Indian islands and the Gulf States are unfavorable for most lung diseases and rheumatic fevers as well as abdominal disorders, generally, being hot beds of malaria. The same is true of the climate of India. The boasted climate of Nice and Mentone save for a short period of the year is found a signal failure. This is true of all the islands of the Mediterranean. Except the parched land of Egypt, no region has been admitted by English authorities as especially favorable for lung trouble. Egypt, however, is the home of the plague, cholera, of abdominal disease, and ophthalmia and a thousand discomforts. Great Britain in her ambition to possess the world has accomplished one important matter at least, though with great expense of life and treasure. She has tested many climates by means of her army. Her health and death rolls have established the extreme unhealthfulness of Gibraltar, the islands or shores of the Mediterranean, of the Black Sea, of India, China, the valley of the Nile, the West Indies and Central America and Demarara. Canada and Australia and her own foggy shores have given the best returns for salubrity as shown by England's army reports—a sad record at best. The Kerghees steppes near the Caspian, though below the sea level, owing to its dry air has been observed like the valley of the Nile favorable for tuberculous disease. In the elevated plain of Persia and Armenia, at elevations of about six thousand feet, phthisis is much benefited.

In the Alps at St. Moritz, on the river Inn in the valley of the upper Engadine are spas and winter cures where some happy results are experienced, despite harsh air and inclemency.

The elevated plains of Anahuac in Mexico have borne for several centuries a reputation for salubrity. The plain of Quito directly under the equator, at an elevation of nearly nine thousand feet, has a well established claim for general healthfulness, as also have Montana, Potosi and still greater elevations. New Mexico, with its clear dry air, affords a great contrast to many mountain regions, in particular to the Alps. These, placed between near and sharply contrasted seas—the superheated Mediterranean, the fierce, cold Baltic and the storm swept Atlantic have ever been the cradle of climatic excess. The mountain tops are eternally capped with snow and glaciers; their valleys are the hot beds of miasm and dampness, where consumption and cretinism prevail. The cold sides of the Alps are to-day, however, lined with hotels and *pensions* for invalids, who try to imagine themselves benefited by gazing on ice-clad peaks and mountain torrents. There is this to proclaim, and it is of higher importance than the story of matchless fertility, or of hills seamed through with the precious metals. In the Rocky mountains there is an area of 1,000 by 300 miles with a climate the most serene and invigorating of all that have been tested or in any proper manner demonstrated.

ALCOHOL OR NO ALCOHOL IN THE TREATMENT OF TYPHOID FEVER.

Read in the Section on State Medicine, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5-8, 1896.

BY J. B. GARBER, M.D.
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There is no disease in the entire catalogue of human ailments that is of more concern to both the physician and the patient than that of typhoid fever. It attacks the young, the old, the rich, the poor, the high, the low, the monarch and the slave, and while the disease has a special fondness for certain ages and conditions yet none are exempt even after having once had an attack.

It is found on the mountain top and in the valley, and an epidemic may begin on the mountain top and spend its force in the valley as was the case in the noted "Plymouth epidemic." It is both epidemic and endemic, and no physician who engages in the general practice of medicine will continue long ere he comes face to face with this dreaded destroyer of family ties and human comfort.

The diagnosis and symptoms of the disease have been studied and discussed since the dawning of the present century. Since the year 1813 it has been recognized as a distinct ailment, and in the year 1829 Louis gave it a name, but even then it was supposed, as its name indicates, to be a milder form of typhus; and not until nearly twenty years later was a differential diagnosis made; finally, in the year 1880 the bacillus typhosus was discovered and since that time we have been trying to obtain a remedy or plan of treatment that will destroy the germ without destroying the host. As to the medical treatment of the disease you will no doubt hear enough before this meeting closes to convince you that it is still unsettled and as to whether it can be aborted or not I leave for others to discuss, especially those who are engaged in this line of work. But there is another side of this question, and that is the sustaining of the vital forces while the disease is in progress.

It is the steering of the ship through the storm that marks the successful mariner. The successful guide is he who avoids all dangerous routes. Likewise the practitioner is judged by the result of his work; his rate of mortality is what marks the successful physician and especially is this true in the treatment of typhoid fever. We believe sustaining the vitality of the patient is of as much importance as the medical treatment of the pathologic conditions present; also that any agent which contributes to this end is a great aid in the successful management of a case.

What influence does alcohol have in thus sustaining the vital forces of the patient through this trying ordeal? Let us first refer to some of our authors and notice briefly their teachings on this subject. Von Ziemssen, in an article which appeared in the ASSOCIATION JOURNAL of 1887, closes by saying, "It is better to give too much alcohol than too little." Another able writer in the *Medical Press and Circular* of 1887 says: "A very important point in the treatment of typhoid fever consists in the administration of alcohol. When we have a long continued febrile process it is requisite and necessary to give wine in all cases, without exceptions, from the first." The same author tells of the enormous amount that may be taken even by those who are not accustomed to its use. Another writer of the same year says, "In the treatment of typhoid in children, for food, give bouillon, barley water, lemonade and milk, and if there is much prostration alcohol and extract of bark."

These are only a few quotations showing the teachings of the last decade and we will hastily pass to the instruction given in our latest text-books.

Dr. Osler, in his first edition, 1892, says: "Alcohol is not necessary in all cases, but may be given when the weakness is marked, the fever high and the pulse failing." In his latest edition, 1895, the same language is used, showing no change in the author's opinion, or an oversight in revision.

Professor Whitaker, in his "Practice," tells us that "alcohol is the best whip for a flagging heart, in a mild case in the form of wine, in a severe case in the form of whisky and in the most protracted cases the alcohol should be given in the form of brandy." He also says: "A threatened collapse may be bridged over by a cup of black coffee with a teaspoonful of cognac," and closes the paragraph by informing us that nitroglycerin, 1-100 in doses of 3 drops in whisky is one of the most powerful agents we possess.

Bartholow, in the last edition of his "Materia Medica and Therapeutics," after discussing the subject of alcohol at some length, closes by saying: "The chief utility of alcohol in these diseases [referring to fevers and other depressing maladies] is not as a stimulant but as a food. It furnishes material, easily oxidizable, which can be applied as nervous, muscular and gland force," and then says, "it should be given with milk, eggs, broth and other suitable aliment." The same author says that the action of alcohol on the nervous system is that of a narcotic.

With such indefinite statements as to the action and use of so potent an agent as alcohol on the system is it any surprise that the mortality runs from 10 to 30 per cent? In reference to the medical properties of alcohol there is a difference of opinion. It may be germicidal, but this property can not be utilized in the treatment of typhoid fever. So we come at once to the question of greatest importance. Is alcohol a food and does it assist in tiding the patient over a crisis.

A food as defined by Dr. Chapman in his "Physiology," is any substance, inorganic or organic, solid or liquid, that will nourish the body and renew the material destroyed in producing the phenomena of life. The same author says that alcohol can be of no benefit to the system, for it is found as such in the organs untransformed or is excreted unchanged; hence, it can not supply any want by simply passing through the system and if it is burned up it must interfere with the oxidization of other substances, such as fat, etc. He further states that alcohol diminishes the amount of urea excreted and the action of the skin, interfering with natural combustion, thus preventing the whole nutrition of the body; and then closes by stating that as a medicine it is indispensable. This alcohol is a peculiar drug; it has been found in the brain unchanged, excreted likewise, yet as a medicine is indispensable. What medical property has it that can be made use of with benefit to the patient of typhoid fever?

Methinks I hear some one answer, "a food to nourish the patient;" another, "antipyretic to reduce the fever;" and still another, "a stimulant to tide over the crisis, to whip the lagging heart." Does it rest or strengthen a tired horse to whip him into a trot? Alcohol has a paralyzing influence and all the effects of its use, which seem to be the result of stimulation, can be shown to be those of paralysis. The first effect of alcohol on the brain is that of paralysis and affects the faculty of reason, and as Bunge says, "the emotional life is brought into free play unhampered by the guiding strings of reason." The same author states that another paralytic symptom which is erroneously regarded as one of stimulation is found in the deadening of the sense of fatigue.

Dr. Kellogg, in an excellent paper published in the December *Bulletin*, after reviewing the physiologic relations of alcohol as set forth by Professor Bunge, closes with the following language: "In view of such testimony as this how is it possible for anyone still to maintain the old error born of the ignorant and pernicious idea that alcohol is a food, a tonic, a stimulant, a rejuvenant and a conservator of energy. It would seem to be time that physicians were considering this question of the medical use of alcohol seriously and conforming their practice to the facts of science instead of the traditions of our medical forefathers and the formulas of obsolete text-books."

How is it to-day with the young doctor as he leaves his alma mater, his diploma under his arm? Among many other delusions and theories that fill his mind is one that alcohol is useful in all diseases and conditions, from the bite of the poisonous snake to puerperal hemorrhage. In one pocket he carries a dose book containing a list of poisons and their antidotes, and perchance a copy of the code of ethics. In the other his medicine case filled with tablets and triturates of all kinds, from nitroglycerin to sulphate magnesia. I have wondered why some enterprising drug company did not make tablets of alcohol. How convenient they would be. Thus armed, the young disciple of Esculapius goes to the field of battle. It is not long till this young soldier comes in contact with a case of typhoid fever. The symptoms are not just like those described in the books or heard in the lecture room, but while he is waiting for something to happen the patient passes into the second week of the disease. By this time the symptoms are more marked and by exclusion a diagnosis is made and time is hastening us into the third week, which is one of debility and depression, and the first thing thought of is alcohol, which is given freely. If it is well mixed or alternated with suitable nourishment the case may terminate favorably; if not the alcohol only hastens the end.

We believe the mortality from typhoid fever has been gradually lowering, and no doubt is due in a great measure to the non-use of alcohol in the treatment of the disease. There is hardly a week passes that some of our journals do not report a series of cases treated without the aid of alcohol in any form. I used alcohol in the treatment of the disease until two years ago, when I became alarmed at the mortality, so I changed my plan and in 1894 I treated thirty-seven well-marked cases of varying degrees of intensity. I had two fatal cases, and in both of them I had used alcohol. In 1895 I treated thirty cases of about the same type with no death. I only used alcohol in one of them and it caused me more trouble than any of the others. As this case was in the family of a saloon-keeper I could not control the matter, and they would give it during my absence. On my return I would find the face flushed, the temperature high, the pulse rapid and the patient nervous. By close inquiry I would find that some of the family had given just a little good whisky, which had been in the house for twenty years.

In closing, I wish to state I am well convinced that in the treatment of typhoid fever our patients will do better and stand a better chance of recovery if we abstain entirely from the use of alcohol in the treatment of the disease.

DISCUSSION.

Dr. J. N. Quimby—It can not be said that the author of this paper is at all prejudiced. He has tried the alcoholic treatment thoroughly. I have also tried the use of it. I grew up at a time when it was regarded as a panacea for all the ills that flesh was heir to. It was a food, a stimulant and a nerve supporter. It was just after the attention of the world was drawn to Liebig, who made the fatal mistake of thinking that because it had a certain amount of carbon it supplied what was needed in the body, when, in fact, it is no carbon. We started with the mistaken idea that alcohol was a stimulant and supported the body; that it would act as a powerful nutrient to the blood, but that it must not act as an anesthetic. It is impossible for anything to act as food when it acts as a narcotic. We have been using it because our forefathers recommended it. We did not take the trouble to analyze and see what it was. A valuable example is that of the soldier (Martin) wounded in the abdomen, the wound healed but the aperture remained open. Through this a physician was able to study the process of digestion. Whenever he used alcohol in any form it always interfered with digestion. There are the practical tests of Summerville, Richardson and thousands of others that have been made, and notwithstanding that fact, the majority of the medical profession continue to use alcohol as though it was food, stimulant and supporter of the basal nerves, when, in fact, those who have paid attention to the matter have concluded that it is neither one or the other, and yet, if you give a small dose it interferes with digestion, because it precipitates the pepsin of the gastric, and anything that does that is not a supporter. For the last twenty years I have not used a drop of alcohol. Give a certain amount of nourishment but do not destroy that with alcohol. In my cases there is generally a higher rate of cures than of those who use alcohol. I was once called in consultation over a very old gentleman, to whom the physician was giving alcohol,

a glass of champagne and one ounce of brandy. I decided that he had an uncertain pulse. It seemed to have a better volume, and I took into consideration that he was soothed with alcohol. You know 5 per cent. is a large portion. It is dangerous to introduce 10 per cent. Notwithstanding all the stimulants the patient died. I believe he died from alcoholism rather than typhoid fever. I give this as an example where we are making a grave mistake in using alcohol, because we know it is a narcotic, it paralyzes the mind and muscles. To administer it as a heart tonic will do more harm than good, because it is not a heart tonic but a narcotic.

DR. MCDANIEL of Alabama—I have some knowledge of this subject of alcohol, as we all have of every remedy we use. A man of my years has frequently heard these conflicting views and has witnessed the results as claimed of the different remedies. I do not wish to controvert nor yet to advocate what has been said here on the subject; my object is to enter a protest against extremism. I look upon alcohol as an anesthetic, and I believe is a fertilizer of the basal nerves. Illustration is one of the most powerful arguments brought into discussion. We are asked, what effect does alcohol have upon the vital actions and the functions of the body in health or disease? Suppose I take a small alcohol lamp and put a match to the wick. The first thing I know the alcohol is burned up. There has been some heat generated when the alcohol was burning and when the small wick was burning out. If we give alcohol to the patient it comes up to the capillaries of the lungs, which we call the wick of the human lamp. It keeps up the temperature of the failing, feeble patient. If he is disposed to get cold, if he verges beyond the stage which you describe, I think you have witnessed that this supplementary food was of some use. I don't believe we understand theories fundamentally enough to base an exclusive dogma on the action of experiments; but when I see the results on patients in typhoid fever I know something about the action of alcohol. I was once extremely prostrated with typhoid fever. A friend gave me sweetened water with cognac brandy and nutmeg grated over it. My nerves were all unstrung and I was tossing from side to side; but in fifteen minutes my nerves were quiet and easy. I have tried stimulants hundreds of times in that nervous condition of the system, and I know no other nerve tonic which can equal it. It will produce perspiration in a dry, raspy skin, and will produce sleep where there is insomnia. I know that alcohol does good sometimes. There are two sides to this question and we should not go to either extreme. Let us say it does have an important function. If you experiment upon yourself and are benefited by the use of alcohol, it is the alcohol which makes you feel so much better.

DR. QUIMBY—I admit there is always apparently some benefit to be derived, but the point is, if alcohol has done so much good, which we admit to a certain extent, if it has saved one life, for that life it has saved I can cite over one hundred which it has destroyed. Therefore it can be treated on the practical point that there can not be found a case where alcohol will do for which other remedies may not be substituted that will do better. You hesitate about giving opium for fear of the danger that will result from the appetite created for it, and yet you prescribe alcohol. When you look over this broad land and see how many homes are beggared, how many graves filled from want, destruction and disease, and realize that this is done by the use of alcohol to a very large extent, I say if we possibly can avoid it, let us do so. There is much to be learned in reference to alcohol. It is not only injurious, but creates comment among the laity regarding the medical profession; then, too, there is the condition which the poisonous element of alcohol leaves one in. We have a double poison, that of alcohol and by urea. It prevents the destruction of tissue which ought to come out of the body. If not cleared of the poison that the system secretes daily, you are sure to suffer from the effects of it. We have also much to learn in reference to the modus operandi of alcohol. It creates within the body an irregular form of appetite and habit. For these and countless other reasons we should make use of the many remedies which can accomplish all and more than the good resulting from the use of alcohol without its baleful effects.

DR. HIBBERD—It has been stated that a stimulant was one which was founded on nutrition. Is that true? Is not a stimulant something which renews strength in the tired organs and alcohol that which spurs them on to renewed activity? Depression comes simply because the active agents have been overtaxed; but there is that corresponding rest in depression until it shall recover the average strength. I think this definition of a stimulant is incorrect.

DR. KOBER—It seems to me the Doctor's statement is somewhat misleading as to the effects of alcohol on the system. It is very difficult to understand that alcohol produces a paralyzing effect upon the heart muscle, when we all have seen the stimulating effects of a greater or less quantity of alcohol. The statement was made that it interferes very seriously with urea elimination. This may be the case in advanced stages of Bright's disease, but is certainly not the usual effect of alcohol. It has a stimulating effect on the kidneys. In regard to the particular effect of alcohol, the Doctor made a statement that whenever 10 per cent. of alcohol was taken in the blood it would prove destructive. That may be so, but I am inclined to think that he is confused in his ideas in regard to the operations that are going on in the stomach.

DR. COCHRAN—I am only going to express my gratification that alcohol has found some friends in this section of the AMERICAN MEDICAL ASSOCIATION. I think all of those books are unscientific and based upon indirect information. I recognize fully the value of alcohol. I can say it has been a blessing to the human race and so far as I am concerned, am sure that I would not be alive but for it. We should not allow personal prejudice too much latitude. As to killing people, I suppose it does; but how much time and alcohol does it require? As to destruction of property, it probably makes some people poor, but that is caused by abuse and not the use of alcohol. To combat that theory is the apparent benefit with which it is almost universally used. The most prominent, the wealthiest and most successful men use alcohol apparently with good results. When General Booth made the celebrated investigation into the causes of pauperism in East London, which cost many thousands of dollars and filled two or three volumes, he found that only 13 per cent. of the pauperism of East London was traceable to inebriety. There are many things connected with alcohol in the system that we do not know. I feel that the fact that it has always been used is a sufficient reason for its having some valuable qualities.

DR. GARBER—I do not wish the Society to understand that I am an extremist on this question, I simply wish to learn, and have been much benefited by the suggestions; there are a few things which have been said that I think should be referred to. In fact, some have drifted away from the subject and discussed the question from the moral standpoint. I did not refer to that in the paper. I believe that the trouble originates greatly from the teachings of the text-books. They teach that it is necessary in all of these cases. One brother has spoken of it saving his life in typhoid fever. I think under the same conditions hot water with some ordinary stimulant would have had the same result. The last gentleman on the floor has made the statement that most of the successful men have been in the habit of drinking. I would refer to Rockefeller, and Daniel of Ohio, as well as many others who are strictly temperate and yet have attained great success and achieved some prominence. He also spoke of the pauperism of East London. I have been connected with the Ohio Peniten-

tiary in an official capacity and the result of my observation is that 70 per cent. of 1,940 convicts come there directly or indirectly from the use of alcohol. I mention that as regarding the moral side of the question which I have heretofore avoided discussing. One gentleman used the burning of an alcohol lamp as an illustration; on the same principle why not use gasolin or make a decoction of coal products and other things we use outside of the body, for oxidization. I do not believe alcohol can be oxidized in the system. It can be burned outside. We would not think of inhaling natural gas because we use it for illuminating purposes. A few inhalations would satisfy us, I think. I have followed it with much interest, but I yet believe it is a bad thing to use alcohol in the treatment of typhoid fever.

TRANSFUSION, INFUSION AND ANTO-TRANSFUSION; THEIR COMPARATIVE MERITS AND INDICATIONS.

Read before the Kentucky State Medical Society.

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Whenever a number of measures of a more or less varied and changeable character are advanced for the fulfillment of a long existing demand, it means an absence of unity in the selection of the proper measure and a general distrust in a satisfactory adjustment of the demand. This is clearly illustrated by the number of procedures that from time to time have been recommended to overcome the depressing and even fatal condition following enormous hemorrhages.

The fact that the operation of transfusion is but rarely performed at the present time, and that of infusion faring but little better, tempted me to refreshen the subject somewhat more than a month ago before one of our local societies. Since that time I have been impressed more than ever with the neglect to which these operations have been subjected and the importance of bringing them before the eyes of those engaged in operative work.

I may be pardoned for borrowing from my former paper the historic outlines in connection with the development of these minor operative procedures.

The first intimation of transfusion can be found in the 333d and 334th verses of the seventh book of Ovid's Metamorphoses, "Veteremque haurite cruorem Ut repleam vacuas juvenili sanguine venas." This carries us back to the time of Christ, and from then down to the present period; "a long but unbroken chain can be traced running through the Hebraic and Egyptian medical records." In 1492, or more than a hundred years before the circulation was understood, Pope Innocent VIII. was struggling with his last illness. He was attended by a Jewish physician who, it is supposed, was prompted by the idea noted in the verses of Ovid and performed transfusion with the blood taken from three Roman youths. In 1615 Andreas Libavious, of Halle, wrote an article upon a charlatan who is supposed to have performed transfusion. In 1628 another appeared under the authorship of Johann Colle; coupled with these came the discovery of the circulation by Harvey, which was directly responsible for the vigorous attention which the learned men at that time gave to the subject.

In 1652 an apparatus for arterio-venous transfusion was contrived by Folli, of Italy. In 1666, Richard Lower drained a good sized dog by tapping the jugular vein. When the animal was exhausted he filled the vessels with blood drawn from a cervical artery of a second dog until the animal had recovered; he then drained the same animal a second time and again filled his arterial system with blood from a third dog, thus completely changing the blood twice in the same animal without any unfavorable consequences. This represents the first well-authenticated experimental maneuver made in the direction of transfusion.

This aroused an interest in the Royal Philosophical Society, and it was then believed that a remedy had been discovered which was not only capable of curing disease but by means of which the aged could be transformed to the youthful and the immoral could be changed to the moral. So strong was the belief in the latter, that a trial was actually undertaken by Lower and King.

At that time a religious fanatic by the name of Arthur Boga, 30 years old, offered himself in consideration of a guinea as willing to undergo the experiment, which was conducted, in the presence of the Bishop of Salisbury and a large and brilliant audience, by Lower and King. Six to seven ounces were withdrawn and ten ounces of arterial blood from a sheep was injected. This operation was again successfully performed on the twelfth of December of the same year by the same operators.

It must be noted, however, that these experiments were preceded by others performed by Jean Dennis and Emmerez in Paris in the year of 1667, and to whom the honor of the first successful transfusion in a human subject is due. Dennis employed the blood of a lamb, and several times repeated the operation upon several different subjects with almost uniform success, so far as the transfusion was concerned. These operations aroused a vigorous and jealous opposition in Germany, France and Italy, and were partly terminated when Dennis narrowly escaped a trap that had been set for him, but notwithstanding his innocence, it had involved him in a criminal case.

From this time enthusiasm began to lag and matters continued with a varied interest until 1818, when James Blundell, the obstetrician, placed transfusion upon a scientific basis, at the same time giving a method for its correct performance. To Blundell is likewise due the honor of first employing human blood instead of that of lower animals for the transfusion. With this the history of transfusion can be dismissed. In parting we might add that there are but few procedures known to medicine whose histories are more replete with incidents that are as varied, interesting, pathetic and amusing as the history of transfusion.

Before entering upon the subject of transfusion, it is well to glance at the conditions which are produced by the loss of large quantities of blood.

In dangerous hemorrhages death may ensue from one of two causes, i. e., either from the absolute loss of blood itself or from a fatal reduction of the intravascular pressure. In the first instance, the amount of blood is insufficient to meet the demands necessary for the sustenance of life. This makes the case unmistakably clear, and the indications are more blood, or death must ensue. In these cases nothing short of transfusion will fulfill the requirement; fortunately, however, these constitute the minority. In the majority of cases the death following hemorrhage is not due to the direct loss of blood itself, but rather to a disturbance in the mechanism of the cir-

culation. Let us glance at the physiology of the circulation.

Two factors must be considered: First and foremost, the force of the heart, and second, the elasticity and contractibility of the arteries. If the heart has an insufficient volume of blood, or perhaps more properly speaking, volume of fluid, for blood is not absolutely necessary for this feature, there is an irregularity in its contractions and a serious crippling in the proper working of its valves, and in consequence we have a condition at once produced which for the time being, can be compared to the worst variety of valve lesion, so that the heart not only fails in sending out the required amount for nutrition, but also for the closure of the valves. Aside from this, the amount of blood sent out is not sufficient to produce the necessary dilatation by means of which the elastic nature of the large arteries are enabled to propel the force of the heart to the more distant parts of the body.

When this state of affairs exists, the indication for an increase of the intravascular pressure is equally plain and the requirement then is more fluid; whether that be blood or salt solution is immaterial.

TRANSFUSION.

By transfusion we mean the injection of the blood of one individual into the vessels of another. Although this operation has been variously designated by different writers as both safe and unsafe, there can be no doubt that in the hands of a careful operator, all possible elements of danger can readily be eliminated.

Indications.—From the history of transfusion it is apparent that formerly its range of application was far more extensive than its merits justified, and in view of this state of affairs the disappointments naturally were quite frequent. This largely aided in relegating it to the disuse to which it was subjected. At present any factor may serve as an indication for transfusion, which reduces the quantity of the blood so that the remaining volume is unable either by reason of the reduction, or incapable by reason of any alteration to which it may have been subjected, to carry on the functions necessary for the sustenance of life. The principal conditions which such a statement would comprise, would be either an acute anemia, dependent upon an extensive hemorrhage, or a paralyzation of the oxygen carrying power of the red corpuscles, carbonic oxid, or other similarly toxic gases. We would still scarcely regard such conditions as morphin or atropin poisoning, leukemia, chlorosis and a host of other pathologic states as justifiable indications for the employment of transfusion.

Modus operandi.—There are a few practical features in connection with the operation of transfusion which deserves special attention. During the cholera epidemic of 1866, Von Graefe raised the question as to whether the centrifugal should be given the preference over the centripetal method? Whether it would be better to inject the blood into the arteries rather than into the veins? The advantage urged in support of the centrifugal method was that since the capillaries intervened between the arteries and veins, the blood in its passage through the capillaries was subjected, as it were, to the influence of a strainer which safely withheld any air or emboli which might be present in the transfused blood. The arteries which were employed were either the radial, tibial or even perhaps the brachial. Although this method has the endorsement of Billroth, Landois, Heuter and others, it has likewise many very able opponents who have pointed to the force necessary for the centrifugal method which not infrequently resulted in a rupture of the capillaries with accompanying gangrenous conditions.

Another question to be decided is whether or not the blood should be defibrinated and whether we should select the venous or the arterial blood? Referring to the former of these two questions, we are safe to say that the verdict is almost unanimously in favor of the defibrinated blood. It has been said that the integrity of the corpuscle is considerably affected by the defibrination of the blood, but this is somewhat problematic. However, the dangers of a partial or an entire coagulation which attended the use of non-defibrinated blood, fully justifies the defibrination.

As to the second question, there are reasons why the venous blood is to be preferred to the arterial, namely, the veins are more accessible than the arteries. The tapping of a vein is simpler and is attended with less subsequent dangers than accompanies the opening of an artery, besides the blood, although venous in character, rapidly becomes arterialized during the act of defibrination. In addition to these we might ask, should the transfusion be direct or indirect, i. e., should the blood pass directly from the vessels of the donor into the vessels of the receiver without any exposure to air? To this we are inclined to say that we believe it to be far safer to employ the indirect method.

The extreme tendency on the part of the blood to coagulation, and the grave result which attends the introduction of even a minute embolus, not to speak of the chances of the introduction of air, even at the hands of a careful operator, makes us unhesitatingly declare in favor of the indirect method.

Should the transfusion be undertaken for the relief of a poisoned condition of the blood, such as results from the exposure to carbonic oxid gas, the individual should be subjected to venesection before the transfusion is undertaken. In the performance of the operation no elaborate outlay of instruments is necessary. Two or three bowls, a reversible aspirator, a glass rod and a scalpel, all of which being in a perfectly aseptic state, will fill the requirements. Everything in connection with the operation must not only be perfectly aseptic but must be heated to 105 or 110 degrees F. When all is in readiness, the blood is withdrawn from the arms of one or two donors into one of the aseptic bowls, the amount varying from five to fifteen ounces, according to the circumstances of the case. It is rapidly defibrinated by whipping it with a glass rod and then straining through a piece of sterile gauze into an aseptic bowl. This whipping may be carried out for a minute and a half before straining, but still better is to whip for a minute and strain whipping, whipping it a second time and again straining through a fresh piece of gauze. The actual operation must be performed within two or three minutes, and the greatest care must be exercised that all of the air has been forced out of the syringe and tube before the injection is commenced.

Dangers of transfusion.—The possible dangers that may attend the operation of transfusion are: Phlebitis, sepsis, embolus and the introduction of air into the veins; all of these can be readily eliminated if the operator exercises care in the transfusion.

INFUSION.

By infusion we understand the introduction of non-sanguineous fluids into the circulation. Although the popularity of this measure is but of recent date its real history, however, can be traced as far back as the year 1677, when Johannes de Muralto of Zurich practiced the injection of milk into the vessels of one of the lower animals. The term infusion, however, as applied to-day carries with it the idea of a salt solution having the same strength as the serum of the blood. The advantages of this operation over that of transfusion are manifold, especially since death, in the majority of instances, is not due as much to the insufficiency of the remaining quantity of blood as it is to a disturbance of the mechanism of the circulation. By the use of the salt solution the dangers common to transfusion are all minimized and especially the dangers from emboli are entirely absent. This widens the field of its usefulness so that the indications for its use are not wholly confined to conditions following alarming hemorrhages, but include any pathologic state attended with a feeble pulse which is dependent upon a diminution of the intravascular pressure which makes it one of our most valuable measures for combating profound shock.

This property of restoring the tone of the circulation in a condition of shock is not entirely due to the increased intravascular pressure, but also due to the stimulating influence which the salt solution has upon the heart. This fact, however, has not received the recognition which it deserved, for it has been but a little more than a decade since it has practically received any attention.

In the year 1881, transfusion lost most of its esteem as a life saving measure in alarming hemorrhages. At this time E. Schwartz published his paper, "Ueber den Werth der Infusion Alkalischer Kochsalz Losung in das Gefass System bei Acutes Anemie." From this time the adherents to transfusion have been abandoning it in favor of infusion, not that the latter can ever completely replace the former in every case, but because it can successfully replace transfusion in most cases, and where such is possible it is always given the preference, owing to its greater safety and convenience. In view of these advantages, it is proper that we employ the saline infusion in all alarming hemorrhages.

This operation is uniformly followed by an improvement in the circulation. Should, however, the improvement in the circulation last but a brief interval, it is plain that the amount of blood remaining is incapable of carrying on the condition necessary for life and then it is evident that transfusion must be performed in addition to infusion.

In addition, it has been pointed out by other authors that the saline infusion protects the internal organs from a too rapid and extensive abstraction of their parenchymatous fluids, which nearly always occurs after an extensive hemorrhage.

By saline infusion we mean the injection of a solution of sodium chlorid having the same strength as the serum of the blood (0.6 per cent.) into the veins of the bloodless subject. Some add to this a trace of sodium hydrate or sodium carbonate, while others contend that this addition is unnecessary and that should either the carbonate or hydrate exist in proportion of more than a trace, their presence would become positively injurious. Again, others dissolve the salt in a weak saccharin solution, or the infusion has been successfully carried out by Thomas and others with pure fresh milk.

As for the proper performance of infusion, there are several features to be observed. First of all, the solution should have a temperature of about 100 degrees F. The infusion must be made with a slow, steady and not too strong a stream. Ordinarily, sufficient force is obtained by raising the funnel or the vessel containing the solution to the height of an ordinary arm's length; should this convey the solution with too much force, the latter can easily be regulated by lowering the container to the desired level. The quantity to be employed must depend upon the nature of the case. It is not necessary in every instance to employ as much solution as the amount of blood lost; all that is required is to inject just enough of the solution to restore the tone of the circulation. Ordinarily twelve to fifteen ounces can be considered as the minimum quantity to be used for ordinary purposes, but from twenty to twenty-five ounces may be used in alarming hemorrhages.

The operation itself can be divided into three stages: First, the exposure of the vein, preferably at the bend of the elbow. In the second stage there is one feature that deserves emphasis, the transfusion tip should only be introduced into the vein while the fluid is running. The observance of this precaution not only washes apart the lips of the opening in the vein, but affords an absolute safeguard against the introduction of any air, which is one of the chief dangers associated either with transfusion or infusion. The third step consists in ligating the punctured vein and applying an aseptic compress.

The principal points in connection with the operation are: To have all steps performed in an aseptic manner, to be careful that the infusion is not made too rapidly nor with too much force, otherwise there will be danger of over distending and paralyzing the already much enfeebled heart. Care should also be exercised that too much fluid is not employed which might give rise to a two-fold danger. 1. By the unfavorable influence upon the corpuscles by the dilution of the blood. 2. By raising the intravascular pressure to such a degree as to occasion a rupture of one of the smaller vessels in some vital part of the economy. It is exceedingly important that great care should be exercised to have the salt solution absolutely free from any minute floating bodies, which if present might act as emboli producing death or perhaps a gangrene of one of the extremities.

Before dismissing the subject of transfusion and infusion we desire to recall the fact that owing to the extreme cerebral anemia which exists after dangerous hemorrhages, either of these operations can and should be performed without the use of an anesthetic. In this condition all manipulations are practically of a painless character and owing to the enfeebled heart an anesthetic would only be adding an additional danger.

ANTO-TRANSFUSION.

By anto-transfusion we understand the forcing of the blood by means of elastic bandages from the extremities to the more vital centers. The indications for this can be summed up as follows: Shock or any condition attended with relaxation and diminished vascular pressure. Again, this is very useful in guarding against accidents in anemic subjects during chloroform narcosis.

SUMMARY.

In conclusion I beg to submit the following:

1. In enormous hemorrhages the resulting danger are more frequently due to the reduced intravascular pressure than to the actual loss of blood.

2. In view of this the indications point more decidedly toward infusion than transfusion.

3. That transfusion has not received the attention which its merits justify.

4. In transfusion we possess a measure which in the severest hemorrhages is the only agent capable of restoring the vital functions.

5. The indication for transfusion includes any condition which reduces the total quantity of blood to a fatal degree or which alters the character of the blood to such an extent as to render it incapable of sustaining life.

6. When the transfusion is performed for the relief of a poisoned condition of the blood it should be preceded by venesection.

7. Centripetal is to be preferred to centrifugal transfusion.

8. In centripetal transfusion the injection should be made with a slow steady stream, carefully avoiding undue force.

9. In withdrawing the blood from the donor the veins afford an easier, safer and better source than the arteries.

10. Indirect transfusion with defibrinated blood is safer than direct transfusion with non-defibrinated blood.

11. In alarming hemorrhages infusion should be performed before transfusion; should however, the improvement be transient in its nature, the infusion must be supplemented with transfusion.

12. In addition to hemorrhages the indications for infusion include any pathologic state attended with a feeble pulse which is dependent upon a relaxed condition and a diminished intravascular blood pressure, namely, shock.

13. Restoring the tone of the circulation by infusion is not wholly dependent upon the increase of the intravascular pressure, but is in part due to the stimulating influence which the salt solution has upon the heart.

14. In performing transfusion or infusion after an enormous hemorrhage, the use of an anesthetic is not only unnecessary but absolutely dangerous.

15. In the anto-transfusion we have a valuable measure for combating shock and preventing accidents in anemic subjects during chloroform narcosis.

OVARIAN TUMORS COMPLICATING PREGNANCY; WITH REPORT OF A CASE.

Read before the Chicago Medical Society, June 15, 1896.

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Within the last ten to fifteen years the management of this interesting and important, if somewhat uncommon, complication of pregnancy has become much more uniform, with a corresponding improvement in the prognosis. While formerly the let alone policy, the induction of premature labor and the puncture of the tumor were methods quite commonly employed, now the much better results obtained from ovariotomy are generally known and recognized, and this mode of treatment has been substituted for the others. Two questions of much interest are still undecided. One is, Which is the better route to reach the tumor, the abdomen or the vagina? The other is, What is the best time to operate? The following case is presented because it may have some bearing on these mooted questions and because the casuistic contributions are not yet too great:

Mrs. C., aged 32 years, III-para. Family history good. Nothing abnormal in menstrual history. First pregnancy, four years ago, was without complications. Labor was slow and forceps were applied, probably unnecessarily. Laceration into the rectum with severe hemorrhage resulted. A few months later I was first called in and repaired the laceration. During the examination a small tumor was noticed on one side. The differential diagnosis was not made between a small cyst of the ovary, a parovarian cyst and a pedicled subserous myoma of the uterus.

Soon after the operation the patient again became pregnant. This pregnancy was also undisturbed. I attended her confinement, which was quite normal. After labor the adnexa tumor was again noticed as a rather hard mass, to the side of the uterus, about one inch in diameter.

May 4, 1896, the patient came to me, to arrange for her next confinement. She had removed from the city to a suburb. She had no suspicion of anything abnormal and complained only of feeling unusually weak with much distension of the abdomen. Her last menstrual period occurred Nov. 1 to 4, 1895. Fetal movements were first felt March 17, 1896, *i.e.*, in the twentieth week. She therefore would be in the beginning of the twenty-seventh week of pregnancy.

Examination disclosed the following condition: The uterus lay in the left side of the abdomen, the fundus being but a finger's breadth below the ribs. The child lay with the head presenting, freely movable above the pelvis and corresponding in size to the supposed age of the fetus. In the right side of the abdomen, extending about two inches above the navel, was a tumor which could be distinguished from the uterus by a groove which ran along between it and the uterus one to two inches to the right of the median line. Through the vagina the pelvis was found filled with a tumor apparently in connection with the tumor in the right side of the abdomen. The cervix was reached above the symphysis a little to the left of the middle line.

May 12, in the twenty-eighth week of pregnancy, I operated at the Policlinic Hospital, with the valuable assistance of Professor Henrotin. On opening the abdomen the large veins of the pampiniform plexus, feeling like coils of intestine, were found lying in front of and to the left side of the tumor, which was not adherent. Its contents were evacuated through a trocar and an attempt made to follow the sac to its pedicle. Then it was found that the tumor arose from the left broad ligament, a fact that could have been suspected from the location of the pampiniform plexus on the left side of the tumor. With considerable difficulty the sac was pushed under the gravid uterus, its broad pedicle ligated and the sac removed. The abdominal wound was closed with deep sutures through the skin and muscular layers, and two rows of continued sutures through the peritoneum and the muscular fascia. A small accidental incision of the peritoneum covering the uterus had been closed with three sutures.

The tumor sac, which held nearly two quarts of brownish transparent fluid, was plainly of ovarian origin.

For thirty-six hours after the operation the patient had considerable pain, for which she received three or four hypodermic injections of one-fourth grain morphia. There was also considerable nausea for two days, but after free action of the bowels she became easy and made a good convalescence. Except for a temperature of 101.2 degrees the evening after the operation there was no fever. As a special precaution against premature labor she was kept in bed till the twenty-third day. She then got up and improved rapidly in strength, and on June 7 felt perfectly well and planned to leave the hospital the next day. During the night, however, labor pains came on, resulting in the delivery of a living child June 8, 9 A.M., not quite twenty-eight days after the operation. The labor was not unusually painful and the abdominal wound, which had perfectly healed, was not disturbed. The placenta was delivered shortly afterward by the Duncan mechanism. Its uterine surface contained several old hemorrhagic fibrinous patches and was quite friable. The child was 43.5 cm. long and weighed about three pounds. It was not very vigorous, and was kept in an improvised couveuse and fed every hour. In spite of this attempt to save it the child became cyanosed and died about eight hours after birth. The patient was

rather weak after labor and had a temperature between 100 and 101 for two days, which then became normal. She is now, one week later, perfectly well.

This case illustrates the rapidity of growth of ovarian tumors during pregnancy. Two years ago, at the last confinement, the tumor was not more than one inch in diameter. There were no symptoms indicating anything abnormal in the pelvis before the beginning of pregnancy; hence we may conclude that the growth of the cyst went on hand in hand with the development of the egg. It was, no doubt, at first located posterior to the uterus, and as it gradually grew to fill the pelvis the uterus was crowded up into the abdomen. Perhaps because the patient was in the habit of lying on her left side, the uterus came to occupy the left side of the abdomen, while the tumor, as it rose out of the pelvis, came to lie to the right of the spinal column.

Two views have prevailed concerning the influence of pregnancy in modifying the rate of growth of an ovarian tumor. Koeberli held that the growth of the tumor might be retarded by pregnancy on account of an increasing pressure and cessation of ovarian activity. A case of Spencer Wells is often cited in support of this view. A patient had a dermoid cyst for eighteen years which decreased in size during successive pregnancies and increased after labor. On the other hand, most cases, like the one reported, support the views of Spiegelberg, who held that ovarian tumors grow more rapidly during pregnancy on account of the increased supply of blood to the pelvic organs. This also accords with the fact that other pelvic tumors, especially fibromyomata of the uterus, increase rapidly in size during pregnancy. There are probably three chief factors which determine the rate of growth, namely, the supply of blood, the degree of pressure on the tumor and the nature of the tumor. In reference to the last element it is well known that dermoids do not grow as rapidly as ovarian or parovarian cysts with fluid or colloid contents. The effects of pressure are seen in cases of tumors which are confined to the pelvis. They may cause much pain and disturbance of the bladder or rectum, and become serious obstacles to labor, without growing to a large size.

In my case the diagnosis was made without difficulty, thus supporting the statement of Schroeder that, with a careful examination repeated if necessary, and making use of anesthesia, a diagnosis is always possible. Yet a mistake is often made. Quite frequently the pregnancy has been recognized and the complicating tumor overlooked. Generally, in these cases, the tumor is small and may cause no disturbance during confinement. If it be located in the pelvis and not spontaneously drawn up into the abdomen, it becomes an obstacle to labor which, undetected, leads to the most dangerous obstetric operations. Forceps are applied, great force is employed, the tumor is ruptured and hemorrhage or peritonitis with death results. Or the soft parts are severely torn, and bleeding with probable infection cause severe illness or death. If the unrecognized tumor be large and labor be not obstructed, it may be mistaken for a twin.

Again, the pregnancy may be overlooked in the presence of a tumor. This was true in eight out of 135 cases of ovariotomy during pregnancy collected by Dsirne. In several of these cases pregnancy was not discovered, even after opening the abdomen, until the gravid uterus was punctured or incised for a supposed tumor sac. Should the uterine cavity be opened, either through mistake in diagnosis or accidentally, it should be emptied of its contents and its walls united as in a conservative Cæsarean section.

The symptoms which indicate pregnancy in the presence of an ovarian tumor are the cessation of menstruation and the usual symptoms of uncomplicated pregnancy. The symptoms of a tumor when the fact of pregnancy is established are sometimes prominent and often nearly lacking. If the tumor is in the pelvis, the bladder and rectal symptoms with bearing down pains and backache are present. If large, the distension of the abdomen with dyspnea and disturbance of the functions of the kidney and liver are to be expected. Yet it is remarkable how often nearly all symptoms may fail, as illustrated in my case, and then we must rely on physical signs, never omitting the vaginal examination.

If the diagnosis be made during pregnancy, the method of management must be determined by the urgency of the symptoms calling for immediate interference, and the probable result to be expected from leaving the case to nature or from active treatment. Pressure on the heart, lungs, stomach, liver or kidneys, due to a large tumor in the abdomen, resulting in dyspnea, edema, symptoms of intoxication, etc., may call for immediate relief. A tumor confined to the pelvis may also cause so much disturbance, both directly and reflexly, as to render its removal desirable. Another indication for interference may be the danger of abortion. Jetter found among 215 cases, 36 of abortion and premature labor, *i.e.*, about 17 per cent. Pregnancy may be interfered with in one of two ways. The disturbance of the uterus caused by pressure of the growing tumor may directly bring on uterine contractions, or the same pressure may limit the blood supply to the fetus and cause its death, thus secondarily producing labor pains. Twisting of the pedicle with resulting shock or hemorrhage into or rupture of the sac, may also call for immediate interference during pregnancy.

If no interference be instituted and pregnancy go on to term, it may end in various ways. The prognosis has been variously given in different statistic tables. Litzmann records twenty-four deaths in fifty-six labors, *i.e.*, 43 per cent. Jetter gives the death rate at about 30 per cent. Heiberg, as quoted by Müller, found among 271 cases that one-fourth of the mothers and three-fourths of the children died.

The most favorable termination is when the tumor opposes no obstacle to the expulsion of the child. Sometimes when the tumor at first lies in the pelvis there is spontaneous reposition, *i.e.*, it is spontaneously drawn up into the abdomen so that the child can be born. In still other cases it is possible to dislodge the tumor from the pelvis by manual interference. This is the treatment that should be tried first in all cases where the tumor is discovered after labor has already begun. One should always make use of anesthesia, and also place the patient in a favorable attitude, such as the knee-chest position. Care should be taken not to rupture the sac.

If the tumor can be gotten out of the way so as to allow the expulsion of the child, it often falls again into the pelvis and prevents the delivery of the placenta. Here a second reposition, not always very easy, must be made.

The dangers from the tumor are not yet over when

the uterine cavity is emptied. If the tumor again returns to the pelvis it may compress the cervical canal and cause a lochiometra. Post-partum hemorrhage may be caused by adhesions between the tumor and the uterus, preventing efficient uterine contractions. But the most dangerous of all complications are those due to rupture of the tumor or to its rotation and the twisting of the pedicle. Lawrence reports ten cases of this kind requiring laparotomy, and Condamin among others calls special attention to this danger. Suppuration of the tumor is also a frequent occurrence after labor. So common are these results, and so dangerous, that it has become the rule to remove the tumor very soon after labor. Schroeder recommended to wait six weeks, but more recent reports seem to justify a much earlier operation. In case any serious symptom arises denoting one of the complications just described, immediate laparotomy is at once to be done.

It is thus seen that considerable danger is to be anticipated even in the favorable cases where the tumor either causes no obstruction to labor or when it can be removed from compromising the parturient canal. Yet much more serious is the prognosis where the tumor can not be raised out of the pelvis. If it be a monolocular cyst with fluid contents it may be evacuated with a trocar from the vagina. If it be multilocular or if the contents be colloid, or if we have to do with a dermoid cyst it becomes necessary to make an incision into the posterior vaginal wall and break up the contents with the finger. If the tumor be solid it must be removed, through a vaginal incision if that be possible, if not by laparotomy. Should it be impossible to remove the tumor by either route a Cæsarean section must be made. In case the vagina be incised, either for the purpose of breaking up and evacuating the contents of a tumor, or to remove the tumor it is desirable to close the wound before the passage of the child in order to obviate infection or to prevent further tear. This is often difficult to accomplish because the head generally enters the pelvis as soon as the tumor is removed. An attempt may be made to prevent this undesirable rapid progress by elevating the pelvis and keeping the head in the abdomen.

The results of the obstetric operations, the application of forceps and version with manual extraction, are so bad that they should be done only in the most exceptional cases. Version should never be done in a head presentation and forceps, with a mortality of over 50 per cent., are rarely to be used. If the head be firmly wedged between a solid tumor and the side of the pelvis so that the removal of the tumor is impossible perforation and craniotomy is the safest procedure.

When labor is obstructed and no interference at all is instituted the outcome is generally fatal. The woman may die undelivered from exhaustion, or from rupture of the uterus or from infection. The cases are slightly more favorable when the cyst ruptures. If the contents are those of a dermoid the peritoneum will probably be infected and peritonitis result. Cases have occurred when the vagina has ruptured and the tumor extruded followed by the birth of the child.

Since the dangers during labor are great and even if these be overcome the dangers of the puerperium are considerable it becomes important to investigate the results of interference during pregnancy. Three methods have been advocated: induction of premature labor or abortion, puncture of the sac and ovariotomy. The first method which was championed by Barnes is now entirely given up since the results of ovariotomy are so much improved. It sacrifices or greatly jeopardizes the life of the child and leaves the mother with the tumor and exposed to all the dangers that arise from its rupture, torsion or suppuration.

Puncture of the sac was warmly advocated. Twelve or fifteen years ago even by so eminent a laparotomist as Sir Spencer Wells. It is now generally given up during pregnancy for the following reasons:

1. It gives only temporary relief since the sac often refills very quickly. Atlee punctured a cyst sixteen times and then was obliged to perform laparotomy.

2. There is danger of injuring large blood vessels. Whoever has seen the large veins of the pampiniform plexus during pregnancy must have this danger clearly in mind. In my case I first mistook them for coils of small intestine. One never knows where they lie, on account of the rotation of the tumor, or, as in the case reported, the displacement of the tumor to the opposite side from which it originated.

3. The uterus may be punctured or injured. This has happened a number of times. Should the accident occur Cæsarean section should at once be made.

4. The peritoneum may become infected by the contents of the cyst escaping through the opening made by the trocar.

5. The formation of adhesions with their resulting consequences are an objection to puncture the same as in non-pregnant conditions.

These two palliative operations being discarded there remains to consider only ovariotomy. The results of this operation have been shown so satisfactory by recent statistics that now there is almost universal agreement in advising it. The most recent collection of cases was made by Dsirne in 1893, who has given synopses of the reports of 135 cases. Among these there were eight deaths, being a mortality of 5.9 per cent. The cases since reported would probably not increase the rate of mortality. This shows that the mortality rate for ovariotomy is not greater during than in the absence of pregnancy.

At this point I may consider the question. Which is the better route to reach the tumor, through the abdominal wall or through the vagina? Until quite recently the abdominal route has been selected because it was supposed to furnish a better oversight of the field of operation and enable one to meet the complications that may arise. Especially when the tumor lies more or less in the abdomen it may be difficult to remove it per vaginam. It may be multilocular or it may have colloid contents and there may be adhesions. The advantages of a vaginal operation are well recognized by those who have followed the recent progress of vaginal celiotomy. It leaves no scar in the abdomen to become a hernial opening, and it is a much slighter operation and thus less likely to disturb pregnancy. When we look back to the case reported we see that the vaginal operation would have been easier. The cyst could have been emptied and the sac pulled down and tied off without difficulty. There was considerable disturbance of the uterus in replacing the sac under it. Recent improvement in the technique of vaginal operations has led to the performance of many vaginal ovariotomies and I predict that in the future the operation will be employed much more commonly in these cases.

Another very important question concerning ovar-

iotomy during pregnancy is its influence in interrupting gestation. Olshausen found pregnancy interrupted in 20 per cent. of the cases collected by him numbering 82, while Dsirne in 114 cases found the percentage of interruption to be 22 per cent. Different explanations have been given of the way in which pregnancy is disturbed. Sometimes there is imminent danger of abortion before the operation. Martin reports such a case where abortion was prevented by the operation. The uterine contractions excited by the tumor cause placental hemorrhages of greater or less extent. These disturb the fetal circulation so that the death of the fetus and its subsequent expulsion may result perhaps some time after the operation. Or these hemorrhages occurring before operation may predispose to still more extensive hemorrhages when operative manifestations or vomiting excite still further uterine contractions. Any injury to the uterus as in the separation of adhesions or a wound of the serous coat would help to excite contractions.

Another cause of abortion is the disturbance in the blood supply of the uterus due to the ligation of the ovarian artery. This factor would probably be especially potent in case of a double ovariotomy.

It is quite interesting to study the table given by Dsirne, which shows the effect of the operation in disturbing pregnancy at different fetal ages.

At Mos.	No. Cases	Interruptions of Preg.	Percentage.
2	11	5	45.5
3	28	4	14.3
4	21	2	9.5
5	10	4	40.0
6	11	4	36.4
7	5	3	60.0
8	5	2	40.0
9	1	1	100.0

From this table it is seen that the most favorable time for operating, so far as the fetus is concerned, is during the third and fourth months when only 10 to 15 per cent. of the cases abort. Later 40 to 50 per cent. of interruptions of pregnancy may be expected.

These results are not very satisfactory and have led to considerable discussion concerning the advisability of postponing the operation, in the absence of urgent symptoms, until the child is viable. Fehling and Veit have contended for this rule. Nearly all authorities, however, agree with Schroeder and Olshausen in advocating operation as soon as the tumor is discovered, because of the danger of abortion, rotation of the tumor with constriction of the pedicle and peritonitis, rupture of the cyst, dyspnea, etc. It has not been proven that twisting of the pedicle occurs more commonly during than in the absence of pregnancy. Dsirne found it to occur in only 9.1 per cent. of his cases. This is not a much larger ratio than is found in all cases of ovarian tumors. It is in striking contrast to the frequent twisting found during labor and in the puerperium.

Another objection might be raised to postponing the operation to the last month of pregnancy where in at least half the cases labor will be brought on, namely, the danger of breaking open the abdominal wound. I am inclined to think that there is prevalent an exaggerated fear of the effect of labor pains on a laparotomy wound. The question can be settled only by an examination of the records. I have looked up accessible cases where labor occurred within some days or even weeks after the operation. In but few cases was there any reference to the effect of labor on the abdominal wound. Generally the reports mention only an uninterrupted recovery. One of the most important cases is reported by Pippingsköld. He removed a large tumor from a patient in whom labor pains had already begun. Labor was completed in a few hours after the operation with no hemorrhage from the stump and no disturbance of the abdominal wound. The only case I have found where reference was made to an abdominal hernia was one of Schroeder's. The operation was made in the fourth month and was followed by abortion thirteen days later. The patient afterward had two children and during the second subsequent pregnancy it is noted that she was troubled with a large abdominal hernia. That this would be laid to the abortion is hardly reasonable in view of the not unfrequent occurrence of hernia after laparotomy in the absence of pregnancy. In my case labor did not cause the slightest disturbance of the abdominal wound.

The question of the time for the operation in its bearing on the prevention of abortion is one of the most important. Each case must be decided on its own merits. If the patient has no children greater effort should be made to save the child than if she has a number, especially does this rule hold when the tumor is double. If the tumor be discovered in the second month the operation should be delayed a month or two because the results in the second month are bad. After the fourth month if the symptoms of dyspnea, etc., including those of impending abortion, be not too urgent it may be desirable to wait until the thirty-fourth or thirty-sixth week provided the patient can be kept under observation. After operation the patient should not rise too early and the first symptoms of labor should receive prompt attention.

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IN FUTURE BATTLES WHERE SHALL THE FIELD HOSPITALS BE PLACED?

BY EDMUND ANDREWS, M.D.

FORMER SURGEON OF ARTILLERY AND SURGEON IN CHIEF OF CAMP DOUGLAS, CHICAGO.

Behind every fighting line there is a danger space within which lie the wounded. The modern long range rifles, and the new far reaching artillery have greatly widened this zone, while the increased rapidity of fire may sweep the ground with such fierceness that within its range ambulances can not approach, litter bearers can not carry off the wounded, and surgeons can not work. In case the field is very level and devoid of shelter, the problem of where to place the field hospitals, and how to get the wounded back to them has become one which greatly perplexes military surgeons.

Take for instance the level plain on which Chicago stands. From Lake Michigan west to DesPlaines River, and from Evanston southward to Thornton extends a level plateau ten miles wide and thirty miles long, on which the natural contour of the ground affords not the slightest shelter from fire. If two modern armies should meet on such a plain, what could be done with the wounded?

The arrangements of the medical department in battle in a general way are as follows:

A portion of the medical officers accompany the fighting line to give what is called "first aid" to the injured, in which they are assisted by a certain number of fighting privates who have received special

training, and non-combattant "Geneva Cross men," who are still better educated. Whenever there is a lull in the firing these collect the wounded and make temporary first dressings.

The main surgical work is done at places called field hospitals, where are assembled all the surgeons not detailed to accompany the fighting line. In a level field, devoid of shelter, these must be located far enough to the rear so that the assembled patients shall not be cut to pieces by shot and shell nor the surgeons and their subordinates killed in such numbers as to stop the work. How far back must these hospitals go?

Surgeon Major Girard asserts that men may be wounded by the new rifle at 7,300 yards, which is over four miles. I think this is probably a misprint in the Major's article. At any rate no military officer will waste his ammunition at such ranges. Others advise to locate the field hospitals at 3,000 meters behind the fighting line. This is about two miles. Others say 2,000 yards, which is a little over one mile. After much study of the subject, aided by conference with the best military surgeons, and fighting officers, I have come to the following conclusions:

It is the artillery and not the small arms which will prevent the field hospitals in level ground from taking a position anywhere near the fighting line, because the shrapnel shells reach much farther than musketry.

Still the distance back to a fairly tenable hospital ground is exaggerated in many minds by the popular accounts of the great range of modern projectiles. The immense ranges of two, three, or four miles are only obtained by aiming up in the air at high angles and trying to drop the shells from the sky, as it were, among the enemy. This kind of fire is so very inaccurate, that it rarely hits anything, or endangers anybody. Now, artillery ammunition is costly, and very heavy to transport. It is therefore very precious and is reserved for nearer work. No commander will waste it by tossing it loosely all over the country. The artillery begins effective work at about 2,500 yards. It directs its shrapnel shells so as to explode them about fifty yards in front of the line aimed at, that the fragments and contents as they move onward may spread out in a cone and fly in the faces of the opposed troops. The fragments of shell and the enclosed bullets are thus dispersed in the air and soon lose their force. Hence a field hospital some little distance from the line is not in great danger. My observation is that a few badly aimed shells which have failed to burst at the proper point occasionally come into the vicinity, but they are not numerous enough to render the hospital untenable. Highly educated officers say that even on a level field surgeons can work without great risk 2,000 yards from the enemy, or a little over a mile. As their own lines will be nearer than those of the enemy, the field hospitals can usually be carried up to within 1,200 yards of where their own fighting line commences to meet many losses. But even this distance is too great to allow of getting the wounded back, if the enemy persists in sweeping the ground clear of all moving objects.

However, armies do not throw away much needed ammunition, by uselessly firing when there is no charge impending. Most of the firing comes in gusts, with lulls, and sometimes long intervals between. During the firing the injured should lie as flat on the ground as possible, getting behind any available shelter which may exist. When a lull comes, efforts can be made to get them back. About 70 per cent. of the wounded are able to walk and can go back of themselves. The remaining 30 per cent. have to be carried. Just here is the weak point in surgical arrangements. Although there are four Geneva Cross bearers to each litter, the carrying back of injured men long distances is a most exhausting labor. Lieutenant v. Kries of the Austrian army has experimented on the ability to stand this work. He found that the bearers rapidly broke down with fatigue. Thirty-two bearers, carrying eight litters, brought back a distance of about 1,200 yards only 32 men in about three hours; that is, the bearers can bring that distance in three hours only one man to each bearer, and at the end of the three hours they were exhausted and could do no more.

Now, the bearers number 2 per cent. of the fighting force. In a division of 10,000 men there will be 200 bearers carrying fifty litters. In the 10,000 men engaged, if the loss is severe, there will be 2,000 hit. Of these about 600 will be killed and 1,400 wounded. Of these about 980 will be able to walk, and 420 will require litters. The 200 litter bearers will be able to carry back 200 men to a field hospital 1,200 yards distant in three hours, and the bearers will be so far exhausted as to be obliged to stop, leaving 220 wounded at the front. If the action is only half as severe it would be possible to carry in all the wounded.

At this rate as the ambulances can not work any nearer to the front than the surgeons, it will be impossible to clear the field except by slow degrees, and perhaps by working all night, and searching the field with lanterns.

Lieutenant Melville of the British army comes to similar conclusions. He says in a British brigade of 4,000 suppose 10 per cent., or 400, to be hit. About 30 per cent. of those struck will be killed, leaving 280 wounded. About 180 can walk and 100 will have to be carried, and it can be just barely done by completely exhausting the 80 bearers, if none of them are shot. If the action is more severe and 20 per cent. are hit, 100 will remain on the field after the bearers are exhausted. This looks discouraging; however it shows the great importance of lightening the work of the bearers by getting the field hospitals as close to the front as possible, even if the danger of the surgeons is increased.

The conclusion is this: If the field of battle is level and destitute of shelter, and the enemy insist on keeping the field swept of everything that moves, the wounded must lie where they are, with such first aid as the surgeons in front can give them, until the action is over, or the fighting lines move on elsewhere, and then the field hospitals must move up into their midst.

The opinion in army circles is that in the exigencies of battle, the fighting officers will not detail men from the ranks to aid the bearers, except when necessary to retreat before uncivilized hordes, who would murder the wounded if left behind.

The foregoing discussion is all based on the supposition of a level field such as surrounds Chicago. Fortunately such fields are few. In my own experience I never was in an action where there were not numerous hills and valleys, or at least considerable undulations of ground or standing timber. In these cases fighting lines stretch themselves along the crests, where the soldiers can lie just behind the summit ridge and fire over. The first aid stations can

then be close to the lines and the field hospitals need not be far off. I have sometimes located them less than 300 yards from the front, and even ambulances, conspicuous marks as they are, can sometimes be driven along the hollows, taking the wounded directly from the first aid stations.

Surgeon Fischer, of the Austrian army, thinks the number of wounded will be greatly increased. It seems to me that this popular idea is erroneous. Most of the fighting will be at greater distances than it was formerly, and the new guns are no more accurate than the old ones. Beside, experience shows that even well disciplined men can rarely be made to stick to their work after 30 per cent. of their number are hit. This old rule will be as true in the future as in the past, and no change in weapons will prevent men from shrinking from danger when it exceeds their fortitude.

Fischer also thinks the mortality of the wounds will be doubled, but Melville dissents from that conclusion.

The facts point in two directions. A few wounds will perhaps bleed more than the old ones, on account of swift shots cutting more like a knife than slow ones, but we must remember that the injuries will be inflicted at greater distances, when the bullets have largely lost their velocity.

Close shots will tear and shatter more in consequence of what is called the "explosive effect," but these only occur at near range. Most of the injuries will take place at greater distances, and the bullets being very small, the wounds will on the average be less fatal from shock, and less open to septic infection. Many will heal by first intention.

On the whole, I think that no more men will be hit than formerly, and that of those wounded more will recover.

Finally, all the utensils and everything about the field hospitals must be made as simple and portable as possible, so that they can be thrown into the wagon and rushed forward, at a moment's notice, to where the wounded lie, as soon as the fighting admits of the advance. In this way the men can be taken care of without waiting for the slow, interminable and exhausting work of litter bearers.

2520 Prairie Ave., Chicago.

E. WERTHEIM'S NEW METHOD OF RESTORING RETRODEVIATIONS OF THE UTERUS THROUGH THE VAGINA.

BY A. J. HOSMER, M.D.
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The operation consists in shortening the round ligament through the vagina. The technic of the operation in uncomplicated cases is as follows: After the necessary antiseptic precautions, the patient is placed in the exaggerated lithotomy position. (A curettement is performed, when indicated.) The limbs are supported, retractors used, and the cervix uteri is seized with bullet forceps and drawn down, as in vaginal hysterectomy. With a scalpel, a transverse incision about one and one-half inches long is made at the anterior utero-vaginal junction, down to the uterus. Now with the index finger or with blunt pointed scissors, the uterus is separated from the bladder. The vesico-uterine space (anterior cul-de-sac), or rather the peritoneum lining it, is reached with ease. The peritoneum is seized with two anatomic forceps and opened between them with the scissors. The incision is then extended transversely about an inch each way. Now while still holding to the ante-

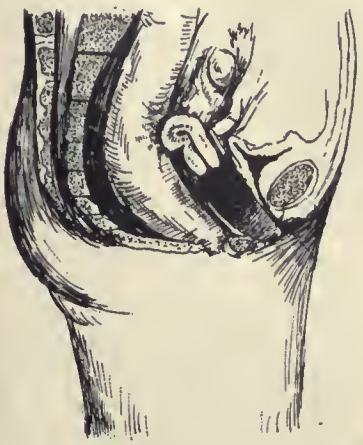


FIGURE 1.

rior peritoneal flap with one of the forceps, a needle, with medium sized silk, is passed through it and attaches it to the cut edge of the anterior vaginal wall.



FIGURE 2.

Two other stitches are used attaching peritoneal flap to the cut edge of the vagina, thus entirely covering the raw surface of the bladder. Easily now with the

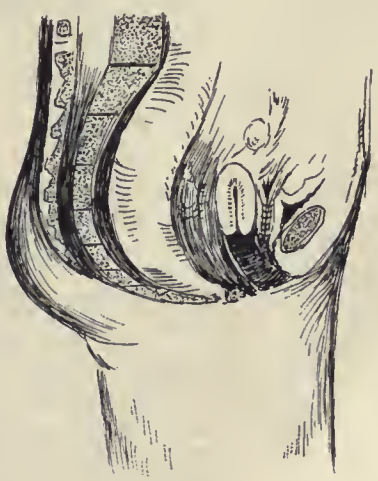


FIGURE 3.

fingers one can reach the body of the uterus and ascertain its condition as well as the state of the Fallopian tubes and ovaries. When necessary, loosen adhesions, replace ovaries, remove small subserous myomas, etc.

Next, unfasten the bullet forceps from the cervix, allowing it to go back as you roll the body of the uterus forward into the vagina or at least into plain view. If there are no adhesions, the uterus comes forward without force. If there are adhesions they are easily reached with the fingers and separated.

The round ligament is the first cord in sight and can be seen, examined and differentiated from ligamentum proprium and Fallopian tube. The ligament is seized from one to two inches from the horn of the uterus, with bullet forceps and drawn out, thus necessarily *doubling it upon itself.* With medium sized silk, its approximating doubled surfaces are sewed together. By thus folding it upon itself by the use of three or four stitches, the round ligament can be shortened from six to nine centimeters.

The other round ligament is treated in like manner, and thus the uterus is *held up* and anteverted. The stitches holding the peritoneum to vagina are now cut and the two peritoneal surfaces re-united. The transverse incision at the utero-vaginal junction is then sewed vertically thus lengthening the anterior vaginal wall, and shoving the cervix back.

A little gauze is placed in the vagina and the operation is finished, in most cases without having tied a blood vessel, and unless the wound has been infected, without danger.

There is no danger of injuring the ureters, if the operation is done as described above, as they are shoved out of the way. In cases where there is a relaxed vagina and an anterior colporrhaphy is needed, instead of making the transverse incision, an elliptic piece can be removed from the anterior vaginal wall, and the bladder separated from the uterus directly under the eye. The round ligaments are treated as in the first case. In sewing up the vaginal wall you have, of course, done an anterior colporrhaphy.

This operation was first made by E. Wertheim of Vienna, in January, 1896, and his first publication of the same appeared in the *Centralblatt für Gynäkologie* in February, 1896, since which time it has been performed about twenty-five times and with perfect results.

Its advantages over the Alexander-Adams operation are: 1, it leaves no visible scar; 2, the operation is easier to perform, the ligaments being larger at this point and easy to find; 3, the transverse cut in the vagina, sewed vertically, assists in anteverting the uterus; 4, it allows perfect access to the pelvic viscera, thus permitting of minor repairing at the same sitting, when indicated; 5, the operation is less dangerous.

Its advantages over any method of anterior fixation which will prevent the free growing of a gravid uterus are very apparent. The bladder is left in its normal position. A subsequent pregnancy will not be hindered, as the shortened ligaments can stretch as in the normal state. That every antefixation which will prevent the free growing of a gravid uterus is likely to be the source of danger, is well illustrated in Milander's report (*Zeitschrift für Geburtshülfe und Gynäkologie*, Bd. xxxiii, Hft. 3). In fifty-four cases of full term labor after ventrofixation, eleven were operative, four forceps, two Cæsarean sections, four turning and one extraction.

The uterus is not only anteverted, but it is *held up*, as one can very easily prove by doing the operation upon the cadaver, and the organ is not ante*fixed*, but held in its normal position by its normal attachments.

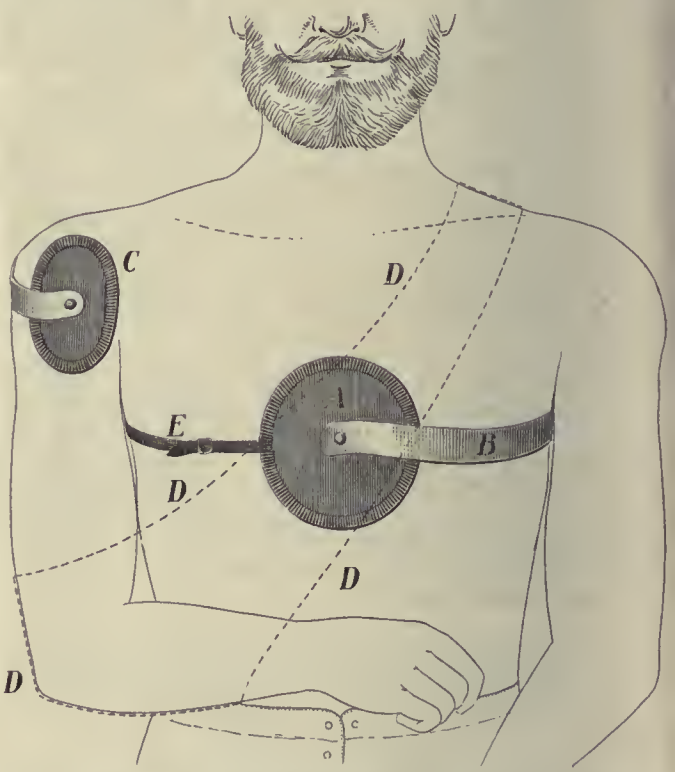
This operation I have witnessed frequently in Schauta's operating room, and the ease and rapidity with which it is done, beside its many advantages over other known methods, is my excuse for sending this report.

For the past year, I have not had access to any medical journal except the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, hence if this method of E. Wertheim's has been reported in an American medical journal, I am ignorant of the fact.

A NEW APPARATUS FOR FRACTURE OF THE CLAVICLE.

BY EVAN O'NEILL KANE, M.D.
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The treatment for fracture of the clavicle is almost uniformly unsuccessful. Were it not that the resulting rounded shoulder, narrowed chest and bone deformity do not materially injure the patient, the best surgeons would be continually mulcted in malpractice suits.



Front. A, chest pad; B, spring on sound side; C, shoulder pad and spring on injured side; D, dotted lines indicating ordinary sling; E, elastic strap and buckle.

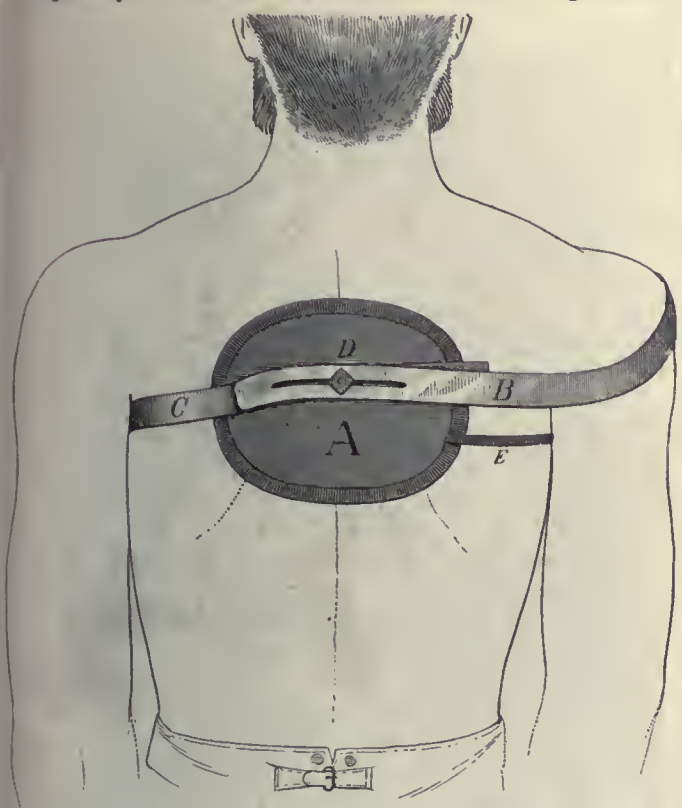
It is true that if the patient can be placed for three or four weeks upon his back; a narrow cushion below and a shot-bag above, a perfect result may be obtained; but few can bear with so irksome a treatment for so comparatively trivial an injury. No other methods of treatment produce perfect results; and all are painful or even prejudicial to the patient's health. Many of these apparatus are now discarded as cumbrous, complicated and unsatisfactory. the pad in the axilla sooner or later exerts so much pressure upon the nerves and vessels as to require its removal. Bandaging the arm across the chest, rarely attains more than fixation and the prevention of falling of the shoulder, while it so cramps the arm and constricts

the chest as to make it unbearable for sensitive patients.

The plaster of paris figure of eight and the adhesive plaster dressing are fairly satisfactory, if they can be endured, but they are, especially in warm weather, very difficult to be borne for more than a few days, and when removed the arm on the injured side is sometimes so paralyzed, swelled or cramped as to be nearly useless for a number of days, while, the results are not perfect in either case.

The displacement in fracture of the clavicle may generally be stated as occurring inward, forward and downward, while on account of the difficulty of overcoming the shortening incident upon muscular contraction considerable over-riding is present.

On account of the difficulty of obtaining a proper point d'appui but one of the deformities is ever completely obviated, *i. e.*, the downward displacement



Back. A, back pad; B, spring passing forward around injured shoulder to terminate in front in small shoulder pad; C, spring passing around chest on sound side to terminate in large pad on middle of chest; D, set screw and slot in spring; E, elastic strap.

usually rectified by some form of sling. I am omitting the treatment by dorsal decubitus.

By my spring-lever apparatus and a sling I believe I have obviated all the difficulties formerly met, securing to my patients fair motion of the thorax and comparative freedom to the hand and arm of the injured side; a perfect co-aptation of the fragments; freedom from shortening and practically no deformity with a minimum of discomfort. My device consists of a combination of springs and pads with an elastic strap. The springs, two in number, are fastened, one on each side, by a screw bolt to a large pad behind, each terminating in front in another.

One pad, large and circular, acts as a counter pressure upon the chest from in front; the other, a smaller one at the termination of the spring on the injured side, is arranged to press upon the anterior surface of that shoulder. Thus the spring passing from the back pad around the sound side to the chest pad holds the whole apparatus in position, although, allowing full play to the respiratory muscles, while the spring passing from the same position behind, around forward and over the shoulder on the injured side, by its continued traction backward drags the shoulder with it, prevents over-riding or angular deformity of the bone and yet allows motion. The elastic strap though not necessary is an additional security against sliding of the apparatus. It is fastened to the back pad and passes around the thorax on the injured side to be attached to the chest pad in front, and with quiet patients can often be dispensed with.

The same result is attained and maintained *permanently* when the apparatus is in position as that *transiently* produced by the surgeon when he grasps the shoulder and draws it backward in setting the bone; and which he is unable to retain with his dressings when he relinquishes his grasp unless he places his patient in the dorsal decubitus.

In addition, an ordinary sling is required in order to keep the shoulder from falling, but this does not cause any discomfort. The apparatus, which can be taken off or put on as readily as the simplest rupture truss, may be removed every night when the patient retires. He must then, however, lie upon his back, preferably along a narrow cushion. This he is glad to do on account of the additional freedom and comfort afforded. It requires no skill on the part of the attendant to replace the apparatus when the patient arises in the morning.

This contrivance may readily be constructed with a combination of slots and set screws to enable it to serve for either right or left side and for various breadths of shoulders.

In my hands it has been productive of perfect results, as well as affording far less discomfort than any other method of treatment which I have adopted and, though more expensive than ordinary bandages and adhesive plaster, it pays both surgeon and patient amply for the slight extra expense in the comfort it affords, and the freedom from deformity which follows its use.

SOME UNUSUAL CONGENITAL DEFORMITIES.

Read before the Tenth Annual Meeting of the American Orthopedic Association, at Buffalo, May 18–20, 1896.

BY JOHN RIDLON, M.D.

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Believing it to be the duty of a specialist to present a record of unusual cases to his associates, I beg to offer for your consideration a brief report of the following cases that have come under my observation during the past three years.

Case 1. Congenital constriction bands, etc.—H. D., male, 2½ years old, the first child of healthy parents. There is no physical defect or deformity in the family for at least three generations. The pregnancy and birth were uneventful and in all respects normal. The mother is unable to offer any suggestions as to a possible cause for the deformities.

Left hand: The index finger was joined (webbed) to the ring finger, and the ring finger to the little finger from the tips nearly to the junction of the proximal and middle phalanges; and the middle finger was amputated at the end of the proximal phalanx and was pointed (conical). Otherwise the hand was normal.

Right hand: The index finger was joined (webbed) to the ring finger as in the other hand, and the middle finger was amputated and conical (see Fig. 2); but the little finger instead of being webbed as in the other hand was incircled by a constriction band between the root of the nail and the distal joint (see Fig. 2). Otherwise the hand was normal. When first seen by me all the webbed fingers on both hands had been amputated at the end of the proximal phalanges as shown in Figs. 2, 3 and 4.

Left foot: A constriction band incircled the great toe. Otherwise the foot was normal.

Right foot and leg: The foot presented a moderate degree of talipes equino-varus. This had only been treated by occasional gentle hand stretching by the mother. Around the



FIGURE 1.—Case 1. Congenital constriction band and talipes equino-varus.

ankle was a constriction band (see Figs. 1 and 2) having the appearance of cicatricial tissue, about a quarter of an inch in width. This band creased the soft parts very deeply, about three-eighths of an inch at the front of the leg and about seven-eighths of an inch at the posterior and inner side. The mother reported that at birth there were no voluntary movements in this right foot, but that at the time the fingers were amputated this constriction band around the ankle was incised transversely in three places, and that since that time there have been some voluntary movements in this foot, and that these have increased under rubbing and manipulations. No other deformities or peculiarities were found.



FIGURE 2.—Case 1.

Treatment: Under the impression that there would be no difficulty in looking up the literature of the subject, I arranged to operate on the constriction band about the ankle, but I was not able to find a report of an operation upon such a case. I therefore made two circular incisions around the leg, one above and the other below the band and dissected it out. I found little or no subcutaneous fat beneath the band, which appeared to involve only the skin except at the points of the three transverse incisions already referred to. At these points the cicatricial tissue extended deeply; it was dissected out. The skin and superficial fat and connective tissue were then dissected up for about half an inch entirely around the leg, both above and below; these edges, bridging over the crease, were brought together and sutured, and dressed without drainage. The result, a year later, is shown in Figs. 3 and 4.

The equino-varus was operated upon about four and a half months after the operation upon the constriction band, by subcutaneous division of the Achilles tendon, manual rupture of the posterior ligament of the ankle joint, and subcutaneous division of the anterior half of the deltoid ligament.

Case 2, was one of congenital constriction bands very much like Case 1, but only affecting the lower extremities. The parents of the patient refused operation; it has been lost sight of, and my notes of the case have also disappeared.



FIGURE 3.—Case 1. Showing result of operation on constriction band.

Case 3. Congenital amputations.—Male child, 3 months old when first seen. Born with both legs amputated at the knee joints, and left arm amputated at the elbow joint. No other congenital deformity or defect. This was the third child of healthy and well formed parents, and the mother knows of no congenital deformity in either her family or her husband's family. The child died in Cook County Hospital before photographs were obtained.

Case 4. Congenital riekets.—Congenital rickets is, in my experience, exceedingly rare. Indeed, this is the only case I have ever seen. For the photographs of this case and the history I am indebted to Dr. John L. Porter, late House Surgeon to St. Luke's Hospital, Chicago, and now assistant to the Chair of Orthopedic Surgery in the Northwestern University Medical School.

This child (Figs. 5 and 6) was born at St. Luke's Hospital, Chicago, on Feb. 3, 1896, in the service of Dr. J. C. Hoag. Weight at birth 7 pounds. The head presents a typical cranio-tabes, the entire vault from the frontal

prominences to the cerebellar fossæ of the occipital bone and between the two parietal bosses being soft and membranous and without ossification. There are small centers of ossificatian at each of the above named centers. At birth the parieto-occipital, parieto-frontal and parieto-temporal articulations overlapped. In the upper extremities there was marked enlargement at the distal epiphyses of the radii. In the lower extremities there was a marked exaggeration of the anterior and outward curves of the femora, but the most marked deformity was in the anterior and outward bowing of tibiæ and fibulæ, together with the enlargement of the distal epiphyses. The feet tended somewhat toward the equino-varus deformity. Tenderness to pressure and manipulation was noticed very early at the enlarged epiphyseal junctions and to some degree over all bony prominences.



FIGURE 4.—Case I. Another view after operation.

The photographs, Figs. 5 and 6, were taken on the tenth day after birth. They do not show the bowed femora nor the anterior bowing of the shins to advantage.

The mother, 36 years old, has had ordinarily good health since childhood. She has by a former husband two other children aged 15 and 4 years, both in good health and free from deformity. No history of syphilis in the mother or in either husband can be obtained. During the last pregnancy the mother has been in extremely poor circumstances, and has been at work with poor hygienic surroundings and insufficiet nourishment up to the date of confinement.

Case 5. Congenital recurvated knees; knock-knees; talipes equino-varus; spina bifida, with incontinence of feces; and convergent squint.—The child, a female, was 21 months old when first seen by me; at the time the photographs were made. According to the mother's statement the knees were recurvated about 20 degrees at birth, and very little passive motion at the joints was possible. Under manipulation the motion has increased. They can now be extended (recurvated) to about the degree above mentioned, and can be flexed about 10 degrees beyond the straight as shown in Fig. 7. The patella can only be felt as minute hardish nodule in the tendon extending from the quadriceps femoris muscle to the tibia on either side.

The knock-knees and the talipes equino-varus, both of only moderate degree, are shown in Figs. 8 and 9.

The spina bifida was the size of a small orange and of firm consistency. The mother stated that it had been much larger prior to the operation by the family physician. The operation appears to have been simply suturing the tumor through and through. A crease, apparently the suture line, appears on each side; one of these is seen in Fig. 7.

The incontinence of feces apparently depends upon the spina bifida. The urine is passed with unusual frequency, but there can not be said to be real incontinence.



FIGURE 5.—Case of congenital rickets, showing anterior and outward curvature of tibia and enlarged epiphyses of tibiæ and radii.

The convergent squint is seen in Fig. 8. It is not of marked degree and is seen sometimes in one eye and at other times in the other. The bridge of the nose is sunken and the frontal prominences are protuberant.

The child appears mentally deficient. The parents and the other children are healthy and well formed, and the mother can offer no plausible explanation for the defects in this child.

Case 6. Congenital polio-myelitis anterior.—C. S., female, 9 years old when first seen by me. The mother states that at the birth of the child the labor was very difficult and prolonged; and she believes it was dry labor. Dr. Charles Gilman Smith was the attending physician and Dr. W. W. Jaggard, the consultant. Both are now dead and no positive record of the condition at birth can be obtained. Dr. Smith, however, advised operation on the feet. Dr. Charles Adams advised against the operation and none was done. Later, the late Dr. Mathias Roth, of London, England, prescribed elaborate and minute forms of

massage, and the use of steam to induce muscular contraction. Under his direction day braces and night braces were worn. Mr. Bernard Roth has not been able to find any record of this case although the mother is positive that he saw the case with his father. Still later, Dr. Dobie, and his son, Dr. Henry Dobie, of Chester, England, advised an operation, but the advice was not taken and Dr. Roth's treatment was continued for some years.



FIGURE 6.—Case of congenital rickets and cranio-tabes, showing unossified portion of skull with exception of fontanelles.

The child did not walk until 2½ years old. The braces ordered by Dr. Roth and made by Ernst, of London, were copied by Sharp & Smith, of Chicago, and she continued to wear them until seen by me.



FIGURE 7.—Case 5. Showing spina bifida, and full degree to which flexion of knees was possible.

At that time, both feet were held in full extension (equinus) without lateral distortion. The anterior part of the feet was broadened and the Achilles tendon attached to the inner side of the posterior border of the os calcis in each foot as it usually is in congenital talipes equino-varus; the leg muscles were shrunken, and the whole general appearance of the legs and feet, taken with the history of the case, led



FIGURE 8.—Case 5. Showing knock-knee and talipes varus.



FIGURE 9.—Case 7. Showing deformities of fingers and toes.

me to look upon the case as an ordinary case of con-

genital equino-varus and to prognosticate a development of strength in the dorsal flexors of the foot when relieved of the strain of the extended position.

I divided the Achilles tendon subcutaneously, and had no difficulty in fully dorsal flexing the feet. Good union of the cut tendons took place at the end of two weeks. After this the patient was allowed to walk in braces that prevented the toes from dropping beyond a right angle with the legs, and massage was given daily. At the end of a year and a half the feet remain in good position, but there is no ability on the part of the patient to dorsal flex the feet. Had the case been one of ordinary congenital talipes equino-varus normal strength in the dorsal flexor muscles would ere this have developed; but from the results of treatment I can only conclude that the deformity was due to an intrauterine attack of poliomyelitis anterior.

Case 7. *Congenital constriction bands.*—I am indebted to Dr. Chas. E. Thompson, of Scranton, Pa., for permission to publish the following case:

J. L., male, 6 years old, robust and strong in every way (Fig. 9). Father, mother, three brothers and three sisters living, well and well formed. The mother attributes the deformity to the fact that during the third month of her pregnancy she tied a cord tightly around her own finger to stop the bleeding from a cut.

At the birth of the child the following deformities were noted:

Right hand: Constriction band around the middle finger, in front of the nail on the dorsum and somewhat farther back on the palmar surface. See Fig. 9. Otherwise the hand is normal.

Left hand: All of the middle finger beyond the distal end of the proximal phalanx was absent "except a mere thread" which the mother removed. The remaining stump is shown in Fig. 9. Otherwise the hand ie normal.

Right foot: Distal phalanx of great toe amputated; and two distal phalanges of second toe amputated. Third toe has no nail. Otherwise the foot is normal.

Left foot: Great toe and second toe amputated as in the right foot. The third toe is considerably longer than its fellows. There is a constriction band surrounding the second phalanx; on the dorsum it approaches the third phalanx and on the palmar surface it approaches the first phalanx. The fourth toe is very much smaller than its fellow on either side. The fifth toe is normal as is the foot in every other respect.

SELECTIONS.

On Solid Preparations for Internal Use.—The past decade has wrought great changes in the administration of medicine. Responding to the more esthetic demand of the age, medical practitioners have quite largely dispensed with the older forms of liquid mixtures, and adopted the solid and more elegant products of the pharmacal art. While dry medication has been increasing in favor for the past twenty years, history discloses some of the errors its votaries have been led into. First was the sugar coated pill period, which set in about 1870 and reigned supreme until about 1880, when it was superseded by the gelatin coated pill, despite the attempt to stampede its followers in 1875 by the compressed pill. For ten years the gelatin coated pill was the favorite form, until the general use of gelatin capsules relegated it to the insoluble and unsatisfactory sugar pills of the patent medicine men.

The introduction of the tablet triturate some ten years ago met with much favor for the administration of alkaloid salts, and represented a convenient form for the ready preparation of solutions for hypodermic and antiseptic use. But, as disclosed by the history of other forms of medication, the original purpose of the tablet triturates was perverted, and in the modified form of compressed tablets, the "idea" was extended to comprise nearly every combination of remedies, irrespective of therapeutic uses, and in utter defiance of well-known chemic and pharmaceutic laws and principles.

For the purposes of studying the administration of solid substances, they may be grouped, from a therapeutic point of view, as follows:

Powders.—The medicinal agent in a finely divided condition, either alone, associated with some other agents or triturated with some inert substance. The object to be attained is either quick solution, absorption or local effect, which is produced in the degree that the mixture is finely powdered. Following the law of solution, the greater extent of surface presented to the solvent action, the more the process of solution is facilitated. With most substances the effect is a question of absorption, which is again dependent upon solubility. The only exception to this are sugars and gums, which dissolve so readily, and the solution formed is so viscous, as to interfere with complete solution except under certain conditions.

Troches, lozenges, tablets, pastils and similar forms by whatever name, mixtures of medicinal substances intended for solution in the mouth.—The medicinal agent is incorporated either with a dry diluent, such as sugar, and the mixture made into forms by compression, or into a mass with an excipient and then divided into various forms, as in pills. The medicinal agent is mixed with the diluent or excipient, which, being sugar or gum, slowly dissolves by the heat and moisture of the mouth and serves as a vehicle for the gradual distribution and solution of the medicinal agent. A prolonged local effect is thus produced upon the surfaces of the throat and respiratory organs.

Pills.—Medicinal agents designed for slow solution and retarded absorption in the stomach and intestines. These are made into a mass with adhesive substances, gum, sugar, etc. (excipient), which, responding to the exception noted in relation to solution, permit the gradual solution of the mass, and consequently retard the effect of the medicinal agent. The complete solubility of a pill is of course essential in order to assure the desired action, and for this reason such excipient must be selected as will not react with the medicinal agent, so as to cause the mass eventually to become hard and insoluble. The essential property of a mass and therefore of a pill is a physical condition which will insure softening; then gradual disintegration and finally complete solution in digestive or intestinal fluids. A pill may be so hard as to be brittle (comp. cathartic pill) and yet be perfectly soluble, and again when so hard the pill may be almost insoluble in the liquids of the body. The salts are generally not adapted to the pill form unless mixed with extractive or saccharin matter as in the case of the compound cathartic pill, and compounds of mercury, antimony, etc. The salts of the alkaloid are largely administered in this pill form and may become quite insoluble in course of time. Even the substances mostly used as excipients, sugar and gum, while inert therapeutically, it must be remembered are not chemically inactive and may produce compounds more or less insoluble upon change and exposure. This is true in a greater degree when two or more chemic agents are combined in a pill. For example, bismuth subnitrate and calomel made into a mass with mucilage or glycerite of starch affords a pill which, upon standing, becomes as hard as cement and entirely insoluble. Reactions take place between chemic substances like these, no matter how carefully selected the excipient, which either impairs their solubility or renders them otherwise unfit for therapeutic uses.

The medicaments adapted to the pill form administration may be said to comprise the following:

Tonics, hematinics, stomachics, hepatics; purgatives, laxatives, cathartics, anthelmintics; ecbolics, emmenagogues, antispasmodics; antigonorrheal, aphrodisiacs, antiaphrodisiacs.

The medicinal agents adapted to the troche or tablet form of medication are confined to the following:

Astringents, antacids, aromatics; expectorants, pulmonary sedatives; demulcents, emollients, vermifuges.

Powders.—These comprise by far the greatest number of remedies, but the following are chiefly represented by this form of medication:

Emetics, diaphoretics, sialogogues; sedatives, narcotics, hypnotics; tonics, antiperiodics, antipyretics.

The objection to powders is the disagreeable taste of many remedies. Since this has been overcome by the use of cachets or konseals it leaves in this modified form powders as the most elegant form in which a very large class of remedies may be dispensed. It enables the physician to formulate his own prescriptions instead of prescribing ready-made combinations, and also affords the pharmacist the opportunity to practice his art for the preparation of medicines.—Read by C. S. N. Hallberg, Ph.G., at the Forty-fourth Annual Meeting of the American Pharmaceutical Association, Montreal, Aug. 15, 1896.

Reduction and Fixation of Fracture of the Zygomatic Arch.—Dr. Rudolph Matas describes his method in a case of fracture without laceration of the overlying tissues: As the injured area was extremely sensitive, a general anesthetic was administered. The usual antiseptic precautions were carefully observed. A long, full curve (semi-circular) Hagedorn needle, threaded with silk as a carrier, was made to penetrate the skin about one inch above the midpoint of the displaced fragment, and was carried well into the temporal fossa under the broken bone. Then the point of the needle was raised and made to emerge about half an inch below the lower border of the broken arch. As the needle was pulled out a strong silver wire about one foot long was attached to the silk carrier and dragged through the tract of the needle so as to form a metallic loop under the misplaced bone. By twisting the ends of the wire together, a loop was formed which permitted strong and easy traction to be made on the broken fragment. Traction was begun by pulling directly upward and outward. The displaced fragment yielded and instantly returned to its normal position with a snap. The contour of the arch was immediately restored and the displaced fragment showed no disposition to relapse into its abnormal position. Notwithstanding the apparent permanency of the reduction, it was not deemed prudent to trust the fracture without a more permanent support, and the following simple plan was adopted to secure permanent fixation: An ordinary glass slide of the kind used for mounting microscopic sections, after careful sterilization, was wrapped in a layer of iodoform gauze and placed over the seat of the fracture with its greatest length corresponding to the long axis of the zygoma. The slide was long enough to rest upon the malar prominence anteriorly and upon the temporal root of the zygoma posteriorly, thus resting upon two fixed points. After twisting the wire firmly over the splint, it was evident that the bone could not be displaced. The dressing was then completed by applying a layer of sterilized gauze and absorbent cotton over the slide as a dressing, the whole being held in place by a roller head bandage.

On the second day following the reduction, a thin shell of vulcanite or dental rubber, molded to the shape of the normal zygomatic prominence, was prepared by a dentist and substituted for the glass slide. The wire which held the fragment in position was not removed, but twisted over the vulcanite shield. The new splint was now covered with a layer of absorbent cotton soaked in flexible collodion and applied without any additional dressing. The patient was confined to his room only twenty-four hours. On the ninth day the wire, splint and all dressings were permanently removed. There has been ever since (about fifteen months), a total absence of scar, deformity or inconvenience.—*New Orleans Med. and Surg. Jour.*, September.

Physiologic Study of the Uterus.—Keiffer's thesis on the uterus is winning him honors at home and abroad. It is based on the most extensive and thorough research-work, with the myograph and manometer on dogs and other animals. He states as the results of his experiences: 1. That the uterus in dogs contracts under the influence of central and peripheral excitation of the median, crural and sciatic nerves. Also of the parietal and visceral peritoneum, and of the pelvic organs. Also of the vagus, both central and peripheral. Also of the direct excitation of any point of the genital apparatus. 2. The crural nerve can suspend, by reflex action, the tonicity of the uterus. He has observed, in fact, remarkable relaxation of the uterus caused by exciting the central and terminal segment of this nerve. He explains this fact by the inhibiting influence exerted by the spinal cord on the uterus, and pheripheral excitation of the crural nerve, sets this influence in play. 3. The pneumogastric nerve is not a direct excito-motor of the uterus. Frank has already established this in regard to the bladder. But Keiffer found that excitation of the central end of the pneumogastric produced a most active response. The action is therefore, reflex. There was no response to excitation of the central end of this nerve after section of the spinal cord at any point in the dorsal or lumbar region. Hence centripetal excitation of the pneumogastric must act through the mediation of the motor centers in the spinal cord. Every excitation of the peripheral end of the vagus invariably produced very decided curves. But if sufficient atropin is administered to the animal to inhibit the suspension action exerted on the heart by exciting the vagus, with the accompanying modifications in arterial pressure, or if sufficient chloroform is given to extinguish the reflex sensibility of the vagus, there is no motor reaction, not even when the strongest electric stimulus is applied. 4. Asphyxia causes tonic contractions of the uterus by the action of the asphyxiated blood on the lumbar genito-spinal centers. In all of Keiffer's experiments, arresting the respiration produced extreme constrictive muscular activity in the uterus. As soon as respiration became reëstablished, the muscular activity subsided to normal. This phenomenon does not appear after destruction of the lumbar portion of the spinal cord. 5. The cervix uteri is a true sphincter like the other muscular rings of the body, but resembles most the iris. There is no antagonism between the muscular activity of the body and that of the neck of the uterus, but both combine in a succession and combination of movements to produce the maximum effect in shortening the uterus and dilating its outlet. The cervix as it opens obeys the suspensive action of its circular sphincter, but also and principally, the constrictive action of its radiating fibers, and a longitudinal constriction of the vagina and of the body of the uterus. 6. The tonicity of the uterus is maintained by the reflex activity of the lumbar portion of the spinal cord. 7. The tonic center seems to be located in the dog, on a level with the principal part of the fifth lumbar vertebra. 8. In the coördination of the muscles of the body and of the neck of the uterus, opposite effects may be produced in one or the other of them, at the same time, and by the same excitation. 9. The pneumogastric is not an excito-motor nerve, nor a direct moderator of the uterine sphincter. 10. Asphyxia contracts the cervix; then relaxes it. 11. Acute anemia produces complete relaxation of the cervix uteri; transfusion produces constriction. The proof that the tonicity of the cervix is maintained by reflex activity proceeding from the spinal cord, lies in the following facts established by these experiments: 1. That the cervix can support a pressure indicated by a column of liquid that varies with the excitation, if the cord is intact. 2. That the height of this column, and consequently the amount of pressure supported, can be increased or diminished at will by exciting the lumbar portion of the cord (fifth lumbar vertebra). 3. That destruction of the spinal cord in the vicinity of the fifth lumbar vertebra paralyzes the cervix to a greater or less degree. 4. That destruction of the region of the spinal cord below the fifth lumbar vertebra completely abolishes the sphincter function. It even

relaxes the entire uterus. 5. It is probable that this point in the spinal cord corresponds in the dog, to Budge's genito-spinal center, which varies in different animals. In conclusion Keiffer seeks to establish an absolute physiologic similitude between the uterus in mammals and the human uterus, basing his statements on the development of the embryo, and on a long array of clinical facts which confirm what he has learned in his experimental investigations.—*Annales de la Soc. Méd.-Chir. de Liège* for July.

Success of Ichthyol in Tuberculosis.—The efficacy of ichthyol in the treatment of whooping cough, ozena, urethritis, etc., has been announced in these columns, and the *Journal de Méd. de Paris* of August 9, now adds an enthusiastic recommendation of it as an effective weapon in our struggle with tuberculosis, the first article which has appeared in France, although Scarpa, Unna and Cohn have been advocating it for some time, with a record of 300 cases treated. The writer is Le Tanneur of the Belleville Consumption Hospital and Dispensary. He describes his experiments to determine the antiseptic power of ichthyol, and states that absolute sterility is secured with 5 per cent., although the shape of the Koch bacillus is altered and its development much retarded at 2 per cent. and even less. He administered it to his patients in capsules (Chiron's) 0.25 centigram each, from four to twenty-four a day. No effect was observed under six to eight capsules. He commenced with two and increased to twenty per day, taken three times a day, during the meals, but there is no necessity for so much caution now, as none of the fifty cases treated ever showed any inconvenience from its use, and several cases of complicating diarrhea and gastric disturbances were found to be cured by it. The cough was much improved owing to the liquefaction of the sputa produced by the ichthyol, which also cured the congestion of the bronchial tubes. The color of the expectorations changed from green to yellow, then to gray, and finally to the ordinary color of mucous secretions, a long stride toward recovery, even in the minor point that they ceased to cause gastric disturbances when swallowed. The dyspnea is relieved at once by the liquefaction of the sputa and the decreased congestion, which rests the heart and raises the general tone of the system. Pain in the intracostal region is also much relieved, probably for the same reason. The general health does not show improvement as soon as with hypodermic injections of guaiacol, but it arrives and progresses none the less surely, and the patients gain flesh much more than with guaiacol. Several gained seven to eight pounds in the first month, others four, and two-thirds of the cases showed marked increase in weight. The sweats also diminished, but apparently only as the general health improved, as this effect was not noticed as promptly as with creosote or guaiacol. The appetite was not unfavorably affected as frequently by guaiacol, but was improved and restored to normal in many cases. One of the ten observations he records was a man of 41. Primary tuberculosis, coughing and expectorating for four years, without relief from creosote or any remedy. Fever 102 degrees every day. Dullness at the upper part of both lungs. Gained six pounds in one month of ichthyol treatment. Coughs only in the morning and "feels strength and respiration returning." Another, 67. Bronchial catarrh for thirty years. After one month of ichthyol treatment cough entirely gone, and "feels better than ever." Another, 35. Advanced case of tuberculosis. Strength entirely gone. After one month, "Aspect of astonishing health." Coughs less than a quarter of what he did previously.

Le Tanneur concludes by stating that while ichthyol is by no means the long-sought specific for this terrible disease, yet great benefit is derived from its use as a substitute for creosote and guaiacol when, as so often happens, the system has become so habituated to them that they fail to affect it. It is especially indicated in bronchial tuberculosis, which it most promptly relieves. Its disagreeable odor renders the use of the capsule imperative.

PRACTICAL NOTES.

Success of Serum Treatment of Oriental Plague.—A telegram from Yersin announces that he has succeeded in curing twenty-five out of twenty-seven cases of the bubonic plague with his anti-plague serum from his laboratory established in Annam a year ago. The usual mortality is 95 per cent.—*Bulletin Méd.*, August 12.

Thermotherapeutics of Gonorrhea.—Neisser has stated that the gonococcus loses its power of development at a temperature of 113 degrees. Callari has found that the normal male urethra will bear this temperature and the female two degrees higher. He has been treating gonorrhea with injections at 113 degrees and reports a progressive disappearance of the gonococci in the majority of cases with this treatment. In order to avoid unnecessary congestion, he injects a 6 per cent. solution of cocain ten minutes before.—*Gaz. degli Osp. e delle Clinic.*, August.

Successful Treatment of Ozena with Ichthyol.—It is reported from Vienna that ichthyol will cure the fetid breath in ozena more rapidly and permanently than any other known remedy. After washing off the crusts with tepid water, two or three syringes of a 2 to 5 per cent. solution of ichthyol are injected into each nostril, the head held well forward and the mouth open to avoid swallowing the liquid. The rhino-pharyngeal mucous membrane is then swabbed with a cotton wad dipped into a 25 to 30 per cent. solution of ichthyol. It is also stated to be the best treatment for dry pharyngitis, with or without complicating ozena.—*Sémaine Med.*, August 12.

Fragrant Antiseptics.—In cases of foul smelling cancers, etc., the odors are completely disguised if the room and bed are well sprayed with a mixture of alcocol, 500 gr., essence of thyme and essence of lavender, 50 gr. each. This agreeable disinfectant also possesses powerful antiseptic properties. Huchard recommends a similar antiseptic spray for the apartments of tuberculous patients: guaiacol 50 grams, eucalyptol 40, phenic acid 30, menthol 20, thymol 10, essence of cloves 5 and alcohol at 90 degrees, q. s. to make one liter.—*Gaz. Méd. de Liège*, August 20.

Hypodermic Alimentation with Saccharin Solutions.—Some recent experiments at Munich with persons in normal health prove that artificial alimentation is possible in this way. Dextrose, levulose and maltose injected in a 10 per cent. solution were entirely assimilated by the organism, while cane or grape sugar were rejected and eliminated *in toto* by the kidneys. The slight pain that followed the injections was cured by massage. The best method of making the injections is to use a glass receptacle with a rubber tube and T-shaped canula. A needle is inserted into each branch of this canula, so that an injection can be made into each thigh at the same time, and a whole liter injected in fifteen or twenty minutes. The amount was increased progressively from 100 to 1000 c.c. Former experiments at Würzburg failed of success probably because the solutions were too strong.—*Semaine Méd.*. August 12.

Treatment of Syphilis with Mercuric Iodid Hemol.—As this is the only preparation that contains iron, its use is indicated whenever a tonic action is desired. It is effective and simple, although no internal medication takes the place of frictions and injections. Rille reports thirty-seven cases he has treated and eighteen from Neumann's practice. A few slight transient inconveniences followed its use occasionally, but they were less than with any other internal medication. He administered it as follows: 10 grams Kobert's mercuric iodid hemol; 0.8

decigrams opium powder, and q. s. licorice powder; made into fifty pills; taken two or three times a day, after meals. He recommends it for anemic and scrofulous cases of syphilis.—*Annales de Derm. et de Syph.*, July.

What is Indicated by the Tongue.—A white tongue, according ing to Dr. Ardhill, indicates febrile disturbance; a brown, moist tongue, indigestion; a brown, dry tongue, depression, blood poisoning, typhoid fever; a red, moist tongue, inflammatory fever; a red glazed tongue, general fever, loss of digestion; a tremulous, moist and flabby tongue, feebleness, nervousness; a glazed tongue with blue appearance, tertiary syphilis.—*Pop. Science News*, August.

New Method of Preserving Specimens with the Original Coloring.—Some preparations a year old were exhibited recently at the Académie de Médecine by Melnikoff-Rasvedenkoff of Moscow, which appeared as fresh and perfect in their coloring as if they were only a few hours old. According to this new method the fresh organ is placed in formalin, an aqueous solution of formaldehyde at 40 per cent., which toughens and discolors the tissues. At the end of twenty-four hours the piece is transferred to alcohol at 95 degrees, and left six to eight hours. In this bath the organs recover their previous coloring and the blood a tint as if the vessels had been freshly filled. The piece is then placed in an aqueous glycerin solution of potassium acetate. (Acetate 30, glycerin 60 and dist. water 100.) This sets the color permanently. After this it is removed to the final preserving fluid, made by boiling together 100 grams of gelatin and 600 grams of water, to which are added 350 cubic centimeters of solution of potassium acetate. After filtering this through a double filter, 700 cubic centimeters of glycerin are added, and the process is complete.—*Bulletin*, August 4.

Actinomycosis of the Lower Jaw.—Ducor of Paris reports a case of an enormous tumor on the lower jaw, with great emaciation and general distress. The patient belonged to the upper classes and submitted to treatment from twenty surgeons, during eight years before a correct diagnosis and relief were obtained. Ducor suspected and established the presence of the ray fungus, and secured great improvement with potassium iodid, 2.5 grams per day, painting the intra-buccal surface of the tumor with tincture of iodin, and injecting it into the parenchyma, mixed with equal parts of glycerin. Potassium iodid in this case again, showed itself the specific remedy for actinomycosis, although the lesions were of too long standing to expect complete recovery. There is no doubt that this disease is far more frequent than is generally supposed, but fails of recognition, so that the possibility of actinomycosis should be borne in mind in any tumor of the jaw. In this case it was found that the patient had the habit from her youth of chewing grains of wheat, etc., and picking her teeth with the stems. See this JOURNAL, July 11 and 25, pages 98 and 226.—*Bulletin de l'Académie de Méd.*, August 4.

Treatment of Malarial Splenic Troubles with Oleate of Rue and Cyclamen.—In a communication to the *Gaz. degli Osp. e delle Clin.*, August 9, Colasuonno remarks that physicians in Italy have especial opportunity to observe the effects of malaria, and that he has had a wide experience in treating splenic disorders, which are the most important manifestation of chronic malaria, as the spleen is not only the chief seat of the localization of the active agents of the disease (Maragliano), but owing to the frequent hypertrophy produced, it causes a series of ills, especially if the organ becomes displaced. He then proceeds to announce with confidence that he has established the efficacy of a combination of oleate of rue and cyclamen roots as a remedy for malarial splenomegalia, and has even secured complete recovery in a case of wandering spleen. This was a woman of 40 who came to the hospital at Naples to have an operation performed, as the enormously hypertrophied and displaced spleen caused by chronic malaria was producing intense gastric disturbances. Instead of an operation the region was frictioned five to ten times a day with the oil of rue and cyclamen. At the end of a month of this treatment the spleen had been reduced to its normal size and position, and has remained normal during the seven years since. He used equal parts of crushed cyclamen roots and oleate of rue made from the leaves, which he has well rubbed into the region, with massage.

Ununited Fracture—Use of Bone Ferrule.—The patient sustained a severe fracture of the humerus some months ago as the result of a gun-shot wound. There was great loss of the shaft of the bone with paralysis of the musculo-spiral nerve. The case had been operated upon on the Pacific Coast, at which time several fragments were removed and the remaining ones wired together. Unfortunately there was no attempt at reunion. On April 2, we operated upon this case and found that there was great longitudinal diastasis of the fragments of the bone and also those of the nerve. The fragments of bone were freshened obliquely and a bone ferrule slipped over the point of their approximation. These ferrules are made from the femur of an ox and have been but partly decalcified. The distal end of the nerve was easily found in this case, while the proximal end was found with great difficulty. After succeeding in finding it, however, we sutured the ends and surrounded the point of union by muscular tissue, in this way preventing the implication of the line of union of the nerve with the cicatrix of the bone. At the point of the fracture we now find considerable definitive callus. The ferrule has taken the place of the provisional callus. We have every reason to believe that this case will soon recover. I know of no more effective way of uniting compound fractures, whether primary or secondary, than that by means of fixation with bone ferrules. The limb was dressed with a simple right angle-splint, held in position by a plaster of paris dressing, which included the shoulder. The bone ferrule will be absorbed in from six to eight weeks.—Dr. Nicholas Senn in the *Clinical Review*, September.

Veratrum Viride in Puerperal Eclampsia.—Dr. C. D. Hurt says: Veratrum viride is a nervous sedative, a muscular relaxant, a glandular excitant. When taken into the system it lessens the susceptibility of the sensory nerves, and modifies the action of the spinal cord and vasomotor nerves. At the same time, if coma exists it has a property of removing it and restoring the mental functions. Other remedies for puerperal eclampsia have their places, and some of them are valuable; but no one meets all the indications as does veratrum viride. Taken internally chloroform acts as a sedative narcotic, operating chiefly through the nervous system, independent of vascular action or congestion or without any beneficial influence on the latter condition. Veratrum is a sedative, operating through the nervous system, relieving coma, and removing congestion, and eliminating certain effete matters by stimulating the secreting organs. Bromid of potash and chloral are too feeble, unreliable and slow in their action. Morphin stupifies, lessens pain, but is objectionable in locking up the secretions. Apomorphia produces greater distress with fewer good effects. Venesection is admissible in all robust patients or cases of plethora, by removing a certain amount of effete matter from the system and encouraging easier and more rapid dilatation of the os. Indeed, with venesection and the judicious use of veratrum there is no condition of the os not dependent upon actual stenosis which will not yield to parturient pains and avoid the necessity of incising—a surgical dexterity into which some obstetricians are easily tempted. Veratrum is suited to the treatment of eclampsia, whether ante-partum or post-partum, unless chronic disease or excessive anemia be present.—*Atlanta Clinic*, August.

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INFORMATION WANTED.

It would greatly facilitate the prompt delivery of the JOURNAL to those members of the ASSOCIATION living in large cities, if they would kindly furnish this office with their street address in those cases where it is omitted from the wrapper of their JOURNAL, as we have been notified by the postmasters of the larger cities that second-class mail matter not having street address, would be placed in the general delivery to await call.

SATURDAY, SEPTEMBER 12, 1896.

JANUS.

The name of the two-faced Latin deity has been given to a bi-monthly journal, the first issue of which, for July and August, 1896, has just reached this continent from its headquarters in Amsterdam, Holland. JANUS looked backward as well as forward that he might have ever in view the lessons of the past for his guidance in the uncertainties of the present, and he is thus made to symbolize the intentions of the Editorial Staff of this new undertaking in medical literature, the "Archives internationales pour l'Histoire de la Médecine et la Géographie médicale," or rather this attempt to resuscitate, under the conditions of the present day, an undertaking which failed under those of half a century ago; for although to many this *Janus* is a new thing, to those who are versed in the archives of medicine it is *Janus Redivivus*. This is shown in an enthusiastic introductory paper written by Professor STOKVIS of Amsterdam, at the request of M. le Directeur Dr. PEYPERS of the same city, who modestly characterizes himself as too little known out of his immediate circle to be the proper accoucheur for an international journal.

Fifty years ago, that is in 1846, an era of extraordinary progress dawned upon medical science. The heavy chains of the philosophy of the age, with which the natural sciences, together with the science of medicine in Germany had been riveted, were broken forever. The microscope and other new appliances for physical research, with newly discovered chemic methods, led to a return to experiment and careful observation. Hypotheses and systems were rejected, while facts developed by the methods of natural science conduced to the recognition, one after another, of many hitherto unknown biologic phenomena of the greatest importance to the science of art and medicine. The cell was already appreciated as the primitive element of life. HENLE had already published his Anatomy, in which he continued the immortal work of BICHAT. The predecessors of PASTEUR in following the light of SCHWANN and HELMHOLTZ had already shown that fermentation is a vital process which ceases as soon as the conditions needful to the life and development of the microörganism are withdrawn; and the medical world was on the verge of the discovery that every special fermentation is determined by a specific microörganism, and that those of the alcoholic, acetic, lactic and butyric fermentations, are distinguished one from the other, not only by their function, but by their form. At this time medicine became permeated with new blood. The fruits of the genius of CORVISART, of LAENNEC and of CRUVEILHIER, had been planted, improved and propagated by SKODA and ROKITANSKY of the school of Vienna. HENLE was preparing his Rational Pathology. CLAUDE BERNARD, who unveiled so many of the mysteries of animal and vegetable life, was already close to his discovery of the glycogenic function of the liver. The brothers WEBER had just announced the first illustration of an inhibitory nerve. TRAUBE was beginning his beautiful series of researches in experimental pathology, and VIRCHOW, the grand master of our modern pathology, revealed in this year the pathogenesis of fibrin in the vessels, of embolism of the pulmonary artery and of leukemia.

In the midst of this era of progress the original *Janus* was started by HENCHEL of Breslau, aided by many foreign collaborators. It may be observed that a number of National Archives had been launched before this, and had foundered because one country alone was unable to sustain a historic review on the paying basis of a practical journal, just as at present it is claimed that one country alone, even though that country be the United States of America, can not maintain a minor metal on a parity with a major metallic element. Even HENCHEL'S international effort failed. The medical world was too busy looking forward to have time to look behind in this formal way. *Janus* failed in 1848, but its editor, aided by HEUSINGER of Warbourg, and others, reëstablished it in 1851. Despite, however, the enthusiasm of a few, it again failed, because the active members of the profession took but little interest "in the important papers on the history of medicine and medical geography which it contained."

Now, in the year of 1896, when, as in 1846, the medical world is on the qui vive for fresh developments, *Janus redivivus est*. Will it succeed? Have

we time to look back? Do we need to look back with full face? Few systematic articles in this JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION fail to bring their subjects up from ancient times to date. This testifies to the use made of our medical libraries. Is this enough, or do we require a new and special journal? All sorts and conditions of men make up the world, and all sorts and conditions of minds make up the medical world. The energetic, enthusiastic workers are in advance on the skirmish line; but should there not be cautious, conservative minds surveying the pathways which led to the present position, the better to indicate those which should be pursued for final triumph? We think so. We think that *Janus* has a mission; for when we find among many notable European names on the Editorial Staff those of PEPPER, OSLER and STERNBERG, and among the collaborators the names of N. S. DAVIS and NICHOLAS SENN, of JACOBI, of New York, and of HARE and GUITERAS, of Philadelphia, we must conclude that the International Archives will prove their value and meet that success under the conditions of the present age which was denied them half a century ago.

"THE NEW NURSE" AGAIN.

Being a woman, it follows that in the universal process of rejuvenation and modernizing to which everything is to be subjected the nurse must also be made over. It might seem that the professional nurse were herself such a modern product that any remaking after the manner of the new woman, would be a wholly superfluous proceeding. But in England, at least, protest has apparently become necessary, and we suspect it may be about time for Americans to reconsider the questions of over-education or mal-education, proper functions and delimitations of the nurse. Dr. MALCOLM MORRIS in *The Practitioner* for July, 1896, has some rather sarcastic remarks upon the subject. To us at least, and pondering the matter from our point of view, Dr. MORRIS seems to be somewhat too ironical. Perhaps the dreams and ambitions of our American girl are kept well *in petto* and are only awaiting power and greater storage to break into the expression which has piqued the transatlantic editorial pen. Doubtless American gallantry would have been slower to snip or snub the nursoreal ideal or tendency. We are proverbially more generous to our sisters than the nation which has labored so long and only at last half successfully to permit a deceased wife's sister to cast sheep's eyes at the widower of her defunct sister. We may be too impulsive but our generosity is equal to permitting the deceased wife's sister the freest privileges and ambitions.

But surely she is a better nurse than any man, and we are all happy to acknowledge that these modern doctoring days are much easier for us, and the prognosis in the patient's case is far better than it was before we had the nurse's beautiful conscientiousness, and gentle patience to aid us. Dr. MORRIS even denies the fact which we thought so true and well-recognized as to be pure platitude, that the presence of the young women in the wards and private rooms of the hospital has been the principal and persistent cause of a decided improvement in hospital manners, student brutalities and vulgarities, and even in professional characteristics. "The type of Bob Sawyer was extinct long before the 'lady-nurse' came upon the scene," he says and otherwise dashes the poor girls with the quintessence of his irony, ending up with the wild lunge that the softening of manners is due more to "the fear of the examiner" than the subtle influence of the nurse. In all of which we fear the Englishman has let his prejudice get the better of his generosity and courtesy. We believe no American physician would for one moment deny that not only in the past but in the present time the whole atmosphere of the ward and clinic is purified of the former vulgarity and rowdyishness by the silent presence of "petticoats," the white-capped priestesses of dignity and purity hovering about, dextrous in service, and often as powerful in influence when they only "stand and wait."

The only fear we have as to the matter of "over-ambition" and "over-education" of nurses concerns their physical and neurologic ability to do their work, and receive and digest the scientific food they seem both willing and eager to have given them. If they could safely do so, we do not see why they should not have all the lectures and examinations on "surgical anatomy," or upon any other subject related to their calling, they are pleased to desire. But precisely this doubtful "if" gives us pause. We feel like finding a way out by lengthening the course of study or apprenticeship so that there shall be greater freedom, or at least some little relief from the frequently frightful and inhuman over-work and over-worry of their schools. This is certainly easy of accomplishment, because now there are so many girls wishing to enter the schools that, by reason of the greater numbers possible, the hours of work might be shortened and the drudgery lessened. In this way the standards of character and acquirement could be raised without endangering the health. We have no such fear as seems to glare at one from between the lines of our English contemporary, that any one, even a nurse, can be too highly educated for the most menial occupation. We have no tendency, thank heaven, to look upon the nurse as a menial or as a servant. It is rare indeed that one will hear an American physician speak to a nurse in a harsh or dictatorial manner, and as if she were a common maid-of-all-work.

There is one aspect of the nurse question to which we have seen no allusion in any of the controversies, and which may deserve a passing word.

Women are natural politicians, born partisans, good in execution and obeying, poor in leading and ordering. It is proverbial that the worst enemies of some women are other more fortunate or shrewder women, and that in stores or factories the hurshest and most unkind "heads of departments" or "bosses" are those women who are put in authority over other women. From all this it results that instances have been known in which the chief nurse has been an inexhaustible fountain of trouble and injustice. In the first place, she is almost certain to have a favorite doctor or two, and to be as "hateful" and intriguing toward others she does not like, as she is more than kind and intriguing toward her favorites. Worse than this, her partisanship is almost certain to be hotly active in the matter of favoritisms and antipathies to the girls who must be as tools in her hands. She gives her favorite doctor her favorite nurses, and to the unfortunate whom she detests she allots the poor child who has justly or not incurred her ill-will. No one so keen as she to find symptoms of "nursitis" in the medical student or young resident physician, and to trace the infecting *materies morbi* to its source with a certainty and celerity any bacteriologist might envy. In the legal manner of speaking, justice is liable to fall with an all too heavy hand upon the weaker party. It has been also whispered that at times she allows herself a greater freedom in the matrimonial game than she gives her competitors, and that wily and subtle-minded physicians have made use of the favor of the chief nurse to further the getting of patients, the delivery of lectures, and other ways of self-seeking forbidden men of greater self-respect. However all this may be, it would seem well not to allow too much autocratic power and authority to her ladyship until it shall have been proved, by some fifty years of service, that she will not use it except justly among the poor voiceless creatures with whom she has such numerous and devious means of unjust subjugation or reward, or as relates to the hardly more important matters of professional life or therapeutics.

THE LOWERING DEATH RATE

There is certainly no more astonishing and gratifying fact in modern civilization than the enormous decline and still progressively decreasing death rate of the more progressive and best governed countries. We have in England a proof of the fact which, owing to the length of time over which they extend, and the accuracy of the statistics, brings the result clearly before the mind. Estimated by quinquennial periods the general English death rate per 1,000 from 1858 to 1895 was as follows: 22.22, 22.58, 22.42, 21.96, 20.79, 19.40, 18.90, and 19.04 respectively. In London alone, the largest civilized city in the world, the rate has been reduced to about 17, while certain districts of the metropolis have reached as low a rate as 14, 13, and even 12.

In the United States, with less concentration of population in large cities, we must confess the shameful fact that human life is more recklessly and needlessly sacrificed to the brutality of politics and sanitary heedlessness than in older countries. It is nothing less than a disgrace that in our smaller cities, and with the injuries of bad hygiene less necessary, we yet are killing off our citizens at the rate of from 5 to 10 per 1,000 faster than in European cities. Think of what this means in a city the size of greater New York! If her death rate is 5 per 1,000 greater than it need be, one shudders to contemplate the many thousands of citizens needlessly murdered every year.

In some of our cities the condition makes this fact still more evident and startling. Accurate figures are not before us as we write, but we believe that in a number of moderately sized cities the death rate has been reduced to a remarkably low figure. It has lately come to our notice that in one of our cities, Buffalo, by the persistent and heroic labors of the energetic health officer, the rate has been reduced to 11.67. If we are not mistaken, this is the lowest ever made by any city of the world of equal size. If the saving of one life is worthy of medals and public honors, what kind of medals and honors should be awarded to Dr. WENDE for the thousands that are living in that city to-day, who under a less thoroughgoing sanitary management would have died? And, on the other hand, what rewards should be given other cities where the death rate is double that of Buffalo? Perhaps their problems have been harder and the difficulties more insuperable, but perhaps, also, they have not. Leastwise, they have not been so proportionately to the contrast in the death figures.

Buffalo's death rate in the year preceding Dr. WENDE'S accession to the office of Health Commissioner (1891) was 23.48 per 1,000 population; prior to that it had averaged above 20 per 1,000. In 1892 the rate was reduced to 19.98, to 19.03 in 1893, to 16.76 in 1894 and to 13.95 in 1895. For the first six months of 1896 the rate is 11.67, with prospect that the year will see it not far from 12 per 1,000.

All physicians know the essential prerequisites of such a reduction of disease: A reorganization at once upon a thoroughly business-like and scientific basis of the health department and the stamping out of the causes of disease. In Buffalo the immediate reporting of cases of contagious disease by telephone was made mandatory; visitation and vaccination in the public schools instituted; the sealing up of an emergency inlet of sewage-polluted water supply followed. Weekly examinations of the water are continued to this day; a thorough and watchful reorganization (with prose-

cution of delinquents) of all the conditions surrounding the milk supply was made; food and drug inspection; tenement house inspection; a justly tyrannical oversight of all drainage, plumbing, etc.

It must not be forgotten, also, that the death rate alone does not represent the expense either in suffering or dollars to the community. Dr. FARR estimates that for every death there are on the average two years of illness in a given community. It is needless to emphasize the tremendous significance, to those with open eyes and humanitarian feelings, of the thousands of years of prevented illness and suffering, shown in the foregoing figures.

There are many lessons to be gleaned from these figures, but there are one or two that we can not omit to notice:

1. In a general way it can not be denied that this, the greatest good that has been brought to humanity, is in the main due to medical science, and to the virtue of medical men. Either in the long historic series of preparations for the realization of the endeavor, or in actually and practically working it out, or in both, the medical profession has undoubtedly been the chief instrument. Without undue self-satisfaction we may lay no little emphasis upon the fact and justly claim that although our work is with disease, and our wage drawn from the conflict with disease, yet there is not one lay citizen more glad, probably none so genuinely happy as we, that we are stamping out disease and death. Surely few or none are so unsatisfied with the result, grand as it is, and so resolutely determined to go on and make the blessing still greater. We have reduced the death rate in the last twenty-five or thirty years, of smallpox from 219 to 22 per 1,000; of typhoid fever from 373 to 135; of typhus fever from 81.4 per million to 2; of phthisis from 2,565 to 1,512, and so on. As to scurvy, leprosy, the plague, cholera, malaria, etc., they are fast becoming mere names in the history of medicine. But is the community grateful? Witness our half failures, and half successes, with more absolute failures, to wrench from the public even the simplest essential medical practice acts! The public loves its quacks far more than it does us.

2. And what is this precious public for whom we labor, not only not doing for the elevation and protection of the profession, but what is it doing for its own sake, more directly, in founding and supporting bacteriologic and hygienic institutes, boards of health, etc? If we had the money wasted on paper cutters, pocket books, and luscious luxuries by our legislators we could pay the expenses of a dozen such institutes and save the lives of a hundred thousand people in a few years. Suppose even we could have a few of the millions now given as bribes to fraudulent pensioners! This public can endow theologic schools and chairs to teach boys Hebrew, Latin and Greek, etc., but where is the endowment to be found to endow medical colleges or chairs where shall be taught the saving of life?

3. Not only may we complain of not being helped, but we have to fight against opposition. Take the crying abuse of turning a medical Health Officer out of office in obedience to the criminal demands of "practical politics." The place-hunter and spoilsman must have his turn regardless of the community's health and rights. The term of office of an Officer of Health should and must be made unlimited and solely dependent upon success and capacity. It is simply disgusting that just when the year or two of experience has begun to fit a man for the efficient discharge of his complex duties, he should then be turned out to make way for a novice.

EDUCATIONAL NUMBER.

For the convenience of students, and the information of the profession generally, we shall issue an educational number next week. It will be seen that in the last decade, gigantic strides have been taken in bringing up the average standing of the medical colleges. The increase in the facilities for laboratory instruction is one of the gratifying features of the new exhibit.

There are many alleged medical schools not accounted for in this exhibit, but as a rule they ought not to be considered. We have been informed that there are about fourteen medical schools in Chicago alone; only a few of these have any reason for existence, and if rigid requirements were insisted upon they would close their doors.

The struggle for existence is at the root of the evil; finding themselves unable to compete with the real college professor in obtaining practice from the public, these persons, with others of the same ilk, start a so-called medical college, and become "professors" themselves. There are few statutory requirements; an act of incorporation can be obtained for a silver dollar in any stage of depreciation, a building rented, and a flaring sign put across its front. Verily, the "professors" are as plenty as the leaves of Vallambrosa. If we look into the equipment of these raw institutions, we find the Laboratory wofully lacking in the most ordinary apparatus, and like Do-the-boys Hall, squalor and filth are the most prominent characteristics. The only wonder is, that such men, with such miserable equipment, can find students; but they flourish in some way. The cure for this evil will come when the real medical colleges have endowed chairs, and the professor no longer enters into bread-and-butter competition with the general profession. Then it will be possible by statutory enactment to prevent the establishment of improper and imperfectly equipped schools. It should be a simple thing for the legislature of any State to fix a minimum standard of equipment. If this were done the tone of the medical school would be much higher, and the profession generally better pleased with them.

CORRESPONDENCE.

Dislocation of Hip.

CLYDE, N. Y., Sept. 2, 1896.

To the Editor:—In looking up some of the literature relative to dislocations of the hip, I especially noticed the remarks made when reviewing the work of Dr. Allis relative to some difficulties attending the reduction of the same, and which I found in the JOURNAL of April 10 of this year.

My notice was especially attracted by them, as they reminded me of a case which came under my care in 1859, where the head of the femur was upon the dorsum, which I failed to reduce by every known means except that by Chapman (manipulation), afterward revived by Dr. Reid, which I did not try. Dr. Reid was then a resident of Rochester where, as now, was also the home of "our own" Moore.

When obliged to give it up, and having visions of a suit for malpractice (as the accident was in a poor family), I sought the aid of Prof. E. M. Moore to help me out of my trouble. He in his goodness of heart not only personally came to my rescue, but also brought Dr. Reid with him, saying: "This is Reid's hobby, and we will let him reduce it by manipulation." After arriving at the house, and when everything was in readiness, Dr. Reid began his manipulations. After vainly trying for a long time he did not succeed, and gave up the reduction of it by what was then called his method, and requested me to apply Jarvis' Adjuster, hoping that with it it might aid in another effort by manipulation.

By this time the mercury was as high as it could conveniently climb in the thermometer, and all hands stripped as for a pugilistic encounter. Dr. Reid again renewed his attack and succeeded in changing the locality of the head from the dorsum to the thyroid foramen, where it is at this day, and where I have, from that time to this, wished the head of the young man was also, as he and his friends for a long time were unceasing in their denunciations of me, and even went so far as to consult an attorney. The attorney's reply, I afterward learned, was, "You can not recover against the Doctor with such men as Moore and Reid at his back." That ended all thoughts of prosecution, but not the vehemence of the young man's and his friend's abuse.

There was to me a gratifying sequel to this case which was this: Five or six years after the circumstances above related, a messenger came for me in great haste to visit a young man who had been thrown from a horse, and whose leg was thought to be broken. I visited him, not suspecting whom I was to see. I found a fracture of the femur at its lower third. As I was about to make preparations, the young man said, "Doctor, you have had something to do with this leg before," whereupon making some inquiries, I learned that he was the young man who had denounced me so savagely some years before. I rose from my chair and said to him, "Then you are the individual who, some years ago, was unremitting in your denunciations of me for not having done what two distinguished surgeons also failed to do. I am glad you have enlightened me. I would have reduced your fracture and done for you to the best of my ability, but I shall not place myself in a position for history to repeat itself. You must secure the assistance of another surgeon."

It was pleasing to me to hear him beg and promise that whatever the result might be, if I would assume the care of his case, he would never murmur. Another surgeon was called and what the outcome was I am unable to say, as he lived in another town, and beside that I never made an inquiry.

This communication is intended more especially to refer to the cause of our inability to reduce the dislocation, which cause was the one given by Professor Moore at the time, the "untorn portion of the capsular ligament," and he went so far as to say to the mother of the young man (she was a widow), "If you will let me take him to the hospital I will cure him by cutting down and liberating the head of the bone," but she declined.

This was thirty-seven years ago, years before antisepsis was thought of, and when, if I remember correctly, cutting into a joint was considered fatal so far as future use of it was concerned, if not fatal to the life of the patient. I well remember that on our way home Drs. Moore and Reid had a warm discussion relative to the propriety of the operation which Dr. Moore had urged upon the mother, the latter strenuously opposing it as it would be fatal. Dr. Moore would have made it, however, regardless of the amount of opposition which could have been arrayed against it, had he had the opportunity.

At this late day even, I don't forget how gratifying it was to me to know, poor as I was, that I was warmly sheltered under the wings of Drs. Moore and Reid, as suits for malpractice were much more frequent then than at the present day, for obvious reasons.

D. COLVIN, M.D.

Treatment of Phthisis Pulmonalis.

KNICKERBOCKER, TEXAS, Aug. 29, 1896.

To the Editor:—As a country doctor, debarred by semi-invalidism from leaving a dry and salubrious climate to drink fresh draughts of knowledge at the founts of learning perpetually flowing in every modern medical center, I derive no little satisfaction and mental profit from noting the progress of medicine as recorded weekly in our JOURNAL.

Having found that while in my own person the progress of pulmonary phthisis is satisfactorily arrested by climatic and hygienic measures, these nevertheless fail for obvious reasons to act so favorably upon many other invalids who resort hither, I therefore naturally feel a profound interest in every new therapeutic claim which relates to the treatment of consumption. Although somewhat skeptical of the confident claims advanced in behalf of every new treatment of phthisis since Bergeon failed and Koch fell short of success, I yet cherish the hope that with the onward march of medical progress, a greater measure of success than ever before lies just ahead of us. And, so, when experienced and eminent bacteriologists, like Dr. Paquin and Professor Klebs, offer a serum or a definite product of the bacteriologic laboratory scientfically prepared by experts and favorably reported on by clinicians, I am disarmed of my natural prejudice sufficiently to accept the scientific basis on which their preparations are claimed to act, and in selected cases to give them a trial. But when "A New Treatment of Phthisis," as presented by Dr. Hubbard Winslow Mitchell in the JOURNAL of August 15, prescribes a formula of simple chemic agents, supported by extraordinary curative claims based on two years' observation and an extensive list of cases treated, my old skepticism returns rampant on noting the indefiniteness of the composition of the "fluid" recommended.

In view of the magnitude of the claims made for a "fluid" composed of so simple ingredients, I wish to protest against the inexactness of the published formula, to which, after giving the list of chemicals entering into its composition (designated for the most part by unofficial terms) is appended the direction: "Sodic carbonate, potassic carbonate, equal parts added in sufficient quantity to bring the solution to the proper (*sic*) degree of acidity." In the name of suffering humanity, what does this mean? Let us suppose in the absence of a working formula for the preparation of this "fluid" that an experienced pharmacist shall possess sufficient practical technical knowledge of chemistry to prepare a .5 per cent. aqueous solution of chlorin, being guided in his efforts by the quantitative tests of the .4 per cent. official solution of the pharmacopeia, and then should fail to guess the exact quan-

tity of sodic carbonate and potassic carbonate required "to bring [Does he mean reduce?] the solution to the proper degree of acidity?" In the event of failure to secure the expected therapeutic results, would rural practitioners like myself, who live far from chemic laboratories, be expected to draw their supplies of this new "fluid" from an expert who prepares it under the immediate supervision of the author and inventor of the "fluid?" If not, why is a formula presented which would be compounded exactly alike by probably no two pharmacists out of a thousand, who might attempt to follow its directions?

It seems to me if the Doctor reports his discovery for the benefit of humanity and for the instruction of the medical profession, he should supply a plain working formula of the "fluid." But if it is to be made only by experts and under his own personal supervision, and is to be had on the market at so much a bottle, then the JOURNAL should send its bill to the laboratory for advertising, at regular rates.

BOYD CORNICK, M.D.

The Polish Physicians of Chicago.

CHICAGO, Sept. 2, 1896.

To the Editor:—I have the honor to announce to you, that on Aug. 29, 1896, the Polish physicians of Chicago organized in a society, to be known by the name of "Towarzystwo Lekarzy Polskich" (Polish Physicians' Society), and filed the articles of incorporation. The articles were signed by the following physicians: Drs. Ed. Czerniewski, M. Dowiat, M. Orglert-Kaczorowska, J. P. Kaczarowski, M. P. Kossakowski, W. Kuflewski, J. Piszczak, W. J. Sieminowicz, W. Statkiewicz, B. F. Strzyzowski and J. Ziolkowski, and Dr. R. L. Lande from Milwaukee, Wis.

The directors elected for the first year are: President, J. Piszczak, M.D.; vice-president, M. Orglert-Kaczorowska, M.D.; secretary and treasurer, W. Statkiewicz, M.D.

The purposes of said society are purely scientific.

Meetings will take place alternately at each member's home. The first regular meeting will take place at Dr. W. Statkiewicz's, 3315 Laurel Street, Chicago, at 4 P.M. on the 12th inst.

Very respectfully, W. STATKIEWICZ, M.D.

Pan-American Medical Congress.

To the Editor:—I expect to attend the Congress as delegate from the AMERICAN MEDICAL ASSOCIATION. Is it necessary to send my name and fee to the secretary general, City of Mexico?

G. B. G.

ANSWER:—Send your registration fee, $5 (gold), to Prof. Dr. Van Francisco Bastillos, Calle de Tabuca, No. 7, City of Mexico, Republic of Mexico.

BOOK NOTICES.

Twentieth Century Practice. AN INTERNATIONAL ENCYCLOPEDIA OF MODERN MEDICAL SCIENCE. By leading authorities of Europe and America. Edited by THOMAS L. STEDMAN, M.D., New York City. In twenty volumes. Volume VIII. "Diseases of the Digestive Organs." New York: William Wood & Co. 1896.

As was the case with Vol. VI, it has again been found necessary to issue the eighth volume out of the regular order. The publishers say Vol. VII will be the next to appear, upon the publication of which the series will be consecutive as far as Vol. VIII. The present volume has been prepared by eight different authors, four Americans and four Germans; is illustrated by 100 original engravings and includes diseases of the mouth, diseases of the esophagus, diseases of the stomach, pancreas, peritoneum, animal parasites, and diseases caused by them, and the treatment.

The contributors are B. Farquhar R. Curtis, New York; Max Einhorn, New York; Reginald H. Fitz, Boston; James M. French, Cincinnati; J. C. H. Huber, Bavaria; Warner Kümmel, Hans Leo, of Bonn, and Johann Mikulicz of Breslau.

The chapter on diseases of the mouth has been written by Mikulicz and Kümmel, and with the usual thorough manner of the Germans, we have it beginning with the anatomy of the parts. Fitz has written a chapter in a very satisfactory manner on diseases of the esophagus; Max Einhorn on diseases of the stomach. Naturally, we expected to see a good deal on the subject of gastroscopy, as no one in this country has given more attention to it than Dr. Einhorn. A good deal of attention has been given to different apparatus for lavage, and this chapter is well illustrated. The chapter on diseases of the pancreas has been written by Professor Leo and although short is very concisely written. The chapter on diseases of the peritoneum by B. F. R. Curtis is an excellent one and under this head the author has included appendicitis. The chapter on animal parasites and the diseases caused by them, by J. C. H. Huber, is a very exhaustive résumé of the subject.

The volume is fully equal to its predecessors, which is paying a high tribute to the general merits of the work.

Treatise on Surgery by American Authors FOR STUDENTS AND PRACTITIONERS IN SURGERY AND MEDICINE. Edited by ROSWELL PARK, A.M., M.D. Vol. I, General Surgery, with 356 engravings, 21 full-page plates in colors, and monogravures. Philadelphia and New York: Lea Brothers & Co. 1896.

This work, which has been announced for some months, has been issued. The contributors to the volume are W. T. Belfield, Herbert L. Burrell, Duncan Eve, John A. Fordyce, Frederick H. Garrish, William A. Hardaway, H. A. Hare, James M. Holloway, Henry H. Mudd, Charles B. Nancrede, Roswell Park, John Parmenter, Joseph Ransohoff, Chauncey P. Smith and Edmond Souchon. Of the surgeons contributing to the volume all but two are members of the American Surgical Association. The editor states that the chapters on auto-intoxications and on the surgical sequelæ of acute non-surgical diseases are practically new. The first volume contains the more general subjects of surgical pathology, the general principles and theory of surgery, and surgery of the tissues. Of the chapters in the book, those on hyperemia, the blood, inflammation, ulcer and ulceration, gangrene, auto-infection, surgical fevers, surgical diseases common to man and animals, shock and collapse, scurvy and rickets, the sequelæ of other infections and diseases, poisoning by animals and plants, acute intoxications, cysts and tumors and surgical diseases of the osseous system (sixteen of the thirty-two) have been furnished by Dr. Park; that of syphilis by Dr. Fordyce; gonorrhea and its sequelæ by Dr. Belfield; control of hemorrhage, burns, scalds, frost bites and minor surgery by Dr. Parmenter; anesthesia by Dr. Hare; surgical diagnosis by Dr. C. P. Smith; methodic report of a surgical case, an elaboration of which appeared in this JOURNAL, by Dr. Souchon; wounds, gunshot wounds, processes of repair and treatment of wounds by Dr. Nancrede; surgical diseases of the skin by Dr. Hardaway; diseases of the muscles, tendons, tendon sheaths and fasciæ by Dr. Burrell; lymphatic vessels by Dr. Gerrish; surgical injuries and diseases of the veins by Dr. Holloway; injuries and diseases of the arteries, including aneurysm, by Dr. Duncan Eve; joint and joint structures and operations on joints by Dr. Joseph Ransohoff; fractures and dislocations by Henry H. Mudd.

The volume is well illustrated and well edited. As will be seen, the editor has himself been the author of one-half of the book.

Deformities: A Treatise on Orthopedic Surgery, intended for Practitioners and Advanced Students. By A. S. TUPPY, M.L., London, F.R.C.S., England. Illustrated with 15 plates, with 302 figures, of which 200 are original, and by notes of 100 cases. London and New York: McMillan & Co. 1896.

This volume is the outcome of several years' work by the author at the National Orthopedic Hospital, the Evelyn Hospital for Sick Children, and for some time in the Orthopedic

Department at the Westminster Hospital. The author, however, has not only made a record of his own work, but has given a fair account of the deformities as at present understood. It is pleasing to note that he has quoted freely from Bradford and Lovett of this country, and pays a graceful tribute to our Orthopedic Association by saying: "Above all, I can not omit to express my sense of indebtedness to the many admirable writers who have recorded their experiences in the transactions of the American Orthopedic Association."

There are nine chapters on deformities of the spine, constituting Section One; four chapters on deformities of the neck, chest and upper extremities, constituting Section Two; Section Three has only one chapter, that on rachitic deformities; Section Four, deformities of the lower extremities, has nine chapters; Section Five, ankylosis, congenital displacements, deformities resulting from cerebro spinal paralyses and arthrodesis.

The illustrations are fair, and the type is large and clear. The book is timely, and, although conservative, is fully up to date. We quite agree with the author's estimate of the advantage of tarsectomy, in which he states: "Cases in which tarsectomy is necessary are very few and form a very small perceutage." We commend the book as one being in every way satisfactory.

Ptomains, Leucomains, Toxins and Antitoxins, or the Chemical Factors in the Causation of Disease. By VICTOR C. VAUGHAN, Ph. D., M.D., and FREDERICK C. NOVY, Sc.D., M.D. Third edition, revised and enlarged. Lea Brothers & Co., Philadelphia and New York. 1896.

It has been apparent for some years that the study of bacteriology is fast returning to its ancient home in the chemical laboratory and that the products of bacteria are more important than the microbes themselves. We have heretofore expressed our opinion of the usefulness of this book, and have to state that that high opinion has been increased by glancing at the third edition. The work has been brought down to date and will be found entirely satisfactory as a book of reference on the subjects named, and as well for careful study. The arrangement and scope of the work remain the same as in former editions. The number of pages has been increased from 391 to 604. In these bacteriologic days, no medical man's library can be considered complete without a copy of this painstaking and exhaustive compilation. That the volume grows from edition to edition is evidence of the careful character of the work and the thoroughness with which the field of medical literature has been gleaned.

Wharton's Minor Surgery and Bandaging. By HENRY R. WHARTON, M.D., Demonstrator of Surgery in the University of Pennsylvania. New (third) edition. In one 12mo. volume of 594 pages, with 475 engravings, many being photographic. Cloth, $3.00. Philadelphia: Lea Brothers & Co., 1896.

The issue of the third edition of Wharton's Minor Surgery and Bandaging affords pleasing evidence of the correctness of the favorable opinion which we expressed on the issue of the first edition. We are of the opinion, however, that many of the illustrations might be omitted as being no longer applicable to modern methods. For example, the scissors figured on page 218 for skin grafting are scarcely used, as Thiersch's method has effectually supplanted the others. The old spring scarificator, on page 191, has probably never been seen by a physician under 35 years of age. Petit's Tourniquet, on page 283, might also be consigned to an antiquarian resting place. We do not see in the notice of fixed dressings the paper pulp bandage which has of late come into use, nor do we find in the book a statement of elastic bandages, such as supporters, suspension bandages, abdominal bandages, and other items which we would suggest should be included in future editions. These suggestions, however, do not detract from the general merit of the book, which is very great, and we trust that when we have the pleasure of reviewing the fourth edition, which is in our judgment bound to come soon, the author will bring his revision quite up to date. The publishers have done their part of the work well.

Transactions of the American Microscopical Society. Edited by the Secretary. Eighteenth annual meeting held at Cornell University, Ithaca, N. Y. Volume xvii. Buffalo, 1896.

The papers of this flourishing society are usually carefully edited and well illustrated; those in this volume of transactions are no exception to the rule. A large portion of the papers are decidedly interesting to medical men, such, for instance as "The Action of Strong Currents of Electricity upon Nerve Cells," by P. A. Fish; "The Comparative Morphology of the Brain of Soft-shell Turtle and the English Sparrow," by S. B. Gage; "Formalin as a Hardening Agent for Nerve Tissues," by William C. Krauss, and the "Process of Life Revealed by the Microscope, a Plea for Physiologic Histology," by Simon Henry Gage.

Eleventh Annual Report of the State Board of Health of the Commonwealth of Pennsylvania, 1896.—This report consists of the secretary's report, the minutes, reports of committees, and reports of inspections of various towns, cities and counties throughout the State, appendices on quarantine, etc. It shows a vast amount of labor on behalf of the board and the great benefit conferred upon the State. The board is fortunate in having as its secretary, Dr. Benjamin Lee, whose long and faithful service entitles him to recognition beyond the usual meed of State health officers.

PUBLIC HEALTH.

Another Source of Infection.—It is well known among occulists that the opera glasses which may be hired in most theaters frequently become the medium for spreading very serious eye diseases.—*Pop. Science News*, August.

Inspectors of Mercantile Establishments in New York.—The Board of Health September 1 appointed eleven inspectors, eight of whom were women. The law under which the factory inspectors are appointed directs that no child under 14 can be employed in a business establishment. Children between the ages of 14 and 16 must be provided with certificates from the board of health, showing that they are competent physically to do such work as would be required of them by their employers. The inspectors also look after the sanitary arrangement of all large business houses and workshops, with a view to the health interests of the employes.

Health in Michigan August, 1896.—Reports to the State Board of Health show that for the month of August, compared with the preceding month, typhoid fever, cholera infantum, dysentery, cholera morbus, erysipelas and remittent fever increased in area of prevalence. For the month of August, 1896, compared with the average for August in the ten years, 1886-1895, typhoid fever was much more than usually prevalent, and intermittent fever, consumption, remittent fever and inflammation of bowels were less than usually prevalent. Consumption was reported present in August, 1896, at 217 places, typhoid fever at 100, scarlet fever at 34, diphtheria at 34, whooping-cough at 27 and measles at 25.

High Infant Mortality in Canada.—The *Union Méd. de Canada* for August gives the statistics for 1895 in the Province of Quebec as follows: Population, 1,515,492; births, 58,653; deaths, 31,696, of which over eleven thousand were due to contagious diseases. Over ten thousand were children from a day to 1 year old, and 5,220 were children from 1 to 5 years; a total of 17,532 children, or more than half of the total number of deaths. It ascribes this high mortality to the lack of knowledge of preventive science in contagious diseases and to neglect. Where the parents are ignorant, it should be some one's

duty to instruct them in the necessity of isolation and disinfection and limit a contagious disease to the first one or two attacked. It also states that another cause may be the policies paid by certain life insurance companies, which speculate on the "little last-comer," so that the parents receive $75 to $80 if it dies. It protests against this practice as "immoral from every point of view." We note also that the deaths from intestinal diseases (4,068) were nearly twice as many as from tuberculosis (2,791).

Report of Committee on the Contagiousness of Tuberculosis in Hospitals; Isolation Recommended.—The committee appointed by the municipal authorities at Paris to investigate this subject, report the necessity of separate quarters for tuberculous patients, or at least the necessity of separating them from the rest in special wards appropriated to their exclusive use in the present hospitals, which they claim is feasible. Also the decentralization of tuberculous patients by removing them to special sanatoria in healthy localities. Letulle also suggests the establishment of curable tuberculosis colonies in Algiers and Corsica. They also demand that the patients and attendants should be carefully educated to understand the necessity of prophylactic measures, with penalties enforced for neglecting them. The attendants must also be selected with care, and all rejected that show any tendency to morbid conditions of the respiratory organs. They found that 1,296 of the total of 4,470 attendants connected with the hospitals of Paris were already diseased, 651 with bronchial affections and 526 with pulmonary tuberculosis. There have been 599 deaths among them during the past ten years, 217 due to tuberculosis and 154 to other diseases of the respiratory organs.

Greater New York City Health Department.—Chapter xix of the proposed charter, which relates to the Health Department, has been prepared by the Sub-committee on Charter of the Greater New York Commission for the consideration of the local sanitary officials. The chapter contains more that thirty thousand words, and has seven titles, as follows: 1, Powers and duties of the department and its officers; 2, marriages, births and deaths; 3, duties of physicians and others; 4, enforcements of orders and ordinances; 5, reimbursement for expenses; 6, abatement by suit; 7, tenement and lodging houses. In many respects the proposed chapter is a consolidation of the laws as they exist, and the title relating to tenement and lodging houses carries the intent of the Tenement House Commission. Of the head of the department the draft says: "There shall be a Department of Health, the head whereof shall be called the Health Commissioner. The Health Commissioner may be appointed and may be removed at will by the Mayor, and his term of office shall be coëxtensive with that of the Mayor appointing him, and until his successor shall have been appointed and qualified. The authority, duty and powers of the Health Commissioner shall extend over the waters of the bay, up to and within the quarantine limits, as established by law, but shall not be held to interfere with the powers and duties of the Commissioners of Quarantine or Health Officer of the Port. It shall be the duty of the Health Commissioner to make an annual report to the Mayor of the city of New York, of all the operations of his department for the previous year. The Mayor may at any time call for a more full report, or for a report upon any portion of the work of said Commissioner whenever he may deem it to be for the public good so to do." In regard to bureaus, the sub-committee provides for two, those of the Sanitary Superintendent and the Registrar of Records, as at present. Nuisances are to be treated as they have been heretofore, and the control or surveillance of noxious industries, trades or enterprises likely to be objectionable. The control of contagious diseases remains unchanged. These provisions apply to vaccination, disinfection and production of antitoxin by the Department of Health, and the sale of vaccin and antitoxin and disposition of proceeds of sale: "For the purpose of more effectually preventing the spread of smallpox by the thorough and systematic vaccination of all unvaccinated persons, and for the relief of persons suffering with diphtheria and other infectious diseases residing in said city, the Department of Health is hereby empowered to continue or organize a corps of vaccinators and of other physicians, within and subject to the control of the Bureau of Sanitary Inspectors, to appoint the necessary officers, keep suitable records, collect and preserve pure vaccin lymph or virus, and produce diphtheria antitoxin and other antitoxins, and add to the Sanitary Code such additions as will most effectually secure the end in view. Said Department of Health may take measures and supply agents, and offer inducements and facilities for general and gratuitous vaccination, disinfection, and for the use of diphtheria antitoxin and other antitoxins, and may afford relief to and among the poor of said city, as in its opinion the protection of the public health may require. Whenever the amount of vaccin lymph or virus collected by the said corps or of diphtheria antitoxin and other antitoxins produced shall exceed the amount required in the proper performance of its duties, the said Department of Health may authorize the sale of such surplus lymph or virus and diphtheria antitoxin and other antitoxins at reasonable rates, to be fixed by the Health Commissioner. The avails of such lymph or virus and diphtheria antitoxin and other antitoxins shall be accounted for and paid to the Chamberlain, and shall be set apart and constitute distinct funds, to be known respectively as 'the fund for gratuitous vaccination' and 'the antitoxin fund,' and they shall be subject to the requisition of the Health Commissioner for the purposes named in the preceding section. "In case of extreme measures being necessary to prevent the spread of disease, the Commissioner may cause any avenue, street, alley or other passage whatever to be fenced up or otherwise inclosed, adopt suitable measures for preventing all persons from going to any part of the city so inclosed, forbid all communication with the house or family infected with any contagious, infectious or pestilential disease except by means of physicians, nurses or messengers to carry the necessary advice, medicines and provisions to the afflicted, and adopt such means for preventing all communication between any part of the city infected with a disease of a pestilential, infectious or contagious character and all other parts of the city, as shall be prompt and effectual. There are other strenuous provisions against neglect that may cause the spread of disease. In regard to coroners, the draft provides for returns and reports and notices of calls for inquests, and the Sanitary Superintendent is given the power to order the burial of a body in certain circumstances. There is also a requirement that information in regard to diseases shall disseminate to local authorities elsewhere information that may be useful in regard to any disease. Quarantine officers and the department are to coöperate. The Sanitary Code of 1873, as amended, is declared to be binding except as it may be altered, amended or annulled by the Commisioner. The Health Commissioner is directed to establish offices in the Borough of Brooklyn and may appoint for this borough and that of Williamsburg a Deputy Commissioner and a Deputy Sanitary Superintendent and a Registrar of Records, with such clerical force as may be required. The Commissioner may also have a secretary and a chief clerk, and adopt a seal for the department and establish useful regulations. The draft provides for the appointment of fifty Sanitary Inspectors and may appoint eight men at the discretion of the Commissioner and there may be a sanitary engineer. Provisions in regard to the reporting and registration of births, marriages and deaths are the same as at present, and the duties of physicians and others are set forth as under the present regulations. The enforcement of laws and ordinances is set forth in a codification of existing laws.—*Standard Union.*

NECROLOGY.

James W. Anawalt, M.D., at the Military Soldiers' Home at Dayton, Ohio, August 26. He practiced medicine in Greensburg for over twenty-five years. About ten years ago he sustained a stroke of paralysis, from the effects of which he never fully recovered. Dr. Anawalt had an excellent military record, having served in the late war. He went as a surgeon of the Eleventh Regiment, Pennsylvania Volunteers, and afterward was chief surgeon of the Eleventh and One Hundred and Thirty-second Regiments. He graduated from Jefferson Medical College in 1855. He was 68 years old.

J. A. Blouse, M.D. (Department of Medicine, University of Pennsylvania, Philadelphia, 1891) of York, Pa., August 27, aged 28 years.——Henry L. Harrington, M. D., (Rush Medical College, Chicago, Ill., 1875) at Chicago, Ill., of consumption, August 31, aged 50 years.

E. Nicaise, M.D., Paris, age 58. The distinguished surgeon and writer, one of the editors of the *Revue de Chirurgie* and contributor to many medical journals, former president Société de Chirurgie, and of the medical section of the French Association for the Advancement of Science, professor of anatomy and clinic surgery. His most recent works are on the early history of surgery in France, to which he devoted the strength remaining from his long struggle with pulmonary disease. Among his other works are classic articles on cutaneous transplantations, surgical treatment of the nerves and veins, treatment of tetanus with chloral, sub-periostean amputations, arthrotomy of the knee, lesions of the intestines in strangulations, infective myositis, suture of the sphincter in anal fistulas, emphysema of the neck from rupture of the trachea during labor, and many others, the last mentioned having been read at the Académie de Médecine within a couple of months.

Armand Després, M.D., age 62. A well known hospital surgeon and medical journalist of Paris, where his father had also been a hospital surgeon before him. He was noted for his ready wit and paradoxical views and conduct, "the intellectual type of the true gamin of the boulevard." He refused to recognize that surgery had made any progress since the sixties, and ridiculed the idea of asepsis and antisepsis, clinging to his prehistoric dressings and poultices to the last. The *Progrès Medical*, August 8, remarks that if he had lived in the United States, or even in Germany, his fantastic ideas on the subject of surgery might have brought him into serious trouble, adding, "Sometimes it is just as well to be living in France." But his pupils adored him. He served in the Chamber of Deputies with zeal and wisdom; was editor of the *France Médicale* for a while, and his numerous writings are valuable and interesting, although he repudiated the use of mercury. He was made Chevalier of the Legion of Honor for saving from captivity the wounded he was tending after a battle during the war. The Roman Catholic journals are lauding his memory for his indefatigable efforts to prevent the removal of the Sisters of Charity from the hospitals, to make way for trained lay nurses, while this is cited by other journals as a typical instance of the inconsistency of the professed freethinker and atheist.

Dr. Henry K. Pusey died on the 2d inst., at Garnettsville, Ky., at the home of one of his daughters. Dr. Pusey was nearly 70 years of age. His early education was received at Mount Auburn and he received his degree of M.D. from the Medical Department of the University of Louisville. He practiced his profession in Louisville for a number of years and during the governorship of Hon. Procter Knott he was appointed as Superintendent of the Insane Asylum at Lakeland, near Louisville, serving during that term and again under Governor Brown after four years' retirement. When he took charge, the number of inmates was 300 and the buildings inadequate and inconvenient; when he relinquished his office to make way for his successor appointed by Governor Bradley there were 1,200 inmates and the buildings modern in every respect and the methods of treatment the latest and best that has been devised. Dr. Pusey was a member of a number of societies devoted to the discussion of the insane, among them being the Medico-Psychological Association, the Medico-Legal Society of New York, the Southern Association of Superintendents of Insane Asylums and others. Dr. Pusey was a recognized authority upon hospital architecture and sanitation, and it was he who first suggested the advisability of building the houses for the insane no more than two stories high. The Board of Directors for the Asylum recognized the excellence of his ideas and the value of his accomplishments and they warmly approved all of his propositions for the improvement of the facilities of the institution. Knowing him thus the Directors gracefully testified their appreciation of him by naming the latest building addition to the institution "Pusey Hall," and put the name on a tablet of granite over the door. A year ago when the doctor gave up his work at the Asylum he was already a sick man and he told his close friends that he believed his life work was at an end. He accordingly began to set his affairs to rights and awaited the end with Christian fortitude. The board of directors passed suitable resolutions at a meeting held the Saturday after his death.

SOCIETY NEWS.

Reading (Penn.) Medical Association.—This association has elected the following officers for the ensuing year: President, James W. Keiser; vice-president, Daniel Longaker; secretary, S. T. Schmehl; treasurer, Walter Rigg; representative to the Board of Managers of the Reading Hospital, C. W. Bachman; censors, Henry Landis, J. L. Bower and C. M. Kurtz; curator, Henry Landis.

Douglas County (Wis.) Medical Society.—This society held its annual meeting at Superior, Wis., September 2. The officers elected for the ensuing year were: John Reeve, president; H. J. Orchard, vice-president; George Saunders, treasurer; C. S. Conkey, secretary; John Baird, L. B. Shehan and L. A. Potter, censors.

Mississippi Valley Medical Association.—At the twenty-second annual meeting at St. Paul, Minn., Sept. 15 to 18, 1896, the following papers will be read:

President's Address, H. O. Walker, Detroit, Mich.
Address on Medicine, Harold N. Moyer, Chicago, Ill.
Address on Surgery, Horace H. Grant, Louisville, Ky.
The Clinical Significance of the Child's Fontanelle, I. A. Abt, Chicago, Ill.
Proprietary Prescriptions, W. W. Allison, Peoria, Ill.
A New Operation for Cleft Palate, Truman W. Brophy, Chicago, Ill.
Some Rarer Forms of Keratitis, Carl Barck, St. Louis, Mo.
The Results of Operations *per se* in Cases of Tubercle and Cancer, A. C. Bernays, St. Louis, Mo.
Mastoid Diseases; Their Medical and Surgical Treatment, S. S. Bishop, Chicago, Ill.
Rupture of the Choroid Coat, J. H. Buckner, Cincinnati, Ohio.
Operative Treatment of Pterygium, Eduard Boeckmann, St. Paul, Minn.
Treatment of Some Inflammatory Diseases of the Gastro-Intestinal Tract, Gustavus Blech, Detroit, Mich.
Kola, Gustavus Blech, Detroit, Mich.
A Report of a Case Illustrating the Value of Secondary Physical Signs in the Diagnosis of Cardiac Diseases, R. H. Babcock, Chicago, Ill.
Rhinoscopic Examinations in General Practice, B. M. Behrens, Minneapolis, Minn.
Irregularities in Delivery Due to Short Umbilical Cord, Guido Bell, Indianapolis, Ind.
Gastro-jejunostomy in Gastrectasis, A. H. Cordier, Kansas City, Mo.

Conventional Treatment of Heart Diseases versus Positive Treatment, Ephraim Cutter, New York, N. Y.

Tonsillotomy by Means of the Cautery Blade, J. Homer Coulter, Chicago, Ill.

The Newer Remedies in Otology and their Results, G. I. Cullen, Cincinnati, Ohio.

Infant Feeding; The Anti-dyscrasic Action of Cow's Milk, M. F. Cupp, Edinburg, Ind.

Ether and Chloroform; Their Comparative Merits as Agents for the Production of General Anesthesia, W. S. Caldwell, Freeport, Ill.

Appendicitis; To Operate or not to Operate, J. H. Dunn, Minneapolis, Minn.

Syphilis as an Etiologic Factor in the Production of Tabes Dorsalis, C. Travis Drennan, Hot Springs, Ark.

Preventive Medicine, J. O. DeCourcy, St. Libory, Ill.

Certain Misconceptions Regarding Cardiac Murmurs and their Significance, Arthur R. Edwards, Chicago, Ill.

A New Method of Fastening the Broad Ligament in Alexander's Operation, J. Frank, Chicago, Ill.

Choledochotomy in America, with the Report of Four Cases, Alex. Hugh Ferguson, Chicago, Ill.

Pleuritic Effusions and their Treatment, G. Fütterer, Chicago, Ill.

Rational Operations for the Cure of Retroversions and Flexions, A. Goldspohn, Chicago, Ill.

A Demonstration of the Therapeutic Action of Antitoxins, E. M. Houghton, Detroit, Mich.

Stirpiculture, Florence W. Hayes, Terre Haute, Ind.

On the Importance of Physical Signs other than Murmur in the Diagnosis of Valvular Diseases of the Heart, Jas. B. Herrick, Chicago, Ill.

The Neural Factor in Clinical Medicine, C. H. Hughes, St. Louis, Mo., Honorary Fellow of the Chicago Academy of Medicine.

The Value of Medicinal Antipyretics in View of Newly Acquired Knowledge Respecting the Nature of Acute Infectious Diseases, Talbot Jones, St. Paul, Minn.

Treatment of Syphilis, J. H. Jelks, Hot Springs, Ark.

The Physiologic Treatment of Typhoid Fever, Elmer Lee, Chicago, Ill.

The Pathology and Treatment of Suppurative Salpingitis, F. F. Lawrence, Columbus, Ohio.

The Lumbar Enlargement of the Spinal Cord, L. Harrison Mettler, Chicago, Ill.

Indications for and Demonstrations of Removal of the Gasserian Ganglion, J. B. Murphy, Chicago, Ill.

The Surgical Treatment of Pyloric Obstruction, Wm. J. Mayo, Rochester, Minn.

Conditions which may Simulate Organic Obstruction of the Rectum, Thos. H. Manley, New York, N. Y.

Multiple Operations in Pelvic Disease, H. P. Newman, Chicago, Ill.

Nerve Sutures and other Operations for Injuries to the Nerves of the Upper Extremities, A. J. Ochsner, Chicago, Ill.

Submucous Linear Cauterization; A New Method for Reduction of Hypertrophies of the Conchæ, N. H. Pierce, Chicago, Ill.

The Treatment of Experimental Tuberculosis in Animals by the Use of Blood Serum, Paul Paquin, St. Louis, Mo.

The Pathology of Idiocy, Frederick Peterson, New York, N. Y.

Chorea, Curran Pope, Louisville, Ky.

Electro-diagnosis and Electro-therapeutics Simplified, Hugh T. Patrick, Chicago, Ill.

Trunk Anesthesia in Locomotor Ataxia, Hugh T. Patrick, Chicago, Ill.

The Use of Oxygen in Chloroform Narcosis, C. B. Parker, Cleveland, Ohio.

My Favorable Experience with Diphtheria Antitoxin, D. C. Ramsey, Mt. Vernon, Ind.

The Physiology of the Peritoneum from Experiments, Byron Robinson, Chicago, Ill.

Some Fads and Fallacies of Modern Rectal Surgery, Leon Straus, St. Louis, Mo.

Pregnancy Complicating Operations on the Uterus and its Appendages. Remarks with Cases, R. Stansbury Sutton, Pittsburg, Pa.

The Significance and Occurrence of Capillary Pulsation in Nervous Diseases, A. E. Sterne, Indianapolis, Ind.

Twenty-seven Cases of Croup, E. W. Sanders, St. Louis, Mo.

The Necessity af Vivisection, E. B. Smith, Detroit, Mich.

Gunshot Wound of the Liver; Report of Case Involving Diaphragm and Lung; Operation Successful but Fatal Termination Two Weeks Later from Pneumothorax, J. H. Taulbee, Mt. Sterling, Ky.

Further Report on the Treatment of 500 Cases of Gastritis (Demonstrations), Fenton B. Turck, Chicago, Ill.

The Rapid Cure of Gonorrhea, Fred C. Valentine, New York, N. Y.

Some Unusual Cases of Appendicitis, Weller Van Hook, Chicago, Ill.

Mastoidectomy in Caries of the Temporal Bone, K. K. Wheelock, Ft. Wayne, Ind.

A Further Contribution on the Use of Dry Heat in the Treatment of Chronic Joint Affections, W. E. Wirt, Cleveland, Ohio.

A Further Contribution to the Ocular Treatment of Epilepsy, Casey A. Wood, Chicago, Ill.

The Decadence of the General Practitioner and the Reign of the Specialist, D. S. Maddox, Marion, Ohio.

Additional papers have been promised by the following:

Augustin H. Goelet, New York, N. Y.; Henry Hatch, Quincy, Ill.; R. C. Heflebower, Cincinnati, Ohio; Bransford Lewis, St. Louis, Mo.; I. N. Love, St. Louis, Mo.; A. H. Meisenbach, St. Louis, Mo.; H. O. Pantzer, Indianapolis, Ind.

MISCELLANY.

P.-A. M. C. Delegate.—Dr. H. B. Lowry, of Omaha, has been appointed delegate from Nebraska to the Pan-American Medical Congress.

Jefferson Appointment.—Dr. Roy Harris, who has been practicing medicine in Atlanta, Ga., for the past five years, and teaching chemistry in the Southern Medical college, has accepted a professorship in the Jefferson Medical college of Philadelphia. He will teach pathology in that institution. He graduated from Jefferson College.

Dr. Carlos F. McDonald, president of the New York State commission in lunacy, has resigned, the resignation to take effect September 30, and Gov. Morton has appointed Dr. Peter M. Wise as Dr. McDonald's successor, the appointment to take effect October 1. Dr. McDonald's term would expire by limitation in May, 1901, but he retires to resume private practice.

Husband Can Recover Expense for Medical Attendance.—In Minnesota, the supreme court of that State holds, in McDevitt v. City of St. Paul, decided July 24, 1896, a husband may maintain an action against a municipal corporation for the recovery, among other things, of moneys expended by him for medical attendance on his wife on account of personal injuries received by her by reason of a defective sidewalk.

A Question for the Jury.—It is a question for the jury to determine, the supreme court of Minnesota holds, in the case of Hale v. Life Indemnity and Investment Co., decided July 17, 1896, whether a man can be addicted to the drink and morphin habits, and grossly intemperate, and his family and his intimate business and social associates not discover it. It can not be assumed that he can thus conceal these habits, if he in fact has them.

Marinesco's Pilgrimage.—The *Semaine Médicale* has sent Marinesco on a scientific pilgrimage to the different centers of progress to interview the leading neurologists of the day. His letters from London, Edinburgh, Brussels and Liège, as they have been published the last few weeks, form an interesting *résumé* of the present status of neurology, and contain some things that have not yet been officially announced in the way of biologic investigation.

Preventive Treatment of Hydrophobia.—Dr. A. Lagorio informs us that 532 patients have been treated at the Chicago Pasteur Institute since its inauguration July 2, 1890. The patients treated have been divided into three classes: 1. Those bitten by animals recognized and ascertained to be rabid by the control experiment made in the laboratory, or by the deaths of other persons or animals bitten by the same animal (183). 2. Those bitten by animals recognized to be rabid by the symptoms of rabies shown during life (237). 3. Those bitten by animals strongly suspected to be rabid (112). Only two deaths

have been reported, giving a mortality of 0.37 per cent. There were 483 persons bitten by dogs, 24 by cats, 13 by horses, 5 by skunks, 2 by wolves, 1 by a mule, 1 by a pig, and 2 by hydrophobic human beings.

Illinois' New Hospital for the Insane.—The corner stone of the new Northwestern Hospital for the Insane was laid at the village of Watertown, eight miles east of Rock Island, by Governor Altgeld, Sept. 5. The Thirty-eighth General Assembly made an appropriation of $100,000 for an institution to be located north and west of the Illinois river. The site comprises 400 acres on the bluffs overlooking the Mississippi river, which was purchased and presented to the State by Rock Island County and city and the town of Moline. The plans contemplate a system of eight groups of buildings, to be arranged in radiating lines from the main building, connected by hallways.

Must Give Notice of Trial for Insanity.—An inquiry and trial in the probate court in Kansas, had upon an information charging one with being a person of unsound mind and incapable of managing his own affairs, the court of appeals of that State holds, In re Wellman, decided June 12, 1896, should only be had after notice to the person alleged to be insane, and after opportunity has been given such person to be present at the trial, in person or by counsel. An adjudication of insanity that is made without such notice and opportunity to be heard, it holds is a nullity, and void, and a commitment thereunder to the insane asylum is illegal.

Physicians Can Testify as to Stains.—After both an examination thereof, under a microscope and a chemical analysis, the supreme court of South Carolina holds, in the homicide case of State v. Martin, decided July 11, 1896, that physicians are clearly entitled as experts to give their opinion as to the character of stains found on a piece of floor. That the latter was not taken from the house in which the defendant lived at the time of the alleged homicide until a few days before the trial, after the defendant had moved from it, and while it was occupied by another person, it is further held did not render it inadmissible in evidence, though the force of the evidence was perhaps weakened by these circumstances.

Gleanings.—Confirmation of favorable effect of lecithin on the quality of the blood, general growth and psychic development (dogs). Milk from typhoid patient produces characteristic agglutinations the same as serum. (See this JOURNAL, page 382.) (*Semaine Méd.*, August 5.)——Editorial urges immediate intervention in all wounds of the abdomen caused by firearms. Many lives would be saved if the internal perforations were sutured at once as a matter of course, no matter how trifling they may appear. (*Union Méd.*, August 8.)——First decade of the Paris Pasteur Institute, 17,337 patients treated, 83 deaths. (*Gaz. Méd. de Liège*, August 13.)——7,857 of the 29,747 students in the universities of Germany are studying medicine. (*Wien. Klin. Rundsch.*, August 9.)——Mackenrodt asserts that the only way to avoid infection in hysterectomy for carcinoma is to perform it entirely by thermo-cauterization. (*Gaz. Méd. de Paris*, August 15.)——Ten per cent. formol compresses found very effective in relieving and improving inoperable ocular tumors. (*Semaine Méd.*, August 12.)——London has 600,000 houses, with an average of 7 inmates to each; New York has 115,000 with 18 inmates each, and Paris only 90,000 with 25 inmates each. (*Journal d'Hygiène*, August 6.)

The Phonendoscope.—The newly invented phonendoscope is designed to be used by physicians and surgeons for detecting the presence of disease by sound. The instrument consists of a circular flat metal box or tympanum, having on its one surface two apertures for the attachment of the rubber ear tubes, while the other surface is formed by a thin disk which is readily thrown into vibration. The best results are obtained by simply applying this disk to the surface to be examined. By an ingenious contrivance a second disk can be superposed upon this one and a vulcanite rod attached to the former, so that the area of auscultation may be extremely circumscribed. The conduction of the sounds is only slightly diminished by the use of this rod, which thus combines the principle of the solid stethoscope with that of the tympanum. The rod furnished with the instrument is about two inches in length, but it is stated that there are other rods of various lengths, to enable the "phonendoscopist" to receive sound vibrations of the natural cavities which communicate with the exterior of the body. It is useful as an aid to auscultation, and yet not likely to entirely supersede the use of the stethoscope. It may also be found useful in class demonstration, since it would be easy by means of branched tubes to enable several persons to listen at the same time. The instrument will be particularly useful for the following purposes: In auscultation of the sound of the respiratory organs, in the circulation of the blood, and of the digestive organs in the healthy body as well as in the sick; the sounds made by the muscles, joints and bones; the sound of the capillary circulation; the slightest sounds produced in any diseased condition of the body; hence it is possible to draw on the body dimensions, the position or any alteration in the position of the various organs and of the fluids which have gathered in the most important cavities in the body.—*Pop. Science News*, August.

Coffin Carrying.—It is observed with some curiosity that our distinguished guest, His Excellency, Li Hung Chang, with certain other members of his suite, carry coffins with them as part of their baggage. It is said that this custom arises from distinction in classes whereby as it is highly probable that the remains of the illustrious dead might be defiled by touching or mixing with the common or unclean carcasses not belonging to the celestial or one of the same class. It has been said that one of the best means of longevity is the frequent contemplation of death and the tomb and it would seem that the oriental custom has its advantages, as in case of accident it would be unfortunate to be compelled to depend upon an American undertaker, who might prove a veritable iconoclast in handling the remains of a distinguished Chinaman.

Compensation Must be Allowed.—A servant employed in the Merchant's Hotel in the city of Detroit, Mich., was taken ill June 1, 1894. Her disease was pronounced measles by a physician. As she failed to improve, the proprietor of the hotel telephoned the board of health that he feared the case was smallpox. In reply, the contagious disease clerk at the health office said it was all right, only a case of measles, and it would be best to carry out the orders of the physician referred to. June 6 the girl died. An investigation was made by the health board and the case pronounced smallpox. The officers of the board of health immediately took possession of the hotel and placed it in quarantine, confining therein thirteen persons, several of whom were subsequently stricken with smallpox and detained in the hotel and there treated by the board of health. The quarantine continued until June 29, after which the board of health disinfected the premises and destroyed a considerable portion of the furniture which had become infected. They contended that what was thus done by them was necessary in the interest of the public welfare, and that the loss must be borne by the proprietor of the hotel. But the supreme court of Michigan takes a different view of it. Safford v. Board of Health of City of Detroit, decided July 8, 1896. It says that it thinks it is within the contemplation of the law that, when property is used or destroyed or services rendered under such circumstances as in this case, compensation should follow. It also holds that it is the duty of the board of health to pass upon the question of the amount of compensation, and where they refuse utterly to award compensation, that a writ of mandamus may be invoked to compel them to do so.

Can Answer Hypothetic Questions.—If a physician, who has professionally attended upon and prescribed for a person, and has also observed such patient while not thus in attendance, can give an opinion as to his condition, based upon facts he observed while not acting professionally, and excluding from his mind what he observed while in attendance, the appellate division of the supreme court of New York says that it can see no reason to doubt that he may also give an opinion upon a hypothetic state of facts stated in a question which excludes all knowledge of the condition of the patient which he derived while in professional attendance. The only objection, it further states, in the case of Meyer v. Standard Life & Accident Insurance Co., decided July 7, 1896, that can be urged to a doctor, who has been in medical attendance upon a person, giving an opinion in answer to a hypothetic question as to the condition of his patient, is that the knowledge he derived while in attendance might affect his answer. But the same objection exists to the physician's giving an opinion founded upon observation of his patient while not in actual professional attendance. Mr. Justice Landon, in a concurring opinion, says that the trial judge in the court below decided, in effect, that the attending physician could not answer the hypothetic question solely upon its hypothetic basis, but would to some extent base his answer upon his professionally acquired knowledge of the patient's actual condition. His reviewer, on the other hand, thinks that, as this is a question of fact, it should be decided upon evidence. It can not be assumed, as a matter of law, that the physician could not answer the question as a hypothetic one, wholly uninfluenced by his personal knowledge of the patient's condition. He therefore suggests that the proper practice would be to examine the attending physician preliminarily as to his ability in this respect.

The Richard Formogen Disinfecting Lamp.—This little apparatus resembles a lamp in its appearance and is as easy to manage, while it generates formic aldehyde in sufficient quantity and strength to disinfect perfectly any apartment, allowing 36 grams of methyl alcohol to the cubic meter. The vapors of the methyl alcohol pass through a wire screen into a reacting chamber enclosed in platinum, with twenty holes through which the heated air enters, producing brilliant incandescence of the platinum and transforming the vapors of the alcohol into formic aldehyde, according to the familiar formula: $CH_4O+O=CH_2O+H_2O$. Infected gauze is perfectly sterilized in six hours, and the vapors have such penetrating power that infected threads rolled in 250 grams of cotton are found absolutely sterile.—*Gaz. Méd. de Liége*, August 20, from the Brussels *Clinique*.

Louisville.

FEEBLE MINDED INSTITUTE.—There seems to be a disagreement between the governor and the commissioners of this institution as to the advisability of rebuilding the institution which was burned not long ago. The governor is not in favor of its being rebuilt and in this he is opposed by the commissioners. There seems to be some trouble in regard to the collection of the insurance money as it is claimed that there was negligence on the part of the officials in not keeping enough water in the tank for use in case of fire. The children are all comfortably housed in the out houses which have been used for shops and which were used for a similar purpose after the fire in 1889. It is understood that a majority of the commission favor rebuilding and that will likely be done as soon as arrangements can be made as to the insurance money.

THE PUBLIC SERVICES.

Army Changes. Official List of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from Aug. 30 to Sept. 4, 1896.

Lieut.-Col. Alfred A. Woodhull, Deputy Surgeon General, granted leave of absence for one month and ten days, to take effect about Sept. 15, 1896.

Major Henry S. Turrill, Surgeon, upon being relieved from duty at Ft. Riley, Kan., is ordered to Willets Point, N. Y., relieving Major Egon A. Koerper, Surgeon. Major Koerper, upon being thus relieved, is ordered to Ft. Crook, Neb., for duty.

First Lieut. Frederick P. Reynolds, Asst. Surgeon, is relieved from duty at Ft. Clark, Texas, and ordered to Ft. McIntosh, Texas, for duty, relieving First Lieut. Robert S. Woodson, Asst. Surgeon. Lieut. Woodson, on being thus relieved, is ordered to Jackson Bks., La., for duty at that station, relieving Capt. Junius Powell, Asst. Surgeon. Capt. Powell, on being thus relieved, will report to the president of the examining board, appointed to meet at the office of the Surgeon-General of the Army, for examination for promotion, and upon conclusion of examination is ordered to Ft. Riley, Kan., for duty, relieving Major Henry S. Turrill, Surgeon.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending Sept. 5, 1896.

P. A. Surgeon E. R. Stitt, to duty in the Bureau of Medicine and Surgery.

P. A. Surgeon C. H. T. Lowndes, detached from the naval hospital, Philadelphia, and ordered to the Washington navy yard.

Asst. Surgeon L. Morris, ordered to the naval hospital, Philadelphia.

Asst. Surgeon G. D. Costigan, ordered to the naval laboratory for instruction.

Marine-Hospital Changes. Official list of changes of station, and duties of Medical Officers of the U. S. Marine-Hospital Service, for the sixteen days ended Aug. 31, 1896.

Surgeon P. H. Bailhache, detailed to represent Service at meeting of American Public Health Association, Aug. 24, 1896.

Surgeon George Purviance, relieved from duty at Philadelphia, Pa., and directed to proceed to St. Louis, Mo., and assume command of Service, Aug. 25, 1896.

Surgeon J. B. Hamilton, when relieved from duty at Chicago, Ill., to proceed to San Francisco, Cal., and assume command of Service, Aug. 25, 1896.

Surgeon J. M. Gassaway, granted leave of absence for thirty days from Oct. 1, 1896, Aug. 24, 1896.

Surgeon John Godfrey, when relieved from duty at San Francisco, Cal., to proceed to Chicago, Ill., and assume command of Service, Aug. 25, 1896.

Surgeon W. A. Wheeler, when relieved from duty at Ellis Island, N. Y., to proceed to Cincinnati, Ohio, and assume command of Service, Aug. 25, 1896.

Surgeon C. E Banks, to proceed from Washington, D. C., to Boston, Mass., for temporary duty, Aug. 21, 1896.

P. A. Surgeon D. A. Carmichael, granted leave of absence for thirty days from Sept. 5, 1896. Aug. 17, 1896.

P. A. Surgeon Eugene Wasdin, granted leave of absence for five days, Aug. 25, 1896.

P. A. Surgeon S. D. Brooks, directed to rejoin station, St. Louis, Mo., and when relieved from duty at that place to proceed to Port Townsend, Washington, and assume command of Service, Aug. 25, 1896.

P. A. Surgeon J. H. White, relieved from special duty at Key West, Fla., and directed to rejoin station at New York, N. Y., Aug. 24, 1896. Detailed for duty in connection with immigration service at Ellis Island, N. Y., Aug. 25, 1896.

P. A. Surgeon P. M. Carrington, to proceed to Chicago, Ill., and assume temporary command of Service, Aug. 25, 1896.

P. A. Surgeon J. J. Kinyoun, detailed to represent Service at meeting of American Public Health Association, Aug. 24, 1896.

P. A. Surgeon T. B. Perry, detailed to represent Service at meeting of American Public Health Association, Aug. 24, 1896.

P. A. Surgeon G. T. Vaughan, detailed for duty in connection with immigration service at Philadelphia, Pa., Aug. 25, 1896.

P. A. Surgeon J. O. Cobb, when relieved from duty at Cincinnati, Ohio, to proceed to New York, N. Y., for duty, Aug. 25, 1896.

P. A. Surgeon W. G. Stimpson, relieved from command of Service at Port Townsend, Washington, on arrival of P. A. Surgeon S. D. Brooks, Aug. 25, 1896.

Asst. Surgeon E. K. Sprague, when relieved from duty at New York, N. Y., to rejoin his station at Boston, Mass., Aug. 27, 1896.

Asst. Surgeon H. S. Cumming, when relieved from duty at Norfolk, Va., to proceed to Evansville, Ind., for temporary duty, Aug. 25, 1896.

Asst. Surgeon J. B. Greene, to proceed from Baltimore, Md., to Cleveland, Ohio, for temporary duty; upon completion of which to rejoin station, Aug. 25, 1896.

Change of Address.

Clarkes, Wm. E., from Chicago to 435 Park Av., River Forest, Ill.
Fest, F. T. B., from Plank Road, Mich., to Amoy, China.
Isbecter, R. T., from 1923 Indiana Av. to 218 Wabash Av., Chicago, Ill.
Mackee, L. V. G., from Brant Rock to Attleboro, Mass.
Marr, W. L., from 5451 Lake Av., Chicago, to 7404 Madison Av., Grand Crossing, Ill.
Mullen, T. R., from Marcus to Akron, Iowa.
Wimberly, J. S., from Sanford to Sunlight, Ga.

LETTERS RECEIVED

Augier Chemical Co., Boston, Mass.; Allen, J. M., Liberty, Mo.; Adkinson, L. G., New Orleans, La., (2); Abbott, W. C., Ravenswood, Ill.
Brumbaugh, G. M., Washington, D. C.; Burr, C. B., Flint, Mich.; Bailey, F. & E. Co., Lowell, Mass.
Christopher, H., St. Joseph, Mo.; Cannaday, A. A., Roanoke, Va.; Caldwell, M. S., Freeport, Ill.; Clark, M. C. & Sons, Albany, N. Y.
Dibrell, J. A. Jr., Little Rock, Ark.; De Courcy, J. O., St. Libory, Ill.; Dsniel, J. B., Atlanta, Ga.
Fest, F. T. B., Plank Road, Mich.; Frisbie, J. F., Newton, Mass.; Frei, G. A. T. Co., Boston, Mass.
Gould, Geo. M., Philadelphia, Pa.
Hartman, F. E., Denver, Colo.; Hypes, B. M., St. Louis, Mo.; Haven, O. D., Ravenna, Ohio; Hoggard, W. D., Nashville, Tenn.
Jansen, E., Astoria, Ore.; Jackson, Edward, Philadelphia, Pa.
Kehler, E. A., Cincinnati, Ohio, (2).
Leaming, J. K., Cooperstown, N. Y.; Lehn & Fink, New York, N. Y.
Mulford, H. K. Co., Philadelphia, Pa.; Miller, F. A., Chicago, Ill.; Mikkelson, M., Wells, Minn.; Moore's Newspaper Subscription Agency, Brockport, N. Y.; Mink, Arthur E., St. Louis, Mo.; Maire, L. E., Detroit, Mich.; Metzler, L. Harrison, Chicago, Ill.
Quin, Henry W., New York, N. Y.
Rogers, W. B., Memphis, Tenn.; Rogers, L. L., Kingston, Pa.; Reed & Carnrick, New York, N. Y.
Sherman, E. M., Stuart, Iowa; Sloman, S. A. & Co., Detroit, Mich.; Shearer, Gilbert H., Philadelphia, Pa.; Silver, D. R., Sidney, Ohio; Strueh, Carl, Chicago, Ill., (2); Seidler, W. J., Newark, N. J.
Totman, D. M. Syracuse, N. Y.
Vaughan, V. C., Ann Arbor, Mich.
Wiley, Z. K., Baltimore, Md.; Woody, Samuel E., Louisville, Ky.; Waxham, F. E., Denver, Colo.

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ADDRESS.

INTRODUCTORY ADDRESS.

Read in the Section on Neurology and Medical Jurisprudence, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5–8, 1896.

BY T. D. CROTHERS, M.D., CHAIRMAN.

HARTFORD, CONN.

This Section of Neurology and Medical Jurisprudence has reached a position in the department of medicine of intense practical interest.

Every practitioner is confronted with questions of neurology, and the legal relations and possibilities which are constantly springing out of the present conditions. Nerve strains and drains, and vast complex states of neurosis are increasing yearly. Half a dozen text-books and a score or more of pamphlets, and monographs have been published in English during the past year, exclusively on nerve diseases.

This is only a small part of the literature which is appearing in journals devoted to this specialty, and in society reports and general journals of medicine.

The topic of medical jurisprudence has been enriched with at least four encyclopedic volumes, and over a dozen separate works and almost innumerable papers, lectures, essays, reports of cases, and the renewed activity in the many societies devoted to this special study. Literally a new field of medicine is coming into prominence.

To the average practitioner there is something appalling in the significance of these topics. That is their magnitude and intricate relations to the every day practice, create a feeling of despair in being able to understand and apply the facts which are becoming so numerous.

In neurology the impression has been fostered, that only specialists with laboratory experience and facilities for accurate measurement and tests of the nervous system are able to judge wisely of these cases. This is wrong. Neurology is a general topic, to be studied by both the specialist and general practitioner.

The specialist with his means and appliances for exact scrutiny of the phenomena of nerve disorders, approaches it from one side; the practitioner with his observation of symptoms, and comparative study and grouping, from the other. Both may reach conclusions in harmony or differing widely, or both be in error.

Not unfrequently the specialists will make a diagnosis based on the readings of instruments of precision, and mechanical studies of phenomena of nerve action, that is not confirmed by the subsequent history. The general practitioner, will study the symptoms of the same case, and make a correct diagnosis from a comparison and study of appearances. This indicates that laboratory training and researches are not the absolute essentials for skill in diagnosis of nerve diseases.

I think the great demand in medical training to-day is to teach how to observe accurately, and how to estimate and compare the results of observation. In nervous diseases more than in other branches the symptoms point to some local or general lesion and it is the meaning of these "distress signals" that will enable us to understand the disorder present. The mapping of certain symptoms and the reasoning of their meaning is simple enough, but their verification from repeated studies and confirmation by time and events is the final test. I think neurology and jurisprudence require more accurate observation of symptoms, and a higher degree of analytic skill and judgment than in any other problems of disease. Instruments of precision and laboratory researches are limited, but the approach from the clinical side, tracing back objective and subjective symptoms to their first causes, requires the highest type of pure reasoning and judgment. Neurology carries us beyond the boundaries of gross material life.

The defects of nerve and nerve fibers and their relation to each other, are practically a very small part of the subject. The realm of the psychical is still an unknown continent, and yet its laws and forces appear in every case that calls for treatment. Preventive medicine, the germ theories, the mysteries of chemic physiology, and all the vast range of "new lands" which are opening up before the student, are insignificant compared with the unknown power of mind, brain force and what is called nerve energy. No one can plead incapacity to work in this field. Its facts are everywhere open to observation.

Every person carries in his individual mental life mysteries, the solution of which is of the highest importance to the race. The mental and nervous element in disease, in injury, in surgical operations, the changes of mind and its influence over the body, the meaning of the phenomena of hysteria, and the terms neurasthenia and the constantly increasing names of symptoms of brain failures, are all "polar regions of mystery." We are confronted with the fact, that the present treatment of crime, insanity and drug manias by legal methods has not kept pace with the march of science. That the densest superstition prevails in the practice of the courts, and medical men are called on to harmonize the errors of the past with the teachings of the present. Who will wonder that expert testimony of this character will fail, and fall into disrepute. The jurisprudence of to-day can not be a modern edition of past medical theories and teachings of science. It must be founded on new facts of mind and matter, new discoveries of the relations to environment and human life, and the new physiology and psychology of the brain. Every year our relations become more and more complex. The demands for new adjustments of life and living call for new energies and create new sources of exhaustion. The brain and nervous system falters and retrogrades and the legal relations change. Out of harmony with the environment

clashing with existing conditions requires a new jurisprudence and new conceptions of responsibility and duty. Neurology is no longer the field of the specialist; it belongs to general medicine, to the country and village physician, to the city practitioner, and comes into the realm of every student of medicine.

Jurisprudence is equally broad in its requirements and application to every day life. If you will study the program of the several Sections you will notice how intimately neurology has become associated with the ever varying topics of medicine. If you will turn to your individual experiences and present conditions, and inquire of the mental phenomena, which is ever pressing for solution, some conception of the subject will dawn upon you. The study of the mental phenomena of neurology promises more startling discoveries than in any other field. The time has come for every student of medicine to assist in clearing up this realm of mystery and superstition. The quackery, humbug and delusions which infest these unknown phenomena of mind and matter will pass away. When neurology comes into general science, when jurisprudence become an exact study founded on certain definite facts, then the injustice and odium of the present will pass away. Our individual duty is to note and examine the phenomena of mentality and the various states of brain and nerve action and seek to discover laws which control them, and the causes and conditions which govern their origin and progress. The one central fact should never be forgotten, viz.: All nerve phenomena, and brain activities are the operation and manifestation of fixed and definite laws, whose movements are as exact and uniform as the stars above us.

In this confusing whirl of brain and nerve force, there is no accident or chance. All normal and abnormal manifestations spring from definite causes which may be known and anticipated. It would be reckless to deny the possibility of stamping out nerve and brain diseases in the future with the same certainty that the germ diseases are prevented. It is simply a question of knowledge of the facts which is the highest province of science to point out.

ORIGINAL ARTICLES.

THE BEST METHOD OF TEACHING GYNECOLOGY.

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At the last meeting of the AMERICAN MEDICAL ASSOCIATION there was some discussion relative to the best method of teaching the different branches of medical science. If this subject received attention, as far as gynecology is concerned, I have yet to see a report of what was said. I believe, however, that the usual method of teaching this comparatively new and certainly very important department of medicine fails of its purpose in many instances.

The primary object of a medical education is to train the faculties of observation and then to teach the application of peculiar knowledge for the alleviation of distressing symptoms and the relief of the responsible pathologic conditions. The task is most complicated, and it is not surprising that in many instances the student, who, perhaps, has passed a brilliant examination, fails ignominiously when confronted with the exigencies of actual practice.

Perhaps the fault is not exclusively his. Perhaps the medical education he has received, while teaching him many facts, has not taught him how to apply them. Perhaps, in the attempt to teach all that is known, too little effort has been taken to teach how to make use of knowledge. Too often it is forgotten that the science of medicine finds expression only in the application of the art.

Gynecology has been defined by Sænger as the surgery of the female genitalia. It is, however, much more than this. It includes a knowledge of venereal diseases; it must take into consideration diseases of the bladder, ureter, kidneys and rectum; as a matter of fact it often comprises all operations within the pelvic and abdominal cavities, and for its proper understanding the principles of obstetrics must have been mastered.

Before commencing the study of this extensive and important department of medical science it is obvious much preliminary work must be done. Anatomy, physiology, bacteriology, pathology, uranalysis, venereal diseases, obstetrics and general surgery must first be studied in detail. To minds thus fortified by a definite knowledge of medical facts, trained to processes of analysis and capable of logical reasoning so that sensible deductions may be made from true premises, the teacher of gynecology must endeavor to appeal so that the student having eyes may see, having knowledge may understand, and having common sense may appreciate at its true value what he sees and understands. He should not only be taught what to do but why he does it. The teacher, being necessarily a man of experience (otherwise he should not presume to teach) will have favorite methods which he will advocate. He should not, however, fail to remember that his individual methods are only of value if the reasons which induce him to resort to them are sufficiently apparent to demonstrate their superiority. His duty to the student is to explain *all* well recognized methods of procedure and to compare their value not alone in connection with the case under consideration, but in reference to other similar cases as well.

Text-books at best can give but a general idea of gynecology. I do not condemn their use. On the contrary I believe the systematic study of some manual to be advantageous. It teaches what to expect and, in the hands of an expert quiz-master, such a book unquestionably aids in the acquisition of indispensable facts. The peculiar tasks of the teacher of clinical gynecolgy can not be supplanted by any book or by any system of recitation. The Frœbel method of instruction is particularly necessary in imparting a knowledge of gynecology. Manual training is here indispensable. During his student days the medical man must be taught to see what there is to be seen and to perfect his sense of touch. Otherwise his teaching is superficial, his knowledge imperfect, and as a rule the result of his practice most deplorable.

To explain what I consider to be the best method of teaching gynecology it is perhaps preferable to refer to hypothetic cases. The women who serve me as subjects for clinical instruction are either ambulatory patients, able to be up and about, often able to work, or bed-ridden patients, incapacitated in consequence of some acute or chronic indisposition, often of a serious character.

Let us suppose that a patient presents herself at the dispensary. My second assistant writes out her history in full in accordance with specially prepared blanks which are designed to show a complete statement of important facts in the fewest possible words. The nurse then places the patient upon the operating table in the dorsal position with a sheet covering the legs and genitals. A curtain suspended from the ceiling falls about the patient's waist as she lies upon the table and separates her from the students so that her face is not seen. I first refer to the history of the case. The patient, for example, may have had three children, the youngest being now 2 years old. Her last labor may have been protacted, necessitating the application of forceps. The birth of this child was followed, we will suppose, by an illness that kept the patient in bed for six weeks and was accompanied by fever. Since that time the patient has never been well. She has suffered from pelvic pains varying in degree but usually more severe during menstruation. She has become anemic and weak. She is constipated and notices a constant leucorrhea. Such a history, variously modified by individual circumstances, is a common record of many dispensary cases.

I introduce the right index finger and notice a laceration of perineum and cervix. With the fingers of the left hand placed on the abdomen over the symphysis the uterus is recognized as somewhat larger than normal, freely movable and not specially sensitive to touch. As the bivalve speculum is introduced the existence of a leucorrheal discharge is observed.

Now what shall the teacher do under these circumstances? He has an opportunity of doing and saying a number of things, all eminently proper and all of value. Having recited the history of the case and having made a cursory examination of the patient, he may now deliver a didactic lecture on one or more features that suggest themselves to him, and in that manner occupy all the time at his disposal. It must be acknowledged that such a procedure is useful; and that the presence of the patient, even if no one touches her, serves to forcibly direct attention to her condition. I confess I often show in the amphitheater women who have recovered from placenta previa, postpartum hemorrhage or eclampsia, and I am confident their presence lends interest to any remarks that are made concerning the case. In a case like the one we are supposed to have before us such a procedure is, in my judgment, not the best method of teaching. In place, therefore, of delivering a lecture on traumatisms of parturition, subinvolution, puerperal infection, endometritis or any other subject which might very aptly be discussed in this connection, the teacher will realize that his chief object is to point out what there is actually to see, and to instruct the student in the proper method of determining what is to be done. His efforts will be directed toward conveying definite knowledge, but he will chiefly endeavor, by emphasizing important facts, by referring to points of similarity and difference due to anatomic conditions and etiologic factors, to train the student to view the matter under consideration in all its relationships, more especially in reference to actual diagnosis and treatment. The teacher must, moreover, understand that he fails in his efforts if he tries to teach too much. In considering ordinary cases he must necessarily repeat much that he has already said. This is desirable rather than objectionable, but he should be able to present the same facts, from different standpoints, so that his remarks are always of sufficient interest to command the attention of the student.

In the case under consideration the teacher will point out the bi-lateral laceration of the cervix. By means of tenacula he will demonstrate how the cervix should be after trachelorraphy. He will explain where incisions should be made, and speak of the "plug of cicatricial tissue," which is often a bug-bear to many students, and he will show where sutures should be passed after proper denudation of the laceration. Each student in turn sees the pathologic condition present. Each student sees the appearance of the laceration as it exists, and also as it should appear when repaired. Several of them take the tenacula in hand and demonstrate the necessary operative procedures.

While the students are thus engaged the teacher may refer to the hypertrophic changes that occur in consequence of cervical laceration. He may speak of the increased danger of infection at the time of labor in consequence of traumatism, and may mention how infection may extend by continuity of mucous surface through uterus and tubes, or through the placental site. He may show how a laceration can extend beyond the cervix even into the peritoneal cavity, and may call attention to the possibility of serious hemorrhage arising from such a laceration during labor and being mistaken for postpartum hemorrhage due to imperfect uterine contraction; he may explain the necessity of immediate operation in such an event.

He may also explain Dührssen's method of cervical incision in cases requiring immediate delivery, and he can point out how dangerous rupture into the peritoneal cavity is prevented by multiple incisions which obliterate the portio vaginalis. Incidentally he refers to more extensive lacerations of the cervix—the stellate lacerations—which may be practically inoperable and may necessitate an amputation of the cervix, and with the tenacula he demonstrates the operation of Schröder and others.

The patient is now placed in the left lateral position and a Sims' speculum is introduced. The wonderful perspicacity of our first master in gynecology is referred to and the advantages of his position and his speculum are pointed out. Emmet's discovery and operation are spoken of and the steps of the trachelorrhaphy are again demonstrated by other students taking the tenacula in hand. In connection with this demonstration the teacher may consistently speak of the dangers of undue traction in operative efforts on the uterus, or in the course of the examination. Howard Kelly's "third hand" may be mentioned and the possibility of separating adhesions, rupturing a peritoneal abscess or forcing pus from a pyosalpinx upon the peritoneum may be explained.

The speculum is now withdrawn, the patient is again placed in the dorsal decubitus and we proceed to the digital and bi-manual examination. While doing this it may be well to explain the inadvisability of using the uterine sound in most cases. The possibilities of exact diagnosis by other methods, the danger of infection and traumatism, and above all the relatively insignificant character of the knowledge that will be gained in ordinary cases by intra-uterine exploration will deter us from resorting to the use of the sound without preliminary disinfection and dilatation in special cases where intra-uterine exploration is clearly indicated, that is, when the benefits to be derived from this method of examination are plainly evident.

As the vulva is now examined by separating the labia a slight perineal laceration will be observed. Attention is called to the fact that the closure of this laceration has resulted in cicatricial tissue, very different in appearance from the vaginal mucous membrane. The ordinary appearance of the virgin vulva and the vulva in the nullipara is demonstrated by bringing the parts together with the fingers or tenacula. The gaping of the vulva with perhaps slight cystocele or rectocele is pointed out and the possibility of extreme degrees of these conditions is demonstrated by inserting a male sound into the bladder and the finger into the rectum. The remains of the hymen are shown and various matters of medico-legal importance are discussed.

As the examining finger is now introduced reference is made to the difference in sensation as observed in virgins, nulliparæ and in women who have borne children. The absence of a perineum pressing against the anterior vaginal wall is commented on. The sensation of a lacerated cervix, somewhat hypertrophied is mentioned. With the examining finger still in the vagina, the fingers of the other hand are placed over the symphysis and the uterus and its adnexa are palpated. Attention is called to the fact that the fundus uteri is usually felt just over the symphysis, and not over the region of the umbilicus. The student is also impressed with the fact that the finger in the vagina is intended simply to steady the uterus, and that extreme pressure upward is painful as well as useless.

Matters of interest in relation to the uterus are mentioned. The mobility, size, position and degree of tenderness are referred to. The student is taught first to recognize the fundus uteri, and after carefully but gently palpating the uterus he is instructed to pass the examining finger in the vagina to one side of the cervix, while the fingers of the other hand upon the fundus are carried outward so that abnormalities of tube or ovary may be appreciated. Each student in turn now examines the patient under the immediate personal supervision of the teacher. It is surprising how varied are the difficulties experienced by different students, and how quickly a little individual assistance will enable the student to successfully palpate the pelvic organs.

It must be remembered that many practitioners of great experience have never attempted a gynecologic diagnosis. They have vague ideas of the use of the uterine probe and sound, they consider the adjustment of suitable pessaries a matter of special skill, and they attach undue importance to the variations in the positions of the uterus. The possibility of mapping out the pelvic organs by bi-manual palpation is not seriously considered. The importance of recognizing the changes due to inflammation and the relative value of different pathologic conditions due primarily to infection is not fully appreciated.

While the student is being taught to palpate the pelvic organs he is shown normal and abnormal specimens of the female genitalia. He observes, for instance, the size of the tube in a normal specimen, and also in a case of salpingitis or pyosalpinx. As he looks at these specimens he realizes the condition of the tubes in the woman he is examining, and I believe his impressions of the condition of the patient are rendered more vivid and more exact by observing the specimens at this time.

The remarks of the teacher while a number of the students are in turn examining the patient, will necessarily be varied, as many patients with almost identical histories will constantly present themselves. It will be found advantageous for the teacher to endeavor to impress certain facts in connection with each case, not attempting to exhaust any portion of the subject, but rather to help the student to make accurate observations, to arrive at sensible conclusions, and above all to appreciate the limitations of his examination.

He may, for instance, explain how infection may proceed through the uterus and tube and on to the ovary and peritoneum. He may demonstrate results by showing specimens of abscesses of the ovary or pyosalpinx. He may speak of ovarian and parovarian cysts, and of tumors of the uterus, ovary, tube and broad ligament. He may advantageously discuss inflammatory conditions of the cellular tissue, and may also refer to extravasions of blood and the development of pelvic abscesses, discussing their localization and usual course in consequence of the anatomic conformation of the parts.

In a word, the instructor is now teaching first of all diagnosis, which depends upon facts. He must speak of facts, that is, of the various possibilities compatible with the history, and he must teach the student to arrive at a conclusion by showing him what he may expect to find, and then what he actually does find. He must not only explain, for instance, that a mass felt between the fingers is a pyosalpinx; he must show, as well, why it can not be anything else. Finally, he must determine the proper course of treatment, and must show clearly and distinctly not only why the treatment recommended in this particular case is the best treatment, but also why other methods of procedure, while sometimes of value, are inferior in merit to the plan proposed. Thus alone can be perfected a differential diagnosis worthy of the name.

The course of procedure described is applicable to all dispensary cases. Each student should see everything there is to be seen and thoroughly understand what he sees. He should personally examine every case, make his own diagnosis and determine the best method of treatment. All vague and erroneous ideas should be exploded by demonstrating facts, and all vagaries of treatment should be exposed by a thorough explanation of the reasons that dictate the plan of treatment proposed.

In teaching how to operate, the ideal method would be for each student to operate under the supervision of the teacher. Such a method is manifestly impracticable in the great majority of instances, and for this reason the best method of teaching the student how to operate is for him to observe how his teacher does, watching every step of the operation and understanding how and why every incision is made and every suture passed. It is evident such a method is incompatible with the performance on the part of the teacher of brilliant and theatrical exhibitions of his skill. It must be remembered that he is not demonstrating his ability as an operator; he is doing the best he can to show each student how the different steps of the operation are to be undertaken, and he explains why each step is necessary or expedient. The teacher instructs the student so that he may operate. There is no endeavor—at least there should be none—to impress the student with his teacher's wonderful dexterity and exceptional ability.

I have elsewhere described my "phantom perineum"

which has been[1] used in my clinics for many years. I have within the past two years perfected a "phantom cervix" and quite recently have been able to manufacture a "phantom" of the uterus, tubes and ovaries for the purpose of demonstrating various gyneecologic operations. These "phantoms" are of different colored cloth made into bags to represent different organs and layers of tissue.

In the case of the perineum they show the necessity of a true restoration by actually restoring the parts to the position they occupied prior to the injury. The operations of Hegar, Emmet, Martin, Tait and others can be exemplified, and it can be clearly demonstrated how the fundamental principle is subserved regardless of the differences in detail of operative *technique*.

In the case of the cervix, Emmet's operation, Dührssen's incisions, the closure of an extensive laceration at the time of labor, and the different procedures for amputation of the cervix, can all be clearly demonstrated.

It is my practice to show the different steps of the operation on the "phantom" while one of my assistants operates on the patient. In a perineorrhaphy or cervix operation the students walk around to see the denudation after it is made. They then see the sutures as soon as they are passed, and finally see the result when the sutures are tied. At the same time they see each detail of the operation as it is demonstrated on the "phantom." They may not be impressed with the cleverness of the operator, but I honestly believe they learn how to operate, each for himself.

In abdominal operations I first invariable insist upon the necssity of absolute asepsis, and I explain the methods adopted for securing surgical purity on the part of the patient and the operator. The abdominal incision is made rather long so that the structure of the abdominal wall may be demonstrated. For half an inch perhaps the skin alone is incised. For another half inch the incision extends through the superficial fascia. Then the aponeurosis is incised and the separation of the muscular fibers is shown down to the aponeurosis beneath. Finally the subperitoneal fat is incised and an opening is made through the peritoneum.

As the students now walk around the patient each one sees the different layers of the abdominal wall which are demonstrated by means of dissecting forceps. While this is being done comment is made upon the relative thickness of the different structures, the variations of the blood supply and the necessity for controlling it, the advisability of avoiding the linea alba so as to secure stronger union.

By means of scissors the abdominal incision is now made to include all tissues and the omentum is shown. Incidentally the appearance of the peritoneum is demonstrated and the possibility of adhesions of tumors, intestine, etc., is alluded to. The patient is now placed in the Trendelenburg position. The intestines are allowed to fall forward or are pushed out of the way, and a laparotomy sponge of gauze is introduced. Again the students walk around so that each sees the fundus uteri, the tubes, the ovarian cyst, the subperitoneal fibroid, or whatever pathologic condition may be present.

Supposing the case to be a pyosalpinx, the teacher now introduces two fingers and feels for the fundus uteri, explaining what he is doing. He then passes his fingers behind the uterus and breaks up adhesions so that the mass may be dislodged. He brings it out of the abdominal incision and transfixes it in the usual manner. The students again inspect the tumor and observe how the ligature is passed and tied. They observe the stump after the mass has been cut away and notice the space it occupied prior to its removal.

While the teacher is at work in this manner he explains his reasons for each step of the operation and he refers briefly to modifications of the method that might be necessitated by certain complications. He explains the Staffordshire knot and his assistant demonstrates it on a towel. In the same manner other methods of ligating are shown and reasons are given for preferring the method adopted. The treatment of adhesions to intestine or different pelvic viscera is mentioned, and the advisability of vaginal incision in certain cases pointed out.

The indications for drainage are spoken of and the different methods discussed. The question of the "toilet of the peritoneum" and flushing out the peritoneal cavity are raised and definite directions are given. Finally, in closing the abdominal wound, the substance used and different methods adopted are explained and their relative value discussed. The students see the sutures in place and they notice how they are tied. They then see the application of the dressings and perhaps the hot bricks that are placed around the patient when she is put back to bed.

It is probable that I have indicated by what has already been said just what I mean by the best method of teaching gynecology. It is, I think, unnecessary to particularize further. To do so were to present a syllabus of my lectures on the different topics of gynecology.

It is evident the best method of teaching is not the best method of showing the phenomenal ability of the teacher. It is questionable if the latter method is of much benefit to the student. It must be remembered that he comes to learn. He will soon be thrown on his own resources. The fact that his teacher is a great man will help him but little in his extremity.

The student comes to us to learn and it is but proper he should be taught. He wants to see no operative pyrotechnics or only incidentally. The province of teachers is to teach. Their first duty is to help the student to help himself, and the method adopted should have that end constantly and preeminently in view.

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[1] Annals of Gynecology, Vol. viii p. 670, Chicago Clinical Review, May, 1895.

THE VALUE TO THE MEDICAL STUDENT OF PHYSIOLOGIC STUDY.

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In a superstructure like that of the art and science of medicine wherein we find the various subdivisions, so imbricated and intimately related to and connected with each other that injury to or removal of any one would endanger the integrity of the whole, it is manifestly improper, and in fact impossible to attempt to place a greater value on any one part than can be ascribed to any and every other. For in such a whole no particular fractional part excels any other as far as specific value is concerned, and the value

and dignity of the whole equal the sum total of the individual parts. And indeed were we to attempt to remove or neglect any part, no matter what, we would not merely be subtracting a fractional value or dignity and thereby lessening the total by just so much as would be subtracted, but we would be seriously attacking the safety of the whole building and peradventure would find its walls toppling over and falling about our ears with a fearful clatter. But if we find that any one part can be discovered as having borne parental relations to any other, we can of a certainty recognize such importance; for the son, even though acquiring equal or superior dignity to his father, must ever respect that father, and the progeny must defer to the procreator. By reasoning on this line I purpose to demonstrate the nobility of physiology among its confrères and to give reasons why special and careful attention should be given thereto, and why our college authorities should appreciate the great benefits to the student of thorough and correct physiologic teaching. What is physiology? The answer to this question opens up a field far wider than is usually imagined. Physiology has been defined as being the study of the phenomena of life, teaching us the direct causes of these phenomena, the varying conditions under which they appear, their coincident chemic and mechanical accompaniments, their modes of operation and their results. From the department of physiology we learn all that can be known concerning the active functionating organism with its various subdivisions each working in its own particular manner, each function modified, accelerated, retarded or inhibited to meet the requirements of the economy at large, and the whole structure endowed with personality and imbued with vitality. So far we find physiologic lore to be of interest to the natural scientist outside of specific medical application, but to the practical physician I will now endeavor to show that physiology is an absolute *sine qua non*, and he must pay strict attention to this branch before he can hope to become a diagnostician, a pathologist or a therapeutist. I imagine that it is hardly necessary for me to remark that a physician devoid of diagnostic ability, of pathologic knowledge or therapeutic skill is totally unfit to attempt to practice the profession of medicine; and I desire here to record myself in the most positive manner as being of the opinion that such ability, knowledge and skill are in direct ratio to thoroughness and completeness of physiologic study, and that when any individual has without such thorough and complete study, attained even considerable success in medical practice, he remains an empiricist and can never be considered a scientific physician. A man, a work of art, or a piece of machinery we describe as being perfect, as being good, or indifferent or even bad. We use these terms relatively, comparing the object under examination with a known and accepted "standard" which may be abstract or concrete; and a principal duty of our wise men, of our physicians, our teachers, our artists and our scientists is to establish a "standard" in each of their several lines. There is nothing "new" in disease. It is a modification or an alteration of the normal; a perversion of, or a departure from the "standard" and it is the duty and the prerogative of the physiologist to give the practicing physician the "standard" he has to use. This "standard" is the living human body in a condition of healthy physiologic equilibrium, with all its various subdivisions working harmoniously together and constituting a perfect whole. After the student has become familiar with the normal action of this magnificent piece of mechanism, then and only then can he study the deviations therefrom which we term "disease." For example; of what use would it be for the tyro to place his ear to the chest of a patient suffering from cardiac disease? How would he know but that this tumultuous heaving, these varied sounds were the usual condition of affairs? First let him note all the characteristics of the heart's action, its rhythm, the accompanying sounds, the events taking place during the cycle, and the results and bearings of these events on far and near portions of the animal economy; then the slightest deviation from the known standard will mean something, and its specific value can be appreciated. A man practicing the profession of medicine without any "standard" to guide him, would resemble the unfortunate who was

> "Condemned in labor or the arts to drudge
> Without a second and without a judge."

Groping in the darkness of the impenetrable shade of ignorance, such a man could never advance, and would have to be placed in one of two categories, to-wit: knowing and appreciating the deficiencies and weaknesses of his position he would endeavor to ameliorate them, he would seek a way out of the darkness, and his voice would ring out for truth and light, as a

> "Child crying in the night
> A child crying for a light
> And nothing in its language but a cry."

For such a man there is hope. Or else blind and self-satisfied, he would recklessly stride along through the valley and the shadow firing blank shots into space and noting his own splendid marksmanship. Such a man is scientifically dead; for him there is no hope, no resurrection. Whose is the fault fundamentally in either case? The fault is at the door of the guides, of the teachers, of the leaders, of those who permitted or allowed such a lamentable condition to become possible.

This subject is one near and dear to my heart and peradventure were I not to call a halt and exert a reflex inhibitory influence on my pen, it might, by exercise, develop such strength and amplification as to emancipate itself from my autocratic grasp and galop along indefinitely. Worse and more pitiable then would be the fate of the distinguished Editor of the JOURNAL, than even that of the guests of Heliogabalus. For whereas the latter were smothered in roses, the former would of a certainty be drowned in "copy."

I imagine though that I have given in outline good and sufficient reasons for devoting time and attention to physiologic work; the next question that faces us is how should physiology be taught? To this I would answer that the work must be done in two ways: first, by direct observation; and second, by didactic explanation. In the first place I would familiarize the student with the well-developed, healthy, living human body as a whole, and his preliminary study in this regard I would have similar to that pursued by art students in painting and sculpture; that is the study of the nude, as conducted by director French of the Chicago Art Institute. Such a course of gross physiologic anatomy, modified somewhat perhaps to meet the requirements of the medical student, I hold to be of vast value. Then I would insist on a full

and complete laboratory course, not such a course as is but too often given (on paper in an annual announcement) but a thorough and painstaking course supervised by the professor of physiology himself, who would thus come into direct personal contact with each and every member of the class. Such work would be of the greatest value not only in inculcating physiologic data, but also in teaching the student how to think, how to draw and comprehend deductions from personally recognized conditions, how to explain to himself and reason out for himself the relations of abstract and concrete causes and appreciated results, and the bearings thereof. The master words for success in the attainment of actual knowledge are "direct observation," and only by this means can positive results be reached. Analogical deductions and inferences are unreliable and dangerous, no matter how cunningly traced, and the only data which can stand criticism are those born of experimental investigation. Structure and function are most intimately connected, and yet we find that we can not with a certainty depend on the structure of an organ as indicating its function. The two can only be correlated when direct examination demonstrates the fact of their association.

The lower we descend in the scale of life, the simpler do we find structure; in the lowest planes, the simplest. In these latter we note the existence of individual unicellular organisms without specific subdivisions, each part performing equally all the various vital functions. Thus the unicellular organism is uniform, simple and general, possessing the fundamental property of irritability and likewise the capability of initiating movement. This cell is therefore automatic and contractile, and at one and the same time is excretory, reproductive, and generally metabolic and motile, all these functions being exhibited equally by the same mass of protoplasm. As we mount higher we find various portions of the organism becoming more skillful in performing a few functions, and this for each part soon is narrowed down to one special function. At the same time, to a greater or lesser extent, the part becoming so specially educated withdraws from the performance of general functions. Each part becoming special renders the whole more complex, and we have anatomic changes taking place coincident with the educational amplifications. The accompanying conditions are; with relation to function, "specialization;" with relation to structure, "differentiation."

In order that we should acquire as distinct and clear an understanding as is possible of these complex, specialized and differentiated structures, we must begin our study at the lowest plane of life and note carefully the physiologic, histo-chemic and anatomic attributes of the simplest forms there to be found; continuing our observations on the same lines and mounting gradually higher and higher, we ultimately reach the most complex combinations. And further, in arriving at explanations of the structural, chemic and functional phenomena that confront us in the higher planes, we must go back to the period when these highly complex forms were themselves of simple degree. In this way embryology enters into our field of research, and in comparing the amplification and development of animal life generally with that of an individual member of some particular species, as for instance a human being, we find that we can aptly characterize the one as being a simulacrum of the other, the only marked difference being the element of time which however may safely be left out of consideration.

At the highest point in the scale of life we discover the exact opposite of what we studied in the lowest, and we find the organism now to be multiform, complex and special. Each one of the various parts of such an organism, has to be studied separately, in order that we should determine as far as possible its individual characteristics, and this study should be begun in the particular tissue after isolation from the economy as a whole. Then entire organs or apparatus of associated organs have to be considered and this can only be done by experimental observation upon the living structures.

Last of all the functionating entity must be observed, all the parts, all the organs, all the associated apparatus of organs brought into relation with each other and working in harmonious or alternating action. This must all be done on the living body, aided by dissections, schema, working models, charts, diagrams and so forth.

In pursuing such work the teacher will be required to devote a certain amount of time to both structural and chemic analyses of the tissues, so physiology and histo-chemistry are indissolubly united. These observations, examinations and experiments require laboratory work. Here under the direct guidance of the physiologic professor, each student works as an individual alone and to a great extent apart from his colaborers, but at stated and frequent periods the entire class should meet the professor in the lecture amphitheater for didactic instruction. Here the laboratory work is fully explained and amplified, deductions are made, theories are advanced, causes and effects are considered, opinions are reduced, and work on similar lines in other portions of the world is reviewed; while the laboratory illustrations are supplemented by working models, sketches, charts, schemes, etc. Again, frequent convocations should be held at which the professor should question each student on the previous work, and this should be looked upon as being as valuable as the other modes of instruction, as the student's ideas on the subject-matter can be elucidated and he can be materially assisted.

Speaking with an authority born of experience and study, I would say: 1. The physiologic course should be included in the curriculum for both the freshman and sophomore years. 2. Sufficient time should be given for at least five days in each week during the course, to laboratory work and explanatory or didactic instruction. 3. Once at least each week there should be a physiologic convocation in which the previous work should be carefully reviewed. 4. The chair of physiology should be a salaried position, as it is impossible for a practicing physician to properly administer its duties and bear its responsibilities. This chair is about the only one in a medical college which, to a practicing physician, has no commercial value, and the work of the incumbent each year is not by any means accomplished when the lecture course is finished. During vacation time original research, individual observation, review of the work of others, travel, visits to foreign and domestic universities and colleges and their laboratories, all are matters that will occupy time; in short as soon as one course is completed, preparations for the next should be initiated, for no scientific physiologist can depend on this year's notes for the next year's course; he can not

stand still, but must gain or lose, advance or retreat. 5. There must be a fully equipped laboratory in all that the words imply, with a complete zoologic addition. 6. In the freshman year there should be a preparatory course on physiologic artistic anatomy. There are many other details in this connection that time and space will not permit me now to dilate upon, but I would conclude by expressing the positive opinion that unless the fundamental elements of the positions above outlined by me are in force in a medical school, such school is not doing its duty either to the students or to the profession at large, and does not deserve to stand in the front rank. In a very large majority of our institutions of medical learning, physiology is slighted and ignored, and money and time are spent and much advertising indulged in concerning the so-called practical branches, the authorities forgetting that there is no branch so sternly practical to both the under-graduate and the post-graduate as is physiology.

THE MEDICAL COLLEGES OF THE UNITED STATES.

The Editor of the JOURNAL a few weeks ago addressed a circular to the Secretary or Dean of the various Medical Colleges, requesting them to state their plan of education, including the requirements for admission, the facilities they possessed for teaching, and the cost of attendance.

The general response to the circular has produced the very complete summary here presented.

It should be remembered that these statements are those prepared by the schools themselves and in no way changed in this office.

ASSOCIATION OF AMERICAN MEDICAL COLLEGES.

The Association of American Medical Colleges, requires for all members that candidates for matriculation will be allowed admission, subject to the conditions prescribed by Article III of the Constitution of the Association:

ARTICLE III.

SECTION 1.—Members of this Association shall require of all matriculants an English composition in the handwriting of the applicant of not less than two hundred words; an examination by a Committee of the Faculty, or other lawfully constituted Board of Examiners, in higher arithmetic, algebra, elementary physics, and Latin prose.

SEC. 2.—Graduates or matriculants of reputable colleges or high schools of the first grade, or normal schools established by State authority, or those who may have successfully passed the entrance examination provided by the statutes of the State of New York, shall be exempt from the requirements of Section 1.

SEC. 3.—Students conditioned in one or more of the branches enumerated as requirements for matriculation shall have time until the beginning of the second year to make up such deficiencies; provided, however, that students who fail in any of the required branches in this second examination shall not be admitted to the second course.

SEC. 4.—Colleges granting final examination on elementary subjects to junior students shall not issue certificates of such final examination, nor shall any member of this Association confer the degree of Doctor of Medicine upon any person who has not been first examined upon all the branches of the curriculum by the Faculty of the College granting the degree.

SEC. 5.—Candidates for the degree of Doctor of Medicine shall have attended three courses of graded instructions of not less than six months each in three separate years.

SEC. 6.—Students who have matriculated in any regular college prior to July 1, 1892, shall be exempted from these requirements.

THE SOUTHERN MEDICAL COLLEGE ASSOCIATION.

The Southern Medical College Association makes the following requirements, viz.:

Every student applying for matriculation must possess the following qualifications:

He must hold a certificate as the pupil of some known, reputable physician, showing his moral character and general fitness to enter upon the study of medicine.

He must possess a diploma of graduation from some literary or scientific institution of learning, or certificate from some legally constituted high school, General Superintendent of State Education, or Superintendent of some County Board of Public Education, attesting the fact that he is possessed of at least the educational attainments required of second-grade teachers of public schools; provided, however, that if a student, so applying, is unable to furnish the above and foregoing evidence of literary qualifications, he may be permitted to matriculate and receive medical instruction as other students, and qualify himself in the required literary departments, and stand his required examination, as above specified, prior to offering himself for a second course of lectures.

The foregoing certificate of educational qualifications, attested by the Dean of the medical college attended, together with a set of tickets showing that the holder has attended one full course of medical lectures shall be essential to attendance upon a second course of lectures in any college belonging to the Southern Medical College Association.

(1) . . . . . ,189—

Dean of Medical Department of University of Tennessee—Nashville Medical College:

DEAR SIR—Mr. . . . . of . . . . . , is a gentleman of good moral character. I recommend that he be allowed to enter upon his medical studies in your college. He has been my pupil . . . months.

Yours,

[Sign here] . . . . . .

(2) . . . . . , 189—

Dean of Medical Department of University of Tennessee—Nashville Medical College:

DEAR SIR—I have examined Mr . . . . . , of . . . . . and find his scholastic attainments equal to those requisite for a second-grade teacher's certificate in our public schools.

Yours,

. . . . . .

Supt. of Pub. Instruction.

BIRMINGHAM MEDICAL COLLEGE.

BIRMINGHAM, ALA.

This College requires an attendance of three terms of six months each before application for graduation, and a general average of 75 per cent. for a degree. The school has good hospital advantages and abundant clinics, and furnishes splendid facilities for the study of medicine. There is an excellent building well arranged for medical instruction, and well equipped laboratories. W. H. JOHNSTON, M.D., Dean.

MEDICAL COLLEGE OF ALABAMA.

MOBILE, ALA.

The thirty-first annual session of this institution will begin Oct. 12, and continue six months. The Faculty offer a curriculum that has been carefully and systematically graded. The chemic, microscopic, surgic and pharmaceutic laboratories are fitted in accordance with the most modern and advanced ideas, and afford ample and convenient facilities for the practical work exacted of each student in these departments. The dissecting rooms are large and well ventilated, and material for practical anatomy abundant. Medical and surgical clinics are held daily at the City Hospital and College Dispensary. Fees, including laboratory course $100 for each session. Diploma fee, $25. The requirements for matriculation and for obtaining the degrees are set forth in the annual announcement, which will be sent upon application.

Geo. A. Ketchum, M.D., Dean.

ARKANSAS INDUSTRIAL UNIVERSITY.

MEDICAL DEPARTMENT, LITTE ROCK, ARK.

Four years graded course. Twenty-three profes-

sors and teachers. Fees each course $58; matriculation fee paid once, $5. Graduation fee, $25. Resources for clinic instruction, Pulaski County Hospital, Little Rock City Hospital, Little Rock Infirmary. Daily clinics.

Regular winter course begins Nov. 2, 1896, and continues six months. Preliminary course begins Oct. 5, 1896. J. A. Dibrell, M.D., President and Dean of Faculty.

E. R. Dibrell, Secretary.

COOPER MEDICAL COLLEGE.

SAN FRANCISCO, CAL.

Thanks to the generosity of its President, L.C. Lane, this school is amply provided with facilities for instruction. Its handsome buildings, its hospital and its endowments and funds represent half a million of dollars. An educational qualification or an examination is required before admission. Four courses of lectures are necessary to complete the curriculum, except for such as have through-college education or otherwise accomplished the work required for the first year, The regular or long term begins June 1 and continues six months. The short term begins February 1 and continues three months. The graduation exercises take place in December. The regular course is held in summer and autumn. The objections to the summer which obtain on the Atlantic border are entirely unknown here. The dryness of the atmosphere prevents decomposition; thus dissecting can be carried on with far more comfort and satisfaction than during the winter or summer months in other climates. Excellent clinical facilities are offered at the City and County Hospital and at the extensive College Dispensary. The Lane Hospital, adjoining the College, now just completed, will accommodate a hundred patients. A fee of $130 is charged for each of three courses: Matriculation fee $5; demonstrator's $10; graduation $40.

Henry Gibbons, Jr., M.D., Dean; William Fitch Cheney, M.D., Secretary.

UNIVERSITY OF CALIFORNIA; MEDICAL DEPARTMENT.

SAN FRANCISCO, CAL.

The sessions begin September 1, and continue eight months. During the term all the branches of medicine and surgery are taught, didactically and clinically. Regular clinics are held three days in the week at the City and County Hospital (450 beds), where the professors of the practical chairs have charge of wards and possess every advantage for the instruction of students. There is also an active clinic conducted three times a week at the College Dispensary, where large numbers of patients are examined and treated before the classes. Didactic lectures are given daily by the professors, and evening recitations are held several times a week.

The dissecting room is open throughout the entire year. Material is abundant and costs but little.

The facilities for bedside study have been largely increased of late, and the student will find opportunities at his command which, for comprehensiveness, are nowhere surpassed.

The Medical Department of the State University was one of the first in the United States to adopt the four years' term of study. No student can present himself for final examination until he has attended four annual courses of medical lectures and clinics.

Graduates of accredited literary and scientific colleges, and such as have completed two years of the natural science department of a recognized university, are admitted to the second class without examination.

Fees: Matriculation (paid but once), $5; demonstrator's ticket, $10; fee for each course of lectures, $100; graduating fee, $25.

For the annual announcement and catalogue giving regulations and other information, address R. A. McLean, M.D., Dean.

DENVER MEDICAL COLLEGE.

MEDICAL DEPARTMENT OF THE UNIVERSITY OF DENVER, COLO.

(Incorporated in 1881.)

The next session of the school begins Sept. 8, 1896. The Faculty is composed of fifteen professors and ten assistant professors and lecturers. The school offers exceptional advantages to students who can not complete their college work in the rigorous eastern climate. Colorado is justly noted for its mild winters, and students coming to Denver can pursue their medical studies in the school surrounded by amply equipped laboratories, by large clinics and by an active, interested corps of teachers. The College is a member of the Association of American Medical Colleges and confirms to every requirement of that Association.

Fees: Matriculation (annually), $5; tuition, $75; graduation (not returnable), $25; demonstrator's ticket (including material), $10; chemic laboratory ticket, $10; pathologic and physiologic laboratory, extra. No tuition fee is required from students who have paid for and attended three full courses of lectures in this College. Such students are admitted to the fourth course upon the payment of the matriculation fee only.

Samuel A. Fisk, M.D., Dean; E. R. Axtell, M.D., Secretary.

GROSS MEDICAL COLLEGE.

DENVER, COLO.

The College is legally chartered under the laws of the State of Colorado. It was established in 1887 and has made such rapid progress that at present it stands foremost among the medical colleges of this section. Being a member of the Association of American Medical Colleges, it complies with all the requirements of this Association and has adopted the four-year course of study.

This institution is well equipped for medical instruction, containing four large lecture rooms, abundant laboratory room and facilities. In close proximity to it is a large free dispensary, which furnishes abundant material for clinical instruction. It is situated within a few blocks of the County Hospital, at which regular clinics are held and bedside instruction given. The tuition fee is $75 each for the first three years and $30 for the fourth year. There is no graduation fee and no hospital fee.

Thomas Hayden Hawkins, A. M., M. D., Dean; Robert Levy, M.D., Secretary.

UNIVERSITY OF COLORADO; MEDICAL DEPARTMENT.

DENVER, COLO.

This school is a member of the Association of American Medical Colleges and gives a graded course of four years, the term extending from the first week of September to the third week of May.

The first year's course is given at the university in Boulder, where the facilities for instruction in the fundamental sciences are excellent. In order to

obtain superior clinical advantages the instruction of the second, third and fourth years is given in Denver. The dispensary of the school and hospitals of Denver furnish a large amount of clinical material.

The climatic advantages of Colorado enable students to pursue their studies here who could not do so elsewhere.

Tuition: For residents of the State, $35 per year; for non-residents, $45. Graduation fee $10.

For further information apply to Clayton Parkhill, M.D., Dean; Howell T. Pershing, M.D., Secretary.

YALE UNIVERSITY, DEPARTMENT OF MEDICINE.

YALE MEDICAL SCHOOL, HARTFORD, CONN.

In the fall of 1810 a charter was granted to the President and Fellows of Yale College and the President and Fellows of the Connecticut Medical Society, authorizing them to unite according to the terms of certain "Articles of Union," before agreed upon, for the establishment of a medical seminary, to be styled the Medical Institution of Yale College. Two years later the school was organized, and in the fall of 1813 instruction was begun.

While the attention of the student is particularly directed to those branches which can be studied to advantage only in a well equipped medical school, the value of clinical instruction is fully appreciated and amply provided for. The curriculum consists chiefly of recitations of assigned readings in text-books, systematic laboratory work and personal instruction in clinics.

Terms of admission: Candidates for admission must be at least 18 years old, and must present satisfactory testimonials of moral character from former instructors or physicians in good standing. Each candidate must present proof that he has passed the matriculation examination of some scientific, literary or professional college in good standing, or present testimonials from the proper officer that he has pursued the course at some high school, academy or preparatory school approved by the faculty, or he must pass an examination in the following subjects:

REQUIREMENTS FOR A DEGREE.

1. He must be at least 21 years of age, and must sustain a good reputation for moral character.

2. He must have spent three years as a student in this school, or if but one or two years in this school, he must have pursued such studies in some other recognized institution, as are considered by the faculty to be the equivalent of the remainder of the full term of study. The last year must have been in this school.

3. He must have passed to the satisfaction of the faculty the prescribed examinations of the course; and he must have presented a satisfactory thesis on some subject relating to medicine. The thesis should be presented to the dean on the third Wednesday before Commencement.

Fees and expenses first year: Matriculation (paid but once), $5; tuition, $140; practical anatomy (including instruction and material), $10. Second year: Tuition, $140; practical anatomy (including instruction and material), $5; practical pharmacy, $5. Third year: Tuition, $80; graduation, $30.

Herbert E. Smith, M.D., Dean.

MEDICAL DEPARTMENT COLUMBIAN UNIVERSITY.

WASHINGTON, D. C.

The seventy-fifth session begins Sept. 30, 1896. The numerous advantages afforded by the City of Washington for the study of medicine are well known. The clinic facilities of four large hospitals are open to students of the college. The new Congressional library, almost completed, will give the students additional advantages scarcely to be equaled in any other city.

The course extends over four years, and the annual fee for all expenses is $106.

The bacteriologic and pathologic departments are under the direction of an accomplished teacher, who is also in charge of the Army Medical Museum of the city. Extensive experiments upon the antitoxins are being conducted by the biochemic laboratory of the Department of Agriculture, and by act of Congress the Government laboratories are available to students for clinical instruction.

D. K. Shute, M.D., Dean; E. A. De Schweinitz, Secretary.

MEDICAL DEPARTMENT, GEORGETOWN UNIVERSITY.

WASHINGTON, D. C.

The next session of this school will begin October 1, and continue until May 13, 1897. The four years' course is obligatory. Instruction is given by lectures, recitations and demonstrations in the lecture rooms, as well as by practical exercises in the dissecting room and the various laboratories, which are especially well arranged and equipped for this most important method of modern teaching. Ample and excellent facilities for clinical instruction are furnished by the hospitals and dispensaries. Positions as resident physicians in these are secured by competitive examination. Congress has opened the Government museums and libraries to students of medicine, greatly enhancing the facilities otherwise furnished. The fees are: Matriculation, payable but once, $5; lectures and laboratories for each year, $105. No other charges except a small one for anatomic material.

J. W. H. Lovejoy, M.D., President; G. L. Magruder, M.D. Dean.

HOWARD UNIVERSITY, MEDICAL DEPARTMENT.

WASHINGTON, D. C.

This school opens its twenty-seventh session, October 1. It has a graded course of four years. Each college year continues seven months. Students are required to complete the studies in each year before being promoted to the next succeeding year. A thorough training is given in histologic, biologic, pathologic and chemic laboratories. The Freedmen's Hospital is upon the grounds of the college and affords ample clinic facilities to the student to study surgery, obstetrics, gynecology and practice of medicine. The tuition fee is $60 per term. Small laboratory fees are charged to meet the necessary expenses. The college is coëducational. Students are instructed and examined in the following branches: Physiology, anatomy, chemistry, toxicology, materia medica, therapeutics, obstetrics, gynecology, practice of medicine, surgery, minor surgery, neurology, histology, bacteriology, pathology, ophthalmology, otology, pediatrics, medical jurisprudence and psychiatry.

T. D. Hood, M.D., Dean; C. B. Purvis, Secretary.

ATLANTA MEDICAL COLLEGE.

ATLANTA, GA.

This college was established in 1854 and has been

in continuous operation since except during the war. The school requires three terms of six months each and regular courses in the chemic, bacteriologic and pathologic laboratories. Clinics are held daily both at the college and at the city hospital, to which the students have access. Written examinations are held at the end of each session, and students must show satisfactory progress before they are allowed to advance to the next course.

The college building is especially commodious, having three large lecture rooms, each with a seating capacity of 200 and in addition a modern amphitheater arranged to seat 300 students.

The fees are $100 for each session, diploma $30; these fees are adhered to and under no circumstances is any reduction given to students. W. S. Kendrick, M.D. Proctor.

MEDICAL COLLEGE OF GEORGIA.

MEDICAL DEPARTMENT UNIVERSITY OF GEORGIA.

AUGUSTA, GA.

Organized 1832. Three years graded course, six months in each year, October 1 to April 1. Faculty has under its exclusive control three large hospitals, the policlinic, the city dispensary and the out-door obstetric service. From these sources abundant clinic material is always on hand for clinic instruction of students. Clinic teaching occupies a prominent place in instruction of students. Every member of the graduating class is accorded a two weeks residence in the hospitals. Preliminary educational qualifications required of students; proficiency in arithmetic, elementary English, geography, spelling, United States history, and English composition. Fees: Matriculation $5; practical anatomy $10; general course of instruction $75; diploma or graduation fee $30.

Eugene Foster, M.D., Dean; Thos. D. Coleman, A.B., M.D., Secretary.

COLLEGE OF PHYSICIANS AND SURGEONS.

CHICAGO, ILL.

The fifteenth annual course begins September 22, and continues for seven months. A spring course is also given, for which there is no additional charge to students in the college. The spring course of 1897 begins April 21 and ends June 30. The curriculum of the college is graded, and four years are required to complete the course. Instruction is didactic and clinic and by laboratory teaching. Instruction during the first two years is largely by laboratory work; in the last two years largely clinic.

The equipment of the college includes the college building proper, which contains the lecture rooms, clinic rooms; a six-story laboratory building; and a college hospital. All of these buildings are amply furnished for the purposes to which they are severally devoted. The college hospital has recently been acquired by the purchase of a modern hospital building formerly occupied by the Post-Graduate Medical School. This gives the college a hospital of 125 beds with three aseptic operating rooms and a clinic amphitheater. The clinic material at the disposal of the college is large enough to insure the hospital being kept full all the time. Hospital service is a part of the senior class work. In the course of a year each student gets practical bed-side experience of the most varied kinds.

The class is divided into sections for the purpose of pathologic work in the hospital; so that the students are given training in exact methods of technical examinations, and gain at the same time a correct appreciation of the relative importance of the pathologic and clinic elements of their cases.

Clinics are given daily in the County Hospital by members of the Faculty. There are also autopsies daily at the county morgue to which the students have access.

The college has abolished formal final examinations, In lieu thereof, the students are graded upon their daily work, upon their recitations and upon examinations held during the course of the year. One-fourth of the time of each teacher is given to quizzing. Nine scholarships of the value of $100 each are awarded to the students who make the best records in the college. The annual fees are $110. There are no extras.

William Allen Pusey, M.D., Secretary.

CHICAGO POLICLINIC AND HOSPITAL.

A clinic school for post-graduate instruction in medicine and surgery, Chicago, Ill. It is conveniently located in a populous district which furnishes an abundance of clinical material. The instruction is entirely clinic and offers unequaled facilities for the general practitioner to personally examine cases and follow out the latest approved means of diagnosis and methods of treatment.

Clinics covering all departments of medicine and surgery are in progress daily from 8 A.M. to 5 P.M.; a well equipped bacteriologic and chemic laboratory is a notable feature of the institution and affords the practitioner an opportunity to become acquainted with the most important modern branches. As all clinics are conducted throughout the year, students may enter at any time. The fees are moderate and vary according to the number of branches taken and the length of time one desires to remain.

Truman W. Miller, M.D., President.

Fernand Henrotin, M.D., Secretary.

NORTHWESTERN UNIVERSITY MEDICAL SCHOOL (CHICAGO MEDICAL COLLEGE).

CHICAGO, ILL.

This school was the first in this country: 1, to enforce a standard of preliminary education; 2, to adopt longer annual courses of instruction; 3, to grade the curriculum of studies.

The laboratory building contains laboratories of physiology, histology, anatomy, pathology, bacteriology, chemistry, pharmacology and pharmacognosy of the most modern form and with best equipments.

Davis Hall is a very perfect out-patient infirmary, where twenty-five thousand patients are treated annually.

A feature unique to this school is the grading of clinical instruction and the maintenance of small clinics by greatly multiplying them so that students may obtain individual instruction. Forty clinics are conducted weekly at Mercy and St. Luke's Hospitals and Davis Hall.

Instruction is given by lectures, recitations, conferences, laboratory and clinic methods. Numerous electic courses are offered to students who desire them, either that they may obtain "honors" or special knowledge. These courses are chiefly laboratory or combined laboratory and clinic.

The requirements for admission are a diploma from a recognized college, school of science, academy or high school, or an examination in English, arithmetic, algebra, physics, Latin and any one of the follow-

ing: chemistry, general biology, zoology, botany or German.

College opens Oct. 6, 1896; Commencement is June 17, 1897. The fees are, matriculation $5; annual $100; laboratory (for first and second years) $10.

The Faculty consists of thirty-seven professors and forty-three instructors and demonstrators.

N. S. Davis, M.D., Dean.

NORTHWESTERN UNIVERSITY WOMAN'S MEDICAL SCHOOL.

CHICAGO, ILL.

This school was founded in 1880 as the "Woman's Hospital Medical College." In 1892 it was incorporated with the Northwestern University. It is conducted as a regular school of medicine for the education of women only.

Students graduating in 1899, and subsequently, are required to attend four graded courses of lectures, of not less than eight months each.

Instruction is given by didactic lectures, recitations, clinical lectures and practical work. Objective methods are given a prominent place.

Practical instruction is given in the laboratories of anatomy, chemistry, histology, physiology, pathology, bacteriology and pharmacy. Modern methods are pursued in all these laboratories.

The Cook County, the Mary Thompson Hospital for Women and Children, The Wesley, The Woman's Hospital of Chicago, and various other hospitals to which the students have access, afford excellent facilities for clinic instruction. Through these various hospitals and the college dispensary there are unusual opportunities for practical obstetric work. Each day of the week one or more clinics are held in the college building.

A matriculation fee of $5.00 and an annual fee of $75.00 are required. An extra charge is made for tickets for laboratory and hospital courses.

POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL.

CHICAGO, ILL.

It has just completed a magnificent building, thoroughly equipped for modern scientific post-graduate instruction; convenient surgical amphitheaters, fine, well-lighted laboratories and clinic rooms, comfortable reading and smoking rooms, automatic ventilation, electric lights and elevator.

The college is located at 2404 Dearborn Street, in the medical center of Chicago, and with unequaled hospital advantages, an abundance of clinic material, comprehensive and advanced curriculum; large working faculty and a continuous course throughout the year.

Students may matriculate with equal advantage at any time and receive a post-graduate course that is unsurpassed.

For particulars address Franklin H. Martin, M.D., Secretary.

RUSH MEDICAL COLLEGE.

CHICAGO, ILL.

The fifty-fourth course of lectures of this institution begins Sept. 29, and continues eight months.

The new laboratory building, in which are located the anatomic departments and all the laboratories, presents an unexcelled series of working rooms for the undergraduate. No more extensive and thoroughly equipped dissecting room is to be found in any medical college. Every student is required to take special courses in laboratory instruction in histology, pathology, bacteriology and materia medica as well as in chemistry. The laboratories for these different special courses are extensively and thoroughly equipped.

A special feature of the instruction in this institution is the large number of men attending exclusively to teaching by recitations in the different classes divided into sections.

The clinics of this College are an especial feature of its instruction. Nearly all of them are held in the afternoon. In some of them the students are required to make their examinations and to defend their diagnoses before the class. The adjoining Presbyterian Hospital affords facilities for clinical instructions unsurpassed anywhere. A vast amount of surgical operations of all kinds is housed in this hospital and students of this college enjoy the advantage of such operations in the clinics to an extent equaled by no college in this country.

The Central Free Dispensary connected with the College affords about one thousand patients monthly. They are extensively utilized for clinical purposes throughout the year.

Fees: The general ticket $125, and the matriculation fee $5.

Edward L. Holmes, M.D., President.

James H. Etheredge, M.D., Secretary.

CENTRAL COLLEGE OF PHYSICIANS AND SURGEONS.

INDIANAPOLIS, IND.

The Faculty have remodeled the college building at an expenditure of $4,000; this also includes the superb equipment in the several laboratories. The advantages for clinical teaching are greatly enhanced by the college dispensary, which is in charge of two physicians appointed by the faculty. The staff physicians that have been selected from the faculty also hold clinics at the Indianapolis City Hospital, St. Vincent Hospital, Deaconess Protestant Hospital and the Indianapolis City Dispensary.

The college is a charter member of the Association of American Medical Colleges and has adopted the four-years' graded course of lectures. The instruction consists of didactic lectures, practical demonstrations and personal laboratory investigations. The eighteenth regular session will open Sept. 23, 1896, and close March 24, 1897. The fees of the regular course are as follows: Matriculation, $5; laboratory ticket (anatomy, chemistry, bacteriology, pathology or histology), $5; general ticket, $40; demonstrator's ticket (anatomy, chemistry, bacteriology, pathology or histology), $10; hospital ticket (includes all hospital fees), $6; graduation fees, $25.

Joseph Eastman, M.D., LL.D., President; T. B. Eastman, A.M., M.D., Secretary and Dean.

FORT WAYNE COLLEGE OF MEDICINE.

FORT WAYNE, IND.

The college was organized in 1879. The length of term is six months with a four years' graded course. The expense for fees in all the departments will be about $75 per year.

Clinics are held in the St. Joseph and Hope Hospitals, where there is an abundance of clinic material, both surgical and medical. The special advantages are, that in these hospitals many capital operations are made in the presence of the students, the seniors being assistants.

The college has fifteen professors and five lecturers.

C. B. Stemen, M.D., Dean.

MEDICAL COLLEGE OF INDIANA.

INDIANAPOLIS, IND.

Twenty-sixth annual term begins October 2 and ends April 2. Matriculation, $5; laboratory ticket, $5; professors' tickets, $40; demonstrator's ticket, $10; graduation fee, $25; hospital tickets, $6. Clinics are given at the city hospital, St. Vincent's Hospital, Bobb's Free Dispensary, city dispensary and college dispensary. Daily clinic instruction throughout the course. The clinic, histologic, pathologic and bacteriologic laboratories, dissecting rooms and museum are thoroughly appointed and complete, and no extra charges for same. The munificent gift of Dr. William Lomax of Marion, Ind., added to the former resources and equipment of the college enables the trustees to construct and equip an ideal modern medical college, which shall meet the most exacting demands for advanced, thorough medical education.

Jos. W. Marsee, M.D., Dean.

IOWA COLLEGE OF PHYSICIANS AND SURGEONS,

MEDICAL DEPARTMENT OF DRAKE UNIVERSITY.

DES MOINES, IOWA.

The fifteenth annual session will begin Sept. 16, 1896, and continue twenty-four weeks.

The fees are: Matriculation, $5; general lecture ticket, $45; final examination, $5; hospital, $5; practical anatomy, $10; chemic laboratory, $10; bacteriologic, $10. The college has new quarters, with ample laboratory facilities. A large number of new microscopes have been recently purchased, and the course in chemistry, bacteriology and histology is the same as in other first-class schools. Clinics will be held one-third of the time at the Cottage and Mercy Hospitals. The county and city patients are treated at Cottage Hospital and afford an abundance of clinical material. The Mercy Hospital is a large new building, with a capacity of seventy-five beds. This affords good clinic advantages; in fact, better than any other hospital in the State.

The faculty consists of fourteen professors and nine lecturers. All have had from two to twenty years' experience as teachers. The course is four years' attendance upon lectures. The requirements of admission are those of the Iowa and Illinois State Boards.

Lewis Schooler, M.D., Dean.

STATE UNIVERSITY OF IOWA, MEDICAL DEPARTMENT.

IOWA CITY, IOWA.

The twenty-seventh annual session begins Sept. 16, 1896, and continues six months, closing in March, 1897.

The requirements for graduation are those of the Association of American Medical Colleges and the State Board of Medical Examiners. Fully equipped laboratories in pathology, histology, chemistry and pharmacy, and full clinics in all branches. Special advantages to advanced students in assisting at clinics and observing treatment of cases at Mercy Hospital. Positions as internes in all State hospitals open for limited terms of service to graduates passing meritorious examinations.

Fees: Freshman year, $63; sophomore, $48; junior, $33, and senior, $38. No charge for dissecting material.

For catalogue, address W. D. Middleton, A.M., M.D., Dean, or E. W. Rockwood, M.D., Secretary.

KEOKUK MEDICAL COLLEGE.

KEOKUK, IOWA.

The regular fall and winter session opens in September and continues for six months.

The faculty is composed of experienced medical teachers. Clinics regularly at St. Joseph's Hospital.

A ten weeks' reading and recitation course following the regular winter session is provided.

Fees for regular session: Matriculation, $5; lecture fees, including hospital ticket, $28; graduation fee, $30. Material at cost.

J. A. Scroggs, M.D., Secretary.

HOSPITAL COLLEGE OF MEDICINE.

MEDICAL DEPARTMENT CENTRAL UNIVERSITY OF KENTUCKY.

LOUISVILLE, KY.

The regular session of this college begins in January and end in June. The course of instruction is conducted by ten professors and fifteen tutors, demonstrators, and assistant instructors.

Freshmen are required to present evidences of good moral character, and satisfactory preliminary education, in documentary form. The course of study is graded and divided into three annual terms of six months each.

Candidates for the degree of Doctor of Medicine must be 21 years old, of good moral character, must have studied medicine four years, including preliminary reading with a preceptor, and have attended three complete courses of lectures, no two of which shall have been taken within a period of twelve months, and the last of which shall have been in this institution. He must have dissected during at least two sessions, and have attended two courses of clinic and hospital instruction.

The course of study at this college, in addition to the usual didactic lectures and quizzes, embraces two clinics every day in the college building; not less than four clinic lectures every week at the City Hospital, beside bedside instruction in the wards of the City Hospital and College Infirmary.

Fees: Professors', $75; practical anatomy, including material, $12; bacteriology and histology, laboratory fees, first year, $10; chemical laboratory, second year, $10; surgical laboratory, $10; fee for final examination (not returnable), $30; hospital fee required by the city, $5. No fee is charged for intermediate examinations.

P. Richard Taylor, M.D., Dean.

KENTUCKY SCHOOL OF MEDICINE.

LOUISVILLE, KY.

It is midway between the North and the South, and holding its session from January to June inclusive, is the pioneer spring and summer graduating school of this country.

It began in 1817 as the Medical Department of Transylvania University, but separated and took its present name in 1850. Since that time its success has been remarkable, having as many as 550 students at a time. It has given medical education to more than five thousand physicians. With an efficient and experienced faculty of thirty teachers, ample and thoroughly equipped laboratories and a large modern hospital of its own, recently erected, adjoining the college, this school is offering facilities for practical and thorough instruction unsurpassed in this country. It is a strictly one-priced college, each student without exception paying the same. For catalogue write to Samuel E. Woody, M.D., Dean.

NEW ORLEANS UNIVERSITY, MEDICAL DEPARTMENT.

NEW ORLEANS, LA.

This institution has a four years' course of study of five months each. The tuition fee is $30 per session, while good board and room, with fuel, light and washing, can be obtained in private families for from $12 to $15 per month. The total expense of the session need not exceed $125. The building is situated on an open, airy space and is a large three story brick, well lighted and ventilated. Street cars lines from all parts of the city make it easily accessible. The second story is used exclusively for a hospital and nurse training department, where students have the advantages of experience in the sick room every day. The city with its 250,000 inhabitants and large transient population affords excellent clinic advantages. The next session opens September 15.

C. F. Dight, M.D., Dean.

MEDICAL DEPARTMENT TULANE UNIVERSITY OF LOUISIANA.

NEW ORLEANS, LA.

Since 1893 this college has occupied a new and extensive building, with five large and fully equipped laboratories. Students are admitted without payment of any hospital fees to the great Charity Hospital, which has more than 30,000 patients annually and thus provides unsurpassed practical advantages (clinic, anatomic, etc.) for the study of medicine. A gymnasium for the use of students is attached to the college. The most recent improvements consist of numerous and important additions to the laboratory of the professor of chemistry, and the reorganization of the college library, rendering it more useful and accessible to students and the medical profession.

For catalogue and information address S. E. Chaillé, M.D., Dean.

BALTIMORE MEDICAL COLLEGE.

BALTIMORE, MD.

This college was organized in 1881. Within the past five years it has expended $200,000 in the erection and equipment of a college and hospital which contains every modern facility and appliance required. Its laboratories are equal to those of the best institutions of this country. Its Faculty contains twelve professors and over forty associate professors, lecturers, demonstrators and assistants.

Its hospital and out-door department furnish abundance of material for clinic instruction. It has a special lying-in hospital of over thirty beds in addition to its out-door obstetric clinic. This college is a member of the Association of American Medical Colleges and has adopted the four-year graded course according to the regulations of this Association. During the past session its classes numbered over 514 students.

Clinics are conducted by the professors and their associates during the entire year.

The dental department of the college has one of the best equipped buildings in this country.

A preliminary course of lectures will begin September 1 and continue until October 1.

Tuition fees and laboratory fees included range according to classes from $100 to $125. Board and lodging near the college from $3 to $8 per week.

For catalogue apply to David Streett, A.M., M.D., Dean.

BALTIMORE UNIVERSITY SCHOOL OF MEDICINE.

BALTIMORE, MD.

The preliminary course begins September 1. The regular winter course begins October 1.

The curriculum is graded. Attendance upon three winter courses of lectures is required for graduation. In addition to didactic lectures, two hours daily are devoted to clinic instruction. Clinic material abundant. Large hospital and dispensary. Lying-in Department for teaching clinic obstetrics.

Send for catalogue, and address Z. K. Wiley, M.D., Dean.

COLLEGE OF PHYSICIANS AND SURGEONS.

BALTIMORE, MD.

This college is a member of the National Association of Medical Colleges. It requires four sessions of six months each to graduate. The fee is $100, which includes all laboratory and matriculation fees. The clinic work is a special feature in the method of instruction. Small ward classes are formed so that each student can receive personal instruction in the diagnosis and treatment of diseases. The obstetric department affords excellent facilities for every student to learn practically the management of labor cases and all conservative operations. The chemic, histologic, anatomic, pathologic and bacteriologic laboratories are modern and well equipped. The free dispensary in the heart of the city affords an abundance of cases for clinic lectures.

Thomas Opie, M.D., Dean.

JOHNS HOPKINS UNIVERSITY, MEDICAL DEPARTMENT.

BALTIMORE, MD.

The medical department was opened for the instruction of students October, 1893. It has in addition to resources of the Johns Hopkins University and the Johns Hopkins Hospital available for its use a special endowment fund of $500,000. It forms an integral part of the University and is in close affiliation with the Johns Hopkins Hospital.

The requirements for matriculation are higher than those of any other medical school in this country. Those who are admitted as candidates for the degree of doctor of medicine must possess a degree in arts or in science from an approved college or scientific school, and in addition must be able to read French and German and must have had a year's collegiate training with laboratory work in physics, chemistry and biology; or they must furnish evidence by examination that they possess the general education implied by a degree in arts or in science and the knowledge of French, German, physics, chemistry and biology indicated. Men and women are admitted upon the same terms.

The required course of instruction continues through four years, the academic year beginning the first of October and closing the middle of June. The first two years are devoted mainly to anatomy, physiology, physiologic chemistry, pathology, bacteriology and pharmacology, and the last two years to practical medicine and surgery.

Abundant clinic material is afforded by the Johns Hopkins Hospital and Dispensary, this Hospital being unsurpassed by any in the world in the perfection of its arrangements. The clinic amphitheaters and laboratories are in the hospital buildings. Physiology is taught in the biologic laboratory of the University, which is one of the largest and best equipped in this

country. The pathologic laboratory is a four story building on the grounds of the hospital. This building contains the autopsy theaters, the pathologic museum, the bacteriologic laboratory, the physiologic chemic laboratory and rooms for instruction and special work in all departments of pathology.

The charge for tuition is $200 per annum. There are no extra charges for instruction in any department or for laboratory courses.

In addition to the regular course of instruction for undergraduates in medicine, special courses of instruction have been given to physicians in pathology and the clinic subjects since the opening of the Johns Hopkins Hospital in 1889. These are to continue. A fee of $100 covers all of these special courses for physicians. The separate courses can be taken by payment of a fee of $25 or $50 according to the subject chosen.

William H. Welch, M.D., Dean.

UNIVERSITY OF MARYLAND.

BALTIMORE, MD.

The School of Medicine is one of the oldest institutions of medical education in America, ranking fifth in point of age among the medical colleges of the United States. Beginning with the modest number of five graduates, comprising the first graduating class in 1810, the list of graduates in medicine of the University of Maryland now numbers 4,574 names, among which are to be found some of the most noted names connected with the history of medicine in our country. While the policy of the faculty of physic has been one of wise conservatism, it has at the same time never been behindhand in the march of educational progress, and has often been the first and always among the first, in the adoption of measures tending to improvement in methods of medical teaching and to true elevation of the standard of medical education. One of the advantages of the University over other schools of that day was gained in 1823 by the erection of its own hospital, separated from the college by the width of the street and known as the University Hospital. Beside important additions and improvements to the University Hospital, the faculty has in the last few years expended and is now expending large amounts in the establishment and equipment of its lying-in hospital, its laboratories of chemistry, histology, pathology and bacteriology, and is therefore in a position to offer to students of medicine and graduates, a course of combined didactic, clinic and laboratory instruction which will compare favorably with that offered by any medical school in the United States. The course of study embraces three annual graded courses of not less than six months each.

Fees for the three years' graded course: Matriculation (paid each year) $5; practical anatomy (paid two years) $10; full course of lectures (first year) $100; full course of lectures (second year) $100; full course of lectures (third year) $100; graduation fee, $30.

R. D. Cole, M.D., Dean.

WOMAN'S MEDICAL COLLEGE.

BALTIMORE, MD.

The college was incorporated Feb. 14, 1882, being the fourth institution of the kind founded in the United States, and the first in the South. It is managed by twelve trustees, and has thirty-six professors, lecturers and assistants. It requires for graduation attendance upon four annual sessions, lasting each eight months. With reference to entrance requirements it follows the regulations of the American Medical College Association, of which it was one of the founders. It occupies a group of buildings on the corner of Hoffman and McCulloh Streets, two of which it owns. It has laboratories of chemistry, histology, pathology, embryology and bacteriology. One-fourth of the time of lectures is devoted to quizzing. It has a general and also a lying-in hospital of its own. Clinics are also given at the Presbyterian Eye, Ear and Throat, Bayview, and the Hospital for Crippled and Deformed Children, by members of its faculty. It has a large out-door obstetric clinic. Pharmacy is taught and examined upon. There is a course of lectures on psychiatry by a well-known specialist. There is a library and a flourishing medical society of 127 members. The fees are $100 annually; $75 for missionaries; $30 additional for graduation; $5 deposit for breakage. There have been fifty-nine graduates.

I. R. Trimble, M.D., Dean; Eugene F. Cordell, M.D., Secretary.

CLARK UNIVERSITY.

WORCESTER, MASS.

Graduate courses in psychology, physiology, neurology, etc. Special attention given to the study of the brain and central nervous system, with laboratory work and clinics. Exceptional opportunities offered in the sciences underlying the study of medicine.

G. Stanley Hall, M.D., President.

COLLEGE OF PHYSICIANS AND SURGEONS.

BOSTON, MASS.

This college is now entering upon its seventeenth annual course of lectures.

The course is graded and comprises four years of study with four annual courses of lectures. Each course extends from the third Tuesday in September to the third Wednesday in June.

Rules and requirements are those of the Association of American Medical Colleges, of which this college is a member.

A good knowledge of English, Latin, algebra and physics are necessary for matriculates.

Extensive clinic advantages are under its control. The school is now prepared to furnish facilities for chemic, histologic, bacteriologic and other laboratory work. Located near Boston City Hospital, in a part of the city where good board and rooms may be obtained convenient to the college. Women are received and admitted to the same rights and privileges as are accorded to men. Extra advantages for observing clinic and dispensary work.

Matriculation, $5 yearly; lecture fee, $125 per year, or cash in advance for four years, $400; laboratory courses, $5 each; dissecting and operative surgery material at cost.

For catalogue and further particulars apply to the registrar.

Augustus P. Clarke, A.M., M.D. Dean; George F. Shurtleff, M.D., Registrar.

TUFTS COLLEGE MEDICAL SCHOOL.

BOSTON, MASS.

This is the only regular medical school open to both sexes in New England that is recognized by the Massachusetts State Medical Society.

Entrance examination is required, and to students who matriculate for the first time in 1896 four years of attendance.

The course is graded and all the branches of med-

ical science are taught. Abundance of clinic facilities. Fees $115. The regular course of lectures for the session of 1896-97 will commence September 30 and continue for eight months.

For further particulars and catalogues address C. P. Thayer, M.D., Secretary, 74 Boyleston St., Boston, Mass.

Albert Nott, M.D., Dean.

UNIVERSITY OF MICHIGAN.

DEPARTMENT OF MEDICINE AND SURGERY.

ANN ARBOR, MICH.

This school requires for admission a diploma from a first class high school or its equivalent. The course extends through four years with nine months in each session. The first two years are devoted to scientific work, a large part of which is done in the laboratories. The last two years are given to clinic work.

The fees are as follows: Matriculation fee for Michigan students is $10; for all others $25. This fee is paid only once. Annual fee for Michigan students $35; for all others $45. Diploma fee, all alike, $10. The laboratory fees amount to about $50 a year. The total amount of fees paid to the university during the whole four years' course is for Michigan students about $300, and for others about $340.

Victor C. Vaughan, M.D., Dean.

MICHIGAN COLLEGE OF MEDICINE AND SURGERY.

DETROIT, MICH.

The regular term of the college will commence September 23 and will continue six months. The spring term will open April 7 and close June 19.

An addition to the college has been made this term, in the form of a building fifty by sixty feet, to be entirely devoted to the use of the Emergency Hospital Free Dispensary.

The special advantages pertaining to the college are that all lectures and demonstrations are given at the one location, the college building and the Emergency Hospital Free Dispensary, the lying-in clinic, and in fact all the clinics being under one roof.

Send for catalogue to L. E. Maire, M.D., Secretary.

HAMLINE UNIVERSITY.

MEDICAL DEPARTMENT MINNEAPOLIS COLLEGE PHYSICIANS AND SURGEONS.

MINNEAPOLIS, MINN.

This school was organized in 1883 as the Minneapolis College of Physicians and Surgeons, and in 1895 became the Medical Department of Hamline University. The course consists of four years of eight months each and fulfils the requirements of all State boards. The faculty consists of twenty-three professors and eight lecturers, not including demonstrators and assistants. The college building is within five minutes' walk of three leading hospitals and four dispensaries, so that the clinic advantages are excellent. The approaching term begins October 5. The fees are: Matriculation, $5 (payable only once); general ticket, including lectures, demonstrations, etc., $65.

J. W. Macdonald, M.D., Dean.

UNIVERSITY OF MINNESOTA.

COLLEGE OF MEDICINE AND SURGERY.

MINNEAPOLIS, MINN.

The ninth annual course of lectures begins October 1, and continues until the first week in June. Four courses of lectures in different years is required of all applicants for the degree of M.D. All pupils entering this department of the university after 1898 will be required to furnish credentials equal to an "in course" matriculation of the academic department of a recognized college of literature, science or the arts. The State has invested $150,000 in buildings and equipment in the last three years. They are located upon the campus of the general University in Minneapolis. There were 243 matriculants in attendance the last season, 47 receiving the degree of M.D. The department is directly connected with the general University, being amply supported by the State.

Perry H. Millard, M,D., Dean.

BARNES MEDICAL COLLEGE.

ST. LOUIS, MO.

Six months terms; three separate years' graded course. Begins September 21. Matriculation, $5; lecture ticket, $40, and anatomic ticket, $10. Usual laboratory charges. Half rate concessions to physicians' and clergymen's sons and graduates in pharmacy and dentistry. A few $10 scholarships to well attested worthy sons of indigent physicians, widows and others granted on proper presentation of suitable cases.

First course students are required as a precedent for admission to show a good English education by certificate of graduation from a literary college, academy, normal or high school, or of examination approved by the State superintendent of public schools, in English grammar and composition, arithmetic, algebra as far as quadratics, elementary physics, United States history, geography and Latin (equivalent to one year in high school); 80 per cent. grade required in these branches. Previous matriculates at other medical, dental or pharmaceutic colleges and graduates in medicine are exempt from this rule.

Clinical facilities embrace city general hospital, insane hospital, Woman's Hospital and other corporate hospitals, to which members of the faculty have access, and new and enlarged college and dispensary clinics. Thus, while its fees are moderate and concessions to the worthy are liberal, its curriculum and preliminary requirements secure educated classes.

C. H. Hughes, M.D., Dean; Pinckney French, M.D., Secretary.

BEAUMONT HOSPITAL MEDICAL COLLEGE.

ST. LOUIS, MO.

The college will begin the fall session September 22. It gives the three sessions graded course of instruction; maintains a high standard of requirements and has a well-earned reputation for thorough and practical teaching. Its building is well located and arranged and its laboratories are completely equipped with all things necessary for advanced investigation and demonstration. It offers special advantages in clinic teaching, having exclusive control of three large hospitals and two dispensaries, which furnish clinic material in abundance and in great variety. The destruction of the St. Louis City Hospital by the recent cyclone has not materially affected the clinic supply at this institution.

W. B. Outten, M.D., Dean; John T. Larew, M.D., Secretary.

ENSWORTH MEDICAL COLLEGE AND HOSPITAL.

ST. JOSEPH, MO.

The college is an endowed institution, with a full corps of experienced teachers and is properly equipped in its several departments. Its requirements prece-

dent to matriculation are those prescribed by the Association of American Medical Colleges and the State of Missouri. It affords the special advantage of an abundant outdoor clinic during the sessions at the hospital, as well as those afforded by the city hospital and State lunatic asylum. The tuition fee is $50 for each session. In honor of Mr. Ensworth, the school grants a scholarship to each Congressional district of the State. The Ensworth has under its direct control the largest hospital in the Central West.

Thomas H. Doyle, M.D., Dean.

KANSAS CITY MEDICAL COLLEGE.

KANSAS CITY, MO.

This is one of the oldest schools in the West; was established in 1869. The twenty-eighth annual session begins September 15 and continues twenty-six weeks. The course of study is graded and extends over three years. The college building has been enlarged, new laboratories and lecture rooms having been added.

The clinic facilities of the school are large, and practical bedside instruction is a prominent feature. Clinic material is supplied by St. Joseph's, German, Municipal and St. Margaret's Hospitals, supplemented by a large dispensary service, medical, surgical and obstetric.

The annual announcement has been issued and will be forwarded upon request.

J. D. Griffith, M.D., Dean; Franklin E. Murphy, M.D., Secretary.

MARION-SIMS COLLEGE OF MEDICINE.

ST. LOUIS, MO.

The Marion-Sims College of Medicine, which was organized in 1890, has met with much success. This has been due to the untiring energy of the faculty, and to the disposition of its teachers to equip and maintain a medical institution fitted in line with the most advanced methods of medical instruction. A hospital was built by the faculty immediately adjoining the college, which has been a most valuable aid to the instruction in the institution. This hospital, known as the Rebekah Hospital, has afforded a great supply of clinic material. The school is well equipped with appliances of all kinds necessary for instruction in medicine. Its chemic, microscopic and physiologic laboratories are modern and complete. The college dispensary is large. A dental department has been added which bids fair to meet with the same success that the medical department has recived. The length of the course is six months.

The fees are as follows: Matriculation (paid but once), $5; entire lecture (each year), $50; final examination (not returnable), $25; dissecting ticket, $10; single professor's ticket (where the entire course is not taken), $20; general ticket for sons and brothers of physicians and sons of clergymen, $25; lecture fee for three years, including matriculation, dissection and examination ticket, if paid in advance, $150; hospital and clinic tickets free.

H. W. Loeb, M.D., Secretary.

WASHINGTON UNIVERSITY.

MEDICAL DEPARTMENT, ST. LOUIS MEDICAL COLLEGE.

ST. LOUIS, MO.

This institution has had for more than half a century successful annual sessions. It was one of the first among the medical institutions to enforce a graded course and to insist on a three years curriculum (since 1880). Long experience in the advanced methods of teaching enables it to present to the student a well considered and consistent course of study.

Histology, comparative and practical anatomy are demonstrated in a well supplied laboratory and perfect dissecting rooms.

The apparatus and the facilities for experimental and original research in physiology are in charge of a professional physiologist. Biology and pathology have each well supplied laboratories in which practical work is assigned to the individual student. Clinic facilities are abundant and well utilized. For information apply to H. H. Mudd, M.D., Dean, or E. M. Senseney, M.D., Secretary.

MISSOURI MEDICAL COLLEGE.

ST. LOUIS, MO.

The oldest seat of medical learning west of the Mississippi, will enter upon its fifty-sixth year of instruction Sept. 22, 1896. Three graded courses of lectures of six months are necessary for graduation. A high preliminary education, including Latin, is necessary for admission. The fees are $100 a year. Number of students in attendance 240. The number of cases treated during the past year in the two dispensaries conducted by the faculty, and from which clinic material is largely drawn, was 16,389; operations performed 1,084. The St. Johns, the Polyclinic and the Bethesda Hospitals are under the exclusive control of the faculty, besides clinics are given in the city and other hospitals attended by the professors. The museum is very large and rich, and the laboratory equipments rarely excelled. P. G. Robinson, M.D., Dean; H. M. Whelpley, M.D., Secretary.

ST. LOUIS COLLEGE OF PHYSICIANS AND SURGEONS.

ST. LOUIS, MO.

It is one of the three oldest medical colleges in St. Louis. The Preliminary Session begins Tuesday, September 1. Regular Session, Tuesday September 8, closing Wednesday March 17. The faculty numbers eighteen professors ably assisted by a corps of competent lecturers and demonstrators.

In the new building the laboratory and clinic equipment is complete. The surgical amphitheater is supplied with all the latest improved appurtenances to that line to work and nowhere in this section of the country can better surgical opportunities be found; material being drawn from the Merchants and Mechanics Hospital, St. Louis Baptist Hospital, City and Female Hospitals, City Insane Asylum and Poor House.

Fees are extremely moderate for the high grade of instruction offered; matriculation $5, general lecture ticket, $50. To sons and brothers of physicians and sons of the clergy $25. Special terms to graduates in pharmacy and dentistry. Write for catalogue to Dr. Waldo Briggs, Dean.

UNIVERSITY MEDICAL COLLEGE.

KANSAS CITY, MO.

It requires of the student, before entering the college that he be either a graduate of a reputable literary college or, upon examination, show that he has a good English education and sufficient knowledge of Latin to translate and define medical terms; that he read one year under a preceptor, to the extent of having read the text-books of medicine; that he shall attend 80 per cent. of the lectures and clinics of a

three years' graded course of six months each before applying for graduation.

The college building is large and has seating capacity for 500 students. It has ample room for its chemic, bacteriologic, histologic and pathologic laboratories, which are all abundantly supplied with all the appurtenances for thorough teaching. It has a large corps of didactic and clinic instructors.

Its resources for clinic material are excellent. All Saints Hospital in the same block is under its control, where a school for trained nurses is taught. At its free dispensary in 1895 there were forty thousand patients treated distributed among the different departments. This dispensary runs all the year to which students have free access, and three or four hours daily (except Sunday) is devoted to clinic teaching by the professors. In its obstetric clinic there were 324 cases of obstetrics furnished during the sessions of 1895 and 1896. It has access where clinics are held at All Saints Hospital and the seven other hospitals in Kansas City. Matriculation fee $5.00. Lecture tickets first and second years $60 each, third year $50. Examination for graduation $20.

James P. Jackson, M.D., Dean.

UNIVERSITY OF THE STATE OF MISSOURI, COLLEGE OF MEDICINE.

COLUMBIA, MO.

Organized in 1872.

Students must pass in the work of each class and year before admission to the next class or year.

Instruction is given by lectures, recitations, clinic teaching and laboratory work.

The length of the session, nine months, renders it practicable to distribute the different branches among the teachers in the most satisfactory manner, and in their natural order and succession. The student is thoroughly drilled each day by examinations upon the lectures of the previous day, and by recitations from text books.

The students are taught the use of the microscope, in relation to both pathologic and physiologic studies. The methods of bacteriologic investigation are taught by practical work in the laboratory.

Among the advantages offered by this school is the privilege granted, without further cost, to all students who enter the medical department, of pursuing such studies as they may desire in the academic course. Academic students may take anatomy and physiology in the first year of the medical course, preparatory to entering on the full medical course after graduating in arts or science. Such students are admitted to the second year's medical class.

Conditions of admission: Candidates for admission to the medical department must possess a good common school education. This is the minimum requirement, and evidence that the candidate possesses the requisite knowledge must be attested by certificates of former instructors or must be shown by examinations conducted by the Faculty.

Fees: First year matriculation, $20; second year matriculation, $50; third year matriculation, $50.

A preliminary course of nine months will be given in chemistry, biology, physics and Latin.

A. W. McAlester, Dean. Woodson Moss, Secretary.

JOHN A. CREIGHTON MEDICAL COLLEGE.

OMAHA, NEB.

The curriculum of this school is graded, and attendance upon four annual terms, of seven months each, is required. Instruction is carried on by means of lectures, recitations, laboratory work and clinics. The laboratories for chemistry, physiology, histology, pathology and bacteriology are very large, well lighted and well equipped for the teaching of these branches in a thorough and modern manner. The dispensary and hospital clinics furnish ample material for clinic instruction in all branches. The St. Joseph's Hospital, a magnificent structure, of three hundred beds, is under the exclusive control of the faculty of this college. The new college building, nearly completed, is one of the very best in the West.

D. C. Bryant, M. D., Secretary.

OMAHA MEDICAL COLLEGE, MEDICAL DEPARMENT UNIVERSITY OF OMAHA.

OMAHA, NEB.

The curriculum is graded and divided into four annual courses of seven months each.

Preliminary examination is required of all applicants for entrance not in possession of literary credentials outlined by the Association of American Medical Colleges.

The college building is new and contains an outdoor dispensary, two large lecture halls, museum and laboratories of anatomy, physiology, pathology, histology and chemistry. The laboratory equipment is sufficient for a class of two hundred students.

Instruction is given by means of recitations, class room work, demonstration, lectures and clinics.

Clinics in all branches are furnished by a large outdoor dispensary, the Omaha, Presbyterian, Douglas County, Immanuel and Clarkson Hospitals.

Graduation requirements in compliance with the rules of the American Medical College Association. Fees for each session $70.

W. O. Bridges, M. D., Secretary.

DARTMOUTH MEDICAL COLLEGE.

HANOVER, N. H.

The plan of teaching in this college includes a term of lectures with quizzes, from the middle of July to last of November, and a term of recitations and laboratory work from January 1 to June 20 each year. The Hitchcock Hospital affords excellent facilities for clinic instruction. The fee for the lecture course is $82; for recitation term, $40.

Entrance examinations in English, Latin, elementary physics and chemistry are required unless candidates have already properly performed the work.

Ten months' attendance in this school each year for three years, or three full courses of lectures and four years of study under a preceptor are required for graduation. They must pass written examinations in anatomy, chemistry, physiology, surgery, practice, obstetrics, gynecology and therapeutics.

O. P. Frost, M. D., Dean.

ALBANY MEDICAL COLLEGE, MEDICAL DEPARTMENT OF UNION UNIVERSITY.

ALBANY, N. Y.

Three years graded course which will be increased to four with session of 1897–98. Hospital and clinic advantages excellent, clinics being held in Albany, St. Peters, Child's and County Hospitals and Eye and Ear Infirmary. With the coming session the new Bender Hygienic Laboratory, for the study of pathology and microscopic work, will be opened to students. Fees: Matriculation, each year, $5; each lecture course, $100; dissection, chemic, histologic and pathologic laboratories, each $10.

For catalogue and further information, address, Willis G. Tucker, M.D., Registrar.

BELLEVUE HOSPITAL MEDICAL COLLEGE.

NEW YORK.

The Collegiate year embraces a winter session and a spring session. The winter session for 1896–97 will begin Sept. 21, 1896, and continue for twenty-six weeks.

The recitations, lectures and clinics for the spring session will begin March 22, 1897, and continue for twelve weeks. Attendance on the winter session only is required for graduation.

New matriculates for the session of 1897–98 and thereafter will be required to present tickets showing attendance on four regular courses of lectures and certificates of four years' study of medicine as conditions for graduation.

Students who attend the regular session of 1896–97 or have attended one or more regular sessions at the Bellevue Hospital Medical College before 1896–97 may complete their courses in accordance with the present requirement of three years.

RESOURCES FOR CLINIC INSTRUCTION.

Bellevue Hospital receives annually between five and six thousand patients. Medical and surgical cases of all kinds are admitted except cases of contagious diseases.

The City Hospital on Blackwell's Island receives annually between eight and ten thousand patients. A considerable number of the patients admitted into this hospital are affected with venereal diseases.

The Bureau of Medical and Surgical Relief for out-door poor is in the college building and furnishes most of the cases for the clinics held in the college lecture room. The number of new patients treated in this department in 1895 was 47,479.

FEES AND REGULATIONS FOR THE THREE YEARS' COURSE.

The matriculation fee, to be paid before any other tickets are issued, is $5 for each year. The fee for each one of the three courses required and for each additional course is $150. The fee for dissections, to be taken during the first and second years, is $10 for each year. The fee for the regular laboratory courses, to be taken during the third year is $20. The fee for specimens mounted in connection with the Carnegie Laboratory course is $2. The fee for the examinations at the end of the second year is $15. The fee for the final examinations is $15. The fee for final examinations for those who have taken their first two courses at other colleges is $30.

Communications relating to the business of the college should be addressed to Prof. Austin Flint, Secretary.

LONG ISLAND COLLEGE HOSPITAL.

BROOKLYN, N. Y.

The regular term of 1896–97 will begin Sept. 28, 1896, and continue until March 31, 1897. The reading term will begin April 1, 1897, and continue until June 18.

Beginning with the regular term of 1897–98, the course of instruction will be more thoroughly graded and will consist of four collegiate years of eight months each. The reading and recitation term will be abolished as separate terms after 1897 and merged into the regular term.

Through the munificence of Mrs. C. H. Polhemus of Brooklyn, a magnificent building is now being erected as a memorial to her husband. This building will be occupied by the dispensary and college, and will cover an area of 67 x 92 feet, and be 115 feet in height. The instructions of the donor to the architect are to make it the most perfect building of its kind that money and skill can construct. It will be completed in June, 1897, and ready for the opening of the collegiate year 1897–98.

The success of the plan of the Long Island College Hospital depends mainly on two important facts:

1. The hospital and dispensary, in which 21,485 patients were treated in 1895, are under the immediate control of the Regents, and are therefore, available at all times for practical instruction.

2. The courses of instruction are given in the hospital buildings, so that the student, without loss of time, is brought in direct contact with patients, not only in the amphitheater, but also in the wards of the hospital.

The city of Brooklyn contains more than 1,000,000 inhabitants, being the fourth city in the United States in point of population.

The fee for the regular term is $125. Board can be obtained at $5 a week.

J. H. Raymond, M.D., Secretary.

NEW YORK POLYCLINIC MEDICAL SCHOOL AND HOSPITAL.

NEW YORK CITY.

The winter session of the Polyclinic opens Sept. 15, 1896, and will continue to June 15, 1897. The sessions of the school, however, are continued throughout the year, the summer session being from June 15 to September 15.

It is a school of clinic medicine and surgery for practitioners only. No didactic lectures are given. The clinics are held in the lecture rooms of the school and in the operating rooms of its hospital.

The operations done here embrace every variety of surgical work not only in general surgery but also operative treatment in the special branches of the eye, ear, throat, gynecology, etc. An immense amount of clinic material is supplied from the dispensary which is submitted to the members of the class at specified hours for personal examination and study under the guidance of the various teachers.

Operative courses upon the cadaver in the different departments are also given.

A general ticket admitting the holder to *all the lectures and operations* is issued: Twelve months, $350; six months, $250; three months, $150; six weeks, $100.

For further information address J. Riddle Goffe, M.D., Secretary.

NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL.

NEW YORK CITY.

The New York Post-Graduate Medical School and Hospital has just entered upon its fifteenth winter session. Five hundred and forty-two physicians from all over this continent have attended the courses at the institution during the past year. More than one thousand operations were performed in the hospital, which is one of the largest in the city, containing special wards for babies and children, while nearly twenty thousand patients were treated in the out-door department. Recent discoveries have revolutionized medical and surgical methods and a man whose medical education ended fifteen years ago is not a phy-

sician or surgeon within the present meaning of the term. Post-graduate medical instruction is for the purpose of furnishing to these graduates in medicine a means of refreshing their knowledge. It supplies them with the opportunity of coming in direct contact with disease by means of the special courses we give in all departments of medicine.

D. B. St. John Roosa, M.D., LL.D., President.

NIAGARA UNIVERSITY.

MEDICAL DEPARTMENT.

BUFFALO, N. Y.

The medical department was organized in 1883, with the motto "Higher Medical Education."

Requirements for matriculation are an equivalent knowledge of Latin as found in Arnold's "First Latin Book," in addition to the State Board of Regents' certificate, which can be obtained by all graduates of any registered high school in the country, or the equivalent obtained in foreign countries.

Duration of course is from October 1, 1896, four years. Matriculants prior to this time are allowed to graduate in three years under certain conditions.

Free scholarship is obtained by competitive examination in higher mathematics and Latin.

Fees: General course of instruction, annually, $75; registration fee each year, $5; perpetual ticket, $200; laboratory fees reasonable.

The clinic resources embrace: Buffalo Hospital of the Sisters of Charity (bedside instruction), Emergency Hospital, Buffalo Woman's Hospital, Buffalo State Hospital, Providence Retreat, St. Francis Hospital, Edward Street Lying-in Asylum (150 confinements yearly average), Edward Street Infant Asylum, The Erie County Hospital, Charity Eye, Ear and Throat Hospital, Buffalo German Orphan Asylum, The College Dispensary, Nose and Throat Department of the Buffalo Eye and Ear Infirmary.

Lectures begin Oct. 1, 1896; examinations close May 6, 1897; commencement exercises May 12, 1897.

President, John Cronyn, B.A., M.D., PH.D., LL.D. Secretary, Harry A. Wood, M.D.

UNIVERSITY OF BUFFALO MEDICAL DEPARTMENT.

BUFFALO, N. Y.

The fifty-first regular session opens September 24, and continues thirty weeks. The lectures will be held in the large, new, three-story building, containing three ampitheaters and rooms for dispensary patients, chemic, pathologic, histologic, and pharmaceutic laboratories, thoroughly equipped with modern conveniences. Instruction by lectures, recitations, laboratory work, and clinics. Clinic advantages unexcelled.

Fees: Matriculation, $5; regular term, $100; perpetual ticket, $200; laboratory, $40; dissection, $20, ($10 each year); examination fee, $30 ($10 each year). For further particulars address,

John Parmenter, M.D, Secretary.

COLLEGE OF MEDICINE, SYRACUSE UNIVERSITY.

SYRACUSE, N. Y.

This college will hereafter occupy its new four-story building, which contains nine commodious, thoroughly equipped laboratories and lecture rooms. For clinic teaching it has the use of two hospitals, a dispensary and a State Asylum.

The college year begins the first Tuesday in October, and ends the second Tuesday in June. Entrance examinations, which must be passed unconditionally, will be held at the college, October 6, at 2 o'clock, P. M.

Fees and expenses, including lectures, laboratory work, clinics, use of library, microscopes and other apparatus, examinations and graduation, $125, annually, payable in advance. Rooms and board can be obtained on very reasonable terms.

It may be remembered that for twenty years, commencing sixteen years before State legislation compulsion secured uniformity in the length of courses, this college has maintained a three years' graded course. It was the first in the State, and the third in the United States to adopt this system of higher medical education, and it has already adopted the four years' course.

Ninety-two per cent. of its graduates have passed successfully the State Regents' licensing examination.

For announcements and other information, address, H. D. Didama, Dean, or D. M. Totman, Registrar.

UNIVERSITY OF THE CITY OF NEW YORK, MEDICAL DEPARTMENT.

Fifty-sixth year. The session will begin in October. Attention is called to the fact that the curriculum has been entirely remodeled and greatly improved.

Special clinics: Ophthalmology, otology, laryngology, orthopedy, pediatrics, skin diseases, venereal diseases, nervous diseases.

Examinations are held at the close of each year. The marks received for proficiency in practical work in the laboratory, dissecting room, etc., are added to the final examination marks in each corresponding subject.

The college possesses a corps of sixty-four professors and instructors in its various departments; and in addition to well-equipped laboratories and a dispensary where 20,000 visits are annually paid, it offers to students exceptional facilities for practical instruction at the bedside in Bellevue Hospital, which is directly opposite the college buildings.

Fees; For course of lectures, $150; matriculation, $5; demonstrators' fee, including material for dissection, $10; final examination fee, $30.

For further particulars and circulars, address the Dean, Prof. Chas. Inslee Pardee.

WOMAN'S MEDICAL COLLEGE OF THE NEW YORK INFIRMARY.

NEW YORK CITY.

The college gives a graded course of four years. The building is new and convenient. It has excellent dissecting rooms, well equipped laboratories for practical instruction in chemistry, histology and pathologic anatomy, a reading room and library. The college adjoins the infirmary of sixty beds, and the dispensary in which over 7,000 patients are treated annually. These and a large out-practice are utilized fully for clinic instruction. Besides the daily college classes, the senior students receive daily clinic instruction in small groups. Special clinic courses are given for them in Bellevue Hospital, the Blackwell Island Hospital for the Insane, and the Willard Parker Hospital for Contagious Diseases. Every student attends ten cases of obstetrics under direction. Students can attend operations and clinics in several of the city hospitals.

Fees for course of four years, $515. Dr. Emily Blackwell, Dean.

LEONARD MEDICAL SCHOOL.

(SHAW UNIVERSITY.)

RALEIGH, N. C.

Sixteenth annual announcement. Next session opens

November 2. Length of session twenty weeks; minimum expense for the year for board, room-rent, fees, books, etc., $70.

We do not claim the Leonard Medical School is the best in the world, but we do claim, and justly, that young men who graduate from the four years' course of the Leonard Medical School are equipped as few institutions equip them, to successfully practice their profession, and that this is done at a phenomenally small outlay of money on the part of the students.

A hospital building has been erected and will be used during the term for affording the students the best possible clinic instruction.

For catalogue and full information write to Chas. F. Meserve, President.

NORTH CAROLINA MEDICAL COLLEGE.

DAVIDSON, N. C.

This college has a nominal connection with Davidson College and has the advantage of the scientific equipment of this old institution. The chemic and electric departments are unusually well furnished.

A new laboratory is to be equipped this Fall. In the department of pathology and bacteriology, there is, in process of erection, a new brick and granite building to be used for class work and hospital purposes.

Length of session eight months, three of such sessions constituting a complete course, leading to graduation.

Matriculation fee, $5; tuition, $75; board and lodging $10 to $15 per month.

J. P. Munroe, M.D., President.

CINCINNATI COLLEGE OF MEDICINE AND SURGERY.

CINCINNATI, OHIO.

The forty-sixth year of college instruction begins Oct. 1, 1896, and continues until April 14, 1897. It has a faculty of twelve professors, four demonstrators, and nineteen assistants. The course of study, requirements for admission, advanced standing, and graduation are those indicated by the American Medical College Association, of which organization this school is one of the original members.

Facilities for didactic instruction, clinic observation and laboratory work are in accord with the best medical schools of this country. The college is coeducational for the sexes, sitting and study rooms are conveniently arranged.

The hospital advantages afforded medical students in Cincinnati are unexcelled. Nearly every professor in the Cincinnati College of Medicine and Surgery holds a hospital staff position.

S. C. Ayers, A.M., M.D., Dean; W. E. Lewis, M.D., Secretary.

CLEVELAND COLLEGE OF PHYSICIANS AND SURGEONS.

MEDICAL DEPARTMENT OF THE OHIO WESLEYAN UNIVERSITY, CLEVELAND, OHIO.

Formerly Medical Department of the University of Wooster.

The course of instruction is four years with terms of eight months each. The fees are $100 for each separate year for general and hospital ticket. Matriculation and examination fee $10 annually extra. In addition thereto a laboratory deposit of $20 is charged to cover cost of material, a portion of which is returnable to the student in case material to that amount is not used.

The first two years of instruction in this school is devoted entirely to the primary branches, much of which is taught by the laboratory method, requiring of the student individual work. The last two years are largely clinic, the student spending most of his time at the Cleveland General Hospital, the medical management and direction of which is exclusively under the faculty.

It will be observed from the foregoing statement that the first two years of student life are devoted to such work as will fit him for a clear comprehension of the advanced work, and that the last two years are eminently practical, fitting him especially for assuming the duties of active professional life.

H. W. Rogers, M.D., Secretary.

LAURA MEMORIAL WOMAN'S MEDICAL COLLEGE.

CINCINNATI OHIO.

With the session of 1895-96, the college adopted the four-years' graded course.

The sessions are of seven months each, beginning the last Tuesday in September, and ending the last Thursday in April. The college with the hospital adjoining, is complete in all departments, the laboratories being newly and fully equipped. The clinic advantages include the large and varied clinics of the Cincinnati Hospital, the Presbyterian Hospital, the College dispensary, the eye clinics in Prof. Holmes' Ophthalmic Hospital, and the obstetrical cases of the Maternity Society, under Prof. Stewart.

The fees are: Matriculation $5; general fee (paid annually) $50; the practical anatomy and laboratory fees $10 each; Cincinnati Hospital ticket (for third and fourth years' classes) $5; graduation fee $25.

J. M. Withrow, M.D., Dean.

S. E. Allen, M.D., Secretary.

MEDICAL COLLEGE OF OHIO.

CINCINNATI, OHIO.

The Medical College of Ohio, now the Medical Department of the University of Cincinnati, is the oldest medical school west of the Alleghenies, having been founded in 1819. Four courses of lectures are required. Fees $100 per annum. With the beginning of the session of 1896-97 the college will be in its new location on McMicken Avenue, and in newly erected buildings. Its chemic, histologic, pathologic and bacteriologic laboratories are newly and thoroughly equipped. The large college dispensary with the Cincinnati Good Samaritan and Ohio Maternity Hospitals afford abundant clinic material.

Jas. G. Hyndman, M.D., Secretary; W. W. Seely, A.M., M.D., Dean.

MIAMI MEDICAL COLLEGE.

CINCINNATI, OHIO.

It requires the four-years' graded course. The session begins Oct. 1, and ends April 1. The fees are, matriculation $5; tuition (annually) $100. This includes all laboratory tickets and dissections. Graduation $25; hospital ticket $5.

In addition to the regular didactic and laboratory courses exceptional clinic advantages are possessed. The Ophthalmic Hospital building has been leased for the daily out-door college clinics, which have an average daily attendance of 200 cases, and ten members of the faculty give bedside instruction in the wards of the Cincinnati Hospital in medicine, surgery, obstetrics, gynecology, ophthalmology and otology in addition to the clinic lectures given in the amphitheater of that institution. This hospital admits 5,300 cases yearly, is within half a block of the college,

and the college hours accommodate themselves to the hospital clinics.

N. P. Dandridge, M.D., Dean.

OHIO MEDICAL UNIVERSITY.

COLUMBUS, OHIO.

The University comprises the departments of medicine, dentistry, pharmacy and midwifery; each department having its own faculty and separate apartments for general class work.

The main building is a fine structure, specially planned and erected for University purposes. A new four-story building is used solely for laboratory purposes. There are two amphitheaters, ten recitation rooms, twelve laboratories, dental operating rooms, library, museum, and free dispensary rooms.

The plan of instruction is by assigned topics and recitations and clinic lectures. Hospital facilities are provided by the Protestant and University Hospitals, which place all their clinic material at the disposal of the University staff for the purposes of clinic instruction, the Ohio Penitentiary, the Columbus State Hospital and free Dispensary.

The combined Faculty consists of fifty-four professors, instructors and adjuncts.

Length of term, seven months; fees $50 in each department. Medical department, member of National Association of American Medical Colleges. Dental department has been recommended by the council of National Association of Dental Faculties for membership.

The University has adopted the *four-years' course*, giving separate instruction in each year.

G. M. Waters, A.M., M.D., Dean; J. U. Barnhill, A.M., M.D., Secretary.

STARLING MEDICAL COLLEGE.

COLUMBUS, OHIO.

The fiftieth annual session of Starling Medical College, Columbus, Ohio, opened on August 19, 1894. The college is one of the oldest in the State, and has a fine building, with all the modern equipments. Its hospital facilities are of the best, material being supplied from the two largest hospitals in the city, one being in the college building. Students are required to study cases at the bedside, and instructed in physical diagnosis.

Information as to terms can be had by addressing Thos. C. Hoover, M.D., Registrar.

TOLEDO MEDICAL COLLEGE.

TOLEDO, OHIO.

The sixteenth annual session will begin October 1, in its splendidly equipped new college building, and continue six months. The school requires four years' attendance for graduation. The clinic facilities are excellent. There is no other medical college in the city, and it has the active support of the profession, not only of the city, but of the northern part of the State. It has the entire material furnished by two large general and one lying-in hospital. The fees are as follows:

Matriculation, to be paid but once, $5; professors' tickets, for each session, $50; practical anatomy ticket, including material, each course, $10; chemic laboratory, $5; microscopy and bacteriologic laboratory, $10; hospital tickets (obligatory), $5; graduation fee, $25.

For $175 paid in advance, a perpetual ticket (not transferable) will be issued, which will entitle the holder to attend four or more courses of regular lectures.

J. H. Pooley, M. D., Dean. Wm. J. Gillette, M.D., Secretary.

WESTERN RESERVE UNIVERSITY, MEDICAL DEPARTMENT.

CLEVELAND, OHIO.

Presents a three-years' graded course, each year a term of eight months. Instruction by recitations, lectures, clinics, quizzes and practical training. Ample laboratory, dispensary and hospital facilities and equipments are provided for all students. Tickets for year, $100; tickets for whole course, $250. Special courses as desired, and advanced students given standing according to assured acquirements. Year begins middle of September.

G. C. Ashmun, M. D., Registrar.

UNIVERSITY OF OREGON, MEDICAL DEPARTMENT.

PORTLAND, ORE.

The medical department of the University of Oregon is located at Portland, Oregon, a city of nearly 100,000 inhabitants, where the excellent facilities afforded by Good Samaritan, St. Vincent's and Multnomah County Hospitals offer advantages for clinic instruction equal to those of many cities of much larger size because of the very large extent of territory from which patients are drawn. This school is a member of the Association of American Medical Colleges, requires advanced matriculation examination, four courses of lectures of six months each, practical work in clinics, anatomy, chemistry, bacteriology, etc. Its courses are graded. examinations being held at end of each year for advanced grading. Fees are graded according to time of attendance: Matriculation, $5; first year, $130; second year, $130; third year, $100; fourth year, free; examination fee, $30.

S. E. Josephi, M. D., Dean.

Curtis C. Strong, M. D., Secretary.

WILLAMETTE UNIVERSITY OF OREGON, MEDICAL DEPARTMENT.

SALEM, ORE.

This college is permanently located at the capital of the State, and is now entering upon its thirty-first year. The course of instruction continues through four years, in accordance with the highest and best standard of modern advancement.

The regular course of instruction will begin September 29, 1896, and continue six months. The school is conducted in entire harmony with the Association of American Medical Colleges, adhering strictly to the requirements of that association.

Fees: First year, matriculation, $5; lectures, $130; second year, lectures, $130; third year, lectures, $100; fourth year, lectures, $20; examination fee, $30. The medical faculty of the college have entire and exclusive control of the Salem Hospital, insuring to the students all clinic advantages that can reasonably be procured from such sources.

J. Reynolds, M. D., Dean.

W. H. Byrd, M. D., Secretary.

UNIVERSITY OF PENNSYLVANIA, DEPARTMENT OF MEDICINE.

PHILADELPHIA, PA.

Founded in 1765. The course of instruction extends over four years, with one session beginning October 1 and ending on the second Thursday of

June in each year. The tuition fee admitting the student to all the lectures and including all the laboratory work, dissection, etc., is $200 per annum. The instruction is conducted in the Medical Hall, the Laboratory Building, the Hospital of the University, Maternity Pavilions, Wistar Institute of Anatomy and Biology, and the Laboratory of Hygiene. Practical work in the various laboratories is part of the curriculum and is required of every student. Attendance on the clinic instruction given in the amphitheater as well as bedside instruction in the wards of the University Hospital is a part of the daily duty of the students.

John Marshall, M. D., Dean.

JEFFERSON MEDICAL COLLEGE.

PHILADELPHIA, PA.

A graded four years' curriculum in college is required of those who take the medical degree.

The matriculation fee is paid but once; the annual ticket is $150; no diploma fee.

Beside the medical hall and the old laboratory building, this fall there will be opened the new pathologic and bacteriologic laboratories equipped at heavy outlay. The college hospital provides a wealth of clinic material unequaled in America. It has 140 beds and in the out-patient departments over 300 cases are treated daily. In the maternity department there were 159 obstetric cases and 2,385 visits. Each student had bedside instruction in midwifery. With these facilities it is possible to train the student in all the branches of medicine.

J. W. Holland, M.D., Dean.

MEDICO-CHIRURGICAL COLLEGE.

PHILADELPHIA, PA.

The session at the college opens October 1, and continues until April 26, when examinations begin. It contains laboratories for physiology, chemistry, pathology, hygiene, experimental therapeutics, histology and pharmacy.

Free quizzing at this college is one of its characteristics. Quizzing is done by the professors and instructors.

Its course consists of three years and is of a very practical nature. During the coming session it will have a new clinic amphitheater with a seating capacity of 600. It equals if not surpasses any clinic amphitheater now in existence in its arrangement so as to meet the demands of modern efficient clinic teaching.

The new hospital contains 150 beds. The fees for the tickets are $120 for each year.

All communications should be addressed to Isaac Ott, M.D., Dean, Medico-Chirurgical College, Philadelphia.

PHILADELPHIA POLYCLINIC AND COLLEGE FOR GRADUATES IN MEDICINE.

PHILADELPHIA, PA.

It was organized in 1882 to give practical instruction to graduates only. It has a Faculty of thirty-two professors, assisted by forty-four lecturers, adjunct professors and instructors.

The hospital is fully equipped for purposes of treatment and teaching. There are two dispensary floors, clinic amphitheater, operating and sterilizing suites. There is a five-story laboratory building connected with the hospital, containing necropsy and dissecting rooms, surgical, chemic, pathologic, bacteriologic and neurologic laboratories, all of which are fully equipped with the latest improved apparatus and offer every facility for original research.

Courses may begin at any date. The situation of the hospital is almost equi-distant from the University of Pennsylvania, the Jefferson Medical College, and the Medico-Chirurgical College, and near to the Children's, Rush Consumption, Wills Eye and Orthopedic Hospitals

A general ticket entitling the student to attend all the clinic departments is issued for one week at $20, six weeks for $90, three months for $150, and one year for $350. In all cases an extra fee is charged for any laboratory course.

S. Solis-Cohen, M.D., President. Max J. Stern, M.D., Secretary.

WESTERN PENNSYLVANIA MEDICAL COLLEGE.

PITTSBURG, PA.

The regular session begins third Tuesday in September and continues six months. During this session, in addition to four didactic lectures, two or three hours are daily allotted to clinic instruction. Attendance upon four regular courses of lectures is requisite for graduation. A four years' graded course is provided. The spring session embraces recitations, clinic lectures and exercises, and didactic lectures on special subjects; this session begins the second Tuesday in April and continues ten weeks.

The laboratories are open during the collegiate year for instruction in chemistry, microscopy, practical demonstrations in medical and surgical pathology, and lessons in normal histology. Special importance attaches to "the superior clinic advantages possessed by this college."

For particulars address Prof. T. M. T. McKennan, Secretary.

WOMAN'S MEDICAL COLLEGE OF PENNSYLVANIA.

PHILADELPHIA, PA.

The course is four years with an entrance examination in English, physics, arithmetic and Latin. The following laboratories furnish thorough practical instruction: histologic and embryologic, chemic, physiologic, anatomic, bacteriologic, pathologic and pharmaceutic. The instruction in hygiene is supplemented by laboratory work and there is a department for attendance on cases of confinement. Bedside instruction to small sections of the class is given by the physician in charge of the Woman's Hospital and clinic professors and instructors in this and other hospitals. The total expenses including the graduation fee are $516.

For further information address Dr. Ruth Webster Lathrop, Sub-Dean, Philadelphia, Pa.

MEDICAL COLLEGE OF SOUTH CAROLINA.

CHARLESTON, S. C.

Three years' graded course; good hospital advantages; well equipped chemic, pathologic and bacteriologic laboratories; modern dissecting room; excellent teaching facilities and ample clinic material. Every facility afforded for a thorough course of instruction by lectures, demonstrations, quizzes, laboratory work and frequent clinic. Lectures begin Oct. 6, 1896. Commencement exercises April 1, 1897.

Fees: First year matriculation $5, lectures $100, laboratory fee $5; second year lectures $100, laboratory fee $5; third year lectures $80, laboratory fee $5. No further charge for dissecting and hospital ticket, or diploma fee.

College of Pharmacy two years' course, fees, first year $45; second year $80. Women admitted to medical and pharmaceutic courses. For catalogue and other information address Francis L. Parker, M.D., Dean.

CHATTANOOGA MEDICAL COLLEGE.

MEDICAL DEPARTMENT OF GRANT UNIVERSITY.

Splendid new college building, largest and most elaborate in the entire South, into which the school has just moved prior to opening its eighth annual session.

Six hospital laboratories, abundant material for dissection and excellent general equipment. Six months' term and three years' graded course. Requirements those of the Southern Medical College Association. Tuition fees average about $93 per annum. Large faculty covering every separate branch of medical instruction. Practical teaching and personal drill are special features. Climate delightful, board cheap, scenery picturesque, city healthy—a resort for invalids from everywhere, and shows lowest mortality of any neighboring city.

E. A. Cobleigh, M.D., Dean; J. R. Rathmell, Secretary.

MEDICAL DEPARTMENT UNIVERSITY OF TENNESSEE.

NASHVILLE, TENN.

The Medical Department of the University of Tennessee was founded as the Nashville Medical College in 1876 and became in 1879 connected with the University of Tennessee. The curriculum of study extends over three courses of lectures with special laboratory courses. It has now connected with it thirteen professors, nine instructors and six demonstrators. Among its professors may be mentioned Prof. Paul F. Eve and W. K. Bowling. Its sessions occur from October through March of each year.

Paul F. Eve, M.D., Dean.

MEMPHIS HOSPITAL MEDICAL COLLEGE.

MEMPHIS, TENN.

It is a member of the Southern Medical College Association, three terms of six months each being required for graduation. The school enjoys excellent clinic advantages with material obtained from the city hospital, St. Joseph's Hospital and its own free dispensary, where several thousand applicants receive treatment yearly. The college is well equipped with laboratories for microscopic and chemic work under the charge of a corps of experienced instructors. The Faculty is composed of some of the ablest men in the South, all being men of large experience in the teaching of their general branches. The fees for instruction are $75 per course; graduation fee $25, returnable in case applicant fail or does not apply for examination.

W. B. Rogers, M.D., Dean.

SEWANEE MEDICAL COLLEGE, UNIVERSITY OF THE SOUTH.

SEWANEE, TENN.

The college is now in session, with a fair class. Its regular course opens about July 1, and continues six months.

The pride of the school consists in its thorough course in the principles of the various departments of medicine and its excellent laboratory facilities.

It is a member of and governed by the laws of the "Southern Medical College Association" except in requirements for matriculation; its standard is with the highest.

It has been demonstrated that the summer and fall seasons in this elevated mountain retreat, offer rare facilities for the successful study of medicine.

The expenses of attending the school are quite moderate.

J. S. Cain, M.D., Dean.

TENNESSEE MEDICAL COLLEGE.

KNOXVILLE, TENN.

Was one of the first in the South to extend the regular course to six months, and to require attendance upon three courses of lectures as an essential for graduation; its great success is a source of special satisfaction to the friends of the school. Knoxville, with its suburbs, has about 50,000 inhabitants.

A hospital on the college grounds, costing $30,000, was completed in 1895. Fees for each course $65, or for the three courses a perpetual ticket is provided at a cost of $150. This includes everything except graduation fee of $25.

J. C. Cawood, M.D., Dean.

UNIVERSITY COLLEGE OF MEDICINE.

RICHMOND, VA.

The University College of Medicine was organized and chartered with the three independent departments of medicine, dentistry and pharmacy, Dr. Hunter McGuire President of the combined faculties.

The course of study comprises three sessions of seven months each. Tuition fees $100 with no extras. The professors and instructors number forty-eight and constitute the medical and surgical staff of the Virginia Hospital and Richmond Eye, Ear and Throat Infirmary. Students also have the clinic advantages of the City Almshouse Hospital. The arrangements for obstetric service are ample, and every student receives personal instruction in all the clinics.

The college buildings are large and were erected for their special purposes, containing fifteen separate apartments designed to meet the requirements of didactic instruction with practical laboratory work so essential to a modern scientific training.

There were 239 matriculates during the last session

Hunter McGuire, M.D., LL.D., President.

Paulus A. Irving, M.D., Secretary.

THE UNIVERSITY OF VIRGINIA, MEDICAL DEPARTMENT.

CHARLOTTESVILLE, VA.

The session begins the 15th of September and continues without intermission for nine months. The course is graded and extends over three years, chemistry, histology, bacteriology, and human anatomy being taken up for the first session; physiology, pathology, materia medica, and obstetrics for the second; and the remaining studies in the medical curriculum for the third. Optional courses are also offered in embryology, practical pharmacy, and toxicology.

The University fees including tuition, matriculation, laboratory and diploma fees are for the first year $160, for the second year $140, and for the third year $100. These cover all charges for anatomic and laboratory materials.

The characteristic features of the school are the extreme thoroughness of the teaching, the ample practical courses in human anatomy, histology and bacteriology, and the carefully conducted clinics given at the free dispensary operated by the University. Each student not only hears the lectures but comes

under the individual instruction of the professor. This is especially important for the laboratory and clinic courses. In addition to the clinics at the dispensary, those at the Piedmont Hospital in Charlottesville are utilized.

Under the laws of the University, each professor charged with the duties of instruction is required to give his whole time to the collegiate work, and hence the courses are of unusual thoroughness.

Wm. M. Thornton, LL.D., Chairman of Faculty.

UNIVERSITY OF VERMONT, MEDICAL DEPARTMENT.

BURLINGTON, VT.

The thirty-fourth annual course of lectures will begin in January and continue six months, ending in July.

This extension of the term will increase the scope of the instruction, and prove of great advantage to the student. The preliminary term has been abolished. No private courses by any of the professors will be tolerated by the faculty.

Instruction will be given in the following branches: Anatomy, physiology, chemistry, materia medica and therapeutics, practice, obstetrics, surgery, diseases of children, medical jurisprudence, neurology, ophthalmology and otology, gynecology, dermatology, venereal diseases, pathology and bacteriology, hygiene, sanitary science and examinations for life insurance.

Laboratory courses at this college in urinary analysis, histology, pathology and bacteriology, and practical work in physical diagnosis, surgery and demonstrative obstetrics, are now compulsory.

The instruction is given by scholastic and clinic lectures, by recitations and by practical manipulations by the student.

The clinic advantages are in many respects unsurpassed.

For further information address A. P. Grinnell, M.D., Dean.

WISCONSIN COLLEGE OF PHYSICIANS AND SURGEONS.

MILWAUKEE, WIS.

The fourth annual course of lectures will begin September 22. The length of the course is twenty-seven weeks, exclusive of the holiday vacation, the term ending on April 5, 1897.

This institution adopted the four-year course in 1895, and all students matriculating this year and hereafter will be required to spend four years in college work, unless their previous studies have entitled them to apply for advanced standing.

The fees for the course, including laboratory and lecture fees, and anatomic material, are $95.

Clinic cases are furnished by the Presbyterian Hospital, which is in the exclusive control of the faculty of the college, and by the College Free Dispensary.

W. H. Washburn, M. D., Secretary.

Caroid.—A vegetable digestive ferment, derived from the plant known as *carica papaya*, or "paw-paw" (not the indigenous plant but an exotic found growing wild in Polynesia and now cultivated in most tropical countries). Caroid is a concentrated extract of the juices of the plant, made by cold methods, thus preserving the ferment in all its strength and freshness. Its action, contrary to that of pepsin, on the one hand, which acts only in acid media, and of diastase, pancreatin, etc., on the other, which act only in alkalin media, is equally good in both acid and alkalin fluids. The dose is from 2½ to 5 grains.—*Nat. Druggist*, September.

GONORRHEAL CONJUNCTIVITIS; ITS TREATMENT.

Read in the Section on Ophthalmology at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

BY LOUIS J. LAUTENBACH, A.M., M.D., PH.D.

Surgeon to the Pennsylvania Eye and Ear Infirmary; Nose and Throat Physician to the Odd Fellows' Home; late Chief of the Eye Clinic of the German Hospital, etc.

PHILADELPHIA, PA.

Conjunctival diseases are among the most frequent of eye affections, but each year as the general practitioner's special knowledge increases, he undertakes more and more the treatment of the inflammatory eye affections, especially of the appendices of the eye, and, in consequence, the specialist sees less and less of these troubles, except when present in an aggravated form. The study of conjunctival diseases is not only important in relation to their treatment but as they are very often symptomatic of other local or general conditions it is especially necessary to have a most intimate knowledge of their various aspects. Again their seriousness is not so much *per se* as in a weakening of the surrounding structures, thus giving rise to secondary inflammatory conditions.

Of these conjunctival inflammations there are several which are specific or general in their origin, bearing a marked resemblance to each other which can be traced not only in their origin but in their course and treatment as well. I refer especially to the diphtheritic, epidemic, gonorrheal, blennorrheic and trachomatous forms of conjunctivitis. All are occasioned by a specific germ and therefore all are contagious, all except the latter appear as localized epidemics, and formerly this was present often as an acute epidemic; all are of an acute type and rapid in their progress, all extend rapidly to various adjoining structures, especially to the cornea, tending only too often to the production of most serious lesions. In fact, blindness as a result of these specific inflammations is only too prevalent. This entire class of inflammations should be directly under the supervision of the State. A move in the right direction has been the passage of laws for the reporting and proper treatment of cases of ophthalmia of the newborn, which have now been passed by the legislative bodies of numerous States.

Blennorrheic conjunctivitis, the ophthalmia of the newborn and the gonorrheal conjunctivitis of the adult, are in many ways the most important and serious of eye inflammations, causing more than one-tenth of all the existing blindness, and in addition, occasioning partial loss of sight in twice as many. While the gonorrheal form is less common than ophthalmia neonatorum, it is not the less virulent and its results are often more serious. Some years ago I was assured by a member of the staff of a prominent general hospital that up to that time no case of gonorrheal conjunctivis had left the institution without having lost the sight of one or both eyes. So serious were these cases looked upon in the immediate past that many institutions refused to receive them, basing their refusal both on its contagiousness and its origin; undoubtedly the bad results obtained had some weight in occasioning such a decision.

The ill results following a case of gonorrheal conjunctivitis can usually be attributed either to the usual indisposition of the patient to admit the cause of his trouble or his want of knowledge thereof, occasioning the consequent delay of treatment; second,

the rapid progress of the disease with the consequent swelling of all the tissues in and about the eye, occasioning destruction of important eye structures by pressure and interference with the circulation and nutrition of the parts; third, a want of thorough cleansing; fourth, a want of proper treatment.

The first of these is sufficiently familiar. How often do we see these cases progressing even to the pustular stage without application for treatment having been made, either because the patient did not recognize the ailment, or recognizing it, hoped to conceal it. In this way considerable mischief is often done before aid is sought. The seriousness of the disease is occasioned more by neglect of prompt treatment than aught else; a day lost may mean the loss of the sight. The public generally should understand that in eye diseases a stitch in time saves not only nine, but sometimes a whole lifetime of darkness.

The rapid progress of the disease, extending within two or three days through the infiltration stage with distended lids and chemotic conjunctiva into the pustular one with sometimes, almost simultaneously, ulceration and breaking down of the cornea, is unfortunately too frequent. To one unaccustomed to such cases or not having a true realization of their violence and virulence, the progress may be so rapid that serious results are produced without sufficient effort having been made to avoid them. In these cases the rapidity of the disease should be anticipated and guarded against by appropriate advice and treatment.

The need of thorough cleanliness is apparent, but the method of its accomplishment may not be so clear. Cleanliness in such cases means the effective removal of all discharges on the conjunctiva and in the folds thereof, and the decomposition and removal of all discharges and gonococci which may lie in the various minute fissures and crevices between the epithelial cells of the superficial layers. In these cases the cleanliness must be considered part of the treatment, and usually is the most important part. Many will recover without other treatment, whereas, local applications without cleanliness will often avail nothing; it is the one essential to be adhered to religiously.

To thoroughly cleanse an eye the seat of a gonorrheal inflammation is often no easy task. The swollen lids with the tenderness and photophobia make it peculiarly difficult, and when there is maceration or ulceration of the cornea it is yet more so, as there may be the added danger of bursting the ball by the necessary manipulations.

I will outline the method which in my work I follow as rigidly as circumstances will allow. I first wipe off the lids and any discharge which appears between them with a piece of absorbent cotton saturated with a 3 per cent. solution of peroxid of hydrogen. I invariably use the Oakland peroxid on account of its comparative purity and freedom from acidity. I then instill between the lids, with a pipette, about twenty or thirty drops of the same solution and continue this until there is little or no bubbling. I then evert the upper lid and instill into the opened palpebral folds more peroxid, and then wipe the parts with absorbent cotton wet with the solution. I then treat the lower lid in the same way, being sure to thoroughly cleanse the cul-de-sac. I replace the lids and gently rub the ball at all parts of the lids, with the finger tips. I then take a saturated solution of boric acid and repeat with it all the manipulations described above, doing this very thoroughly and using the solution liberally.

The peroxid cleanses the surface and serves to destroy any diseased conjunctival epithelium and penetrates the crevices and interspaces where the pus and gonococci have collected and decomposes these masses, bringing the detritus to the surface. Allowing the peroxid to lie in contact with these diseased structures for a few minutes serves to so thoroughly decompose them that they are readily removed by the subsequent washing with the boric acid solution. This solution not only washes off the foreign matters but also relieves the burning sensation of the peroxid and while soothing the eye serves to produce a healing effect upon the ragged but healthy epithelial cells. In addition to this personal cleansing of the eye which I insist upon doing at least once or twice a day, the patient is to have his eye thoroughly cleansed by the nurse with a saturated solution of boric acid at least every hour and in some cases every half hour. If the swollen condition of the lids renders this cleansing difficult, the severity of the disease makes it only the more imperative.

It seems evident that no treatment can exercise its normal effect without the thorough cleansing above described. These cases are of such a nature that the neglect must be eliminated—the treatment must be most vigorous and thorough.

The local medicament of most value in these cases is undoubtedly the solution of nitrate of silver. In all the germ diseases of the conjunctiva its use is invaluable. I use it of a strength of from 10 to 60 grains to the ounce—the more severe and active the inflammation, the stronger the solution. It is to be applied thoroughly with a cotton wound probe (never with a brush) over the palpebral conjunctiva, carried into the cul-de-sac and then to the ocular conjunctiva, carefully avoiding the cornea. This application is to be made by the physician once or twice a day as necessary and is to be followed by the instillation of 4 or 5 drops of castor or olive oil which eases the pain and lessens the friction of the roughened and diseased conjunctival surfaces. In addition to this personal application, a one or two grains to the ounce solution of nitrate of silver is to be instilled into the eye by the nurse from two to four times a day, invariably after washing with the boric acid solution. If the cornea be ulcerated, the treatment is to be as thorough as is consistent with safety, avoiding the use of the strong nitrate solution on the cornea or its accidental access thereto.

If chemosis be present, I invariably incise the conjunctiva in numerous deep lines radiating from the cornea so that the subconjunctival infiltration may gradually find vent and thus afford sufficient room for the natural increase in the amount of the exudate, and at the same time by decreasing the tension, lessen the abnormal pressure on the corneal border.

In addition to the above, I use ice bags and iced cloths whenever the inflammation is peculiarly virulent, or there is very much swelling of the lid or chemosis, and use atropia or eserin locally whenever I have corneal involvement, the choice depending upon the tension of the ball as well as the location and extent of the ulceration and the general constitutional peculiarity of the patient; in those inclined to rheumatism, all other things being equal, I always prefer to use eserin. I have also found ice to be invaluable in the early stages of corneal involvement,

when the cornea first appears hazy. In fact in all corneal inflammations I have found the use of ice peculiarly beneficial in preventing the disorganization of this tissue.

A matter which I have not touched upon but which is of supreme importance, is the prevention of the disease attacking the sound eye. This is accomplished by thorough attention to the affected eye, which I hope I have fully explained, and preventing the discharge of the diseased eye from infecting the sound one. This is attempted by many by closing the healthy eye with a watch glass or adhesive plaster, carefully applied. I formerly built a dam of shoemaker's wax upon the bridge of the patient's nose, carrying it well down toward the tip and up on the forehead, directing the patient never to lie upon the unaffected side. While still occasionally using this method, I rely more on the bandaging of the sound eye and its regular daily cleansing by the physician before he treats the affected one. The cleansing is that outlined above, consisting first of the use of a 3 per cent. peroxid of hydrogen solution followed by thorough cleansing with a saturated solution of boric acid, then drying the eye and covering it thoroughly with a roller bandage, first dressing the eye with absorbent cotton covered with waxed paper.

By this method of bandaging, even though the discharges soak into the bandages, the waxed paper prevents their access to the eye, and should the germs surmount this barrier they will be absorbed by the cotton wad, which is an efficient sterilizer, and even though it were possible to penetrate through this they will meet a closed eye, which they can not enter. Another advantage of the bandaging is the rest given the healthy eye, thus preventing excessive motion in the diseased eye, and it will be found that corneal involvement will be more rare, and when it occurs it will be less severe.

In a few words the treatment can be summed up as rigid cleanliness carried to the extent of destroying and removing the gonococci and all the broken down cells, with sufficient stimulation afterward to increase the normal cellular activity, stimulating thus the reparative processes, meeting the complications as they arise, promptly and vigorously. The treatment of the unaffected eye to consist of rigid cleanliness with slight stimulation, careful bandaging and exclusion of the discharges from the diseased eye.

THE USE OF CICATRICIAL SKIN FLAPS IN THE OPERATION FOR ECTROPION OF THE UPPER LID.

Read in the Section on Ophthalmology, at the Forty-seventh Annual Meeting of the American Medical Association at Atlanta, Georgia, May 5-8, 1896.

BY F. C. HOTZ, M.D.

CHICAGO.

In my paper on skin grafting read last year at our meeting in Baltimore, I pointed out the superiority of Thiersch's skin grafts over the thick skin flaps usually employed in the operations for ectropion of the upper lid. I said, "occasionally, however, the skin flaps taken from the vicinity of the everted lid possess all the conditions necessary for a perfect cosmetic result." I had in mind the thin, glistening cicatricial skin which usually covers the vicinity of the everted upper lid. In several cases where the eyebrows had been destroyed to such an extent that a large flap could be cut from this cicatricial skin above the lid, I used such skin flaps as a substitute for the lost lid skin, and found that, contrary to the general belief, these flaps could be transplanted as successfully as the flaps of normal skin, and that their use has



FIGURE 1.

several decided advantages over all other methods of transplantation.



FIGURE 2.

For these reasons I wish to report a case in which a cicatricial skin flap was used: In January, 1889, a boy 14 years old was admitted to the Illinois Charitable Eye and Ear Infirmary to be relieved of complete ectropion of the upper lid of the left eye and lower lids of both eyes, the result of extensive caries

of the orbital margins, when the boy was 4 years oldl

As the operations on the lower lids have no specia. interest, it is sufficient to state their reposition was accomplished by the well-known V-shaped incision combined with Arlt's operation for shortening the overstretched lid border.

The border of the everted upper lid of the left eye was drawn up and fixed to the temporal portion of the supraorbital margin, and above it a large stretch of cicatricial skin extended far into the frontal and temporal region (indicated by the dotted area of the pictures). The temporal half of the eyebrows had been destroyed, and their absence made the following operation feasible:

From a point (Fig. 3, *a*) near the inner canthus an incision was carried obliquely upward past the end of the eyebrows, well up into the cicatricial skin above

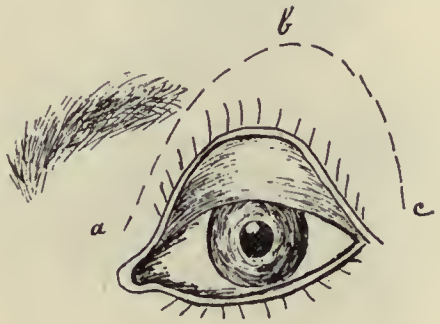


FIGURE 3.

the supraorbital margin, and then continued at a considerable distance from the lid border in a curved line downward to a point (*c*) about six millimeters from the external canthus. The large skin flap (*abc*) mapped out by this incision was carefully dissected from the underlying scar tissue down to the lid border, with which it was left connected. The lid, then, was released from all cicatricial adhesions and replaced in its normal position.

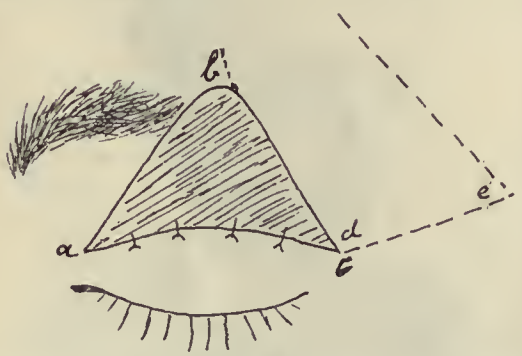


FIGURE 4.

The cicatricial skin flap (*abc*) shrank considerably as soon as it was detached from its basis; but in anticipation of this contraction, it had been cut so large that, after shrinking, it was still sufficient to cover the whole lid. It was spread out over this surface and its margin (*ac*) fixed to the upper border of the tarsal cartilage by four silk sutures.

The large wound (*abc*) above the lid was covered by sliding into it a skin flap (Fig. 4, *bde*) from the temporal region, its margin *bd* being united with *ab*, and *de* with the margin *ac* of the new lid skin. This flap also contained a great deal of scar tissue. The small wound remaining at the temporal side of the transplanted flap was left to heal by granulation.

The healing was uneventful, and the accompanying picture (Fig. 2), taken five months after the operation, shows the excellent result of this procedure.

This operation supplies the replaced lid with a thin and light skin which adapts itself nicely to the configuration of the lid and does not restrict its movements. In this respect it is fully equal to the Thiersch grafting, over which, however, it has the advantage that the lid need not be rendered immobile by sutures or ligatures for a number of days.

But the most important advantage of this operation lies in the fixation of the new lid skin to the tarsal

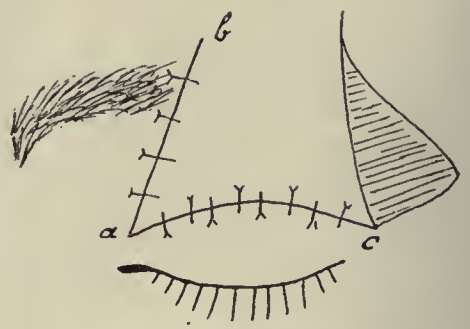


FIG. 5.—Operation completed.

cartilage. This fixation renders the lid skin independent of all tissue changes which may take place in the supratarsal region. No amount of shrinkage of the transplanted flap in this region can cause a reëversion of the lid, because the firm union of the lid skin with the upper border of the tarsal cartilage makes it absolutely impossible that the contraction of the supratarsal tissues could affect the lid skin and the lid border.

MALIGNANT DISEASE OF THE NASAL CAVITY SHOWING THE VALUE OF EARLY DIAGNOSIS.

Read in the Section on Laryngology and Otology at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5–8, 1896.

BY J. H. SHORTER, M.D.

MACON, GA.

I will mention briefly a case of what proved to be malignant tumor of the interior of the nose, to show what differences of opinion as to diagnosis, there may be among competent men.

It was the case of a gentleman, sent to me from Milledgeville, Ga., about a year ago. He complained of a lump on the side of his neck under the jaw, and a feeling of obstruction in the left nostril.

I found a large polypoid growth in the upper part of the left nasal cavity, which I presume sprang from the ethmoid, and which I thought presented the appearance of malignancy. I removed a large piece, examined it, and also had it examined by a competent microscopist, who pronounced it a carcinoma. I informed the patient's family physician of the confirmation of my opinion, and recommended an immediate operation, as the only hope of relief, though I did not think the growth could be radically removed without resection of the superior maxilla.

I did not see the patient again. The family became very much alarmed after my diagnosis, and sent him to a specialist well known throughout the South. This gentleman disagreed with my opinion, pronounced the trouble *syphilis*, and promised a speedy cure.

Notwithstanding vigorous medical treatment, he grew worse and began to lose flesh, and suffer great pain. I wrote and suggested that he go to some hospital, where he could have the best advantages. He then went to New York, consulted a well known surgeon, who had sections of the tumor made for microscopic examination. It was decided to be a fibroma and non-malignant. The surgeon removed the growth by section below the orbit, resecting the malar and part of the superior maxillary bones, promised the patient complete recovery and no recurrence of the disease.

On returning home, his physician wrote me as above. I replied that I sincerely hoped for favorable outcome, but much doubted it.

About three weeks later, the tumor reappeared, and the patient died at the expiration of three months with probable extension into the cranial cavity. There was headache, paralytic trouble, and great exophthalmus.

The diversity of opinion in this case appears to me as being unusual; one of the foremost men in the South pronounced it syphilis, another eminent surgeon of New York pronounced it non-malignant, both after careful examination, yet the patient succumbed promptly to what was evidently cancerous disease.

DISCUSSION.

Dr. D. Braden Kyle, Philadelphia—In regard to microscopic examinations as mentioned in Dr. Shorter's case, I find that it is not always possible to make a diagnosis from the tissue sent for examination, but if certain rules are followed the examination is of value. In a microscopic examination we must take into consideration the fibrous stroma, the blood vessel, and the cells, and their relations to each other. In the case reported I would like to know whether there was any ulceration of the tumor. In the mucous membranes, especially of the upper air passages in which there is very little connecting tissue element and where it lines a bony cavity, the small round cell (embryonic) of inflammation would resemble a sarcoma very much and if there was ulceration you would find the vessels beneath mere sluice-ways and lacking vessel walls, nothing more than an attempt at organization of the embryonic tissue, and not necessarily malignant, although resembling sarcoma. Such an eminent authority as J. Bland Sutton states that it is impossible to differentiate this condition from sarcoma. As carcinoma spreads by the lymphatics, has distinct and well outlined vessel walls, I do not understand how the mistake in diagnosis could be made.

SOME OBSERVATIONS MADE DURING THE TREATMENT OF CHRONIC CATARRHAL DEAFNESS.

Read in the Section on Laryngology and Otology, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5–8, 1896.

BY THOS. H. SHASTID, A.B., M.D.

GALESBURG, ILL.

The treatment of chronic catarrhal deafness may be considered under three heads: Treatment of the ear directly, attention to the throat and nose, attention to conditions of the body in general.

As regards treatment of the ear directly, I wish to speak only of intra-tympanic operations. As a way out of the confusion that seems to exist regarding the propriety of the application of these procedures, I have divided them for the purposes of my own practice into two well-defined classes. Into the first of these I have placed such procedures as, while of doubtful utility to the hearing, are of some, though slight, danger to life. These are the operations for the removal of one or more of the ossicles with or without part or all of the drum membrane, and mobilization of the stapes. These procedures, as much recorded (and perhaps much more unrecorded) experience goes to show, are often followed, even when performed under strict antiseptic precautions, by severe suppuration; and, as they do not very often produce a really valuable increase in the hearing power, I do not think that even total deafness can justify their employment. The second of the classes into which I divide intra-tympanic operations consists of single and multiple incision of the drum membrane, partial myringectomy, plicotomy, traction on the handle of the malleus, tenotomy of the tensor tympani. These operations are often productive of much good, seldom, if ever, of harm, and are moreover, when properly performed, entirely unattended with danger. Such procedures, even though by no means uniformly beneficial, are proper in cases in which they are not positively contraindicated and in which inflation and massage and treatment of the nose, throat and general system have not proved beneficial.

I report a case that possesses considerable interest from its bearing on the topic of intra-tympanic operations. A lady, aged 30, had been deaf from catarrh for several years. Inflation and massage and treatment of nose and throat conditions had produced no benefit. I, therefore, applied Lucæ's sound. The immediate result was gratifying. The hearing for both acoumeter and voice rose to nearly treble its former power. Within twenty-four hours, however, the patient returned as deaf as before. Again I applied the sound; again the result was brilliant; again the patient returned no better than before. Then I did a tenotomy of the tensor tympani, but without effect. At the end of twenty-four hours the patient returned and requested me to apply the sound again. This I did, with good result; but this time, and this is the point that is particularly worthy of note, the improvement was of comparatively long duration, lasting nearly three months. Encouraged by the measure of success in this case, I tenotomized the tensor in three other cases in which the pressure sound was productive of good but temporary results, but, so far as I could tell, without any effect whatever on the duration of the improvement. These four cases, taken together, impressed upon me the fact that the mechanical problem in cases of chronic catarrhal deafness, so far from being anything resembling a constant one, is of almost infinite variation, and that it is impossible to tell with certainty in advance whether a given operation will prove of benefit, but that in all cases of great severity and unamenable to other treatment, every intra-tympanic operation should be tried which offers a reasonable hope and which does not endanger either hearing or life.

While speaking of intra-tympanic operations, I desire to call attention to an improvement in the shaft and handle of instruments intended for such operations, which, though it was described in the "Archives of Otology" some three or four years ago, has not, I believe, received the general adoption it deserves. I refer to the shaft and handle of Dr. Barclay. In instruments mounted according to Dr. Barclay's idea the handle is joined to the operating shaft by a lateral shaft in such manner that the axis of the handle, prolonged forward, intersects the axis of the operating shaft

exactly at the operative extremity. I have had several instruments mounted in this manner, and find that it gives a precision and lightness of touch unattainable by any other means. I believe that Dr. Barclay's idea constitutes a real progress in otology.

Apropos of the effect upon the hearing of nasal and pharyngeal treatment, I urge the importance to the hearing, of vibration or massage of the nasal and pharyngeal mucous membranes when these structures are the seat of atrophy. The loss of hearing accompanying this throat and nose condition is not invariably slight, though it is usually asserted to be so, being in some cases great enough to interfere seriously with ordinary conversation. I believe that in these cases massage of the nose and throat mucous membrane, if persisted in for some time, will result in relieving a large proportion of them of a measure of their embarrassment. Such has been my experience, and I think that I have exercised reasonable care in the exclusion of other possible causes for the improvement. The only instrument that I have used has been Dr. Freudenthal's vibrator. I have seldom seen any improvement until the massage has been continued for a long time.

Under the head of attention to conditions of the body in general, I report a case in which the hearing was very powerfully affected by belladonna. A patient whom I was treating for chronic catarrhal deafness would, at irregular intervals, suffer a very considerable aggravation of his trouble. This would in a few days quite, or nearly, disappear, only to return in a few days more. The exacerbations were not accompanied by symptoms of cold, but by unusual dryness of the mucous membrane of the throat and nose. On inquiry I found that the patient was occasionally taking a purgative pill which contained, among other ingredients, a quarter of a grain of the extract of belladonna. Naturally associating the belladonna with the dryness, I directed the patient to observe whether or not his periods of increased deafness followed the use of the pill. He reported that they really followed its use. Then, in order to eliminate as possible sources of error the influence of suggestion and also of the various drugs which the pill contained other than the belladonna, I ordered a discontinuance of the pill and then each time the patient came to me I administered to him a tablet, sometimes a blank one, sometimes one containing a quarter of a grain of the extract of belladonna. Each time the tablet containing the belladonna was administered the patient suffered this aggravation, but at no time did he experience an increase in deafness after the administration of the blank tablet. It would seem that the deafening effect of the drug was exerted chiefly upon the middle ear; for the patient's ordinarily somewhat increased cranial perception was still further increased whenever he took the belladonna. I thought the increased difficulty in hearing arose from impairment of sound conduction due to inspissation of secretion among the tympanic folds and the ossicles.

Roentgen Ray Locates Bullet Through the Skull.—The last *Deutsche med. Woch.* (August 13) brings us actual photographs of the heads of a couple of Eulenburg's patients, in which the Roentgen ray discloses and locates a bullet inside the skull. The photograph was taken with the head of the patient resting on the plate holder, with the Crookes' tube about 24 c. above.

SOME RELATIONS OF CRIME TO INSANITY AND STATES OF MENTAL ENFEEBLEMENT.

Read in the Section on Neurology and Medical Jurisprudence at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5–8, 1896.

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Any study of penology should consider not only crime and its punishment, but should also investigate the mental and physical state of the criminal, his capacity and his needs. There are conditions both of body and mind either congenital or acquired which render a person dangerous to himself and others, and attempts to repress criminal acts and to protect society from their consequences and their repetition can never be in any great degree successful until we look in part to the individual and examine him as to his status as a man. With this end in view and especially in the case of the young, who are first offenders, the courts should place criminals in secure custody where they should be confined upon indeterminate sentences and undergo careful observation and training at the hands of men capable of judging just what corrective or remedial measures are needed and for what length of time the convict should be deprived of his liberty.

The anthropologic study of the criminal has of late years interested scholars and especially medical men, and there has been much written and much active discussion as to the relations the criminal bears to himself and to society. As medical men we are interested in the criminal himself; and not so much in the nature and character of crime and its punishment, except as incidentally it involves the study of the man. A great deal of stress has been laid upon marks of degeneracy in the criminal and while we admit the existence of many physical anomalies and mental obliquities among the inmates of our penal institutions we can not point to any one feature or group of peculiarities that necessarily stamps the subject as certainly belonging to the criminal class. To a large degree, however, these factors are useful to enable us to judge something of the probabilities which attach to a person's pursuing a criminal career and aid us in adopting reformatory methods, educational, disciplinary and therapeutic, by which we may combat and change inherent or acquired conditions. We can realize that a child with an excellent heredity and a healthy body and mind is more insured against a criminal career than one presenting all the stigmata of degeneracy. Society has greater natural safeguards in the one than in the other.

The two great determining influences for good or evil are heredity and environment. The medical aspect of crime is more concerned with the former, although the latter can not be disassociated from the question. Environment being susceptible to educational influences and removable, either in a degree or entirely, is more related to the province of the sociologist. It is probable that to environment must be credited the greater number of criminal acts, as the early teaching and training of the child influences largely his subsequent career. Hereditary defects follow closely as a causative factor in the genesis of crime. Out of 6,151 admissions to the Elmira Reformatory, insanity and epilepsy in progenitors were clearly present in 11 per cent. of the number and to this should be added a proportion, uncertain in quantity, wherein ances-

tral history in this respect was untrustworthy or not ascertainable. Drunkenness in ancestry was clearly traced in 38 per cent. and was doubtful in 12 per cent. more. Insanity, epilepsy and intemperance, therefore, appear to exert their potent influence upon those who become the inmates of penal institutions. Necessarily such prenatal conditions must produce degenerative conditions which are stamped upon the offspring. The question arises as to the treatment of such cases. Is it wisdom to determine that it shall be altogether punitive and retributive? It should be the purpose of the law to afford every opportunity for the correction of defective organization by reformatory methods. The physical and mental status of the criminal should be improved by industrial and educational means, the earlier the better, and by efforts directed toward the full develop-ment of bodily health. The complex influences of heredity and environment should not be considered as a mitigation of the crime nor should the fact that the criminal is often a degenerate person be urged in condonement of it. His condition modifies but does not expiate his fault. He should be confined as an exemplary measure but the commitment should still further direct that he should not be released until it was reasonably assured that he was morally, mentally and physically fit to be at large.

Out of the same number of admissions to Elmira before mentioned the physical health was reported as "debiliated, diseased and impaired," in 11 per cent. and the quality of the inmates' physical condition was found to be "low and coarse" in 30 per cent. The mental capacity was tabulated as "deficient or only fair" in 19 per cent. Out of 596 cases admitted in 1893 to the Eastern State Penitentiary of Pennsylvania, 20 per cent. was classified mentally as "dull, simple, very weak or bad." In addition to this, the age at which convictions are found is such that opportunity is offered in youths to effect reformatory results. Out of 1275 inmates of Sing Sing Prison, 42 per cent. were sentenced before the age of 25 years, and out of 6151 inmates of Elmira to which institution young offenders are especially committed, 90 per cent. were admitted between the ages of from 16 to 25 years. There is therefore in criminal anthropology much to engage the attention of the medical profession in connection with the subject of reformatory methods in relation to heredity, intemperance and crime. A further interest attaches to the resulting conditions of degeneracy and to repressive and eradicative measures which should lead either to the reformation or permanent sequestration of the individual. Many abnormalities of the cranium and of the body and its appendages have been described as peculiar to the population of our penal institutions. Asymmetry of the skull and head, of the body, anomalies of the ears, the teeth, the jaws, the palate and of the sexual organs are all indicative of prenatal influences which affect the individual adversely and relegate him to a place among the defective classes. The moral sensibilities are stifled or altogether wanting and the impressionability of the criminal in this direction is slight or absent in the great majority of cases. They are devoted to excitement through alcoholism, sexual excesses or perversions of the sexual instinct and to every form of pleasurable stimulation of the appetites and passions. All these influences tend to mold the physiognomy, which in the popular mind and in a general way is often an index to character.

A great deal of careful study has been expended by scientific men upon the physical characteristics of delinquent man. It appears to be established that among the great mass of criminals there does exist a defective physical and mental organization, an insensibility to moral influences and a predominance of degenerative and atavistic traits. Their instinctive faculties are often well developed and they have a large degree of cunning. Persons who are absolute idiots are not found among convicted criminals. The unfortunate condition of those who are thus affected prohibits them from being capable in the eyes of the law from the commission of crime, and they are not convicted. This condition, when pronounced, attracts attention in early life and invites care on the part of parents or guardians and such defective subjects are usually placed under proper restraint either at home or in custodial institutions. Their recognized place is in a school for feeble-minded children or in custodial asylums or homes. Neither are the insane as a rule found confined in prisons or in penal institutions; though insanity may be developed among those confined there. Many criminals, however, are on the borderlands of each condition. The higher the state of civilization the greater the differentiation between the grades of the defective classes and the more intelligent are the methods of care exercised in dealing with them. The aim in the education of the feeble-minded as well as of the deaf and dumb and blind is to render those so afflicted able to care for themselves in a measure and to relieve society in as large a degree as possible from the burden of their support. There are thus converted into productive units what otherwise, without training and care, would remain dangerous and troublesome factors. The care of the insane is based upon similar economic principles. In the treatment of criminals however measures are still adapted to punitive and retributive ends rather than to such as tend to promote the correction of inherited and acquired deficiencies by securing the reformation of the criminal. There are more reasons why the instinctive criminal who has failed of reformation and received several convictions should be for a long term, or permanently, deprived of his liberty than exists for the detention of the insane and other dependent classes. Out of 981 annual admissions to Sing Sing Prison in 1894, 66 per cent. had served one or more previous sentences and out of the total population of 1365 for that year 14 per cent. were known to have received from three to eight convictions. Numbers of recidivists in prisons are undoubtedly insane or possessed of a very unstable mental equilibrium which is disturbed by trivial causes.

In the State of New York convicted cases who exhibit mental derangement are transferred from all the penal institutions to the Matteawan State Hospital upon the certificate of the prison physician, approved by the agent and warden of the prison or other officer in charge.[1] This method of commitment is now modified. When a convict is so committed he is, upon recovery before the expiration of his sentence, returned to penal custody. If his sentence expires while he is still insane he is detained in the hospital until such time as he shall recover or be released under bond to the custody of his friends. This practice has led to the accumulation at the hospital of 137 cases with expired terms but who are still insane out of a total population of 325 convicted inmates. Many of these cases are defective naturally and confinement in prison has

[1] This law had passed and took effect July 1, 1896.

developed some degree of mental disturbance which often passes away, but even after their normal condition is restored it frequently is a question whether to retain them permanently as inmates of the asylum or to return them to prison. The fact that they have been determined sane by the courts at the time of their trial would seem to indicate that before the law they are considered responsible and therefore proper subjects for release. The great majority of these cases are addicted to vicious and immoral practices and to sexual indulgences. Their influence is corrupting and as a rule debasing. They display to a marked degree abnormalities of physical structure and certainly belong to a degenerate type of humanity. As a rule when at large they are intemperate in their habits and irregular in their ways of living. The form of insanity which affects them is not of an active or actually maniacal form, but is rather a quiet state of depression with delusions often of persecution. It does not reach an acutely maniacal type but rather seems to be an intensification of natural instability attended with morbid feelings of suspicion and of actual hallucinations of hearing and sight. There is not as a rule much display of intellectual power in their descriptions of their own subjective states. Their mental capacity is generally limited and their insanity consequently does not show much ideation of the higher and finer attributes of the mind, either of morals or intellect. As a rule, their moral sense is defective and their mental development below the average. Criminals who become insane are, in general, low-grade examples of the race. On the contrary, the inmate of an ordinary lunatic asylum, as a rule, is a patient possessed of good character, who has been self-supporting and is of a social, kindly and well-disposed nature. He is often possessed of a trade or calling in which he is more or less proficient, or he has been accustomed to labor regularly and honestly for his living. Upon his convalescence he becomes useful to the institution in those directions in which he is proficient and often in chronic conditions of mental disease he obtains intellectual diversions and physical exercise through occupation which benefits not only himself but others. The convicted insane, however, are a different class. They have engrafted upon a naturally defective mental and physical constitution, an early bent or training, the result in part of their environment which renders them dangerous factors in any community. Devoted to acts of housebreaking and inclined to thefts or robbery, upon convalescence or in chronic states, they turn their skill in such directions, toward escaping from custody. They are prone to associate together, to sustain and assist each other; they use their talents before employed in burglarizing and forcibly entering houses, to efforts now to get out of custody. The insane are said never to combine, but insane convicts will do so. The ordinary insane and the insane convict are not members of the same guild.

Occasionally a patient is committed to prison who is insane and whose crime is the result of such insanity. His mental condition may not have been recognized at the time of his trial and conviction; or the plea may have been put forward and failed as a defense. Such cases are quite different, both mentally and physically, from the ordinary inmates of the prison. They are properly classed among court cases, to whom we shall allude. The plea of insanity, however, while in many cases looked upon with disfavor by the public yet often results in a duration of confinement which averages longer than a definite sentence imposed by the court.

In order to secure the proper certification of convicted cases from the penal institutions who may be regarded as insane, the State of New York in the revised insanity law presented to the Legislature this winter, proposed to adopt the following procedure, which is a modification of the present method: Whenever the physician in connection with any penal institution shall certify to the warden that any inmate therein is insane, the warden shall notify the judge of the district wherein the said prison is located who shall appoint two physicians to examine into the prisoner's mental condition and, if insane, the judge shall order his confinement at the Matteawan State Hospital, there to be detained during the term of his sentence unless sooner recovered, when he is to be remanded to prison. If he is still insane at the time his sentence expires, he shall remain in confinement until in the judgment of the medical superintendent he is fit to be at large. This procedure substitutes an examination by two physicians and a judicial order of commitment in the place of the simple certificate of the prison physician and order of transfer by the warden.

There is a second and very important medical aspect of crime. A certain class of the insane commit crimes as the result of their insanity, not for the sake of gain nor for the ordinary and sane motives which actuate most men, but by reason of delusions or mental derangement. A person whose mind is thus disturbed may offend the law by reason of some overpowering false belief. He may assault another in the frenzy of a semi-conscious state of epilepsy. He may act without adequate motives or from the weakest of motives as in the case of a pronouncedly demented person. These acts are not the result of any instinctive or acquired criminal habits or desires, but are the products of an actively diseased brain. The real animus which actuates the perpetrator may be a lofty one, it may be in the eyes of the patient an act of self-defense against imaginary enemies, the product of an insane delusion which controls the patient's mind, or it may simply be a purposeless unreasoning crime perpetrated without a motive in an automatic or semi-conscious state. These patients present a strong contrast physically, intellectually and morally to those commited from penal institutions. They are freer from those anomalies of physical development and growth which are so often found among those of the criminal type. There are among them more persons who have attained to a fuller stature and higher development, their cranial configuration and physiognomy and conditions of bodily growth betoken a better type of manhood.

Intellectually they show a greater natural endowment and a higher degree of education. Their delusions are more systematized and exhibit a wider range, spread over a larger field, embracing a much greater complexity of thought and arrangement. Their ideation is more vivid and relates to a greater variety of subjects in trades, business, law, medicine, religion, literature and the natural sciences, showing greater educational advantages and a higher cultivation and greater capacity of mind. Naturally they differ from the criminal class very decidedly. They have a higher ethical sense, a broader appreciation of the responsibilities imposed upon themselves and a greater

regard for the duties which they owe to others and to society. They are freer from vicious habits and intemperance and from unnatural sexual practices, and express an abhorrence of many things which the criminal regards with favor or indifference.

The nature of the crimes committed by unconvicted cases and those admitted to the asylum from prisons show an equal divergence. The former are acts largely directed against the person in the nature of assaults to do harm, while the latter consist of burglaries, thefts, robberies and crimes against property for gain. Among 1,733 patients admitted to the Matteawan State Hospital the ratio of crimes committed against the person by the cases from the courts compared with those from penal institutions has been as follows:

	Convicted		Unconvicted.
Assault to harm	1	to	$2\frac{1}{3}$
Murder, manslaughter, etc.	1	to	$2\frac{2}{3}$

Crimes against property where the motive was simply gain, show an inverse ratio.

	Convicted.		Unconvicted.
Burglaries	3	to	1
Larcenies	$2\frac{1}{2}$	to	1
Robbery	7	to	1

Persons adjudged insane show a large preponderance of crimes against the person with intent to harm, while convicts who become insane while in prison are as a rule charged with offences against property. The degenerate individual who commits a crime for which he is arrested usually sins in the direction of appropriating something which for one reason or another he covets. He is disposed to acts of theft and robbery. He wishes to gratify in some way his appetite, and has very little regard for the property rights of others. He is incapable of resisting impulses to do wrong in these directions and constitutes a member of an unstable, weak and defective class of individuals. The cases from the courts, however, are not governed by these lower motives. Their acts are defensive acts, not as a rule aggressive, in the proper use of that term. They endeavor to avoid the necessity which they think exists to commit assaults to protect themselves. They may believe themselves poisoned, the victims of conspiracy, or in danger of their lives. They think and act as ordinary men would act but their premises are wrong and they are led by delusions which govern them. The commission of an assault with no good motive discoverable raises the presumption of insanity. The motive will often be found to be simply the promptings of disease. The insane know the difference between right and wrong in the abstract, and reason very clearly upon the subject, but in relation to their own particular act they can not form a rational judgment. This has led to a confusion as to the responsibility of a person charged with crime. He may know it is wrong to kill, but through his diseased brain imaginary voices prompt him; sights, sounds and all evidences of his senses mislead him and he is influenced to believe that what he apparently hears and sees is real. In relation to his particular act he does not know that he has done a wrong. He may know the nature of the act, whether it was homicidal or intended to be such, but he regards it as of the same quality as an act of self-defense and therefore as to this act he is unable to form a proper judgment. Many cases are improperly adjudged insane and committed to prisons for life, or executed, simply as a result of the misapplication of the legal test of responsibility. One-sixth of the life men committed to the prisons of New York are inmates of the Matteawan State Hospital. Their insanity has been recognized after conviction and while serving terms of imprisonment.

Crime in one of its medical aspects may be regarded as in part the product of degeneracy caused by a bad heredity and intemperance in ancestry combined with a bad environment. An effort should be made to reclaim and reform the individual by efforts directed toward improving his mental condition and the development of his mind and body in early life by educational measures involving thorough mental and physical training and manual instruction in some self-supporting industry. Proper moral and religious training is essential, in which should enter the true spirit of Christianity as well as its forms, and which should permeate the life of the institution. The mind, the morals and the hands should be cultivated as far as possible. If the criminal be found incorrigible he should be placed for a long term of years in some penal institution or committed to the custody of a criminal lunatic asylum, there to remain. Aside from these conditions let his term of imprisonment be determined by his conduct within limits fixed by the court.

In the other medical aspect which relates to those features purely the outcome of disease, no personal responsibility can be attached to such offenders, but they should be placed in safe custody in an asylum, if possible in one devoted to the care of the dangerous insane. While they should not be imprisoned and punished as criminals, yet society should be most carefully guarded against their acts, and their release in the event of recovery should be a matter to be most conservatively considered. As a fact, the ratio of recoveries in such cases is not large. Hallucinations of the special senses are common, especially of hearing, and the disease is essentially chronic. Persons who commit murders or assaults upon life are not as a rule habitual criminals, and if their mental condition is questioned in court they should be carefully examined. The motive should be sought for, and if one is found, its origin should be determined, whether it had its inception subjectively in the diseased brain of the patient, or arose from external causes, such as affect men in general in their conduct. The absence of motive should also be given its weight. The unreasoning and semi-unconscious act of an epileptic, while it might relegate him to an asylum for life, should not place upon him the stigma of a felon. Serious crimes against the person are not usually committed by demented persons, yet they occasionally happen, and when they do, the well known and established character of the defendant is easily determined. The adoption of intelligent measures for the suppression and minimizing of crime is a subject that will always demand attention. It is a social question connected with government, and has many legal relations, but has as well a broad medical side to which the attention of the profession should be turned. Much may be done to awaken public interest in reformatory methods and to create a proper sentiment in relation to the custody and care of criminals, particularly such as are of the degenerate type or who suffer from the effects of an outbreak of actual insanity. The punishment of the criminal has more to do with the personality of the individual than with the crime itself. The subject is closely connected with questions relating to immigration and the importation of the degenerate, the

defective, the insane and the habitual criminal. It relates to the sequestration of all so affected, which custody not only confines the individual but limits for a time or permanently the exercise of his reproductive functions.

SURGERY OF THE KIDNEY.

BEING A STUDY OF A SERIES OF CASES IN WHICH METHODS OF DIAGNOSIS AND TREATMENT ARE ILLUSTRATED.

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PERSISTENT RENAL HEMATURIA.

There are still many dark chapters in pathology and clinical medicine. To one of these belongs the subject of this paper. It can only be illuminated by calling the attention of the profession to the clinical features of these obscure cases and bringing to light the experience of the profession, which lies hidden in the literature and the note books. This paper tries to accomplish these two things and leaves for the fortunate pathologists the task of demonstrating the pathologic lesions of what seems to be a clinical entity.

Renal hematuria is to be distinguished from hemoglobinuria by the presence of blood corpuscles in the urine coming from the kidney in the place of urine stained with the coloring matters of blood.

The case here recorded and the collection of those relatively similar from recent medical literature seem to point to an unknown condition, or series of conditions, of which renal hematuria is the principal symptom. This condition has been met with in nearly all the hospitals of the world and it has been given, in the hospital reports, that clinical diagnosis, hematuria, which is so unsatisfactory to the pathologist. Thus, in the Berlin Charité, during five years ending 1893, there were 124,000 admissions, of which 22 received the diagnosis of hematuria. In the English reports this diagnosis is still more frequent.

Renal hematuria is common enough in injury of the kidney, in nephritis, in acute infectious diseases, in scurvy, in tuberculosis of the kidney and in calculus and new growths in the kidney. In the case before us the bladder showed no evidence of tubercular disease. The examination of the urine rejected nephritis and the examination of the blood excluded malaria. No detritus or formed elements, such as might reasonably be expected in cancer or other tumors could be found. No tubercular bacilli could be discovered in the sediment. The history had, to be sure, a distinct trend toward an acute local disease of the left kidney, but the condition of the urine from the two ureters pointed to a bilateral or to a constitutional disease.

This case, however, was carefully examined, the general conditions noted, the complete genito-urinary examination made and the contraindications to the removal of the left kidney, required by the clinical diagnosis, were made imperative.

The study of hematuria should always be prosecuted with the greatest care and exactness. The possibilities of tuberculosis, tumor, cancer and calculus are such grave possibilities that no means of diagnosis can safely be omitted. The urethra should be dilated, the bladder examined with the cystoscope and the catheters passed into each ureter, and even up to the pelvis of the kidney.

The danger of producing a ureteritis or a pyonephrosis, by the use of the ureteral catheters must not be forgotten. Nevertheless no case is recorded in which an unfavorable result has followed ureteral catheterization in the hands of experienced and careful operators. Casper[1] reported before the Medical Congress at Wiesbaden, that in 250 cases, of both men and women, in which the ureteral catheters had been used by him no case of infection had occurred. This procedure, like every other surgical operation, should, however, be employed only when adequate indications for it exist, and should, when such indications are present, never be neglected.

Synopsis. A multipara, 39 years old, with no history of hereditary or personal hemophilia; an acute painful attack in the left side accompanied with hematuria, which continued two years. This hematuria increased by exercise. A tender left kidney. Less than the normal amount of very bloody urine from the left ureter; more than the normal amount of less bloody urine from the right kidney; rest in bed and milk diet without improvement. Antisyphilitic treatment added; great improvement.

Mrs. C., 39 years old, was placed in my care in St. Luke's Hospital on April 14, 1896. She was a thin, anemic woman. She had never had malaria. Her husband has had an uncertain venereal history. Her mother is still living, but has some sort of skin disease of an unknown character. Her father died from an operation for hemorrhoids. No history of hemophilia in the family. One sister died of acute pulmonary tuberculosis. The other members of the family are in good health. Menstruation began when she was 13 years of age and was regular up to the time of the present illness. She was married at 18 years, had one child now 16 years old, and some years later had a miscarriage. Her present illness began two years ago with pain in the left side in the region of the kidney and with bloody urine. She was sick in bed at the time with chills and fever for several weeks. She does not know whether the pain or the bloody urine appeared first. During this sickness poultices were applied to the left side and back. The pain has been almost constant ever since. Bloody urine has been the most pronounced symptom of the disease. It is greatly increased on any exertion. The patient has lost twenty-five or thirty pounds and now weighs about 100. She is excessively anemic. The heart's action is violent on the slightest exertion. No evidence of disease could be found in the nose, throat, eyes, ears, or lungs. There was no heart murmur, no lymphatic enlargement, no enlargement of the spleen or thyroid. Since this disease began menstruation has been irregular, sometimes missing two or three months and the flow has been very scanty and watery. On admission she was put on a milk diet, her temperature was 99 degrees F., pulse 72, respiration 22. Twenty-eight ounces of dark bloody urine of an acid reaction and a specific gravity of 1.016 was passed in twenty-four hours. No pus, casts or formed matter, except blood corpuscles, could be found in the sediment, which was precipitated by the centrifugal machine. Examination of the kidneys demonstrated a body moving with each inspiration in the site of the right kidney; in the site of the left a similar body could be felt much less movable and very sensitive to a rolling pressure. The examination was easy on account of the spareness of the patient and the relaxed condition of the abdominal walls. The other abdominal organs seemed to be in normal position and of normal size. The spleen

[1] Berlin klin. Wochenschrift, Vol. 1, 1896.

was certainly not enlarged. The heart's apex was three inches from the median line, and while sitting, a little below the fifth interspace.

On April 14, the left ureter was catheterized and one cubic centimeter of urine, dark with blood, was collected in fifteen minutes. This urine after the removal of blood and albumin, contained 17 grams of urea to the liter. The right ureter was also catheterized. There were 10 cubic centimeters of bloody urine passed in fifteen minutes, containing 28 grams of urea to the liter. By vaginal examination the ureters could not be felt and they were certainly not thickened or enlarged. The interior of the bladder was pale as were all the other mucous membranes of her body. There were 3,500,000 red blood corpuscles per cubic millimeter in her blood. She had had several wounds, but never any symptoms of hemophilia.

It was evident from the examination that the discharge of blood in the urine was not a local disease and the anemia contraindicated the removal of the left kidney, which seemed to perform some little function. The patient was, therefore, put to bed on a milk diet and after a time of no improvement, antisyphilitic treatment was begun. During two months of this treatment the patient gained twenty pounds and the amount of blood in the urine was greatly diminished.

At a recent examination of her urine, about July 15, great improvement was noticed. The urine free from blood and albumin is high colored, 4 or 5 on Vogel's scale. There is about one-half the normal quantity in twenty-four hours, namely 500 cubic centimeters. The normal solids are also about one-half the normal average except uric acid which is relatively in excess and absolutely normal. The albumin is 0.2 per cent. by weight. The urea is 26 grams in twenty-four hours. There are no formed elements in the sediment except a few red blood corpuscles.

This is a very interesting case from the clear history of the disease of the left kidney, the large amount of blood in the urine and the almost absolute clinical indications of a unilateral disease, which might be helped by the removal of the left kidney. The examination of the urine from the two ureters, however, seemed to me a complete contraindication to the operation as it demonstrated the same disease on the other side. The anemia also was a contraindication to any operation, which did not promise to entirely arrest the hemorrhage. The value of catheterizing the ureters is not better shown than by this case. Before any operation is undertaken on the kidney both ureters should be catheterized and the results compared with the combined urine for twenty-four hours.

The pathology of this case is undemonstrated. It is evidently not a case of malaria, as the blood examination and the small spleen plainly showed. There were no parasites in the urine. Neither ureter was enlarged. Enlargement of the ureter might be expected in suppurative or tubercular disease of the corresponding kidney. The fact that some improvement was made under antisyphilitic treatment might be considered by many a positive diagnosis, but to me this fact does not warrant the conclusion. There are many cases in the literature which resemble this one in nearly all particulars.

In December, 1890, Senator[2] presented before the Berliner Medicinische Gesellschaft an interesting case of renal hematuria. The patient was a girl 19 years old, who gave a history of hereditary hemophilia. The cystoscope showed that the blood came from the right ureter. Rest was tried without success. The kidney was exposed by lumbar incision and appeared normal. The hematuria was so great that extirpation of the kidney was considered necessary to save the life of the patient, which was threatened by the anemia. Sonnenburg, who was present, agreed in the conclusion of Senator to perform nephrectomy. When the kidney had been removed it still appeared normal. Microscopic examination discovered the fact that the hemorrhage occurred inside Bowman's capsule and that the urinary tubules contained blood. In the discussion Senator referred to three other cases of a similar nature, one reported by Sabatier.[3] The patient was a woman 30 years old. Pain in the region of the kidney came on suddenly, with dyspnea, vomiting, strangury and bloody urine. The hematuria continued seven years. The patient gave a tubercular family history and had a cough. Repeated examinations showed tenderness of the right kidney, but no tumor. The other abdominal organs were perfectly normal. There was no gravel and no pus in the urine. During the year her case was under observation various diagnoses were made, namely, 1, tubercular kidney and rheumatism; 2, tubercular peritonitis and uremia; 3, paroxysmal hemaglobinuria; 4, nervousness, simulation, and 5, calculous nephritis. Oct. 16, 1886, Sebatier extirpated the right kidney. No stone was found and the microscopic examination did not demonstrate anything abnormal except a slight sclerosis. Sabatier considered the kidney perfectly sound. After forty-eight hours of bloody urine the last trace of blood disappeared and the patient recovered perfectly. Shede[4] is also quoted by Senator as reporting the following case: A strong, well man, 50 years old, with no hereditary taint, had very bloody urine for years, coming on after taking a cold drink. The bladder was found normal. The urine contained red and white corpuscles in their normal ratio to each other, but no other formed elements. Through a suprapubic cystotomy opening the two ureters were catheterized. This procedure showed that the blood came from the left ureter alone. Five days later, July 1, 1889, the left kidney was explored through a lumbar incision. It did not appear abnormal and nothing was found in the pelvis. It was, however, removed, but the microscopic examination demonstrated no adequate cause of the hematuria. Lanphear[5] observed a case of hematuria in a man 55 years old, but he did not catheterize the ureters and made the diagnosis of renal hematuria by washing out the bladder with boric acid solution and finding the fresh injection clear.

Broca[6] recites a case which is interesting in this connection. The patient, well until the present illness, was confined two years before with a perfectly normal puerperium. She served nineteen months as a wet nurse. Menstruation began nine months after confinement. In July, 1890, one month after weaning the child, hematuria appeared with indistinct pain in the right side. This advanced little by little with increasing pain in the right lumbar region; in the left side there was only occasional tenderness. After thirteen months of hematuria, very great lassitude appeared. One physician diagnosed a downward dis-

[2] Senator, H.: Über renal Hämophilie. Berlin klin. Wochenschrift, 1891, No. 1.

[3] Sabatier: Néphralgie hématurique. Revue de Chirurgie, Paris, 1888, p. 62.

[4] Jahrsbücher des Hamburger Stadtkrankenhauses, 1889.

[5] Lanphear, E.: An Obscure Case of Hematuria. JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, Chicago, 1894, vol. 22, p. 117.

[6] Broca, A.: Hémophilie rénale et hémorragies rénales sans léslon connue, Ann. malad. des org. genito-urin. December, 1894.

placement of the kidney, a truss was worn without improvement. Sixteen months after the beginning of the hematuria Broca first saw the patient and on strong pressure only could tenderness of the right kidney be demonstrated, but no enlargement or displacement. There was no colic. The urine was uniformly mixed with blood. There was frequent and painless micturition. The patient was in good condition and had a good appetite. A most careful examination of the urine gave no evidence of tuberculosis and no evidence of carcinoma. Rest in bed and a milk diet were tried without effect on the hematuria, which lessened a little during menstruation to increase again after it was over.

On Dec. 17, 1891, the kidney was laid bare through a lumbar incision, peeled out of its fat capsule and brought to view in the wound. Inspection and palpation failed to demonstrate anything abnormal. Exploratory nephrotomy revealed nothing more. This diagnosis was confirmed by Hartmann and Terrier, who stood by. The kidney and wound were closed, the latter without drainage, and recovery followed. The first urine passed after the operation was bloody, after that there was no more hematuria and no more tenderness in the right kidney. The patient was seen occasionally for three years and she remained perfectly well. It would have elucidated this case if the ureters had been catheterized. We do not know that the blood came from the right kidney alone.

Passet[7] describes an interesting and obscure case of renal hemorrhage in a woman who had four children. The first attack came on after menstruation and the next one six months later. It was considered a case of vesical hematuria and was treated by injections of nitrate of silver solution. Cystoscopy was impossible on account of the hemorrhage. Digital exploration discovered a small tumor (?). Suprapubic cystotomy was performed and the bladder found perfectly normal in appearance, the ureters were catheterized and the blood found to come from the right ureter alone. On account of the anemic condition of the patient it was not thought best to do nephrectomy at once. The bladder was sewed up and the patient recovered. The urine became clear and continued so for two years, when a transient attack of hematuria came on again. No similar attacks appeared during the following year during which she was under observation.

A somewhat similar case is reported by Stavely.[8] The patient was a multipara, 39 years old, who noticed blood in the urine two months after the birth of her last child. It was intermittent, but at last it came on every other week. She was anemic, 3,172,000 red, 10,000 white corpuscles per cubic millimeter of blood. The urine was very bloody and contained 110,000 red blood corpuscles per cubic millimeter of urine. No tubercle bacilli could be found in the urine. The bladder was found clear, the left ureter was catheterized and 10 minims (.66 cubic centimeters) of reddish yellow urine containing blood corpuscles was passed in five minutes. This was repeated on the following day, but it was not possible to pass the sound into the right ureter in the ordinary manner. An incision was therefore made in the base of the bladder and the right ureteral orifice exposed and catheterized. The urine from the right kidney contained a trace of blood, the wound in the bladder was closed with silk-worm sutures. The left kidney was then exposed and explored by a deep incision into the back of the kidney down to the pelvis. No disease could be found. The wound was closed. The patient recovered and the hematuria disappeared.

The second patient was probably 35 or 40 years old had borne children. A year ago she suddenly developed hematuria without any known cause, which hematuria had continued, with slight exacerbations ever since. The urine had a specific gravity of 1.020. It was slightly acid and contained quantities of blood but no casts. The ureters were catheterized simultaneously by touch. The bladder was full of methyl blue solution at the time. In fourteen minutes, 20 minims (1.3 cubic centimeters) of dark bloody urine was obtained from the left kidney and 10 minims (.66 cubic centimeters) of clear amber urine free from albumin from the other. The left kidney was exposed and incised along its back while the renal vessels were compressed between the thumb and finger, but no disease could be detected. The kidney was closed with gauze drainage. The wound was also closed. The amount of blood in the urine gradually disappeared until the fifteenth day after the operation, when it was all gone and never returned.

Denny[9] of St. Paul, Minn., reports a case of persistent hematuria and uses its ultimate recovery without operative procedure as an argument against early operation. It would be more logical from these data to insist upon an exact and absolute diagnosis. The history is very clear, but no positive diagnosis was made and as the man, who was 39 years old recovered promptly with vesical injections of nitrate of silver solutions, and has since remained well, it is possible that he suffered from hemorrhage of the bladder.

1. Renal hemorrhage can be demonstrated only by the catheterization of the ureters and kidneys, and these procedures should always be accomplished before nephrotomy or nephrectomy. The Pawlick or Kelley instruments may be used with females, but the Casper or Nitze instrument must be employed in males.

2. The patient should undergo a most careful observation in the hospital and a protracted rest in bed with a milk diet before an exploration of the kidney is made.

3. There is some unknown pathologic condition of which hematuria is a symptom, which has not yet been explained, and this condition seems to be relieved in some cases by nephrotomy and in others by palpation of the exposed kidney.

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[7] Passet, J.: Über Hämaturie und renale Hämophilie, Centralb. für die Krankheiten der Harn- und Sexual-organe, v. 5, p. 397–405.

[8] Two cases of Hematuria with catheterization of the ureters and exploratory nephrotomy, Johns Hopkins Hospital Bulletin, March, 1893, .25.

[9] Boston Medical and Surgical Journal, Vol. 132, p. 183, 1895.

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LUXATION OF THE ENSIFORM PROCESS.

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Dislocation of the xyphoid appendix is a rare occurrence, and only a few instances have been recorded. Owing to the rarity of this accident, I deem it important to give it publicity.

The patient, a German, aged 33 years, and of of a robust build, consulted me for what he termed "chronic indigestion" about one year ago. He gave the following history: About three years prior to coming to the city he was in Philadelphia on a visit. During his meanderings he inbibed too freely and mistaking a lamp post for the middle of the sidewalk ran against it with great force, receiving a terrific blow, as he explained, about the "pit" of the stomach. The blow felled him to the pavement where he lay unconscious for a few minutes. He was removed to his hotel where he rested fairly well the night of the accident. During the night he vomited freely several times, which seemed to give him relief. The next morning the patient left for his home before medical attention was summoned. After his return home the man was enabled to transact his usual farm duties after an elapse of two or three weeks. The patient has lived in this city for some time and has for the past several months been a sufferer from indigestion, which he says was invariably accompanied by vomiting. This is especially the case if he lies down directly after eating.

Upon examination I found a complete luxation of the ensiform cartilage from the gladiolus, which could be moved easily in all directions.

This manipulation gave the man some pain, and caused him to say several times he "felt sick at the stomach." I tried all manner of palliative measures which proved useless. I suggested an operation with a view to anchoring or extirpating the offending member, but this was not acceded to. The man has been, for the past half dozen months losing flesh steadily, and his weight is now, I learn, in the descendency.

Since consulting me a short while ago, I am informed, the man has moved to some point in Texas.

306 Equitable Building.

SELECTIONS.

Anti-Choleraic Inoculations.—Dr. W. J. Simpson submits the results of the anti-choleraic inoculation work as carried on in Calcutta during the past two years.

The vaccins used for this work are prepared in the laboratory by a specially trained medical officer and the inoculations in the bustees and other parts of Calcutta are done by another medical officer.

The following records of the inoculations are kept in the Health Office:

1. A daily register filled up at the time of inoculation containing name, father's name, sex, age, caste, occupation, residence and place of inoculation; also any relative who may be inoculated.

2. An alphabetical register containing the names of the inoculated with the above details, so that ready reference can be made as to whether a person attacked with cholera has been inoculated.

3. A ward register showing the residence of the inoculated people, so that when any particular locality is affected with cholera the inoculated in that locality may be easily found.

The number of people inoculated during the period under review was 7,690; of these 5,853 are Hindus, 1,476 Mahomedans, and 361 other classes. Considering that the system is a new one, that the inoculations are purely voluntary and everything connected with them has to be explained before the confidence of the people can be obtained, and considering how long new ideas are in taking root among the general population, and in this case it is not merely the acceptance of idea, but such faith in it as to consent to an operation, the number is certainly satisfactory for a beginning.

The present problem can be compared with the introduction of vaccination against smallpox in Calcutta. It took twenty-five years before the number of vaccinations reached an average of 2,000; whereas the inoculations against cholera have in two years nearly doubled that average. This is proof that in spite of the difficulties which every new movement naturally has to meet with, there are large numbers of people anxious to avail themselves of the protective effect of the inoculations.

There is a certain discomfort produced by the inoculations, such as an attack of fever lasting about twenty-four hours, pain at the seat of inoculation on moving, thus interfering with heavy physical work for about thirty-six hours. The discomfort is not, however, worse than that induced by vaccination when the vesicles have risen well, and it has the advantage of not lasting nearly so long. The method of inoculation has been recently simplified by dispensing with the first vaccin, the second now being used directly in smaller doses. This increases slightly the degree of discomfort, but does away with the necessity of undergoing two inoculations. As in vaccination, the symptoms after inoculation, *i.e.*, the degree and duration of the fever and local effect vary according to the idiosyncrasy or peculiarity of constitution of the inoculated person; but it is necessary to prominently bring to notice that although all sorts and conditions of individuals, weak and strong, sickly and healthy, young and old, well nourished and badly nourished, and often persons suffering from chronic diseases have been inoculated in every instance without exception, the inoculations have proved perfectly harmless. In several instances, like that lately in Serampore, reports have been spread that injuries have followed the inoculations; on investigation it has been proved by the official medical and civil authorities that these reports were absolutely untrue. Since the system is new and disquieting rumors are harmful it is important that the Commissioners should know the real state of things in order that they may be able to give assistance in dispelling any false notions on the subject.

When an epidemic, such as cholera, attacks a town there are always localities and classes of the population which are not reached by the infection, while on the other hand, even among those who are actually exposed to the infection there are a number who escape owing to their hereditary or gradually acquired powers of resistance. As a rule outbreaks occur in particular localities and houses. The investigations on the effect of the inoculations are made exclusively in those houses in which cholera has actually occurred, the object being to ascertain and compare the incidence of cholera on the inoculated and not inoculated in those houses in which inoculations have been previously carried out. For this purpose affected houses in which inoculations have not been performed and inoculated houses in which cholera has not appeared are excluded as they do not generally furnish a reliable basis for comparison.

In seventy-six houses there were eighty-nine deaths from cholera, seventy-seven being among the uninoculated and

twelve among the inoculated. The following is an analysis of the observations showing the relative resistance to cholera of the inoculated and not inoculated and the distribution of the occurrences in time.

As in six houses in which uninoculated people were attacked and the inoculated escaped, the number of inoculated present was under one-tenth of the total inmates, thus allowing very little chance of the inoculated being affected; these are not counted in the subjoined tables. As regards the rest the result is the following:

Among the uninoculated members after— 1, 2, 3, 4, 5, 6, 9,
Among the inoculated of the same households after 0,– 2, 3, 4, ——
12, 13, 15, 17, 22, 34. 37, 44, 57, 62, 63, 71. 95, 99, 109, 114. 118, 119, 120, 129, 132, 139,
143, 162, 189, 191, 203——210. 251. 271, 281. 284, 300. 309. 318, 319, 334, 356, 359, 362,
——————— 219, —— ——————————— ——
370. 372, 378, 383, 384, 386. 391, 393. 391, 401. 404. 408. 416,——433, 446, 448. 453 ——
——————————————————————————421,———————— 459,
472. 493, 498——675.——720, 723, 724,——and 738 days.
————512,——688,————735 and 738 days.

This statement shows that: 1, during the first 4 days after the inoculation cholera occurred among the inoculated and non-inoculated, though in a smaller degree among the inoculated; 2, after the first 4 days there was a period of over a year when there was almost absolute freedom among the inoculated, while among the non-inoculated in the same houses cases were occurring during the whole year; and 3, after this period cases began gradually to reappear among the inoculated as well as among the non-inoculated.

The grouping of the data according to these three periods gives the following results. In the houses where cholera occurred during the first 4 days, a period in which the protective influence of the vaccin is gradually asserting itself, there were 169 uninoculated individuals, who had 6 deaths (3.59 per cent.) and 3 attacks ending in recovery, and 259 inoculated persons who had 5 deaths (1.93 per cent.) and 1 attack with recovery.

In the houses where cholera occurred during the second period extending over a year, there lived 502 non-inoculated who had 42 deaths (8.37 per cent.) and 5 attacks ending in recovery, and 269 inoculated who had 1 death (0.37 per cent.).

In the houses where cholera has occurred during the third period, *i.e.*, more than a year after inoculation, there were 238 uninoculated who had 23 deaths (9.66 per cent.) and 3 attacks with recovery, and 96 inoculated who had 6 deaths (6.25 per cent.).

Thus a comparison of the proportion of deaths among the inoculated and non-inoculated in the three periods gives the following result: During the first period of 4 days the number of deaths among the inoculated was 1.86 times smaller than among the not inoculated. During the second period lasting over a year the number of deaths among the inoculated was 22.62 times smaller than among the non-inoculated; and during the third period, *i.e.*, more than a year after the inoculation, the number of deaths among the inoculated was only 1.54 times smaller than the non-inoculated.

Of the six inoculated belonging to the last group, who were attacked more than a year after inoculation, five had received only one inoculation with the first weak anti-cholera vaccin, and the sixth, inoculated on June 3, 1894, had two inoculations given in very weak doses, as was practiced before the observation made in July and August, 1894, in the East Lancashire Regiment in Lucknow. In this observation at Lucknow it was shown for the first time that the effect of weak doses with which the inoculations were begun in India, tends to disappear as time goes on and is confirmed by the Calcutta statistics. This fact brings the Calcutta statistics into conformity with those obtained in other parts of India and thus confirms the accuracy of the observations made. Since the latter part of 1894 the doses used in the treatment and the strength of the vaccins have been increased, with the object of producing a more lasting effect. But no figures are as yet available to demonstrate whether by such increased doses the object we aim at is actually obtainable.

Without excluding the occurrences of cholera in the inoculated during the four days necessary for treatment, and considering the results for the whole period of time, from the first day of the operation in Calcutta up to the end of last month, the results are as follows: 654 uninoculated individuals had 71 deaths (10.86 per cent.), while 402 inoculated in the same households had 12 deaths (2.99 per cent.). This shows that notwithstanding the incomplete protective effect of the first four days and the gradual disappearance of the resistance in those inoculated with weak doses of weak vaccins, which a large number of the inoculated people have received, the mortality amongst the inoculated, compared with that of the uninoculated, was in the proportion of 1 to 3.63, giving a reduction of mortality of 72.47 per cent., or in other words, in houses where inoculations were performed, and which were subsequently visited by cholera there occurred for eleven deaths amongst the uninoculated, three deaths amongst a similar number of inoculated.—*Ind. Med. Record*, August 1.

The Dangers of the 'Cycle.—The *Lancet* for July 11 has a well-considered special article on the above subject, which concludes as follows: "Two serious sources of danger are the use of the crowded roads by learners and the hiring of machines to novices. A busy road would seem to be the last place a sensible person would select for learning to ride a bicycle, yet three deaths have taken place from this cause within the past few weeks. The hiring out of bicycles to children and roughs bent on what they call a 'spree' should be checked by law. It should be quite possible to license those who let out cycles for hire, and such persons should be made responsible if an accident occurs through the letting out of a machine to an incompetent person. Our contemporaries who are devoted to the interests of 'wheeling' have, we know, already done good service in this respect, but we venture to assert that if they would impress even more strenuously upon the cycling public the importance of strictly attending to some such simple rules as the following much good would ensue. These rules are not intended to be exhaustive nor are they for the expert cyclist, although even the experienced rider should not ignore them. Thoroughly examine your machine before starting on a journey. Do not ride without a brake, which should be attached to the back wheel if possible. Beware of tram lines, especially when they are wet. Avoid turning sharply on a wet or 'greasy' road. Pass horses at a slow speed. Never take the feet off the pedals when riding down hills. Do not ride with the hands off the handles, especially in crowded thoroughfares. Ride carefully when passing side streets or the carriage entrance to houses. Before attempting to pass another vehicle ring the bell when at least twenty yards distant. This will give the rider time to see what the intentions of the driver of the vehicle in front are, and will enable the cyclist to take precautionary measures in time should such be necessary. When riding in parties vehicles should be passed in single file. Warning by the bell should be given in as gentle a manner as possible. The sudden ringing of a loud gong is apt to cause a pedestrian to lose his presence of mind and run into the very danger it was the intention of the cyclist he should avoid. When riding behind vehicles in a crowded thoroughfare be prepared to dismount at a moment's notice if necessary. Keep on the proper side of the road. Ladies should not attempt to ride in the public thoroughfare until they have absolute control over and confidence in their machine. They should keep as near as possible to the curb and ride slowly. Those who wear a skirt should see that it is not too long. It should be lined in front with some glazed material to prevent friction, and all loose drapery which is likely to be caught by the wind and perhaps caught in the machine should be avoided. In addition we would suggest that persons who let out cycles for hire should be under the control of the police. It should

be a punishable offense to let out machines not in proper order, and no child or other incompetent person should be allowed to hire a machine. It should be possible for the police to prevent novices learning in the public thoroughfares."

On the Management of the Tuberculous at Hotels.—The Pennsylvania Society for the Prevention of Tuberculosis, under the presidency of Dr. Lawrence F. Flick, has published circulars of information for gratuitous distribution. The third tract of the series treats of the duties of hotelkeepers in relation to their infected and non-infected guests. Among the points brought out are the following: The linen, etc., of consumptives should be washed separately and should always be well boiled before being washed. The persons to whom such articles are given to wash should be properly instructed as to what to do in order that they too may be protected. As far as practicable, consumptives in the advanced stage of the disease should be assigned to separated tables, in order that their tableware and linen can be kept apart from those of the other tables and washed separately. All such tableware should be boiled before washing. "All parts of a hotel or boarding house which are likely to be frequented by consumptive guests should be well supplied with cuspidors in which there should be at all times a germicidal fluid. This fluid should be changed once a day and the cuspidors should be thoroughly scalded with boiling water. In conspicuous places throughout the house and especially in the rooms assigned to consumptive guests, there should be notices requesting guests never to eject sputa into any place other than the cuspidor, and suggesting that a handkerchief should never under any circumstances be used for the reception of such sputa where a spittoon is at hand. When out upon the lawn, or in any place where a cuspidor is not of convenient access, the sputa should be ejected into paper handkerchiefs, these to be placed, upon returning to the room, in a receptacle furnished for that purpose; such handkerchiefs should not be thrown into the ash bin but burned by the chambermaid. After a room has been occupied by a consumptive, it should be carefully cleansed before another guest is assigned. Where the rules already laid down have been observed, wiping the walls, floor and furniture with a sponge dampened with a germicide solution, whisking the rugs with same solution, and sending the sheets, blankets and pillow cases and counterpanes to the laundry, will be all that is necessary. Where, however, no care has been observed and the consumptive has been careless about spitting on the floor, or into linen, silk and muslin handkerchiefs, or where the bed clothing has been visibly soiled with broken down tubercular tissue, it will be necessary to carefully rub the walls with fresh bread and then wash them with a strong germicide solution, to wash the floors and furniture with the same strong solution, to have all the bed linen and blankets thoroughly boiled and to have the rugs and other articles which can neither be subjected to strong germicide solution nor boiled, sent to a renovating place and steamed."—*Annals of Hygiene*, September.

PRACTICAL NOTES.

Silico-Fluorid of Mercury.—This salt has been recommended as being twice as energetic as corrosive sublimate as an antiseptic. It is far less poisonous than the latter salt, hence it deserves attention. It is used in aqueous solution 1 to 1,000.—*Pharm. Era*, September 3.

Acrocyanosis.—Crocq described at the recent Neurologic Congress in France a disease he has observed in two hysteric young women, which he calls acrocyanosis. It resembles Raynaud's disease and also Charcot's blue edema, yet it is distinct from both. Raynaud's disease ebbs and flows, with severe pains, a tendency to the formation of gangrenes and phlyctenæ, and a loss of sensibility in the skin. Acrocyanosis on the other hand, is a permanent condition, without severe pains or the other symptoms above. Charcot's blue edema is accompanied by paralysis, paresis or contractions, which are all absent in acrocyanosis. The three diseases all originate in disturbances of the nerve centers, but he considers the latter essentially a hysteric vasomotor phenomenon.

Plastic Surgery.—The *Jour. des Sciences Méd. de Lille* for August 15 describes a case where a cutaneous epithelioma on the ankle, 12 by 9 centimeters, was removed, a pear-shaped living flap from the thigh sutured in its place and the leg flexed against the thigh in a plaster cast. A small flap cut above was twisted around to cover the center of the open space, leaving only a couple of unimportant spaces at each end uncovered.

Treatment of Measles.—Dr. C. S. Merriman says that when the eruption does not appear or when it recedes we have complications. In such cases he employs the following treatment: Take a flannel blanket, wring it out of water as hot as the hand can bear and wrap patient up in this, with cold cloth on the head. Keep him in the pack about twelve or fifteen minutes; then transfer him to a dry blanket and allow him to cool gradually. This brings the eruption to the surface and relieves the mucous and serous membranes. If necessary give antipyretics for the fever and sedatives for the cough. He never has complications when this line of treatment is used. When there is bronchial cough he prescribes a combination of terpin hydrate and codeia sulphate made into an emulsion with syrup of acacia.—*K. C. Med. Ind.*, September.

Further Experiments with Serum Treatment of Cancer.—The *Revista Chilena de Hijiene*, No. 6, describes at length the treatment of a number of cases of inoperable cancer with serum from asses and goats that had been inoculated with cancerous tissues. The results were not as favorable as those obtained by Richet and Hericourt, the only effect being the improvement of a few symptome, the most notable, the relief from pain. The discharges also ceased to be fetid. The general health improved at first, but afterward grew worse, with increased emaciation and cachexia. The other symptoms were unaffected. He injected usually 2 c.c. every other day, or less frequently, never more than 5 c.c. on account of the tendency to produce fever. He adds, with the odd Spanish inverted interrogation point: ¿ will larger doses secure better results? And he remarks that our impotency in these malignant cases, fully justifies these hazardous experiments.

Use of Forceps in France and Germany.—An article in the *Revue Int. de M. et de C.*, August 10, compares the statistics of the use of the forceps in obstetric cases in France and Germany, greatly to the advantage of the French methods. The superiority of Tarnier's forceps which are used in France, to Nœgele's which the Germans use, is one cause of the better results obtained. But the chief cause is the method of applying the forceps. In France the head of the fetus is seized symmetrically from ear to ear, the axis of the blades corresponding to the occipito-mental diameter, except in superior strait cases. The practice in Germany is the reverse of this. The forceps are applied symmetrically to the axis of the pelvis, and the fetal head is seized as happens to be convenient. The statistics show the results in the frequent lacerations and elevated fetal mortality.

Treatment of Phlyctenular Keratitis.—Dr. M. F. Coomes commends a solution of eserin as the best remedy. It is a myotic, contracting the pupil closely, and by so doing excludes the excessive amount of light, and reduces intolerance to a minimum. In addition to the mechanical action upon the pupil, it also produces contraction of the capillary blood vessels, stimulating them, and bringing about a healthy condition of the ulcer, which can be accomplished by no other agent so readily.

The solution need not be strong, two grains to an ounce of water being quite sufficient for most cases. And its application should be made twice a day, and if there is great intolerance of light, three times a day. He advises no other local application.—*Louisville Med. Mo.*, September.

Chronic Cystitis.—Dr. S. B. Johnson used the following formula in a severe case of chronic cystitis:

℞. Syr. yerbæ santæ 32.0
Syr. simplex 64.0
Eucalyptol 16.0
Aquæ destil 16.0

M. S. Shake well. Dose, a teaspoonful every two hours.

The patient was unable to pass his water without the aid of a catheter, and his urine was loaded with mucus. In the course of a week he began to pass his water without the aid of the cathether. In addition to the use of the eucalyptol he gave the following to keep the urine alkalin:

℞. Comp. infusion buchu 470.0
Bicarbonate soda 4.0
Bromid of potassium 7.5

M. S. Shake well. Dose, a wineglassful every four hours.

Under this treatment the patient recovered, and he attributes the rapid improvement to the action of the eucalyptol.—*Northwestern Lancet*, September.

Absorption of Iron by the Organism.—Gaule's interesting experiments to determine the method of absorption of iron in the organism are described in the *Deutsche Med. Woch.*, No. 19. They confirm Hall's statement that the absorption occurs in the duodenum alone, and not in the stomach or small intestine. Not only organic compounds of iron are absorbed, but also the inorganic, like ferric chlorid, but they have first to be transformed into an organic compound by combining with certain substances in the intestine. The iron is absorbed by the epithelium of the duodenum first, and then by the central lymphatic vessels of the villi. As early as two hours after the iron is administered, the quantity of iron in the pulp cells of the spleen is much larger than normal. The process of absorption of the iron is perfectly normal, and does not require any change in the usual processes.

Treatment of Gout with Piperazin.—Dr. Hager describes his victory over the gout in his own person, in the *Pharm. Post*, No. 30. After various experiments he found that he had conquered his old enemy with piperazin taken three or four weeks, in fractional doses, with soda water. After the swelling and pains had disappeared, he continued with diminished doses a while longer, 2.5 to 3.0 gr. per diem. The remedy seemed to lose its diuretic power in the course of two or three weeks, and he increased its efficacy at such times by supplementing it with a diuretic, using a decoction of bean pods for the purpose, taken in weak coffee, or with milk and the piperazin, or with the piperazin alone. There were no inconveniences at any time from its use, even at 3 grams a day continuously.—*Therap. Woch.*, August 23.

Pain after Laparotomy.—Dr. Byron Robinson has reoperated on a number of cases for annoying abdominal pains which massage, electricity, etc., did not relieve and concludes that the pain in peritoneal adhesions is due to the checking of the peristalsis in a viscus with a long pedicle and an active peristalsis of the sigmoid flexure, loops of small intestines, Fallopian tubes and bladder. The chief site of the adhesions is the cut ends of the Fallopian tubes or some point of the abdomen denuded of its peritoneal endothelia. Adhesions about fixed organs, as the liver, spleen, flexures, etc., do not induce pain, as their limited rhythm is not materially checked. In reoperating we should free all the highly peristaltic organs and cover up with peritoneum all exposed mucosæ or denuded endothelia.—*Memphis Med. Monthly*, September.

Treatment of Tuberculosis with Baths of Rarefied Air.—Vergara Lope and Herrera of Mexico have constructed an apartment where they give baths of dry, equable and highly rarefied air to tuberculous patients. Although they consider it merely an attempt, its success fully justifies further experimentation on a larger scale. They conclude a modest report of what they have been able to accomplish in relieving congestions, strengthening the lungs, etc., with these words: The desideratum is to keep the patients night and day, and for a sufficient length of time to really accomplish a cure (not merely an occasional bath as with our present accommodations), in a highly rarefied, dry and even atmosphere, such as is not to be secured at any known natural point. (The variations in temperature in the mountains destroy much of the therapeutic effect otherwise obtainable there.) One chamber is not enough, but a whole series, fitted up with every comfort and hygienic appliance, and rendered attractive in every way to the patients in their voluntary confinement.—*Revista Quincenal*, July 15.

Serum Therapeutics.—Roger concluded his important address on this subject at the recent French Congress of Internal Medicine with these words: In spite of such numerous trials and investigations, serum therapeutics has only produced actually undeniable effects in the treatment of diphtheria. It has proved less efficacious in man than we were led to expect from our experiments on animals. Animals are easily inoculated with disease, while man succumbs only if there is some morbid predisposition or lack of tone in the organism. The serum only works, besides, after a certain period of incubation, and even if administered in time, we are not sure of obtaining a cure as the serum is impotent in regard to the concomitant auto-intoxication. This is the reason why it is impossible to deduce conclusions as to its effect on man from the effects obtained on animals. This is why the experiments in the laboratory are more successful than in the clinics, and why the old methods are not to be abandoned for the new. According to my opinion serum therapy is not destined to supplant the other methods; it should only be considered another weapon to use concurrently with the rest. This rule applies even to diphtheria. In a case of puerperal fever, no matter how great our confidence in serum treatment we should never trust to it alone, but employ all our known weapons to combat the phenomena produced by multiple causes, with means we know to be multiple in their effects. Although it is hazardous to forecast the future, we do not believe that serum therapeutics is destined to revolutionize the art of healing. Its indications must be defined and its use combined with other methods. This is the road for the clinicians to follow. At the same time the experimenters will be improving the antitoxins and eliminating the useless or harmful substances that accompany them. These are the tasks of the immediate future, and when completed new progress will have been accomplished in medical science and new benefits accrue to humanity.

The Effect of Erysipelas Toxins upon Malignant Growths.—Drs. L. A. Stimson, A. G. Gerster, and B. F. Curtis, at a recent meeting of the New York Surgical Society, submitted the following report upon the use of erysipelas toxins in the treatment of malignant disease: "We believe that in the instances of apparent cure or marked improvement the correctness of the diagnosis is open to doubt. We therefore submit: 1. That the danger to the patient from this treatment is great. 2. Moreover, that the alleged successes are so few and doubtful in character that the most that can be fairly alleged for the treatment by toxins is that it may offer a very slight chance of amelioration. 3. That valuable time has often been lost in operable cases by postponing operation for the sake of giving the method of treatment a trial. 4. Finally, and most important, that if the method is to be resorted to at all, it should be confined to the absolutely inoperable cases."—*University Med. Magazine*, September.

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INFORMATION WANTED.

It would greatly facilitate the prompt delivery of the JOURNAL to those members of the ASSOCIATION living in large cities, if they would kindly furnish this office with their street address in those cases where it is omitted from the wrapper of their JOURNAL, as we have been notified by the postmasters of the larger cities that second-class mail matter not having street address, would be placed in the general delivery to await call.

SATURDAY, SEPTEMBER 19, 1896.

THE EXAMINATION OF SCHOOL CHILDREN'S EYES.

An examination of the eyes of 8,125 London school children has just been completed by MR. CARTER, and sent to the Education Department; when we consider the methods of the examination we are surprised to learn that only 39.15 per cent. were possessed of "normal vision." We say in view of the methods of examination, because it is of this aspect we would suggest a qualifying word. It seems from the abstracts of the report at hand that to the teachers was allotted the task of separating the sheep from the goats, in other words they were to ascertain by prescribed methods the pupils that had "normal vision." Those thus diagnosed were apparently not further considered by the ophthalmologists. The fact will doubtless provoke a smile from American oculists, at least from every one worth considering. What public school teacher is capable of diagnosing the refractive condition of a pupil's eye? Having diagnosed "normal vision" how utterly meaningless is the fact! It is as devoid of significance as the findings of the divining rod. Because, no mydriatic being used, it is, as we all know, precisely the cases that have considerable refractive errors covered up by the accommodation, leaving "normal vision," that have the most decided reflex disturbances, headaches, denutrition, etc. The smile of the skilled refractionist becomes something very different from a smile when he thinks of the astigmatism uncorrected in that 39.15 per cent. of normal eyes! And then the remaining 60 per cent., if we had a mydriatic examination of these, of what interest and value it would be to know accurately the precise refractive errors and muscle-balances! Astigmatism was, of course, found to be extremely rare, whilst with us the eye without astigmatism is almost a wonder. "Slight and moderate degrees of hypermetropia are the most common conditions, and the defect, *if it is to be called a defect*" (italics ours) "is scarcely sufficient to require the use of glasses, and would not be likely to lead to more than a sense of weariness in children who were underfed or taught in badly-lighted schools." This is not ludicrous; it is pitiable! Precisely when food is scarcest, and the lighting the worst, then is the greatest need of relieving the eye from strain. We are glad to learn that there is no evidence of an increase of myopia in the London children.

Another noteworthy finding is much amblyopia not to be accounted for by errors of refraction. (Again we must recall that the examinations were made by the ophthalmoscope and without a mydriatic.) This amblyopia is accounted for by the fact that city children are not exercised in seeing distant objects, but only such as are not farther than the street-width or room-dimensions! Our "ophthalmic surgeons" find other causes for amblyopia, but our English confrères smile at our testings of the ocular muscles and of astigmatism. It should be recognized as a fundamental principle that all examinations of school-children's eyes are utterly valueless to science, and the conclusions drawn from such testings are equally valueless or positively misleading, even concealing the truth, that are not carried out by means of a mydriatic, that do not include a precise estimate of the astigmatism, the anisometropia, and the muscular incoördinations or balances.

MEDICAL EXAMINERS AND MEDICAL TEACHING.

During the past seven years the course of study in the majority of the Medical Schools of the United States has risen from two years of five months each, to four years of at least six months each. This advance has not been brought about by the action of any one force, but it has been accomplished by the coördinate action of the various State boards of health and by the coöperation of the better class of medical schools in the Association of American Medical Colleges. This increase in time has, in many schools, been accompanied by a greater advance in the methods of teaching and in the scope of the curriculum. The laboratory method of teaching for histology, pathology and various other subjects has been generally adopted. The amount of laboratory work and its quality has not, however, been just what could be desired. In some schools only a few hours a day for a very brief period is required, while in others a large amount of time is spent in the laboratory, but the pedagogic method of presenting the subjects to the

students has not always been carefully considered. The order of the laboratory has been frequently neglected and students have been allowed to form extravagent and slovenly habits and sometimes even have been instructed in erroneous methods of observation and faulty methods of reasoning. The shiftless habit which some teachers practice of preparing histologic specimens, mounting and distributing them to the class instead of requiring each student to catch, kill and prepare his specimens for himself, is all too prevalent. The method of requiring drawings of histologic specimens to be made is desirable and correct, but to permit the use of illustrated text books to define characteristics which poorly prepared specimens fail to discover, is pernicious. Many institutions with clinic advantages have neglected to pay that attention to the conduct of clinics which the real needs of the students demand. The students themselves look for tragic operations and crowd the laparotomy room while they neglect the tedious work of percussion, palpation and auscultation in the quiet of the dispensary. Lecture work still continues to occupy the most prominent place in the course and consume the largest amount of time. The medical library has not yet been utilized as an engine of medical education and most of our graduates still go out with little or no knowledge of the use of the storehouses of medical thought and experimental investigation.

It is probable that the length of the course of study has been sufficiently extended and that the work of the next ten years for medical education will be directed to improved methods of teaching. It is necessary now for the colleges to combine and demand of the State examining boards a rational, flexible and practical examination and one which will bring to the front those men who have most studied the healthy human body, the diseased body and the methods of preserving health and treating disease. Written examinations only will not do this. They encourage pedantry, cramming and a "cuckoo" style of recitation. Actual examinations at the bedside with all the paraphernalia of diagnosis and therapeutics must be substituted at once for the examination at the table. It is not enough to say that this would be expensive and would consume too much of the examiner's valuable time. The examinations are not designed for the comfort of the examiner, but rather for the improvement of the education of students. The great expenditure of money and labor required of the medical schools by the four years' course must be seconded by equal expenditure by State boards. When such examinations are instituted it will be easy to separate the wheat from the chaff and to designate those medical schools that give a real medical education. Until this is done any crowd of young quiz masters can outdo the best equipped college and the most experienced faculty.

THE TEACHING OF MATERIA MEDICA AND THERAPEUTICS.

Materia medica has been the *bête noire* of the medical student. The study of its dry and categorical details has been largely a matter of mental gymnastics. In its teaching, instructors have sought to make it more acceptable to the mental palate of the pupil by a liberal admixture—with the uninteresting story of drug origins, pharmaceutic preparations and dose tables—of therapeutic facts. Until recently the text books have adopted the confusing method of merging the treatment of these two, usually allied, but deservedly distinct topics. Their greater dissociation is desirable for the better development of each subject and for the adaptation to each of its own proper method of study.

Dr. HENRY M. BRACKEN, of the University of Minnesota, in an article printed recently in the *New York Medical Journal*, has been the first, publicly, to recognize the necessity for a departure from the customary mode of instruction in these branches. His recently published work, "The Outlines of Materia Medica," is in evidence to prove the possibility of their divorce without damage, at least, to the teaching of the primary subject. It does not meddle, by any serious intention, with the question of therapeutics. Its author holds that these branches, wisely associated under a single chair, have, nevertheless, their proper places in different parts of a medical course. His claim that a certain amount of knowledge of general chemistry and physiology should be pre-attained by the beginner in materia medica is in reason. He adopts, in the first instance, the chemic and biologic arrangement in the study of drugs, the only arrangement which fits the laboratory method of teaching. For materia medica must come into line with histology, anatomy, physiology, chemistry and pathology as laboratory studies. The day of the didactic lecture in the treatment of such a topic has gone by. Of no subject is the lecture a more awkward vehicle of instruction.

The student of materia medica should be, to an elementary degree, a pharmacist. He should see and handle crude drugs and their eligible preparations. He should understand the principles of compounding by practice in the art of preparing materials and putting up prescriptions. Then, and not until then, should he be taught the physiologic action of drugs. And here the laboratory idea again comes forward. The pupil should observe, by illustration, the methods of studying physiologic action in animals and, so far as possible, in men. He should learn the limits of comparison between physiologic action in the human and in other forms of life. All drugs should be recognized with caution—not to say suspicion—whose physiologic effects have not been ascertained or can not be scientifically determined. Such a principle

would tend to the eventual elimination from the materia medica of a large mass of remedies which have ceased to have any clinical importance and never possessed any real therapeutic value. It would go far toward checking the modern heresy of therapeutic nihilism if the materia medica were once and forever purged of these discarded and impotent agents.

Having accomplished this riddance, it would be equally effective, in the encouragement of therapeutic faith, in these days of commercial enterprise and pseudo-scientific ingenuity among the manufacturing chemists, if the laws should require the submission of all new remedial agents to a bureau of scientific investigation connected with a National or with State boards of health. It is remarkable that we should so long have persisted in taxing the student of medicine with the command of weapons, which, in his practical armamentarium, he will never use—which his teacher himself would never employ. Is it any wonder that the graduate, in his mental confusion of drug values, should fall back upon patent preparations or proprietary formulæ?

In a later year therapeutics has its place. It should be taught as an independent study, with its relations to the physiologic action of drugs well elaborated from the laboratory standpoint and its clinical side developed, less in the lecture room than at the hospital bedside and in the dispensary clinic.

By these methods materia medica and therapeutics may be effectively taught and will cease to be classed, as they are now, among the bugbears of the curriculum.

THE VITAL AND PSYCHIC COMPLICATIONS IN CASTRATION FOR PROSTATIC HYPERTROPHY.

In the current (September) issue of the *Annals of Surgery* there appears an interesting paper by Dr. A. T. CABOT on "The Question of Castration for Enlarged Prostate," in which the writer takes, on the whole, an unfavorable view of the operation as compared with the older one of prostatectomy. He finds from his analysis of the statistics that, in the matter of mortality, it (castration) has a less favorable showing than prostatectomy, and conjectures that with later statistics reflecting the latest improvements in technique this disadvantage would be still more in evidence. Prostatectomy has also the further advantage of allowing a thorough examination of the bladder and the consequent discovery and relief of other, perhaps unsuspected, morbid conditions. Its disadvantages are the longer confinement and the possibility of fistula. It is applicable, he claims, to more cases than is castration, which is apparently most efficacious in large, tense prostates compressing the urethra, and is of little use in myomatous and fibrous enlargement, while the older operation is, in the hands of a skilful operator, applicable to the relief of any and every form of prostatic obstruction. It is, moreover, especially indicated whenever an inflamed condition of the bladder makes drainage desirable.

Dr. WHITE, the proposer of the operation and one of the editors of the *Annals*, takes up the question of Dr. CABOT'S paper in what seems to be a very ably written editorial and warmly combats some of his conclusions. As regards the mortality of castration, which it would seem Dr. CABOT'S statistics make unduly high, he seems clearly to have the advantage of the argument, especially as regards the deduction that the disparity would increase with improved technique in prostatectomy, for he shows by more recent statistics a decided reduction of the mortality, and he further shows from an analysis of Dr. CABOT'S own list that certain fatal cases are included in which the final result certainly ought not to be attributed to the operation. The mortality of such an operation as castration certainly ought to be less, it would seem, than that of prostatectomy. As he says, Dr. CABOT'S figures are, at any rate, rather small to base such positive statements upon.

As regards the utility of castration in myomatous and fibrous tumors, it would also seem that he had at least as good an argument in its favor as has Dr. CABOT against it, and he shows that the evidence as to the tendency to relapse is not adequate to confirm that author's conclusions. One point mentioned by Dr. CABOT, however, he neglects—that is the question as to the effects of castration on the general vitality, which CABOT claims is probably to some extent reduced by the removal of the organs. That these organs are absolutely without function at an advanced age is most certainly untrue for many individuals, even as regards their special reproductive utility alone. It would not seem improbable therefore that there might yet occur something at least of that general systemic reaction that is so marked in the younger individuals after castration, and that this might manifest itself in a more rapid failure of the vital energies and a quicker succumbing to the onset of senile changes. There is probably a germ at least of truth in the theory of BROWN-SÉQUARD as to the invigorating influence of the testicular secretion; certainly the experimenters in organo-therapy have not lost faith in it altogether. The organs do not atrophy completely, even after their special sexual function has apparently long been lost, and it is only reasonable to assume that they still have some utility in the organism.

The large proportion of cases mentioned by Dr. CABOT in which mental disturbance followed the operation is also noteworthy, even if it is not directly attributable to the character of the operation. We might perhaps expect some more emotional disturbance from an operation of this kind, associated as it is with the idea or recollection of the changes that follow it when performed in youth, and this psychic

element is not altogether a negligible matter. It may even have its share in causing the excessive (as it would appear) mortality that has followed so slight an operation.

While Dr. WHITE appears to have fairly replied to the other objections to the operation, this one is left unanswered, and it may not be an insignificant one. Time, of course, will be required to determine its full value and importance.

THE LABOR MOVEMENT AND MEDICINE.

The recent celebration of labor day throughout the country and the great extension and popularity of the so-called labor movement suggest certain questions that may become practical ones in the near future. Every one sympathizes with the desire of the working classes to improve their condition in all legitimate ways and the usefulness of labor organizations under judicious management need not be questioned. That their managers have not always been judicious is evident enough, but that is perhaps to be expected and it is to be hoped that more wisdom may guide their actions in the future than it has in the past. The question that concerns us most especially is that of their extension into certain lines of occupation that have hitherto been free from these complications. Medicine, being a liberal profession, is in no danger of falling into this line; the laws regulating practice are matters of public hygiene, not of private interest, though the medical defence associations that seem to be popular in Great Britain at the present time have some general resemblance to trades union or labor methods. There would, it may here be said incidentally, be no better object lesson of the evils of certain labor methods than a sympathetic strike of doctors, leaving their patients to go, in many cases literally as well as metaphorically, to the devil, according to orthodox beliefs. The nearest approach to this that is likely to occur is what happened, we believe, in England not long since, when the lay management of a certain hospital became so obnoxious that physicians refused to serve on its staff. Such an event would, however, be more the result of the individual expression of professional self-respect than of any combination analogous to trades organizations. There are, however, auxiliary to medicine certain occupations the followers of which can not be expected to be always governed by the high professional motives that are assumed to control regular physicians, and it is entirely possible to conceive of what we denominate labor troubles arising in their ranks. A general sympathetic strike in very many employments could easily have the most disastrous effects on the public health, a railroad strike involving the milk supply for only a few days in a great city would cause a terrible increase of infant mortality, and many other like instances and effects can be easily imagined. To come down more closely, however, to strictly medical employments, a strike of hospital employes, especially if in connection and alliance with a general strike, would be most disastrous; yet it is a perfectly conceivable possibility. In certain hospitals this contingency is calculated upon and all employment is regulated by contracts requiring notice and other precautionary provisions.

It is not to be supposed that public opinion would support any long extended movement that would have gross inhumanity as its consequence, and it is to be hoped that no labor combination would really deliberately attempt to injure or prejudice the welfare of the helpless and the invalid. It must be remembered, however, that the greatest wrongs are committed not through deliberate malice, but by inconsideration and recklessness, and the inability to see beyond an immediate desired end.

CORRESPONDENCE.

Physicians' Cards.

ANDERSON, S. C., Sept. 5, 1896.

To the Editor:—Is it contrary to the Code of Medical Ethics or the by-laws of the AMERICAN MEDICAL ASSOCIATION to use on a business or visiting card the words "Diseases of Women and Children," or any other words indicating a special line of practice? If not those words, is the word "Gynecologist" admissible? For instance, "Dr. Leptandrin, Cormes, Florida, Diseases of Women and Children."

Awaiting your reply, am very truly yours, J. O. W.

ANSWER: The reading of the Code explicitly says: "It is derogatory to the dignity of the profession to resort to public advertisements, or *private cards*, or hand bills inviting the attention of individuals affected with particular diseases, etc."—Vide Code of Ethics, "Of the Duties of Physicians to Each Other and to the Profession at Large."—Art. 1, Sec. 4. Now this is the exact language of the Code, and is in all well regulated societies regarded as the safest plan to follow.

The Bicycle.

IRONTON, OHIO, Aug. 30, 1896.

To the Editor:—I was greatly pleased to see so sensible an article in the last JOURNAL as that written by Dr. Brown of Birmingham. That the bicycle has come to stay is an assured fact. That more people are going to use them is another assured fact. That we, as physicians, should accept these as facts and devote more time to the "wheel and its effects" is also quite as much a fact. For the masses the wheel has come nearer annihilating space than anything that has so far been invented. Until we have a practical, low-priced flying machine people will continue the use of the wheel despite the fact that it produces pelvic troubles. I do not think, however, that it will produce as many of them as the same amount of horse-back riding. It is no more fair to call the hump-backed, ewe-necked, pop-eyed scorcher the typical bicycle rider than it is to compare the goggle-eyed thing that rides through Central Park to one of Buffalo Bill's riders in his Wild West Show. As long as we have in use the prevailing style of saddle we will have "the hump" because that is the easiest position. When we can have a seat that is flat, or nearly so, and receive its support from the center instead of the ends and has no prominent horn, then, and not until then, will we have what is to my mind, the

correct position. I have had one case of ruptured urethra and several cases of vesical irritation under my care, but have never failed to promptly give relief to the latter when the proper saddle was prescribed. When a fond mother asks me if I think her daughter can ride a wheel I say, "Yes, if the saddle is right." When a man asks me if he can ride a wheel I say, "If you get the right saddle and then use a little common sense." There are many good saddles now being manufactured and if we will use our influence in the right direction "the hump" and vesical irritation will soon be things that are not charged up to the bicycle. I have been a constant user of the wheel for three years, averaging about fifteen miles a day, the year round. Being compelled to investigate the saddle question, I went into the subject a little more seriously than if some one else were the patient, but since having the saddle right I feel as much freedom from pain and danger as if I were riding in a carriage. Prescribe the wheel for your patients, "but see that the saddle is right."

LESTER KELLER, M.D.

Diagnosis of Knee Joint Affections.

MINNEAPOLIS, MINN., Sept. 12, 1896.

To the Editor:—While it is usually a comparatively easy matter to make a diagnosis in tuberculosis of the knee, it is possible to be mistaken, as illustrated by the following cases:

Case 1.—A young man 19 years of age came to the writer with a knee which had been pronounced tubercular by a number of physicians who had seen it. It had already been treated by iodoform and iodin injections. He gave a history of having sustained a slight injury about a year before the writer saw him, and some time afterward the joint began to swell and became painful.

When he came to me he had an enlarged white joint with enlarged veins. There was flexion, atrophy, muscular spasm and severe pain which was much worse at night. He was put in bed and extension made by means of weight and pulley. In about a month his pain was relieved, the deformity overcome and the swelling seemingly diminished. At this time there was no question in the writer's mind but that the knee was tubercular. A plaster cast was applied and the patient allowed to go out on crutches.

After a very few weeks the pain returned; the swelling increased and the patient returned to bed, where he remained until he died three months later from an osteo-sarcoma. At that time my belief was that the sarcoma was secondary to tuberculosis, but the probability is that it was sarcoma from the beginning.

Case 2.—A lady, 49 years of age, was brought to me, who had a knee which was decidedly enlarged and which had been pronounced tubercular by many of the eminent surgeons of three different cities. An independent diagnosis of tubercular synovitis was made and excision advised. There was local swelling and heat, and what seemed to be a tubercular abscess in the popliteal space. There was flexion and tenderness upon pressure, but comparatively little pain. The family physician, acting upon the advice of a consulting surgeon, had tapped the joint some time before, drawing off quite a quantity of serous fluid, after which he injected iodin. The patient accepted the advice of myself and all the other surgeons (except one who wanted to try iodoform injections) and requested me to excise the joint. The patient had a hemophilic joint, and died one week after the operation, from acute anemia.

These rare and unexpected cases may occur in any joint, but the above are the only cases occurring in the writer's practice.

JAMES E. MOORE, M.D.

Work for the Association.—Let every member get a new member before the close of the year! Try it now! Let us reach the ten thousand mark in the semi-centennial year.

NECROLOGY.

ALEXANDER BUCHANAN, M.D., New York City, September 2, from complication of diseases from which he had been suffering for several years. He went to Sands Point early in the summer, but becoming worse he was taken to the Post-Graduate Hospital where he died. Dr. Buchanan was born in Glasgow sixty-five years ago. He came to New York in 1856, but returned to Scotland to study medicine and graduated from the University of Glasgow in 1860. In 1862 he graduated from the New York Medical College. He was a Fellow of the Royal College, of Physicians and Surgeons, Glasgow, a member of the New York State and County Medical Associations and a member of the New York County Medical Society.

ABRAHAM LIVEZEY, M.D., at Yardley, Pa., August 31. He was at one time professor of obstetrics at the Woman's Medical College of Philadelphia. He had been suffering for thirty years from lupus of the face. He was born in Solebury township, Pa., in 1821, and graduated from Princeton College in 1842, and from Jefferson Medical College in 1845.

ASBURY M. DAY, M.D. (Albany Medical College, Albany, N. Y., 1860), at Farmington, Del., September 4, aged 60 years. ——William K. Conaway, M.D. (Jefferson Medical College, Philadelphia, Pa., 1890), of Ridgeley, Del., September 4.

CHARLES LOTIN HILDRETH, M.D., of Southampton, N. Y., who was gaining prominence among the younger poets and writers of this country, died at the residence of his wife's sister, Mrs. Mary Kyle Dallas, on August 12. He was 40 years old and leaves a widow who is an authoress. There are no children. Dr. Hildreth's death was due to nervous prostration brought on by the intense heat of the week previous.

MATT YOUNG, M.D., the oldest physician of Ashland, Ky., died August 26.

J. L. BENSON, M.D., aged 79, died at his home in Noblesville, Ind., September 8. He was a surgeon of volunteers during the war, and had practiced medicine for fifty years.

NEW INSTRUMENTS.

A NEW SELF-RETAINING NASAL SPECULUM.

BY J. R. STRAW, M.D., ASHLAND, WIS.
Late House Surgeon Baltimore Eye, Ear and Throat Charity Hospital, Baltimore, Md.

I have realized, as has I presume every other rhinologist, the need of an absolutely self-retaining nasal speculum. To obviate this, about two years ago I devised the instrument

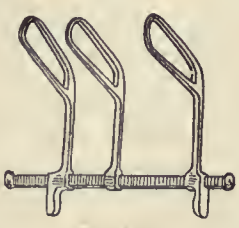


FIGURE 1.

illustrated in the accompanying cuts. As an inventor is always an enthusiast on his own devices, I have hesitated to recommend it to the profession, fearing it would prove, as many other instruments, useless for its designed purpose.

Knowing this fact, I have used it for the last two years, and am thoroughly satisfied as to its merits and practicability, especially for operations on the nose.

Cut No. 1 represents the instrument with fenestrated blades, consisting of three, on a straight, square bar, those on either end being movable, the central stationary. This latter or central blade is placed on one side of the septum, while the dilating blade on the opposite side of the nose to be dilated, is

brought firmly up against the septum and then, on the Lennox-Browne principle, locks itself. These two blades acting as a clamp on the septum, can not possibly slip; the other blade is then pressed out against the alæ of the side to be dilated, and also locks itself on the same principle.

Cut 2 represents the instrument in situ.



FIGURE 2.

The instrument is also made with solid blades, which protect the parts especially when the galvano-cautery is used. If desired the middle blade can be made adjustable, so that it can be extended back to protect the septum for some distance if necessary, although the cut does not show this.

I have recently had one made with solid blades, which I find more satisfactory than the one shown in the cuts. The original instruments have been made for me by Guinand Bros. of this city.

SOCIETY NEWS.

The Watertown (N. Y.) Medical Society has reëlected the following officers for the ensuing year: President, J. M. Crawe, Sr.; vice-president, Gilbert Cannon; secretary, C. N. Bibbins; treasurer, J. M. Crawe, Jr.

The American Electro-Therapeutic Association will hold its sixth annual meeting at Boston, Mass., September 29-30, and October 1.

Address of the President, Dr. Robert Newman, New York City. "The want of education in electro-therapeutics in medical colleges."

Reports of committees on scientific questions:

On induction coils and alternators. Mr. A. E. Kennelly, Philadelphia, Pa.

On meters. Dr. M. A. Cleaves, New York City.

On static machines and condensers. Dr. W. J. Morton, New York City.

On constant current generators and controllers. Dr. W. J. Herdman, Ann Arbor, Mich.

On electrodes. Dr. C. R. Dickson, Toronto, Canada.

On electric light apparatus for diagnosis and therapy. Dr. J. H. Kellogg, Battle Creek, Mich.

Papers:

What can be done by means of the use of electricity to avoid surgical operations? Dr. G. Betton Massey, Philadelphia, Pa.

Electricity in chronic non-suppurative affections of the uterine appendages. Dr. F. Shavoir, Stamford, Conn. Discussion by Dr. G. Betton Massey, Philadelphia, Pa.

Electricity in the treatment of diseases of the throat and nose. Dr. O. B. Douglass, New York City.

Accidents and risks in the use of street currents. How far are they practicable and safe in the use of electro-therapeutics? Mr. J. J. Carty, E. E., New York City.

Electricity in the treatment of diseases of the larynx. Dr. W. C. Phillips, New York City.

Digest, showing the danger to patients and operators, the utter unreliability of fuse wires, resistance coils and incandescent lamps as a preventative of excess flow of current into patient. The liability of and danger due to the crossing of operator's wire, by wires carrying high tension current, both direct and alternating. Mr. John J. Cabot, E. E., Cincinnati, Ohio.

Experiments upon the effects of direct electrization of the stomach. Dr. Max Einhorn, New York City.

Electricity in diseases of the stomach. Dr. David D. Stewart, Philadelphia, Pa.

The static current of the post-apoplectic state. Dr. John Gerin, Auburn, N. Y.

The electric principles generally used in medical treatment. Prof. William L. Puffer, Boston, Mass.

The relations of physics to physiology. Prof. A. E. Dolbear, Tufts College, Mass.

Electro-therapy in the treatment of the nervous. Dr. W. S. Watson, Fishkill-on-Hudson, N. Y.

The role of electricity in the treatment of uric acid diathesis. Dr. J. G. Davis, New York City.

Some observations in electro-therapeutics. Dr. D. R. Brower, Chicago, Ill.

The physics of the production of the X rays. Mr. Edwin Houston, Philadelphia, Pa.; Mr. A. E. Kennelly, F.R.A.S., Philadelphia, Pa.

Treatment of strictures by electrolysis *versus* any other treatment. Dr. F. H. Wallace, Boston, Mass.

"The Newman method of urethral electrolysis." Its advantages and reasons why some operators fail. Dr. Francis B. Bishop, Washington, D. C.

Faradism in gynecology. Dr. R. J. Nunn, Savannah, Ga.

The motor dynamo—adapted to electro-therapeutic work. Dr. W. J. Herdman, Ann Arbor, Mich.

The application of electricity to surgery. Dr. J. W. Herdman, Ann Arbor, Mich.

A summary of the ultimate results in eighty-six fibroid tumors, treated by the Apostoli method. Dr. G. Betton Massey, Philadelphia, Pa.

Some experiences and experiments in the construction of high tension coils and electrodes. Dr. Frank W. Ross, A.M., Elmira, N. Y.

Electricity considered in its relation to surgical gynecology. Dr. O. S. Phelps, New York city.

A clinic report of case of rectal phlebitis treated with galvanism. Dr. D. B. D. Beaver, Reading, Pa.

On the electro-therapeutics of the constant current. Mr. A. E. Kennelly, F.R.A.S., Philadelphia, Pa.

The New York State Medical Association will hold its thirteenth annual meeting in New York City, October 13, 14 and 15.

Address by the President, Dr. Darwin Colvin. "Medical expert testimony."

The technique of intubation in children, some remarks on the time for operation and after treatment. Dr. Thomas J Hillis, New York County.

Functionless organs, are there any? Possible use of the appendix vermiformis. Dr. Nelson L. North, Kings County.

The elongation of retracted muscles in club foot. Dr. T. M. Ludlow Chrystie, New York County.

Special report on Criminology. Dr. Austin Flint, New York County.

Brief comments on the materia medica, pharmacy and therapeutics of the year ending Oct. 1, 1896. Dr. E. H. Squibb, Kings County.

Discussion on Surgery: "Prostatic enlargement."

The discussion will be opened by Dr. J. W. S. Gouley, New York County.

The treatment of fecal fistula with reports of cases. Dr. Frederick Holme Wiggin, New York County.

Amputation of the lower third of the leg, with periosteal flap." Dr. Joseph D. Bryant, New York County.

Suture of the liver for incised wounds. Dr. Stephen Smith, New York County.

Operation for rectal hemorrhoids and prolapse by submucous ligature. Dr. Benjamin M. Ricketts, Cincinnati, Ohio.

The practical uses of Roentgen's discovery as applied to surgery; with illustrations. Dr. Reginald H. Sayre, New York County.

The treatment of otorrhea and its importance. Dr. Edward B. Dench, New York County.

The relation of nose and throat affections to diseases of the ear. Dr. Frank S. Milbury, Kings County.

Temperature as an element in prognosis. Dr. John Shrady, New York County.

Diphtheria. Dr. Thomas G. Acker, Westchester County.

On the treatment of inebriety. Dr. T. D. Crothers, Hartford, Conn.

Further remarks on the domestic test for albumin in urine. Dr. John G. Truax, New York County.

A successful plaster-of-Paris bandage cutter. Dr. Sidney Yankauer, New York County.

The physiologic deductions regarding the usefulness of so-called animal extracts. Dr. H. A. Haubold, New York County.

Two interesting cases of surgery of the kidney. Dr. J. E. Janvrin, New York County.

Recent investigations concerning eclampsia. William T. Lusk, New York County.

Puerperal eclampsia; studied with reference to pathogenesis and therapeutics. Dr. George T. Harrison, New York County.

The palliative treatment of cancer of the cervix and bladder in women. Dr. Nathan G. Bozeman, New York County.

Rare complications in two cases of hysterectomy. Dr. Ely Van de Warker, Onondaga County.

One point in the treatment of endometritis. Dr. William H. Robb, Montgomery County.

Address on surgery. Dr. Charles Phelps, New York County.

The vitality of cutaneous epithelium, with report of clinic observations in skin grafting. Dr. Zera J. Lusk, Wyoming County.

Acute amnesia. Dr. William D. Granger, Westchester County.

The duty of the public to the physician. Dr. William M. Bemus, Chautauqua County.

Supplementary notes upon tendon grafting and muscle transplantation for deformities following infantile paralysis. Dr. S. E. Milliken, New York County.

The medico-legal aspect of prison reform. Dr. Ernst H. Schmid, Westchester County.

Auscultatory percussion. Dr. Louis L. Seaman, New York County.

Druggist versus doctor. Dr. Henry B. Van Zandt, Schenectady County.

The peripheral neuralgias, traumatic and toxic. Dr. Thomas H. Manley, New York County.

The passing of venesection. Dr. H. D. Didama, Onondaga County.

A class of fatal cases, presumably due to intestinal ptomains. Dr. E. D. Ferguson, Rensselaer County.

PUBLIC HEALTH.

Report of the Bureau of Health of Denver, Colo.—Total number of deaths for August, 163; cases of phthisis contracted elsewhere, 24; death rate per 1,000 per annum, 13.04; death rate, excluding phthisis contracted elsewhere, 11.12; males, 86; females, 77.

Typhoid in Marion County, W. Va.—The typhoid epidemic in Marion County, W. Va., is spreading rapidly, the deaths multiplying daily. New England has 125 cases with an average daily death rate of 2. Every family in Riversville has one or more cases. Barnesville is in the same condition, five deaths occurring there on September 7. In consequence of the epidemic, the mining business is greatly disturbed and in some localities partially suspended.

Diphtheria and Typhoid in Chicago.—During the five days ending September 7 seventeen deaths from diphtheria were reported to the health department, a daily average of 3.4, or more than for any corresponding period since the epidemic of the winter of 1895-96. On September 4 seven people died from typhoid fever, breaking the record since 1892. The health department says the prevalence of the disease is due to impurities in the drinking water. During August of this year typhoid claimed sixty-four victims, against fifty-nine for the corresponding period of 1895. About five hundred cases are reported at present in the city.

The Old-time Enemies of Water.—A writer in *Hospital* has made a partial collection of the sentiments of the ancient as opposed to the virtues and values of that blessing, water. In fact, he says, there are very few old writers who say a good word in its favor. The "Venerable Bede" (673-735) prescribed the following general directions: "In June of a morning a cup of cold water, fasting; for July the same, but in October for sweetening the blood, for the expulsion of stone, and for healing the lungs, instead of water one should take the milk of goats or sheep and should not wash very often; in February one should foment the limbs; in August he should not refresh in cold water, but in January he should plunge his body into warm water." One or two writers only are concerned to maintain that, "when begun in early life it [water] may be pretty freely drank with impunity," and they quote the curious instance given by Sir Thomas Elyot in his "Castel of Health," (1534) of the Cornish men, "many of the poorer sort, which never, or very seldom, drink any other drink, be notwithstanding strong of body and like, and live well until they be of great age." Thomas Cogan, the medical schoolmaster of Manchester fame, confessed in his "Haven of Health," 1589, designed for the use of students, that he knew some who drank cold water at night or fasting in the morning without hurt; and Dr. James Hart, writing about fifty years later, could even claim among his acquaintance "some honorable and worshipful ladies who drank little other drink and yet enjoyed more perfect health than most of them that drank of the strongest." The phenomenon was undeniable, but the natural inference was none the less to be resisted. Sir Thomas Elyot himself is very certain, in spite of the Cornish men, that "there be in water causes of divers diseases, as of swelling of the spleen and liver." He complains oddly also that "it flitteth and swimmeth," and concludes that "to young men and them that be of hot complexions it doeth less harm, and sometimes it profiteth, but to them that are feeble, old and melancholy it is not convenient." "Water is not wholesome drink by itself for an Englishman," was the verdict of Andrew Borde who was author of a Breviarie of Health, and who died in prison (1549), probably for debt, since it was his habit to make humorous speeches at fairs and who originated the sobriquet of "Merry Andrew." But the most formal indictment against water is that of Venner, who, in writing in 1622, ponderously pronounces "to dwellers in cold countries it doth very greatly deject their appetites, destroy the natural heat and overthrow the strength of the stomach, and consequently confounding the concoction, is the cause of crudities, fluctuations and windiness in the body." But be this as it may, allowance must be made for the numerous marshes and lazy streams of the day, which may have unconsciously pointed the moral of avoidance. Besides too there may have been rampant the usual excuses for intemperance, and the growing favor of boiled, or for the matter of that, malt drinks. For even at this late date the ingenuity of man is not so much wasted upon a pure water supply as upon the varied flavors of the shops, especially during a heated term. There are no fears especially if the compound is well sugared, and defies an analysis of its elements. Man yearns for the toothsome rather than for the salubrious.

Safe Drinking Water for Travelers.—Mr. Budgett Meakin, a globe trotter of renown, writes for a London newspaper some cautions about drinking water away from home. He says: "It is my opinion that it is a practicable undertaking to procure good drinking water abroad, derived not only from personal experience in France, Spain, Italy, Switzerland, Germany, Holland, Belgium, etc., on the continent of Europe, but also

on all three of the other continents. Not that the liquid supplied has always been of ideal purity, but that I have never suffered in any way from having remained throughout staunch to my pledge to abstain from all intoxicating liquors as beverages, though I must confess to the charge of a somewhat immoderate use of drinking water. In almost every large town on the continent I have been surprised at the quality of the supply, regarding which I have invariably made inquiry of local people other than hotel proprietors, who can hardly be considered disinterested persons. Wherever there has been the least doubt, I have felt safer in using aerated water as likely to be the best procurable on the spot, or when doubt was strong, apollinaris or Hunyadi, or other mineral water. Then these were, very rarely, not procurable or insufficient, I have had my drinking water boiled for at least ten minutes and, if need be, filtered. In such cases tea has always been my stand-by, a small box full of a decent quality being always ready in my handbag. For filter, let me warn tourists against all stone or charcoal block systems after they are once clogged and work slowly. The block must then be thrown away and replaced by a new one. For this reasons the filters that can be recharged in a few moments with fresh charcoal, giving an absolutely new medium as soon as required are far preferable. All others soon become sources of danger instead of protection. The filtering when needed should precede the boiling, unless soup is required, though it is astonishing how often this natural order is thoughtlessly reversed. A pocket or small table filter can easily be carried in the lunch basket. It is well to inform the waiter on your arrival of your teetotal principles before he begins to recommend the cellar and to insist, on that account, on having the water bottles on the table and in the bed-room thoroughly well washed and refilled for your use. It is no use telling me that wine is purer, for I have seen how wine is made, and have trodden the wine press myself in Spain. When one is driven by thirst to doubtful water the best plan is to rinse the mouth well and gargle, or even to wet the face, neck and hands as well. Careful mouth-washing after rich food is an invariable ally to the total abstainer, and is invariably practiced by the Mohammedans, the abstemious races of India and many others. Before filtering muddy water, a little water will precipitate much of the suspended matter, and so will other substances less convenient in traveling. On country excursions there is no preparation like a bottle of cold, unsweetened tea, just bitter enough to prevent a mouthful being swallowed after the thirst is quenched. I have found an average of one pint a day sufficient for long rides in the sun in summer. Thus with a little care, the subtle excuse of bad water is disposed of, an excuse which does much more evil than we hear of in England. I am convinced that more travelers suffer from eating too much meat and that too fast, than from the water, and from inattention to the regular performance of digestion, which is an invaluable index. My own custom is to eat in every land the local food with such exceptions as pigs, carnivorous things, putrid (not rare) meat and shellfish; and I have been duly thankful in every clime for the best of health and good sleep."

Health Report.—The following reports of mortality from smallpox, yellow fever and cholera have been received in the office of the Supervising Surgeon-General U. S. Marine-Hospital Service:

SMALLPOX—FOREIGN.

Antofogasta, Chile: July 24 to 31, 1 case, 1 death.
Bombay, India: August 4 to 11, 4 deaths.
Callao, Peru: August 2 to 16, 24 deaths.
Gibraltar: August 16 to 23, 2 cases.
Licata, Italy: August 15 to 22, 3 deaths.
Madras, India: August 1 to 7, 1 death.
Madrid, Spain: August 18 to 25, 33 deaths.
Montevideo, Uruguay: July 18 to 25, 3 cases, 1 death (varioloid).
Moscow, Russia: August 8 to 15, 3 cases, 1 death.
Naples, Italy: August 15 to 22, 9 cases, 5 deaths.
Odessa, Russia: August 15 to 22, 4 cases, 3 deaths.
Pernambuco, Brazil: July 18 to 25, 50 deaths; July 25 to August 1, 51 deaths.
Rio de Janeiro, Brazil: August 1 to 15, 33 cases, 4 deaths.
St. Petersburg, Russia: August 15 to 22, 2 cases, 1 death.
Warsaw: August 15 to 22, 5 deaths.
Yokohama: July 17 to 31, 2 deaths.

CHOLERA.

Egypt: Cairo, August 4 to 10, 14 cases, 4 deaths; Alexandria, August 9 to 15, 22 cases, 21 deaths.

During the period from August 4 to August 15 there were 1,008 cases of cholera and 554 deaths from that disease reported from towns and districts in the interior of Egypt. From the beginning of the epidemic to August 14 the figures are: 17,453 cases, 14,498 deaths. In the Port of Alexandria to August 14 there have been 970 cases, 821 deaths.

India: Bombay, August 4 to 11, 21 deaths; Madras, August 1 to 7, 2 deaths; Calcutta, July 25 to August 1, 8 deaths.

YELLOW FEVER.

Brazil: Rio de Janeiro, Aug. 1 to 15, 7 deaths.

Cuba: Cienfuegos, Aug. 23 to 30, 6 deaths; Cardenas, Aug. 16 to 29, 65 cases, 22 deaths; Havana, Aug. 27 to Sept. 3, 100 cases (?), 60 deaths; Matanzas, Aug. 26 to Sept. 2, 31 deaths; Santiago, Aug. 22 to 29, 14 deaths; Sagua la Grande, Aug. 15 to 29, 145 cases, 24 deaths.

BOOK NOTICES.

Transactions of the Medical Society of the State of California. Session of 1896. A. P. WOODARD, Chairman, W. W. KERR, A. H. TAYLOR, J. M. WILLIAMSON, M. H. WOOLSEY, Committee on Publication. W. A. Woodard & Co., San Francisco, Printers. 359 pp. Cloth.

W. G. Cochran delivered the address of welcome, which was responded to in a happy manner by R. Beverly Cole, M.D., Ex-President of the AMERICAN MEDICAL ASSOCIATION. President W. Le Moyne Wills, M.D., in his address, ably discusses the subject of medical progress, etc. He calls attention to the subject of transportation of tuberculous patients and says it is time the different States should give it attention, and if the railroad companies will not discriminate and protect healthy passengers, the States, through their medical officers and the profession, must protect themselves and those entrusted to their charge. The book contains, in addition to reports of committees, lists of members, etc., some thirty-eight interesting papers.

A Manual of Clinical Diagnosis by Microscopical and Chemical Methods. For Students, Hospital Physicians and Practitioners. By CHARLES E. SIMON, M.D., Late Assistant Resident Physician Johns Hopkins Hospital, Baltimore. In one very handsome octavo volume of 504 pages, with 132 engravings and 10 full-page colored plates. Cloth, $3.50. Lea Brothers & Co., Philadelphia and New York. 1896.

The special feature of this work on diagnosis is indicated in its title, namely, the application of chemistry, and it is a fact, beyond controversy, that the great preëminence of certain European classes is due to the greater attention paid to chemistry, physiology, bacteriology and diagnosis. The author says: "It is curious to note that, notwithstanding the great importance of clinic chemistry and microscopy, but little attention is paid to these subjects, either by hospital physicians or by those engaged in general practice. This lack of interest is referable primarily to the fact that systematic study of these branches has heretofore been greatly neglected, not only in American medical schools, but also in those of Europe."

The laboratory method of diagnosis, when taken in connection with the well-known physical signs, makes the practice of medicine truly a science, and we can not have too many books of this character.

The directions for examination of the various fluids of the body and the excreta are so clear and explicit, that it does not require an expert to follow out the tests as laid down in the book. The work is well illustrated, and some of the illustrations, being in colors, are beautiful.

A Manual of Venereal Diseases. By JAMES R. HAYDEN, M.D., Chief of Venereal Clinic, College of Physicians and Surgeons, New York; Professor of Genito-urinary and Venereal Diseases in the Medical Department of the University of Vermont, etc. In one 12mo volume of 263 pages, with 47 engravings. Cloth, $1.50. Lea Brothers & Co., Publishers, Philadelphia and New York. 1896.

In this little manual students and practitioners will find a practical dissertation on the three venereal diseases—gonorrhea, soft chancre and syphilis, with their complications and sequelæ. The general line of treatment and the formulæ given are those advocated by Prof. R. W. Taylor of New York, in his clinic. The discussion of the history and statistics of these diseases, which usually takes up a large portion of a volume, has been omitted from this manual. The illustrations are fair; the mechanical execution of the work is all that could be desired. We notice, however, that the Otis instrument figured on page 103 is an old pattern, and not the instrument having a tunneled extremity for the passage of the guide, which is that we believe most recently used and figured in the volume of Park previously noticed. For examination purposes, and those preparing for examination, the manual will be found very useful.

Jackson's Ready-Reference Handbook of Skin Diseases. The Ready-Reference Handbook of Diseases of the Skin. By GEORGE THOMAS JACKSON, M.D., Professor of Dermatology, Woman's Medical College of the New York Infirmary and in the University of Vermont, Chief of Clinic and Instructor in Dermatology, College of Physicians and Surgeons, New York. New (2d) edition. In one 12mo, volume of 589 pages, with 69 illustrations and a colored plate. Cloth, $2.75. Philadelphia, Lea Brothers & Co., 1896.

In this the second edition of this work the author has added considerably both to the text and illustrations.

The greatest defect is that it gives too much space to the recipe, and too little to pathology and etiology. Practical physicians who form their opinions upon the analysis of the symptoms and history of a case rather than its disease label will regret this. The work however is a useful one and this edition will doubtless have a great sale.

MISCELLANY.

Dr. Charles A. L. Reed has been elected gynecologist and abdominal surgeon on the staff of the Cincinnati Hospital, vice Dr. T. A. Reamy, resigned.

Illinois Medical College Commencement.—The second annual commencement exercises of the Illinois Medical College, Chicago, were held September 10. A class of ten, three of whom were women, received the degree of Doctor of Medicine. The Bishop prize for the highest grade in clinic surgery was won by William F. Sterman.

A New Cycle Ambulance has been invented by Dr. Honig of Berlin. It is not drawn by horses or men in the ordinary way, but is propelled by cyclists, and consists of a kind of litter resting on a frame with five wheels, three in front in the form of an ordinary tricycle, and two at the back.—*Albany Med. Annals*, September.

Homage to Pasteur.—An interesting feature of the recent International Congress of Applied Chemistry at Paris, was when the members repaired to the Cathedral of Notre Dame and defiled past the chapel where Pasteur's remains are lying, leaving there a magnificent wreath of cut flowers, with an appropriate inscription. They went from there to the Institut Pasteur, where they witnessed several antirabic injections, and closed the day by visiting the stables where the immunized horses are kept.

Connection between Rachitis and Humidity.—A study of rachitis or English disease, as it is called, is published in *Wratsch*, No. 17, which asserts that it is a physiologic condition in localities with a relative annual humidity of 80 per cent., while it never appears where the annual humidity is 8 per cent., except under exceptionally favorable circumstance for its evolution, and is unknown in localities with less humidity than this.—*St. Petersb. Méd. Woch.*, No. 7.

Post-Graduate Medical School of Chicago.—The Post-Graduate Medical School of Chicago moved into its new building and new location at 2400 Dearborn Street, Sept. 1, 1896. The new building is an ornate structure, seven stories in height, constructed as a clinic school and a clinic hospital. The school is complete having the most modern lecture rooms and laboratories. The hospital has accommodations for 100 beds. One floor is artistically furnished for private patients. There are four operating rooms of the most modern construction, including an amphitheater operating room, which will accommodate 300 students. The building is lighted with electricity and is provided with elevators. The location is selected because of its superior clinic advantages. Within a distance of ten minutes' ride from the school proper are the St. Luke's, Charity, Michael Reese, Mercy, Woman's and Wesley Hospitals. Clinical instruction will begin in the new quarters at once.

Criminality of Hygienists.—A witty article in the *Revue Médicale de Paris* laments the growing scarcity of the sick and the increasing numbers of physicians. It denounces Jenner, Pasteur, etc., as guilty of depriving their colleagues of their daily bread and wrecking the profession. Especially is this the case in the cities where prophylactic and hygienic measures are most strictly enforced and the sick number less in proportion. It adds a few figures in confirmation from the death records of Paris during the last ten years, stating that the figures to date for 1896 show even more marked reduction:

Deaths caused by	1885 to 1890.	1890 to 1895.
Smallpox	1,271	656
Scarlet fever	1,225	946
Measles	6,671	5,192
Diphtheria	8,383	7,588
Typhoid fever	5,904	3,493

Vaginal Hysterectomy.—In cases where hysterectomy must be an operation of election there may be conditions that will require the vagino-abdominal or the suprapubic method. The following are some of the reasons why vaginal hysterectomy should be preferred to celiotomy: 1. There is less shock and more rapid and complete convalescence. 2. In pelvic suppuration there is less danger of septic infection from soiling the peritoneum. 3. Absence of suture or mural abscesses, and of sinuses following the use of drainage or an infected ligature. 4. Immunity from ventral hernia. 5. A lower mortality, fewer post-operative complications, and a more complete restoration to health in a relatively greater number of cases. The above are facts, as shown by the statistics of the most successful operators in celiotomy and vaginal hysterectomy; and in vaginal hysterectomy many of the cases were inoperable by any other method.—Dr. William H. Mathew, in *Am. Jour. Obst.*, September.

Defective Breasts a Sign of Degeneracy.—Hegar appeals to young men on behalf of posterity to select women with well developed breasts for their wives, and suggests that the young women can retaliate by refusing to marry a man unless he can produce a record of having been a "breast baby." He quotes statistics to prove that inability to nurse a child is a sign of degeneracy, and produces degeneracy. We note among the facts he cites that in a certain district which supplies large numbers of wet nurses to the city, the percentage of men physically incapable of military service amounts to 30 per cent., while in the neighboring districts where the mothers remain at home with their families, it is only 18 per cent. He also remarks upon the surprising numbers of deformed nipples encountered in the hospitals. Fehling mentions "hollow nipples" as occurring in 6.7 per cent. of his obstetric cases. Hegar warns mothers not to allow the clothing to constrict the growing breasts of their

daughters, and urges general hygiene as the best method to develop them.—*Deutsch. Med. Woch.*, August 20.

Influence of Sugar on the Energy of the Muscles.—Schumburg states that he has been experimenting with Mosso's ergograph to determine whether sugar increased the muscular power as some assert, or whether the increase in energy observed is due to psychic influences. He found that the sugar produced no perceptible effect on fresh, unfatigued muscles, but that muscles fatigued from previous severe exertion were strengthened to a noticeable degree. This effect was attained whether the muscles were strong or weak.—*Deutsch. Med. Woch.*, August 20.

The Pan-American Congress.—The committee in charge suggests to the home members climatology and a study of yellow fever and its disappearance as the altitude increases, as special subjects in which home talent might render great service to science. Also the study of leprosy and of the endemic "pinta." Typhoid fever and malarial disorders are also of universal interest, and the physician of Mexico has especial opportunity to observe them under varying conditions of climate, etc. Another subject for which he is especially qualified is the changes undergone by the organism in adapting itself to varying altitudes. The Mexican surgeon is also peculiarly an authority on the wounds produced by "cold steel." It also sensibly advises the home members not to expatiate on the deficiencies, but to reserve such facts for the national gatherings, and in the international congress, to dwell rather on what has been accomplished in their country.

Treatment of Chlorosis with Ovarian Extracts.—Spillman and Etienne have treated six cases of chlorosis with ovarian extracts with satisfactory results. They say of the ovary that it is a gland with an external secretion, the ovum; that it is also a gland which eliminates by means of the menstrual flow the excess of organic toxins, while at the same time it is a gland with an internal secretion, like the testicles, and this internal secretion plays an important part in the general nutrition. When the ovaries are diseased, these three functions of the gland are modified or abolished, and with the suppression of the menses appears that special intoxication, chlorosis. This general morbid condition prevents in turn the restoration of the ovaries to normal conditions. Administering ovarian tissue or extract favors the elimination of the toxins and introduces into the organism an antitoxic principle which seems to exert a beneficial effect on the general health, to increase the number of corpuscles and cause the reappearance of the menses. They administered fresh ovarian tissue from lambs, or the same desiccated, and also extracts prepared by the Brown-Séquard-d'Arsonval method. Mairet added to their communication to the French Medical Congress, that his experience confirms their statements and also the fact that the injection of blood and the products of other glands, notably of the testicles, improves the general nutrition. Teissier remarked in regard to the injection of renal extracts, that they attenuate accidents of renal origin by augmenting the elimination of poisons through the urine.—*Bul. Méd.*, August 26.

Creation of Universities in France.—There are no universities in France at present as we understand the term, but recent legislation to take effect in 1898 unites the separate "corps de facultés" which now have charge of higher learning into organized combined institutions similar to those in other countries. Fifteen cities have "corps de facultés," and half of them have all four departments, medicine, law, science and philosophy, but these departments have been heretofore separate entities, with no interests in common, their expenses paid by the government and the receipts from students paid to the government. The new law merges these separate faculties into universities, which are to retain a certain proportion of the fees from students, with other privileges depending upon the number of students they attract. It is evidently an attempt to foster a spirit of emulation and catholicity of culture. A letter to the *Deutsch. med. Woch.* commenting on the new order of things, mentions the strictly obligatory nature of the French courses; three absences from a course without an excuse and one's name is dropped from the list and one loses the trimester. There is no such thing as academic option in France except in regard to the conventionalities and police regulations. It adds that there is more license allowed in Paris, at least, in these respects than anywhere else in the world probably.

Pathologic Study of the Kidneys.—Mircoli describes in the *Gaz. degli Osp. e delle Clin.* of August 23, a series of experiments on rabbits to investigate the beginnings and course of renal lesions, as such lesions usually come under observation in the clinics only in the latest stages. He found that one diseased kidney was apt to infect the other, also that lesions of the connective tissue and of the epithelium and albuminuria have a characteristic tendency to become aggravated and progressively chronic. The albuminuria in interstitial nephritis is the exponent of the various stages of the development of the morbid condition, rather than of the intensity or extension of the process; its disappearance may therefore coincide with the maximum of the lesions in the connective tissue. He also established the fact that a localized lesion tends to extend along the route of the connective tissue, and ultimately to affect all the viscera, with a diffuse alteration.

Fat as a Factor in the Production of Hernia.—Tillaux and Champonnière assert that the original cause of almost all hernias, congenital inguinal hernia excepted, is an exaggerated development of adipose tissue, or the other extreme, emaciation. The tendency to obesity should be combated on this account with gentle gymnastics, especially balancing, and the frequent use of mild purgatives to keep the intestines empty, with suitable diet, little meat, no alcohol in any form, and other means to keep the functions of the skin and kidneys active, hot dry or steam baths, mineral waters, &c. Elderly persons should seek gentle exercise, avoid effort in defecation and coughing, and also not lie too much in bed nor sleep too long. It is often best to precede an operation with antifat treatment of this kind. In certain cases of distressing hernia, surprising relief is sometimes obtained by reducing the obesity.—*Bulletin de l'Académie de M.*, August 25.

Reinfection of Syphilis.—The recent specialist Congress at London and also the French Congress of Internal Medicine, devoted considerable time and discussion to this question. Cases were described in each that seemed to prove conclusively the fact of recovery from the first attack and reinfection later. But the French and some others still cling to the theory that once a syphilitic, always a syphilitic, or as the English specialist remarked: "The soul of a syphilitic will rise syphilitic at the Judgment Day." Fourrier in France and Ogilvie at London cited convincing cases of reinoculation, but the latter protested against confounding the question of reinfection with the question of curability, as reinfection may occur in the midst of tertiary symptoms, as he has had occasion to observe, while on the other hand, he thinks that even if there is no such thing as reinfection, still this does not prove the incurability of syphilis, as immunity is not synonymous with disease.

Applied Chemistry.—The recent International Congress decided that the word "extractive" should be henceforth dropped as vague and unnecessary. The term "azoturic proportion" will also supersede the term "coefficient of azotic oxydations" in the analysis of urines, to express the proportion of azote in the urea to the total amount of azote in the urine. In determining the amount of uric acid, the Salkowski-Ludwig method is to be used where extreme accuracy is desirable, but the Denigès' method is sufficient for all practical

purposes. In testing physiologic and pathologic liquids, they are no longer to be measured by bulk, but by weight, with a standard quantity in a standard platinum capsule, for a standard length of time and under standard conditions of temperature. This system is already followed in analyzing sugars, wines and foods. The standard of acidity is to be the number of cubic centimeters in normal alkalin fluid. Gastric juice is to be the only exception to this. Its acidity will be estimated as hydrochloric acid, with phenolphthalin for the indicator. Further efforts were made to unify the Codex, and the congress officially resolved to appoint a committee in each country to establish the standard of purity for each medicine, and the quantities of the active principles contained in it, with a statement of the methods of dosage and the corresponding proportions in foreign pharmacopeias—this official analytic supplement to be included in each Codex.—From the *Bulletin de l'Acad. de M.*, August 11.

"Wisconsin Eclectic Medical College of Milwaukee," Wis.—We have received of Dr. C. R. Gay of Windsor, Vt., a letter which encloses various circulars of the Wisconsin Eclectic Medical College. It seems that the Medical and Surgical Directory wrote Dr. Gay, and receiving no reply, placed a star opposite his name: whereupon the diploma mill people write a letter to Dr. Gay, which runs about as follows:

"We notice your name in a Surgical Directory, but with a star appended, to which a foot note reads: 'No report received in answer to inquiry regarding graduation.' It by no means intends to convey the idea that the person so designated is not a graduate: yet naturally in such a case the presumption is fair that this is so. If, however, it should be that you are a graduate and have a regular diploma, then we can but tender our most sincere apologies for troubling you in the matter. But, on the other hand, if you are not a graduate and have no regular diploma, then the perusal of the enclosed prospectus can not fail to be of the most primary importance and interest to you. We would also desire to draw attention to the fact that to practicing physicians our fees are much reduced from the regular rate. To this class our fees are $35 all inclusive. As proof of our legal standing and right to confer the degree of M.D. we can supply certified copies of our charter at 25 cents each, simply covering the cost of certifying officer's fee. Trusting soon to hear from you and standing ready to auswer any or all questions you may wish to submit, we are

"Yours very sincerely.

"Wisconsin Eclectic Medical College."

They also inclosed in this letter a reduced cut of their diploma, the original of which, according to the veracious circular, is 18x23. This reduced cut bears the names of Fred Rutland, Ph.D., M.D.; Charles Podmore, M.D.; Rosa Dempster, M.D.: Jules Gordon, M.D., Prof. Anatomy; William Newton, M.D.; Horatio Myers, M.D. We also infer from certain insignia on the bottom of this valuable document that there are five ribbons attached thereto, of the colors respectively, black, red, white, blue and old gold. This seems to us most brazen effrontery. The papers in the case have been forwarded by us to the Attorney-General of the State of Wisconsin.

Solidified Casein Casts and Improved Bandages.—Soloview states that fresh caseum mixed with one-eighth its weight of liquid ammonia, makes a gluey mass that is especially adapted for casts, on account of its lightness and cheapness, while it answers every purpose. It has to be made on a cast first taken of the part and removed with a longitudinal section. The caseum cast is then made on this with first a layer of felt, held in place with a piece of flannel, then the drilling soaked in the caseum glue is wound around it twice, with a layer of fine shavings between each layer. An outer layer of the caseum drilling completes the cast, which is then placed in the oven to dry until next day, when it is ready to be applied to the patient. A caseum corset retains its shape on a child for four months, but it is apt to crease on an adult in time unless it is strengthened by a few splints or bones. (*Semaine Méd.*, August 26.) Thilo of Riga, also writes to the *St. Petersb. Med. Woch.* August 15, that he derives great advantage from a piece of white felt laid over the ankle or knee, in applying a compressing bandage for sprains, etc. It enables the bandage to be drawn much tighter than usual, without injury to the wounded joint. He slits the felt or makes an oval opening over the most sensitive part, and thus the pressure on top of this elastic protector can be indefinitely increased. The patient can even resume his ordinary occupations with a bandage of this kind, and the best results follow its use.

Prevention of Suppuration in Acute Pelvic Inflammations.—Wm. R. Pryor, M.D., says: The observation and experience of six years with conservative curettage have taught me to surely expect a complete recovery in cases of acute endometritis with salpingitis and peritonitis when seen early in first attack. For two years, in all such cases, I have operated as follows: The uterus is thoroughly curetted and irrigated. All instruments being changed, in a few minutes the cul-de-sac is opened and a wide blunt dissection made in the vagina and cul-de-sac by separating two fingers. The fimbriated ends of the tubes are opened if found closed. All serous-fluid accumulations are evacuated, and the pelvis wiped dry. No irrigation is here used. I then pack from three to five yards of iodoform gauze into the pelvis, each strip being about three inches wide. The uterus is next tightly packed as is also the vagina. A self-retaining catheter is introduced. On the third day the vaginal gauze is removed together with that in the uterus. The vaginal gauze is renewed, but the uterine packing is not, unless the uterus be large. The gauze in the pelvis is removed in a week or ten days under chloroform and another large pelvic packing is made. The results of this operation are most gratifying. The lymph which is thrown about the antiseptic dressing disappears in a few months and the uterus becomes perfectly movable. Accidents have never happened and I have been uniformly successful in preventing suppuration. In several cases of relapsing salpingitis I have met with large hydrosalpinx and broad ligament cysts. These were merely incised and evacuated.—*Med. News*, September 5.

Amendment of South Carolina Law as to Commitment of Insane.—The South Carolina enactment approved Dec. 24, 1894, to further regulate and provide for the admission and discharge of patients to the lunatic asylum and promote the management of the same, was amended by an act approved in March, 1896, by adding the following proviso to the end of section 5 thereof: That the superintendent of the Lunatic Asylum, now known as the State Hospital for the Insane, shall receive into his custody and detain in said hospital for a period not exceeding five days, without an order from the judge of probate, any person as insane whose case is duly certified to be of violent and dangerous insanity and emergency by two reputable physicians, which certificates shall be separately signed and shall conform to all the requirements as now provided by law. In addition to such certificates, an application, signed by a trial justice, mayor or alderman, intendant or warden of the county, city or town in which such insane person resides or is found, shall be left with the superintendent of said state hospital for the insane, and said application shall contain the answers to the list of interrogatories now in use by the regents of said hospital; provided, further that when such insane person is committed and received in said hospital for the insane, the party committing such person shall give a bond in the sum of one hundred dollars to the treasurer of said institution, with condition that he or she will within five days procure an order for the commitment of said patient as now provided for by law, and failing therein said insane person shall be removed or discharged by the superintendent of said institution and suit brought by him (if he sees proper to do so) on said bond for the cost of maintenance of said person while confined. For the duties required of the judge of probate, under the provisions of this act, he is,

by further amendment, allowed the sum of five dollars. And the following fees and charges, it is further enacted, shall be paid for the conveying of insane persons to the hospital; to the officer or person conveying said insane party, $2 per day and 12 cents per mile one way, and out of which said mileage herein allowed shall be paid all the costs and expenses of said insane person. If it shall be necessary to employ a guard to assist in conveying such insane person, such guard shall receive one dollar per day and his actual railroad fare. Said charges shall be paid out of the county treasury on order of the supervisor.

Some Unrecorded Symptoms of Tetanus.—De Brun writes from Syria to the Académie de Med. that tetanus is often encountered there, and is not infrequently produced by the use of cautery, which is quite a popular remedy. He has had seventeen cases under observation and records certain symptoms which are not noted by the authorities. One is the obstinate constipation, resisting purgatives and enemas, and returning after each laboriously secured evacuation. Another is the ravenous appetite in sub-acute or chronic cases. Thirst is torturing in all, and often the only service that can be rendered the sufferer is to keep the parched lips and mouth constantly moistened. Other symptoms are the tenacious and sometimes absolute insomnia, and the frequent and violent sweats, which persist at irregular intervals even after recovery in some cases, so severe that the patient has to return to bed. But they have no critical significance, and do not attenuate any of the symptoms. There is also an invariable and intense desire to keep changing the position. He mentions three cases in which the tetanus had shortened certain muscles, producing a strange inability to sit or lie down directly, to step on the heels, to open the mouth wide, etc. He describes at length one case of this kind, following cauterization of the shoulder for a contusion, the wound dressed afterward with chick-peas. It was three months and a half before the shortened muscles were brought to approximate normal length. His treatment was chloral, 10 to 14 grams a day, in fractional doses, 3 to 5 grams of antipyrin, and for one fortnight, 2 to 4 hypodermic injections of ½ milligram of sulphate of atropin, with exercise of the muscles the last six weeks. Teissier refers in half a dozen words to this shortening of the muscles: "Occasionally certain contractions persist a long while."

Expert Evidence as to Cause in Malpractice Case.—The question: "Is it legally competent, in order to show malpractice, for a surgical expert, with the results of a surgical operation performed nearly two years prior before him, either through his own personal examination and investigation of that result, or through a hypothetic question placing the results before him, to give an opinion as to the cause or causes that produced the results?" was presented by the case of Tullis v. Rankin. The trial court held that it was not. But the supreme court of North Dakota reaches the opposite conclusion, as stated in the opinion handed down July 2, 1896, while admitting that the question is close, and that authorities can be found that give support to the ruling of the trial court. It is doubly important to note the facts, as it is said that each case heretofore involving the question seems to have been ruled to some extent by its own attendant circumstances. In this case, the plaintiff had his foot run over and crushed by the cars on May 5, 1893. On that same day his leg was amputated by the defendant, and he was sent to a hospital where he remained about two months. The wound never entirely healed, and the pain never left it, until after a second amputation was performed by three other surgeons, in March, 1895, when the limb healed, and all pain ceased. These gentlemen were severally sworn as expert witnesses for the plaintiff. They testified in detail as to the condition of the limb and the patient at the time of the second amputation. After having so testified, each was asked: "What, in your opinion, was the cause of the condition in which you found the limb at the time you made the examination and amputation?" And to one of them, a hypothetic question was put incorporating the facts to which the plaintiff had testified as to his injury. Conceding that the ultimate object was to show that an improper or unskillful amputation was the cause of the condition, the supreme court still holds that the questions as asked should have been answered, and on that ground reverses a judgment which had been given the defendant, ordering a new trial. The opinions, if given as anticipated, it says would have concluded nothing. They would have gone to the jury for what they were worth. It was still open to the defendant to show that the original amputation was skillfully and properly performed; still open to him to show that other circumstances and events influenced or produced the results; still open to him to show by other expert testimony, if he could, that the opinions of the plaintiff's experts were unwarranted in scientific surgery. Courts as a rule, it is also said in this case, entertain an aversion to expert testimony, particularly medical and surgical expert testimony, and that experience no doubt warrants the aversion; but it is not to be excluded on account of the embarrassment its weight or lack of weight may cause a jury.

New Light on the Pathologic Processes in Cholera.—Federn makes the surprising announcement in the *Wien. Med. Presse*, No. 25 that he finds with the sphygmomanometer that the pressure of the blood is increased in cholera, instead of being lowered, as is stated by all the authorities from Griesinger to Leyden. This increased pressure can not be due to any stronger action of the heart, but rather to increased resistance in the vascular system, commencing in the splanchnicus region and probably spreading thence to the entire system. This throws a new light on the nature and course of the choleraic processes. Two factors must unite to produce this elevated pressure; the thickening of the blood from transudation, and increased resistance in the vascular system. When this resistance is great a slight transudation is enough to produce cardiac failure, and when both factors are acting powerfully the course is rapid. These facts show that the old methods of treating cholera were faulty in two respects: First, in considering the transudation in the intestines as of less importance than stimulating the action of the heart, at the beginning of the asphyctic stage, when the diarrhea grows less or ceases entirely, although the necropsies show that the transudation persists. This error can be remedied by tannin enterocleisis. The second error was in directing all the efforts toward stimulating the action of the heart, as it was never suspected that the pressure of the blood had been elevated by increased resistance in the vascular system. The results of Federn's observations will be that henceforth the effort will be to resist this tendency in the vascular system, and it may even be possible to prevent the asphyctic stage altogether. The problem of how to respond to these indications is still unsolved, as it has scarcely yet confronted practical medicine, except in the case of angina pectoris. But reasoning from analogy, Federn advocates the general use of calomel from the start, instead of beginning with astringents and opium, as, in most cases, increased blood pressure proceeding from the intestines is the result of irritation of the splanchnicus usually produced by constipation. Federn has also observed an elevated blood pressure reduced by natrium salicyl. in large doses, four to six grams, antipyrin, phenacetin, salipyrin in doses up to two grams, morphin, codein and chloral hydrate; but the most powerful effect is obtained by chloroform narcosis. Cramps of the capillaries are an important factor in the fatal termination of cholera, and thus the use of chloroform, our most powerful remedy for cramps of all kinds, is already indicated. He also suggests faradization of the intestines, which is sure to lower the pressure resulting from partial atony, but queries whether it is practicable in cholera, on account of the tendency to muscular cramps, even in the bowels.—*Therapeut. Woch.*, August 9.

Cerebral Localization.—President Pitre's address on this subject at the French Medical Congress last month, forms an interesting supplement to the editorial in this JOURNAL July 18, page 161. After a historic sketch and a description of the neuron, he referred to the two groups of cells which histologic investigation reveals in the cerebral cortex: the pyramidal cells, with their long axis cylinders, passing through the internal capsule into the subjacent bulbo-medullary centers, and the second group of cells, smaller and of various shapes, which are entirely contained in the gray cortical matter in a network of associated cells. Histologic anatomy reveals absolutely nothing in regard to the functions of the latter. But we have learned to know them by clinic observation, thanks to the arrangement of the elongated neuron processes in the internal capsule. Any injury to the internal capsule is liable to affect these elongated processes located in it, while not affecting at all the smaller associated cells which do not extend into it. He quoted various writers who have established from clinic experience that injury to the capsule and its cell processes produces motor and sensory disturbances, but never psychic. The intellect, the memory, the will, etc., are never affected by injury of the internal capsule alone. The psychic functions reside in the innumerable associated neurons, the second group of cells referred to above, whose branching terminals ramify all through the gray matter of the convolutions in every direction. These neurons not having any capsular process, and not being grouped in anatomically isolated islands, are not accessible to our methods of investigation. They even escape anatomo-clinic study, owing to that indeterminable extension and far-reaching influence of any lesion of the cortex, even the most limited. Everything tends to prove that the functions we attribute to them are not localizable. It is certainly a vain quest to seek for the seat of the memory, the intelligence, the will. These words represent entities in scholastic language, but in fact, they are only abstract terms, which mislead us into a false conception of the complex phenomena they represent. The intelligence is in physiology, something analogous to what we mean in economics by the State. This word State is also a substitute which represents by an abstract term, an infinitely complex reality, an organized power which acts through a multitude of agents, subordinate one to the other, and distributed throughout the entire territory in such a way that it would be necessary to suppress the entire army of officials of all kinds, in order to destroy at one blow the administrative, judicial, military, collegiate and religious mechanisms which combined, constitute the State. The mind is "fragmented" in the same way. Each cerebral cell contains a part of it. None is its exclusive organ. We have no grounds at present to suppose that there is anywhere, a conscience center, a judgment center, an intellect center, etc. According to the present status of our actual knowledge, we must consider the gray matter of the convolutions as the essential organ of psychic elaborations. They operate in the network formed by the terminal ramifications of the polymorphous cells of the cortex. This extremely complicated network in which, so far, we have been unable to establish any precise localizations, is connected with the periphery by the system of pyramidal cells with the long processes, whose functions are to receive, to record and to preserve the sensory images which form the first material for the mental operation, and the motor images which are the final product. Those which serve for the sensory impressions are distributed through the spheno-occipital lobes; those which serve for the motor impressions, through the fronto-parietal lobes. This explains why lesions of the anterior lobes of the brain are not so important physiologically as lesions of the posterior lobes. The former produce disturbances in the sensory images perceived, but the latter prevent the formation of motor impressions and the transmission of will-impulses. This is the explanation, unless I am mistaken, of the structural identity of the convolutions shown by the histologists, and of their functional diversity, which has been established again and again by thousands of exact, incontrovertible facts accumulated by investigators and clinicians of all schools and in all lands.

Physician Commended Under Unusual Circumstances.—The London *Lancet*, August 8, tells the following pitiful story of a woman's death and a physician's trying situation. It so happens that the good acts of the medical man were recognized—but what might not have been the jeopardy of his whole professional life, if some one or more had found it to his or their interest to lie about him. As the *Lancet* well says, the situation fairly "teems with difficulties," and dangers as well. The story is this: "An inquest was recently held at Chelsea touching the death of Miss F. T. Handford, who died aged 34 years after having miscarried. On June 25, 1896, she consulted Dr C. J. Harrison, who prescribed for her for anemia. She then said, 'If I tell you a secret will you keep it?' and upon Dr. Harrison replying in the affirmative she mentioned that she was pregnant. July 8, she went again and suggested that Dr. Harrison should procure abortion for her. This he absolutely refused to do and dissuaded her as strongly as possible. On a subsequent occasion she repeated her request with the additional inducement of a blank check. Dr. Harrison again refused, and July 22 Miss Handford arrived at his house looking very ill and fainted in the consulting room. As she was obviously very ill and had profuse hemorrhage Dr. Harrison allowed her to remain in his own house and communicated with her friends. The cousin of the deceased arrived, and later in the evening the patient asked the nurse in attendance to write a statement for her, in which she said that Dr. Harrison had refused to bring on a miscarriage, so 'this morning feeling desperate I went to a doctor in —— town, his name I refuse to mention, and he did something to me and told me that I should be all right, and as I walked toward home I turned faint and decided to go in and see Dr. Harrison before going home, and he allowed me to lie down; but I grew worse and fainted, and it was decided that I should stay here all night.' On the day following the deceased had a miscarriage, but went on well up to Friday, July 24, when the temperature went up. Dr. Herbert Spencer and Dr. Bradford saw her and considered her fit to be moved to Cheyne-walk, where she died upon July 27. Mr. A. J. Pepper, who made the postmortem examination, said that the deceased had nephritis. The uterus was healthy, but abortion had recently taken place. The cause of death was uremia from nephritis aggravated by the abortion. At the adjourned inquest on Wednesday, August 5, a verdict of 'Wilful murder against some person or persons unknown' was returned, and the jury adding: 'We wish to take some appreciative notice of the unselfish and Christian humanity of Dr. Harrison.' This is a very sad and very familiar story. We believe we are right in saying that the procuring of abortion otherwise than for reasons which can be medically justified is banned by the civil and ecclesiastical law of every civilized country, and as constructive murder it is right it should be so. But the whole question teems with difficulty. It certainly appears unjust, and very possibly is actually so, that a woman who, driven and harassed by shame and fear resorts to the questionable remedy of abortion should be liable to severe punishment, while the man who is equally responsible for the child goes free. Of course he is not responsible for the criminal act of the woman; but he is morally responsible in so far as he shared in bringing about the condition which made her resort to crime, and morally he is guilty although we fail to see how he can be made legally accountable."

Atlanta.

SOUTHERN MEDICAL COLLEGE.—Several changes have been made in the faculty of the Southern Medical College. Dr. Henry F. Harris, the former professor of chemistry and clinic

medicine, has resigned to accept the appointment of associate professor of bacteriology in the Jefferson Medical College of Philadelphia. Dr. Harris is one of the South's most able and energetic workers, and his researches in the field of amebic dysentery gives him prominence in this country. He has given much time to the study of this semi-tropical diarrhea, and will in a short time publish an interesting illustrated article on this subject. Dr. Ashby M. Purse of this city, has been appointed to succeed Dr. Harris as professor of chemistry in the Southern Medical College. He will fill the chair of chemistry with judgment and ability. Dr. G. G. Roy has been succeeded by Dr. C. D. Hurt of this city as professor of materia medica and therapeutics; Dr. Roy will remain with the college as an emeritus professor. Dr. Nicolson, the dean of this institution on the death of Dr. Powell, its founder, was made president by unanimous vote of the board of trustees. Dr. Nicolson's rank as a surgeon is well known. Dr. J. G. Bourns, late of Ann Arbor, has been elected professor of bacteriology, pathology and histology. Dr. Lucien Lofton of Atlanta, has been appointed assistant to the chair of anatomy, and assistant demonstrator of anatomy.

THE ATLANTA MEDICAL COLLEGE has made the following changes: Dr. H. P. Cooper will fill the chair of anatomy lately occupied by Dr. W. S. Armstrong, deceased. Dr. Hubbard of Atlanta, has been appointed assistant to the chair of materia medica.

INSOLATION.—A number of deaths have occurred in Atlanta and the immediate vicinity as result of heat stroke. Among the number, several children have succumbed. The immunity or resistance of the negro is noticeable. A fatal case of sunstroke among the colored men hardly ever occurs here.

GOVERNOR ATKINSON recently appointed Dr. J. B. S. Holmes to succeed Dr. Olmstead on the regular board of medical examiners of Georgia.

WHY is it that the Georgia State Board does not look after the herd of wandering quacks that infest the city and the State?

DR. I. B. DIAMOND, recently of the Johns Hopkins University, was last month elected to the position of pathologist to the Grady Hospital.

Cincinnati.

THE MORTALITY report for the week gives: Zymotic diseases 4; cancer 8; phthisis pulmonalis 11; other constitutional 3; local 40; developmental 12; violence 8; under 5 years 28; total 86; annual rate per 1,000, 12.77; corresponding week 1895, 124; 1894, 95.

THE ACADEMY of Medicine held its first meeting of the winter September 14. Dr. Albert Freiberg presented a paper on "Sub-phrenic Abscess following Appendicitis."

A MOVEMENT is on foot to organize a hospital for the care and treatment of the colored race in Cincinnati and vicinity. Dr. Frank W. Johnston is at the head of the monument.

DIPHTHERIA is spreading throughout the Mill Creek valley.

DR. JOSEPH EICHBERG, and Dr. S. E. Allen announce their removal to the "Lancaster" No. 22, W. 7th Street.

CHARLES COLLINS, a well known G. A. R. veteran has been appointed to succeed James Sherlock as supervisor of the Branch Hospital.

THE matter of the investigation of the Hygeia Medical College has at last been finally disposed of by the State Board of Medical Examiners, who have decided that the graduates from this institution will not be recognized as graduates and will have to pass the examination before the Board in order to be allowed to practice in the State.

THE ANNUAL REPORT of the Health officer, just issued, shows a balance on hand of $4,835.93 out of an appropriation of $44,393.23 set aside for the maintenance of the Health Department. The milk inspector made 2,755 visits to dairies and prosecuted 25 cases for violation of the milk laws, of which 21 resulted in a conviction; 100,103 cows were inspected and stock valued at $54,116 was condemned. The Health officer recommends the establishment of a central disinfection station for the thorough disinfection of all goods subjected to the influence of contagious diseases, public baths and the establishment of an isolation hospital.

THE CITY BOARD OF HEALTH of Mt. Sterling, Ohio, have ordered the public schools closed and all public gatherings stopped on account of the prevailing epidemic of diphtheria.

THE MEMBERS of the Hempstead Medical Association of Portsmouth have decided to prepare a black list of all persons who refuse or deliberately neglect to pay physicians' bills. The arrangement is to go into effect October 1, and medical treatment is to be refused to all persons whose names are on the list unless paid for in advance.

A CASE of fatal epistaxis occurred at Van Wert, Ohio, last week. The various methods for the checking of the hemorrhage were adopted but without avail.

Mississippi Valley Medical Association. The officers elect are: President, T. Hunt Stuckey, Louisville; Vice-President, Chas. A. Wheaton, St. Paul; Second Vice-President, Paul Paquin, St. Louis; Secretary, Henry E. Tuley, Louisville. Place of next meeting, Louisville, Ky.

THE PUBLIC SERVICE.

Army Changes. Official List of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from Sept. 5 to Sept. 11, 1896.

The following named officers will report in person on Tuesday, Sept. 22, 1896, at 10 o'clock, A.M., to Colonel Charles H. Alden, Asst. Surg.-General, president of the examining board appointed to meet at the office of the Surgeon-General U. S. Army, for examination as to their fitness for promotion:

Captain William B. Davis, Assistant Surgeon.
Captain William W. Gray, Assistant Surgeon.
Captain Louis Brechemin, Assistant Surgeon.
Captain Louis A. La Garde, Assistant Surgeon.
Captain John M. Banister, Assistant Surgeon.
Captain Aaron H. Appel, Assistant Surgeon.

Captain La Garde is relieved from duty as Attending Surgeon and Examiner of Recruits at Boston, Mass., to take effect upon the completion of his examination, and ordered to Fort Robinson, Nebraska, for duty.

Change of Address.

Cobb, J. O., from Cincinnati, Ohio, to U. S. Marine Hospital, New York.
Dudley, Lewis W., from Chicago to Alma Sanitarium Co., Alma, Wis.
Eaton, Roy R., from Ithica to Lowell, Mich.
Ferguson, R. V., from Guthrie to Hodensville, Ky.
Ferguson, J. W., from Canaan to West Salem, Ohio.
McMillen, R. M., from Kingwood to 1321 Chapline St., Wheeling, W. Va.
Maknen, G. Hudson, from Cresson to 1419 Walnut St., Philadelphia, Pa.
Ross, Geo. M., from 3628 State St. to 1216 Masonic Temple, Chicago.
Wadsworth, Chas, C., has removed his office and residence to 1104 Van Ness Av., San Francisco, Cal.

LETTERS RECEIVED.

Alta Pharmal Co., St. Louis, Mo.; Ames, R. P. M., Springfield, Mass.
Bovee, J. Wesley, Washington, D. C.; Busey, S. C., Washington, D. C.; Bishop, S. S., Chicago.
Coone, Bathena, Peoria, Ill.; Christopher, Hiram, St. Joseph, Mo.
Damrell & Upham, Boston, Mass.; Didama, H. D., Syracuse, N. Y.; Dussan, A. Eustace, New York; De Schweinitz, G. E., Philadelphia, Pa.; Davidson, T. W., Oneida, Ill.
Elliott, A. R., New York.
Feiel, A., Columbus, Ohio.
Govie, E. T., Woodstock, Vt.
Humel, A. L., Advertising Agency, New York; Harrison, C. F., Perry, Ill.; Hunt, Mary H., Boston, Mass.; Henel, Emil, New York; Harmison, D. C., Bath, Ill.; Horner, Frederick, Marshall, Va.
Jenkins, J. F., Tecumseh, Mich.
Lautenbach, Louis J., Philadelphia, Pa.; Latta, Samuel W., Trenton, N. J.
Meany, Wm. B., St. Louis, Mo.; Murdoch, J. D., Pittsburg, Pa.; Massinger, C. J., Millville, N. J
Neal, J. H., Rochester, N. Y.
Quales, N. T., Chicago.
Schwab, L. W., Chicago; Straw, J. R., Ashland, Wis.; Shastid, Thos. H., Galesburg, Ill.; Sharpe, N. W., St. Louis, Mo.; Spalding, Warren C., New York; Shimonek, F., Milwaukee, Wis.; Schering & Glatz, New York; Spencer, John C. (2), San Francisco, Cal.
Tracy, J. L., Toledo, Ohio; Taylor, Geo. H. & Co., Chicago.
Von Koerber, P. E., Loup City, Neb.
Wilber, M. R., Neenah, Wis.; Widmeyer, J. N., Rolla, N. D.; Wolff, Arthur S., Brownsville, Texas.

The Journal of the American Medical Association

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ORIGINAL ARTICLES.

THE STATISTIC EVIDENCES OF THE VALUE OF VACCINATION TO THE HUMAN RACE, PAST, PRESENT AND FUTURE.

Read before the American Medical Association at the Jenner Centennial Celebration, held at Atlanta, Ga., May, 1896.

BY EUGENE FOSTER, M.D.

PROFESSOR OF PRINCIPLES AND PRACTICE OF MEDICINE AND STATE MEDICINE AND DEAN OF THE FACULTY OF THE MEDICAL DEPARTMENT UNIVERSITY OF GEORGIA, AUGUSTA, GA.

"Nothing however beneficent can escape the criticism of the times in which we live. The criticism of vaccination, often passionate and violent, related chiefly to points which, however interesting they may be, leave the main question unaffected. We may speculate about the possibility of the potency of vaccine being exhausted in the human family; we may be surprised to find that people with good vaccine scars sometimes have smallpox; we may dispute as much as we please about the average period when re-vaccination may be considered a prudent safeguard; but after all we find that we rest in a security against the horrid pestilence of smallpox unknown to former generations."—Dr. George Derby.

Mr. President and Gentlemen:—By invitation of your committee on the celebration of the anniversary of the discovery of vaccination, I appear before you this afternoon. Your greatly beloved and renowned Nestor, Dr. Davis, has most ably and charmingly made you acquainted with much of "The Work and Character of Jenner." The learned Surgeon-General of the United States Army, Dr. Sternberg, has delighted and edified you in his masterly presentation of the question, "The Scientific Basis of Vaccination." In my paper I am limited to "The Statistic Evidence of the Value of Vaccination to the Human Race, Past, Present and Future."

The great Jenner has long since gone to his reward; vaccination has reached a century old; millions of human lives, as I shall show, have been preserved by the fruits of Jenner's genius; yet to-day, no less than one hundred years ago, thousands upon thousands of men, some intelligent though designing, some intelligent though deluded, the great mass of them fanatical and ignorant, decry vaccination as not only being of no service to humanity, but positively a nuisance injurious to health and life, while millions of our fellow men are utterly ignorant of, or indifferent to the matter.

The study of statistics, gentlemen, is dry, uninviting, irksome to the vast majority of men. I therefore fear that I shall at least fail to interest, if indeed I do not weary you. I crave your attention for the reason that however dry and wearisome statistics may be, it is only by careful, critical study of statistics that we are enabled to rightly estimate the value and the magnitude of the immortal Jenner's discovery. In life, Jenner wisely and persistently insisted that the decision as to the value of his discovery should rest upon "that keenest of all arguments for or against the practice of vaccination, those which are engraved with the point of the lancet." I am here to present such an argument.

Standing as I do on this occasion to speak for the illustrious dead, I have attempted to so gather and marshal the statistic evidences of the value of his discovery that every intelligent, fair-minded man can know the truth about vaccination.

I propose to present you statistic data from almost every civilized country upon earth, indubitably proving that vaccination duly and efficiently performed is absolutely prophylactic against smallpox, and innocuous to human health and life. Be not frightened at the mass of manuscript before me, I shall read only a fractional part of it, and leave the balance to be studied at your leisure after it shall have been published. That I may present in an orderly arrangement the data bearing upon my subject I will lay down certain propositions and furnish the facts relative to each as it is reached.

Unless you are familiar with the history of smallpox in pre-vaccinal times, and know what it is at the present day independent of vaccination, you can not form a proper estimate of the beneficent results of Jenner's discovery. I shall, therefore, first show what smallpox was in pre-vaccinal times; and, second, what it is to-day in individuals and communities who neglect to avail themselves of its benefits.

PROPOSITION 1.

Smallpox uncontrolled by vaccination was one of the most universally *prevalent and destructive diseases* of the human race. I shall first show this by historic records both professional and non-professional.

Prior to the introduction of vaccination, smallpox, except in remote or isolated populations, having infrequent and difficult intercourse with the business world, was a well nigh universal disease, existing continuously as an endemic in large communities, and breaking loose from its endemic haunts every few years[1] it assumed epidemic and not infrequently pandemic proportions. All classes, conditions and ages of people were attacked by smallpox. While most fatal and prevalent in the over-crowded homes of the poor, it spared not the dwellers in mansions nor the palaces of kings.[2] So universally prevalent was smallpox that it was quite exceptional in populous communities for anyone to reach adult age without having been attacked by the disease.[3] In 1518 smallpox concurred with fire and sword and famine to complete the depopulation of St. Domingo.[4] In the sixteenth century smallpox invaded Mexico,[5] destroying three million, five hundred thousand of her population. In 1563 smallpox invaded Brazil and exterminated whole races of men. In the Province of Quito (according to De la Condamine) it caused the death of 100,000 Indians. It decimated Siberia[6] and Kamschatka.[7] Several times this destructive disease has well nigh depopulated Greenland and Iceland.[8] Under the devastation of this cruel and relentless enemy communities literally dissolved themselves.[9] Remote and unprotected populations in North America have been most cruelly scourged by epidemics of smallpox.[10]

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[1] Hillary on Smallpox, London, 1735.

[2] Burnett's history of Mary and William; Walpole's letters, 1750. Pepys Evelyn, St. Simon Besenval, Vehse, etc.

[3] Hillary, loc. cit., Haygarth, Smallpox, London, 1793.

[4] John Simon K.C.B., F.R.S. First Report Royal Commission Enquiry on Vaccination 1889.

[5] Prescott (Conquest of Mexico Vol. 6.) describes this epidemic as "sweeping over the land like fire over the prairies, smiting down prince and peasant . . . . . leaving its path strewn with the dead bodies of the natives, who perished in heaps like cattle stricken with the murrain. Dr. Stricker (Oppenheim's Zeitsche Vol. 34), referring to several subsequent epidemics of smallpox in Mexico says: In 1779 its ravages were dreadful. In the capital alone nearly 9,000 died out of 24,561 attacked. He then contrasts with the above periods the history of smallpox since vaccination. He says: In 1829-30 when smallpox was most severely epidemic, vaccination was almost always protective. In 1830-31 there died in New Leon 1,740 persons, without a single vaccinated person having contracted the disease.

[6] Pallas (Reisen, St. Petersburg, 1770) cites more than one epidemic of smallpox in Siberia, and in referring especially to the Ostjaks (vol. 3, p. 50) mentions this disease as the chief obstacle to an increase of their numbers.

[7] Capt. Cook (Voyages to Pacific Ocean 1785) refers to the first appearance of smallpox 1767 in Kamschatka as "marking its progress with ravages not less dreadful than the plague, and seeming to threaten their extinction."

[8] John Simon (loc. cit.), 1734, Greenland was first invaded by smallpox and lost by this one disease about two-thirds of her population. Iceland had been invaded by smallpox seventeen times prior to 1707. In this year 18,000, out of a total population of 50,000, died by this cruel disease. Crantz's History of Greenland, London, 1767, referring to the epidemic of 1707 says: "Empty depopulated houses and unburied carpses, some within and some without the houses, were commonly encountered. In one island they found one girl with the smallpox on her and her three little brothers, the father having first buried all the people in the place, had laid himself and his smallest sick child in a grave raised with stone, and ordered the girl to cover him. Sir George MacKenzie (Travels in Iceland, Edin. 1811) speaking of smallpox in Iceland says: "Its ravages have been such as to render this disease important even in the political history of the island."

[9] Ring, in his treatise on Cowpox, says, that after such a dispersion the capital of Thibet once remained for three years without inhabitants. He also, in referring to smallpox near the end of the 18th century speaks of a tribe of esquimaux on the Labrador coast having been put to flight by this disease and did not return for a space of three years: that their country had become a desert, without a living soul in it. but they found the skeletons of 500 persons who had fallen victims to that horrible disease. Dr. Mead's works describes the Hottentots on a particular occasion as drawing lines of defense against any communication with the sick, and shooting all who attempted to pass.

[10] Catlin (Letters and Notes on the Manners and Customs of the

So much for the epidemic prevalence of smallpox in those portions of the world having less conetant and direct relations with more populous centers. In Europe, as might have been expected from constant intercourse of peoples of towns and nations, the disease was, in the run of years, as deadly as in the places above cited. "Its strength indeed was differently distributed. Not as in Greenland, twice or thrice in a century, but incessantly, that fatal sickle was in motion, and the harvest counted from day to day. Instead of coming after long absence on masses of population entirely unprotected against the infection, it recurred in each place so frequently that, for the most part, at any given moment, a more or less considerable majority of the inhabitants would have faced the danger before they would have obtained against its attacks that protective exemption which was generally the good fortune of survivors. But it is a moderate computation that for every five persons thus, at the price of much past suffering, almost secured against the disease, one at least must have died." John Simon.

Macauley,[11] the great English historian, speaking of the smallpox near the close of the seventeenth century: "That disease (smallpox) over which science has since achieved a succession of glorious and beneficent victories, was then the most terrible of all the ministers of death. The havoc of the plague had been far more rapid; but the plague had visited our shores only once or twice within living memory; and the smallpox was always present, filling the churchyards with corpses, tormenting with constant fears all whom it had not yet stricken, leaving on those whose lives it spared the hideous traces of its power, turning the babe into a changeling at which the mother shuddered, and making the eyes and cheek of the betrothed maiden objects of horror to the lover. Toward the end of the year 1694, this pestilence was more than usually severe."

Sir Gilbert Blaine[12] says: "It is greatly within the truth to assert that smallpox has destroyed a hundred for every one that has perished by plague."

Dr. Black, Lussmileh, Frank and several other reputable writers, estimated that the average annual mortality from smallpox in Europe alone was in pre-vaccinal times 494,000. Within the London bills of mortality[13] smallpox, when not at its worst, averaged a fourteenth of the annual total deaths; a fourteenth too, at times when that total, as compared with the population, represented, perhaps, double our present death rate.

M. De la Condamine[14] estimated that one tenth of the deaths in France were from smallpox. In 1805, Dr. M. Laborde, in an article entitled "An Account of the Introduction of the Vaccine Disease into the Isles of France and Reunion," says: "I had been a witness of the variolous epidemic which had, in 1792, swept off one fourth the population of the Isle of France."

Rosen claims that one-tenth of the deaths in Sweden were annually from smallpox.

Two[15] millions of the inhabitants of the Russian empire died of smallpox in a single year. In Russia previous to the discovery of vaccination it was estimated that a seventh part of the population perished by smallpox. See "Cross History of Variolous Epidemic in Norwich, England, 1820."

In Boston, Mass.,[16] in 1721, out of a population numbering 11,000 people there were 5,759 cases of smallpox, of which 844 were fatal. Thus it is shown that more than one-half of the inhabitants had the disease, and one thirteenth died of it. In 1730 there were 4,000 cases, with 200 deaths. In 1752 there were 5,000 cases of smallpox out of a population numbering 15,684, with 539 deaths. In 1764 there were 5,646 cases. In 1776, 5,292 cases. In 1792, 8,346 cases of smallpox.

Sir Gilbert Blaine says: "When there was no vaccination in our navy, one-fifth of all the men enlisted died of smallpox."

Bernouli,[17] writing in 1840, said:

"Great as were the ravages which the plague often caused in Europe, smallpox carried off more victims in the last century than the former disease did in any other. Certainly smallpox is not so deadly as either the plague or cholera. Formerly one-third of the cases among little children terminated fatally, but altogether only one-sixth to one-eighth of the total number of cases. On the other hand the disease (smallpox) had become an endemic contagion in Europe, which no where completely died out, to which nearly all individuals were susceptible, and from which but few escaped before even their tenth year. Of 100 adults only about four or five remained unattacked. It was calculated that two-thirds of all children born succumbed to it. In former times, too, there was greater probability of an individual dying from smallpox. According to the London list of 1708 to 1750 eight out of every one hundred deaths were caused by smallpox. In Berlin the smallpox mortality from 1783 to 1797 was one-twelfth of the total. Those who were carried off by that disease were naturally almost all children."

North American Indians, London. 1841) says: "Thirty millions of white men are now scuffling for the goods and luxuries of life over the bones and ashes of twelve millions of red men, six millions of whom have fallen victims to the smallpox." Again, I would venture the assertion, from books that I have searched and from other evidence, that of the numerous tribes which have already disappeared, and of those that have been traded with, quite to the Rocky Mountains, each one has had this exotic disease in their turn, and in a few months have lost one-half or more of their numbers. Loyd, Translator of Prince Maximilian's Travels in the Interior of North America, in the preface of the work wrote the following description of an epidemic of smallpox among the Indians, and says the general correctness of the details have been confirmed to him by several travelers who had subsequently visited those nations. "The disease first broke out about the 15th of June 1837, in the village of the Mandans, a few miles below the American Fort Leavensworth, from which it spread in all directions with unexampled fury. The character of the disease was as appalling as the rapidity of the propagation. Among the remotest tribes of the Assiniboins from 50 to 100 died daily. The patient, when first seized, complains of dreadful pains in the back and head, and in a few hours he is dead; the body immediately turns black, and swells to thrice its natural size. In vain were hospitals fitted up in Fort Union and the whole stock of medicines exhausted. For many weeks together our workmen did nothing but collect the dead bodies and bury them in large pits; but since the ground is frozen we are obliged to throw them into the river. The ravages of the disorder were the most frightful among the Mandans where it first broke out. That once powerful tribe which by accumulated disasters, had already been reduced to 1,500 souls, was exterminated, with the exception of 30 persons. Their neighbors, the Big-bellied Indians and the Ricarees, were out on a hunting excursion at the time of the breaking out of the disorder, so that it did not reach them until a month later; yet half the tribe was destroyed on the 1st of October and the disease continued to spread. Very few of those who were attacked recovered their health, but when they saw all their relations buried, and the pestilence still raging with unabated fury among the remainder of their countrymen, life became a burden to them, and they put an end to their wretched existence, either with their knives or muskets, or by precipitating themselves from the summit of the rock near their settlement. The prairie all around is a vast field of death, covered with unburied corpses, and spreading for miles pestilence and infection. The Big bellied Indians and Ricarees, lately amounting to 4,000 souls, were reduced to less than the half. The Assiniboins, 9,000 in number, roaming over a hunting territory to the north of the Missouri as far as the trading posts of the Hudson's Bay Company, are, in the literal sense of the expression, nearly exterminated. They, as well as the Crows and Blackfeet, endeavored to fly in all directions, but the disease everywhere pursued them. At last every feeling of mutual compassion and tenderness seems to have disappeared. Every one avoided the others. Women and children wandered about the prairie seeking for a scanty subsistence. The accounts of the situation of the Blackfeet are awful. The inmates of over 1,000 of their tents are already swept away. They are the bravest and most crafty of all the Indians, dangerous and implacable to their enemies, but faithful and kind to their friends. But very lately we apprehended that a terrible war with them was at hand and that they would unite their whole remaining strength against the whites, but the smallpox cast them down, the brave as well as the feeble, and those who were once seized by this infection never recovered It is affirmed that several bands of warriors who were on their march to attack the fort, all perished by the way, so that not one survived to convey the intelligence to their tribe. Thus in the course of a few weeks, their strength and their courage were broken, and nothing was to be heard but the frightful wailings of death in their camp. Every thought of war was dispelled and the few that are left are as humble as famished dogs. No language can picture the scene of desolation which the country presents. In whatever way we go we see nothing but melancholy wrecks of human life. The tents are still standing on every hill, but no rising smoke announces the presence of human beings, and no sound but the croaking of ravens and the howling of the wolf interrupt the fearful silence. The above accounts do not complete the terrible intelligence we receive. There is scarcely a doubt that the pestilence will spread to the tribes in and beyond the Rocky Mountains, as well as to the Indians in the direction of Santa Fé and Mexico It seems to be irrevocably written in the book of fate, that the race of red men shall be wholly extirpated in the land in which they ruled, the undisputed masters, till the rapacity of the whites brought to their shores the murderous firearms, the enervating ardent spirits, and the all-destructive pestilence of the smallpox. According to the most recent accounts, the number of Indians who have been swept away by the smallpox, on the western frontiers of the United States amounts to more than 60,000."

In Drake's Indians of North America (page 677-8) he says: "Scenes of wretchedness have been recorded in our early pages, occasioned by malignant diseases, among Indians of our own land. We are to relate the doings of death on a broader scale, in the regions of the upper Missouri. In October last (1837) the smallpox was still raging over that vast country. Up to the first of that month, the Mandans were reduced from 1,600 to 31 souls; the Minetarees from 1,000 to 500, and they were still dying fast. The Ricarees, who had recently joined them, were hunting by themselves, when the disease was raging among their friends, and were not seized by the horrible malady until a month later. They numbered 3,000, and half of them were in a few days swept away, and hundreds of the survivors were killing themselves in despair, some with their own spears and other instruments of war, and some by casting themselves down high precipices along the Missouri. The Blackfeet had known no such foe before it reached the Rocky Mountains and swept away the people in a thousand lodges.

[11] Macauley's History of England.

[12] Public Health, Dr. Guy.

[13] John Simon, loc. cit.

[14] See English Edition De la Condamine on smallpox. Translated by Dr. Maty, 1755. "De la Condamine estimated that smallpox destroyed, maimed or disfigured one-fourth part of mankind." Williams (Elements of Medicine 1. p. 202) quotes the French Minister of the Interior as estimating (Report on Vaccination 1811) the former annual mortality by smallpox to have been 150,000 persons. Other writers, Ring among them, state the number to have been less than stated by De la Condamine and Williams, though enormous in amount.

[15] Godfrey. Dr. Edward Jenner's discovery of Vaccination.

[16] Report of a committee appointed by the United States Sanitary Commission (1863) to prepare a paper on the Value of Vaccination in Armies.

[17] Page 10. Minutes of Evidence Royal Vaccination Commission of Great Britain. Published 1890.

PROPOSITION 2.

Smallpox in a population unprotected by vaccinnation is as generally prevalent and fatal disease at the present day as in the pre-vaccinal period.

In 1872-73, in a few months, in the town of Brunei,[18] in Borneo, 4,000 out of a total population of 35,000 died of smallpox.

On the Gold Coast,[19] in 1871, smallpox is described by Acting Administrator Salmon as deciminating the population. He says: "Nothing but the active interference of the local government could have saved the people from annihilation."

At Ceara, in Brazil, smallpox killed 40,000 out of a total population of 70,000. These facts were reported by Mr. Ashbury, Member of Parliament for Brighton, who visited the spot about the close of the epidemic.

At Tamatave, Madagascar, according to the report of the United States Consul, smallpox in 1877 destroyed 800 citizens within two months. The disease attacked all who had not had smallpox or been vaccinated. The disease was confined almost exclusively to the natives, the foreign residents having been previously vaccinated.

Dr. Makena describes an epidemic of smallpox in the Argentine Confederation from 1846 48 as "sweeping with the wings of death over that enormous tract of country which extends from the seaboard of the Atlantic on the East to the Corderilla of the Andes on the West. Throughout this whole space it may be said that hardly a single house or ranch escaped its fearful visitation, wherever the current of human intercourse reached, and such was its fatality that I have known thirty children taken in one morning from the houses of one quadra of a street 150 yards long. Whole families were swept away, and, in short, the terrors of the plagues of former times were, if not surpassed, fully equaled by this horrible scourge. But that which struck me as most truly remarkable was that not one of those English people who had been vaccinated at home, and who had the large, deep, oval thimble-mark on one or both arms, ever took the disease."

In California, according to the reports of Doctors Logan,[20] Gibbons and Hatch,[21] who personally witnessed the disease, smallpox prevailed to a greater extent than was ever before known, and with a virulence and fatality which has not been surpassed. It was, if possible, more severe in private practice than in hospital. Dr. Hatch, in Sacramento, reports 1 death in 3.2 in hospitals and 1 in 2.9 in private practice, making the rates for deaths for both 1 in 3. This agrees with the observations of Dr. Logan, who reports 1 death to every 3 in Sacramento, and 1 to every 2.5 in San Francisco. When we bear in mind that the usual death rate for smallpox, before the introduction of vaccination, did not exceed 1 in 5 or 6, we will agree with Dr. Logan, "this fatality is almost unprecedented in the annals of this disease."

The reports of the Indians were brought by traders and do not furnish data upon which to make a statistic statement, nevertheless all agree in representing the manifestation and ravages of the disease as fearful. In many instances whole encampments were attacked and large numbers were swept off.

In Cincinnati, the epidemic, though not so virulent as in California, was the severest and most extended of any former visitation. During the months of November, December, January and February, 1868 69, the Cincinnati Board of Health had 2,674 cases of smallpox reported to it, and 511 deaths, making 1 death to every 5¼. This is deemed by many as a higher death rate than actually occurred, as it is claimed that some physicians did not report their cases of smallpox to the health officer. One thousand additional cases will certainly cover all unreported ones, and would make the death rate about 1 in 7.

How can we account for the extreme severity of the epidemic at these three points?

In California, Dr. Logan, physician to the Smallpox Hospital, Sacramento, says: "The primary and chief cause is inattention to vaccination. The large proportion of deaths that have occurred, especially in children, and in a certain class of the floating population of California, particularly the Mexicans, South American or Californian nativity, shows that the extensive prevalence of smallpox in our midst is not due to the failure of the anti-variolus power claimed for vaccination but to the neglect or absence of its protecting influence."

From far-off India[22] comes a most convincing argument, which I quote from a medical journal: "Although the epidemic of smallpox visited the northwestern provinces of India in a fearful manner, causing 58,800 deaths in the single year of 1878 all attempts at introducing vaccination as a protective measure were resisted by the superstitious natives. They looked upon smallpox as a visitation from a deity, called by them Sitta, whose anger had to be appeased with special sacrifices and plagues. The faithful Hindoos considered it an act of impiety to still further incite the wrath of the deity by the administration of unholy medicines or vaccination. In spite of all this, however, vaccination, although under peculiar circumstances, was gradually introduced among the natives. The Thakers, a tribe that still practices infanticide to a horrible extent, first allowed their female children to be vaccinated, being convinced of its fatal termination, and hoping thereby to get rid of this superfluous progeny. All the sons, however, were carefully guarded against vaccination. Smallpox broke out in four of their villages a short time afterward, which carried off nearly all the boys while the girls escaped the disease. This unlooked for termination induced the natives to resort to the opposite practice, compelling the boys to be vaccinated while the girls were left unprotected. Beside this, a large number of cases were observed where children were concealed by their families from the vaccinators; in almost all instances these died, while those vaccinated escaped smallpox." Even one such remarkable and unanswerable illustration as this should convince every one of the utility of vaccination, but I have only commenced my arguments and will continue to give you more interesting ones.

Mr. Alexander Wheeler, Darlington, England, an ardent anti-vaccinationist, in a paper entitled "Vaccination in the Light of History," London, 1878, says: "In India smallpox carried off 101,397 people in 1875."

Hirsch, in, his work, "Handbuch der Historisch-geographischen Pathologie," says that between 1866 and 1869 smallpox killed 140,000 natives in Bombay and Bengal. In the whole of India, 1873 and 1874, 500,000 inhabitants died of the disease. (See Second Report Royal Vaccination Commission of Great Britain, 1890, p. 10.)

To-day the terrors of smallpox are almost forgotten; only occasionally the disease attacks a population unprotected by vaccination. In 1884, in San Salvador[23] smallpox carried off nearly one-fiftieth part of the population.

PROPOSITION 3.

In every nation upon earth where vaccination of the populace has been generally resorted to a marked decrease in the smallpox death rate has invariably followed.

While statistic data are not available from all countries using vaccination as a weapon of defense against smallpox, the great English sanitarian, John Simon, with the assistance of Mr. Hailie, has prepared a table which conclusively demonstrates the great and positive benefits in controlling smallpox. This table shows two varieties of facts: "1, how many persons in each million of population died annually of smallpox before the use of vaccination; and, 2, how many persons in each

Approximate average annual death rate by smallpox per 1,000,000 of living population.

Terms of years respecting which particulars are given.	Territory.	Before introduction of vaccination.	After introduction of vaccination.
1777–1800 and 1807–1850.	Austria, Lower	2,484	340
1777–1806 and 1807–1850.	Austria, Upper, and Salzburg.	1,421	501
1777–1806 and 1807–1850.	Styria	1,052	446
1777–1806 and 1807–1850.	Illyria	518	244
1777–1806 and 1806–1850.	Trieste	14,046	182
1777–1806 and 1807–1850.	Tyrol and Vorarlberg	911	170
1777–1806 and 1807–1850.	Bohemia	2,174	215
1777–1806 and 1807–1850.	Moravia	5,402	255
1777–1806 and 1807–1850.	Silesia (Austrian)	5,812	198
1777–1806 and 1807–1850.	Galicia	1,194	676
1787–1806 and 1807–1850.	Bukswina	3,527	516
1817–1850.	Dalmatia	. . .	86
1817–1850.	Lombardy	. . .	87
1817–1850.	Venice	. . .	70
1831–1850.	Military frontier	. . .	288
1776–1780 and 1810–1850.	Prussia (Eastern Provinces)	3,321	556
1780 and 1810–1850.	Prussia (Western Provinces)	2,272	356
1780 and 1816–1850.	Posen	1,911	743
1776–1780 and 1810–1850.	Brandenburg	2,181	181
1776–1780 and 1816–1850.	Westphalia	2,643	114
1776–1780 and 1816–1800.	Rhenish Provinces	908	90
1781–1805 and 1810–1850.	Berlin	3,422	176
1776–1780 and 1816–1850.	Saxony (Prussian)	719	170
1780 and 1810–1850.	Pomerania	1,741	130
1810–1850.	Silesia (Prussian)	. . .	310
1774–1801 and 1810–1850.	Sweden	2,050	158
1751–1800 and 1801–1850.	Copenhagen	3,128	286

[18] The Truth about Vaccination by Ernest Hart, London, 1880.

[19] Hart, loc. cit.

[20] Medical Review of the year 1868 in California, by T. M. Logan, M.D., Physician to Smallpox Hospital, Sacramento.

[21] Report on the Epidemic of California, in 1868, Transactions of the American Medical Association, vol. 20, page 513.

[22] Vaccination. Joseph Edwards, M.D., p. 27-8, Philadelphia, Pa., 1882.

[23] U.S. Consul Murphy. Loc. cit. Berlin.

million of population have annually died of smallpox since, the use of vaccination." The author draws the conclusion, as the reader may also do, between the case of Sweden in the twenty-eight years before vaccination and the forty years afterward: "During the earlier period there used to die of smallpox, out of each million of the Swedish population, 2,050 victims annually; during the latter period, out of each million of population, the smallpox deaths have annually averaged 158." "Or, taking to metropolitan cities, you find that in Copenhagen, for the next half century, 1751–1800, the smallpox death rate was 3,128, but for the next half century only 286; and still better in Berlin, where for twenty-four years preceding the general use of vaccination, the smallpox death rate had been 3,422, for forty years subsequently it has been only 176. In other words, the fatality of smallpox in Copenhagen is but an eleventh of what it was; in Sweden, a little over a thirteenth; in Berlin and large parts of Austria but a twentieth." These statistics show that the adoption of vaccination has been followed by a reduction of the smallpox mortality to a tenth and a twentieth of its former magnitude.

Dr. William Ogle, superintendent of statistics in office of Registrar General, in first report of Royal Vaccination Commission, 1889, in comparing the mortality from smallpox in our day with that of the seventeenth and eighteenth centuries, said:

"I have taken as a basis for comparison the ten years from 1871 to 1880, which are the years which include the great outbreak in London in 1870–71, so that those years represent a time when smallpox was particularly abundant in London. Taking those ten years, I find that in round numbers, the smallpox deaths were 20 in 1,000, from all causes. I then go back 100 years to the corresponding decennium in the eighteenth century, 1771–1780, and I find that the smallpox deaths were then 97 in 1,000. Then going back another hundred years, 1671–80, I find that the proportion was 66 in 1,000; so that in the present century smallpox as measured by its proportion of deaths to deaths from all causes, has been from three to five times less common than it was in those previous times; and it is plain that if the death rate of the eighteenth century and the death rate of the seventeenth century was higher than it is now, smallpox must have been very much more prevalent, because a large proportion of a larger number of deaths occurred from it. Of course it is only an assumption that the death rate was higher in the seventeenth and eighteenth centuries than it is now."

Dr. Hopkirk presented the following table to the Royal Vaccination Commission:

TABLE A.*—Table showing for the city of Berlin the number of inhabitants, deaths from all causes and the deaths from smallpox in the years 1758 to 1774 and 1782 to 1872, and in particular for each of the years of smallpox epidemics. (Zeitschrift des Königl. Preuss. Stat. Bureau. Jahrgang 12, 1872; Art. "Die Pocken-Epidemie in Berlin, 1870–72," by Dr. Guttstadt.)

Quinquennial average for.	Inhabitants.	Total number of deaths.	Percent. of deaths to inhabitants.	Deaths from smallpox.	Percentage of deaths from smallpox to total number of deaths.
1758–1762	95,671	4,726	4.93	389	8.23
1763–1767	122,008	4,033	3.31	444	11.00
1768–1772	130,186	5,591	4.29	383	6.85
1773–1774					
1782–1784	133,392	4,865	3.65	443	9.11
1785–1789	135,400	5,214	3.85	487	9.34
1790–1794	145,000	5,263	3.63	449	8.53
1795–1799	165,612	5,984	3.61	396	6.52
1800–1804	177,225	6,192	3.49	463	7.48
1805–1809	152,014	7,323	4.82	466	6.36
Influence of Vaccination.					
1810–1814	165,000	5,525	3.35	51	0.74
1815–1819	198,093	5,974	3.02	80	1.34
1820–1824	210,000	5,930	2.82	9	0.15
1825–1829	230,000	6,686	2.91	31	0.46
1830–1834	255,000	8,622	3.40	48	0.55
1835–1839	285,000	8,566	3.01	52	0.60
1840–1844	325,000	9,062	2.79	44	0.49
1845–1849	390,000	11,070	2.84	7	0.06
1850–1854	408,000	11,270	2.76	19	0.14
1855–1859	450,000	12,736	2.83	83	0.00
1860–1864	590,000	16,276	2.76	176	1.08
1865–1869	690,000	23,303	3.38	182	0.78
1870	....	26,594	3.02	171	0.64
Years of Smallpox Epidemic.					
1759	94,433 (Garison wanting.)	4,496	5.26	600	13.20
1766	125,878	4,652	3.60	1,060	22.08
1770	133,520	5,123	3.83	987	19.26
1786	147,338	5,077	3.44	1,077	21.21
1789	118,717 (Garison wanting.)	5,990	5.00	911	15.25
1801	176,709	7,681	4.34	1,626	21.17
1864	632,749	17,848	2.81	617	3.45
1871	826,341	32,362	3.92	5,084	15.70
1872	....	28,763	3.48	1,100	3.82

*See Appendix II, p. 231, Second Report Royal Vaccination Commission of Great Britain, 1890. By Dr. A. F. Hopkirk (Jena).

John Simon presented the following table (see Royal Commission on Vaccination, first report, 1889, page 88).

General and Differential Annual Death Rates in London per 100,000 living, at seven different periods during the 226 years, 1629–1854.

Causes of Death.	Bill of Mortality.						Registration returns. (Dr. Guy.)
	1629–35	1660–79	1728–57	1771–80	1801–10	1831–35	1810–54
Smallpox	180	417	426	502	204	83	40
Measles	16	47	37	48	94	86	58
Consumption	1,021	1,255	905	1,121	716	567	323
Scrofula	14	19	5	5	?	3	12
Dropsy	146	349	218	225	131	133	59

What does the ratio of epidemics teach us? Read it. The report of the Epidemiological Society of London says: First, during ninety-one years, previous to inoculation, there were sixty-five distinct and well-marked epidemics, which is a ratio of 71.4 epidemics in one hundred years; second, during sixty-three years in which inoculation was practiced, and that to a great extent, there were fifty-three distinct and well marked epidemics, which is a ratio of eighty-four epidemics in one hundred years; third, during the last fifty years, in which vaccination has been practiced and inoculation declared illegal, there have been twelve epidemics of smallpox, which is a ratio of twenty-four epidemics in one hundred years.

To go back to Jenner's day we find the following testimony from his papers: "From 1762 to 1792 the number of persons that died of smallpox in the Danish dominions amounted to 9,728. About the year 1802 vaccination was first introduced, and the practice became general but not universal; however, fifty-eight persons died of smallpox in the year 1810. Vaccination, by order of the king, was now universally adopted and smallpox inoculation prohibited, and from the year 1810 to the year 1819 not a single case of smallpox has occurred. From Bombay, I learn the smallpox is there completely subdued, not a single case having occurred for the last two years."

Drs. Seaton and Buchanan, in 1863, examined more than fifty thousand children in the national schools and workhouses in England to attempt to determine what proportion of them were unvaccinated, what proportion had formerly been vaccinated, and the number among those vaccinated who had contracted smallpox since vaccination.

Classification of Children.	Number examined of each class.	Number in each class that had traces of smallpox.	Proportion having traces of smallpox per 1,000 children in each class respectively.
1. Without any mark of vaccination	2,837	1,010	360
2. With doubtful mark of vaccination	508	30	59
3. With mark or marks of vaccination	49,570	88	1.78

Lord Jeffrey, in 1807, at that time editor of the *Edinburgh Review*, a man most thoroughly skilled in the principles of searching and rigorous applications of the rules of evidence, highly endorses the value of vaccination, and says of Jenner's claim, "not until he had vaccinated some hundred children, and put them, at different intervals, to the test of inoculation for smallpox without effect, that he ventured to publish his discovery, in the year 1798, in a treatise, followed up the year after by a still longer list of such experiments and observations." In the same article he adds, "When the practice of vaccination was discussed and confidently recommended, in

1800, by all the eminent practitioners in London, this was done only after full consideration of its efficacy, as compared to inoculation for smallpox; that Dr. Woodville in particular, physician to the smallpox hospital, then stated that within the last six months he had vaccinated there 7,500 persons, the half of whom had been since inoculated with smallpox matter without the slightest effect being produced in any instance."

The report of the Faculty of Medicine at Prague to the Minister of the Interior, requesting information for the Government of Great Britain relative to the results of vaccination, offers one of the most interesting tables of any known to me. From this vast storehouse of facts the following summary is taken: From 1796 to 1802 inclusive, the average annual population observed was 3,039,722; total average number of deaths annually from all causes, 94,955; total deaths annually from smallpox, 7,673; showing one death from smallpox to every 396 of the population, and the deaths from smallpox to the total number of deaths was one in 12½. From 1832 to 1855 inclusive, during twenty-four years subsequent to introduction of vaccination, with an average population of 4,248,155, total deaths annually were on an average 131,412. The average number of deaths annually from smallpox was 287,724; showing deaths from smallpox to population to be 1 in 14,741; deaths from smallpox to total number of deaths, 1 in 457. Among an average annual population of 143,122 persons vaccinated and 4,291 unvaccinated, the cases of smallpox annually existing were 389 among the vaccinated, and 355 among the unvaccinated population, *i.e.*, one case of smallpox occurred among 367 vaccinated; one case of smallpox occurred among 12 unvaccinated. These tables further show the following facts: One fatal case of smallpox occurs among 7,166 vaccinated; one fatal case of smallpox occurs among 40 unvaccinated. In the Grand Duchy of Baden similar fruits have followed vaccination. Reliable statistics show that for a long number of years of compulsory vaccination with an average annual population of 1,200,000, only 100 cases of smallpox occur each year, and only 13 of this vast population have died each year of smallpox.

In Great Britain from 1750 to 1800, of every 1,000 deaths, 96 were from smallpox. From 1800 to 1850, of every 1,000 deaths, 35 were from smallpox. During the latter period the population was quite generally, but by no means universally, vaccinated.

In the German States, where more attention was paid to vaccination, the following were the results obtained: Before vaccination of population, deaths from smallpox amounted to 66.5 per 1,000; subsequent to vaccination, 7.66 per 1,000.

Dr. Marson of England, from the records of his great hospital experience, shows the merits of vaccination: "The smallpox death risks of no vaccination are to the death risks of the very worst vaccination as three to one; to the death risks of the best vaccination as seventy to one."

From an experience of twenty-one years in Bohemia among four millions of population, the testimony of that country most strikingly illustrates the value of vaccination. Among the vaccinated population contracting smallpox the death rate was but 5.1 per cent; the death rate of the unvaccinated was 29.8 per cent.

The most reliable statistics, and at the same time the fairest, upon the value of vaccination, are to be found in the records of the army, for here alone is it possible to compel thorough vaccination of the entire population. Infringement of personal liberty, so dearly availed of as the shibboleth of the civilian, is treated with merited contempt in the army when it contravenes the rights of others. Vaccination having been decided an individual and collective benefit, the soldier has no choice in the matter; he is compelled to submit to it. In thus protecting himself he at the same time benefits his comrades. To the honor of the surgeons of the army and navy be it said they are able, fearless and conscientious sanitarians, and in no other department have the rich results of sanitary science shown forth so conspicuously. Sir Gilbert Blaine says prior to vaccination, "Smallpox was one of the greatest embarrassments to the operations of armies." Let us see how it was after vaccination.

By reference to the statistics of sickness and mortality in the army of Great Britain for the twenty years from 1817 to 1836 inclusive, the following data are to be found. (Every soldier is vaccinated upon entering the army.)

In the dragoon regiments and guards, with an aggregate of 44,611 men, with a total mortality of 637, but three deaths occurred from smallpox.

At Gibraltar, with an aggregate of 60,000 troops, with a total mortality of 1,291, only one death was caused from smallpox.

Among the British and white troops in the West Indies, with an aggregate strength of 86,000, and a total mortality of 6,803; and among the black troops, numbering 40,000, with a mortality of 1,645, not one fatal case of smallpox occurred, although during this period several epidemics of smallpox decimated the islands.

Among the troops at Bermuda, Nova Scotia, Cape of Good Hope and Mauritius, for twenty years, there was not one death from smallpox.

In Western Africa, while smallpox was ravaging the inhabitants unvaccinated, not a case of smallpox occurred among the white soldiers who had been vaccinated.

From 1818 to 1836 inclusive, in an army of 40,000 aggregate, British troops at Malta, while smallpox was playing sad havoc among the unvaccinated inhabitants, in repeated epidemics, there were only two deaths from this disease in the vaccinated army.

During the same period in Ceylon, among the white soldiers, with a total mortality of 3,000, there were only four deaths, with eight cases, from smallpox, notwithstanding repeated epidemics of the disease among the natives.

In the British troops serving in the United Kingdom from 1859 to 1864 inclusive, the following were the results of vaccination: Total number troops, 473,483; cases of smallpox, 664; deaths from smallpox, 40; showing the ratio per 10,000 of strength to be: Cases of smallpox, .14; deaths from smallpox, 0.84.

In the British navy—home force—for the same period of time, 1859 to 1864 inclusive, the following data are furnished: Total mean strength, 127,660; cases of smallpox, 416; deaths, 29; ratio per 10,000 of strength: cases, 33; deaths, 2.3.

Since 1803 to 1863, among the thousands of vaccinated children admitted into the Royal Military Asylum of England, there has not been a case of fatal smallpox. This testimony is the more striking since the records show that during that time four deaths occurred among those who had previously had smallpox.

Proposition 4.

As vaccination became more general smallpox decreased in extent and fatality.

Dr. Ogle reviews the statistics of smallpox in England and Wales from 1838 to 1887 inclusive, accurately kept in the office of the registrar general—the civil register having been commenced in 1837. The registrar general's returns show the smallpox death rate and the smallpox deaths in proportion to population for each year during the period 1838 to 1887, except the four years 1843–6, during which four years no returns were tabulated in the registrar general's office. Dr. Ogle then presented the table marked A hereto appended. This table shows that the smallpox deaths in 1838 reached 1,064 per 1,000,000, and that only one year in the forty-nine years (1871) did the smallpox deaths ever approach that of 1838. He then divides the deaths in these forty-six years into three periods. First, 1838 to 1858, inclusive, in which vaccination was nominally compulsory, but no effectual means of enforcing it, practically optional. In this period the smallpox death rate was 408 per 1,000,000 population. The second period, 1859 to 1871 inclusive, in which vaccination laws were more efficiently enforced (though not thoroughly carried out) the smallpox death rate was 223 per 1,000,000. The third period, 1872 to 1887, when compulsory vaccination was thoroughly enforced, the smallpox death rate per 1,000,000 population was 114; thus demonstrating a marked progressive decrease in the smallpox death rate corresponding in time with the changes in the vaccination laws. The decline from 1838 to 1887 was about 7.2 per cent.

ENGLAND AND WALES.

Table A.—Deaths from smallpox per 1,000,000 living, 1838–42 and 1847–87.

Year.	Deaths.	Year.	Deaths.	Year.	Deaths.	Year.	Deaths.
1838 . .	1,064	1851 . .	389	1864 . .	367	1877 . . .	178
1839 . .	589	1852 . .	401	1865 . .	303	1878 . . .	79
1840 . .	661	1853 . .	171	1866 . .	141	1879 . . .	25
1841 . .	400	1854 . .	151	1867 . .	116	1880 . . .	29
1842 . .	168	1855 . .	134	1868 . .	93	1881 . . .	124
1843		1856 . .	119	1869 . .	70	1882 . . .	54
1844		1857 . .	204	1870 . .	116	1883 . . .	39
1845		1858 . .	332	1871 . .	1,015	1884 . . .	87
1846		1859 . .	195	1872 . .	824	1885 . . .	107
1847 . .	246	1860 . .	138	1873 . .	101	1886 . . .	13
1848 . .	397	1861 . .	66	1874 . .	91	1887 . . .	21
1849 . .	264	1862 . .	80	1875 . .	40	. . . . .	. . . . .
1850 . .	262	1863 . .	289	1876 . .	103	. . . . .	. . . . .

N. B.—The above figures include deaths from chickenpox.

Dr. Ogle next considers the question of the possibility of this decreased smallpox death rate being attributable to improved sanitation rather than vaccination. He submitted the following table:

TABLE B.—Mean annual deaths from smallpox at successive life periods, per 1,000,000 living at each such life period, 1847-53, 1854-71 and 1872-87.

Period.	All ages.	0-5	5-10	10-15	15-25	25-45	45 and upward.
1. Vaccination optional, 1847-53	305	1,617	337	94	109	66	22
2. Vaccination obligatory, but not efficiently enforced, 1854-71	223	817	243	88	163	131	52
3. Vaccination obligatory, but more efficiently enforced by vaccination officers, 1872-87	114	242	120	69	122	107	47

In this table the period of optional vaccination begins with 1847, not with 1838, because the deaths were not abstracted in combination with ages until 1847.

He, Dr. Ogle, then points out the fact that if the decreased death rate from smallpox had been attributable to improved sanitary conditions under which the population lived that all ages would have shared in the benefits. But the table just refered to demonstrates that with the marked decline in the smallpox death rate (72 per cent.) that no such thing resulted. The table demonstrates: 1. That during the first five years of life the lessened smallpox mortality was 85 per cent. 2. In children between the ages of 10 and 15 years it declined 27 per cent. At every age period subsequent to 15 years the mortality actually increased. 3. From 15 to 25 years the smallpox death rate increased. 4. From 25 to 45 years of age the smallpox death rate increased.

Again to show that improved sanitation did not produce the result claimed for it by antivaccinists, the record shows that the decrease in the general death rate during the period in question was but 9 per cent. while the decreased smallpox death rate reached 72 per cent. The comparative decrease in zymotic diseases was as follows: Measles, 9 per cent.; whooping cough, 1 per cent.; smallpox, 72 per cent.

To further demonstrate Proposition 4, I cite the following tables. A glance at these tables conclusively demonstrates the vastly decreased smallpox death rate of those countries rigidly enforcing vaccination over those wherein vaccination is optional, or nominally compulsory.

Smallpox in Europe, 1879-1885.*

Countries.	Period.	Population.	Deaths from smallpox.	Ratio per 10,000.
Italy (284 chief places)	1881-84	7,149,256	4,673	1.63
England and Wales	1880-84	26,413,861	8,823	0.67
Scotland	1880-83	3,745,485	43	0.03
Scotland (8 cities)	1881-84	1,253,087	26	0.05
Ireland	1880-85	5,174,836	628	0.20
German Empire (148 cities)	1881-84	8,790,783	793	0.23
Prussia	1880-83	27,807,012	3,254	0.29
Austria	1879-83	22,184,454	77,988	7.05
Austria (15 chief cities)	1879-82	1,543,656	5,205	8.43
Switzerland (12-15 cantons)	1880-83	1,749,601	238	0.33
Switzerland (17 cities)	1881-83	439,843	105	0.80
Belgium	1880-84	5,655,197	11,577	4.09
Belgium (70 cities)	1880-81	1,731,269	2,182	3.15
Holland	1881-84	4,225,035	963	0.57
Sweden	1880-83	4,579,115	758	0.41
Sweden (89 cities)	1880-82	690,309	143	0.69
Denmark (chief cities)	1880-82	564 914	20	0.12
Spain	1881-84	16,858,721	57,032	8.46
Spain (70 cities)	1881-84	2,828 977	14.793	13.07
European Russia	1882	78,590,594	22,236	2.96

* Buck's Ref. Handbook, p. 526, Vol. vii.

Mortality from smallpox per 1,000,000 living in.†

	Countries without compulsory vaccination.			Countries with compulsory vaccination.		
	Holland.	Prussia.	Austria.	Bavaria.	Sweden.	Scotland.
1865					324	132
1866	406				292	62
1867	154			251	253	81
1868	40	181		190	342	5
1869	14	191		101	354	19
1870	196	183		97	183	34
1871	4,355	2,319		1,043	78	428
1872	1,021	2,621		612	81	720
1873	95	356	3,173	176	261	328
1874		95	1,754	47	936	360
1875		36		17	461	22
1876					186	
1877					80	

† See Second Report Royal Vaccination Commission, page 238.

Table showing, for the years 1871-74, the mortality from smallpox in Prussia per 100,000 inhabitants. (Lotz, "Pocken und Vaccination," p. 88, after Guttstadt.)

In the old Provinces without compulsory vaccination.	1871	1872	1873	1874
1. Prussia	224	503	80	18
2. Brandenburg	340	282	24	5
3. Pomerania	237	249	15	3
4. Posen	455	682	128	24
5. Silesia	214	321	53	21
6. Saxony	277	176	28	3
7. Westphalia	255	209	14	2
8. Rhineland and Hohenzollern	264	106	5	9
In the new Provinces with compulsory vaccination.	**1871**	**1872**	**1873**	**1874**
9. Schleswig-Holstein	180	46	1	0.7
10. Hanover	77	81	13	3
11. Hesse-Nassau	93	45	9	4

I am indebted to Surgeon-General Sternberg, U. S. Army, for a translated copy of an article from the *Hanover Courier* relative to the effect of compulsory vaccination in Europe, furnished by the U. S. Consul General at Berlin, 1893, to the Secretary of State, U. S. From this article I make the following extracts:

The European States in regard to their position in connection with the question of vaccination may be divided into three categories:

1. Those—and these are the majority—which have only the facultative vaccination, but which warmly recommend and urge it: France, Austria, Russia, Belgium, Spain, etc.

2. States with obligatory vaccination, but without obligatory revaccination, as England, Sweden, Denmark.

3. In the third category stands Germany, which is the only state in which—since the imperial vaccination law of 1875 went into operation—vaccination and revaccination are obligatory.

Picking out a state from the second category we can clearly see the blessing of vaccination in the case of Sweden. There died there of smallpox annually from every 100,000 inhabitants:

a. Before the introduction of vaccination from 1774-1800, 165.82.

b. After the introduction of facultative vaccination from 1801-1815, 55.60.

c. After the introduction of obligatory vaccination from 1816-1883, 18.20.

The result in Prussia has been far more favorable since the introduction of the imperial vaccination law. In the decade 1875-85 there died of smallpox annually in Prussia from every 100,000 inhabitants 2.23, in England with obligatory vaccination three times as many, in Austria where there is no compulsion twenty-seven times as many, while before 1875 there were as many smallpox deaths in Prussia as in Austria.

In France with facultative vaccination there died in 1886 and 1887, in Paris alone, more persons from smallpox than in all Germany, namely, 1886, 218 in Paris, 193 in Germany; in 1887, 389 in Paris, 108 (less than one-third as many) in Germany.

The following figures speak for other years. From 100,000 inhabitants there died of smallpox in

	Germany.	England.	Belgium.	Austria.
1886	0.4	1.0	20.5	38.1
1887	0.35	1.8	10.2	41.2
1888	0.2	3.6	14.3	. .

In Spain with 12,000,000 inhabitants, in 1888 there were 14,378 smallpox deaths or 120 to 100,000; in 1889, 8,472 smallpox deaths or 70 to 100,000.

The difference is shown still more clearly and conclusively by comparing districts bordering upon one another. In 1889, of smallpox deaths there were in Bohemia 3,329, or 60 to 100,000, in Moravia 1,100 or about 52 to 100,000; while in the adjacent parts of Germany the numbers were:

Pruesian Silesia . . . . . 35 = 0.85
Kingdom of Saxony . . . . . 7 = 0.29 } per 100,000
The Bavarian frontier districts. 22 = 0.79

Independent of the imperial vaccination law are the vaccination regulations in the German army. In Prussia ever since 1834 recruit vaccination has been the general practice. The result is clearly to be seen. From 1825 to 1834, that is before the introduction of recruit vaccination, the average smallpox death rate wae 364 to 100,000. It was greater than that of the civil population, which on the average was 268 to 100,000.

With the introduction of recruit vaccination the smallpox death rate at once decreased considerably and permanently; leaving out of consideration the war years, it has only once since reached the height of 65 to 100,000, being much lower than the death rate of the civil population, which up to the

time of the introduction of the imperial vaccination law remained unchanged, about 268 to 100,000.

The vaccination regulations worked admirably in the war of 1870-71; in spite of the very great danger of contagion, in an army averaging 600,000 men there were:

Smallpox cases . . . . . 2,746 = 465
Smallpox deaths . . . . . 146 = 24.7 } per 100,000

For the entire German army this rate was more unfavorable owing to the fact that individual contingents had new and, therefore, not fully perfect vaccination regulations. In the entire army of 788,200 there were:

4,835 smallpox cases . . . . . = 613.4
278 smallpox deaths. . . . . = 35.3 } per 100,000

On the other hand the losses in the French army from smallpox were much greater. It is impossible to fix exactly the number of deaths, but it is supposed that 23,469 is the correct number. The figures given for single corps do not contradict this estimate.

For the garrison of Paris (170,000 men) the number of cases from October 1870 to March 1871 was reported at 11,500, the deaths at 1,600. The small garrison of Langres (14,629 men) lost more from smallpox between September 1870 and March 1871 than the entire German army (788,213 men) in twelve months; namely 334 against 278.

Likewise in times of peace the advantage over the French and Austrian armies, due to protective vaccination, which is enjoyed by the Prussian amy (inclusive of the Twelfth Royal Saxon and Thirteenth Royal Württemberg army corps) is apparent. In the fifteen years 1873-88 there were in the Prussian army only 300 cases of smallpox (including doubtful cases) and 3 deaths, while in the French army there were 7,807 cases and 698 deaths, and in the Austrian army 16,974 cases and 1,034 deaths. These two armies, therefore, had respectively two and three and one-half times as many smallpox deaths as there were cases of smallpox in the German army. In 1887 Austria introduced recruit vaccination and at once the number of smallpox cases and deaths became smaller than ever before.

(*To be continued.*)

REMARKS UPON MEDICAL EXPERT TESTIMONY AND PROPOSED RELATIVE LEGISLATION.

Read in the Section on Neurology and Medical Jurisprudence at the Forty-seventh Annual Meeting of the American Medical Association held at Atlanta, Ga., May 5-8, 1896.

BY A. WALTER SUITER, A.M., M.D.

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The amount of earnestly thoughtful consideration which has in recent years been given to the subject of medical expert testimony, both by the legal and medical professions, may be said to be enormous, and yet the great desideratum—its just and equitable regulation—is far from being accomplished.

The remarkable divergence of individual opinion as to the feasibility of the various plans proposed; the complexity of interests involved; the multiplicity of phases in which the subject in general may be made to appear in practical application, together with the necessary constant observance of certain sovereign and inalienable rights which are, under our governmental system, guaranteed to the meanest and the highest in like degree, all combine to make of this veritable *quaestio vexata* a problem so difficult of solution as almost to suggest an utter impossibility as to its final and satisfactory adjustment.

It seems indisputable that so long as testimony as to facts and what is commonly termed opinion testimony, differ so widely and yet merge so closely, and so long as the laws and the courts do not recognize the fact that doctors in general are not experts indiscriminately, and that no witness is qualified to express an authoritative opinion upon any subject who does not possess special knowledge derived from special study and experience, just so long will this great question continue to be the *bête noire* of our profession.

It is universally conceded, and justly so from the medical standpoint, that the present method of taking testimony requiring expert opinion is defective in the extreme, and in many instances in practice absurd and ridiculous; attorneys, for example, taking advantage of the circumstances, frequently select and summon to the stand to pose in the attitude of medical experts upon the gravest and most momentous scientific questions, members of the profession whose only *special* qualification consists in having agreed with their employer to express a satisfactory reply to the hypothetic statement which supposedly covers the facts in the case at bar, or under consideration.

An instance in point in the writer's observation is amusing—the medical witness, when examined upon topics requiring expert knowledge of the important subject of antisepsis in the treatment of wounds, indignantly scouted the idea of making use of corrosive sublimate in his practice, but triumphantly declared that he did use the bichlorid of mercury instead!

And yet, with the existing confusion in the matter of differentiation between the expert and the non-expert, the courts would charge due consideration by the jury of the opinions and declarations of such a witness upon equal footing with those of the most accomplished specialist.

Herein lies the greatest fault in the prevailing system, namely, the absence of determining rules whereby the special qualification of the witness in a particular branch of medical science may be known and established beforehand; and the unlimited privilege which in the usage of courts is possessed by attorneys and counsel to select for themselves, regardless of qualification, the witnesses whom they are to present as experts in a given case, and who become *ipso facto* the honest partisans of their employer, especially when he fixes their compensating fee.

Another unjust phase of this matter relates to the frequent discriminating inequality between the prosecution and defense in their relative ability to indulge in the expensive advantage of employing experts to testify in their behalf.

A notorious and likely to be celebrated case is now pending in the courts of New York City which fully illustrates this point.

The district attorney, with the city treasury to draw upon, is said to have engaged the services of an array of talented experts whose fame can scarcely be matched. Two are to appear upon the subject of chemistry, two upon that of materia medica, two to take charge of the pathologic aspects, and one is employed to expound the special subject of toxicology. By membership in their faculties the staff will represent the following great institutions: The University of Michigan, the College of Physicians and Surgeons of Columbia University, the University of the City of New York and the University of Pennsylvania. In addition to this a very noted doctor-lawyer has been hired to arrange and adduce the scientific testimony in the case.

On the other hand, and in consideration of such formidable preparation on the part of the People, the pertinent question is very naturally asked by a prominent New York newspaper, "How is the poor defendant to get experts from Michigan and Pennsylvania, the first in their profession to testify for her?" [1]

This unfair relation of the almost always impe-

cunious accused in criminal cases is by no means uncommon, and its injustice is too apparent to require extended comment.

It would seem in this era of specialism in study and practice that the line might without great difficulty be satisfactorily established whereby the status of an expert in a given department could be previously obtained and certified. But the standard of qualification obviously must be defined by and through the medical profession in such manner as to command the entire respect of the courts, and merit the approval of the public at large. This, it may be said, has already been practically done, but advantage can never be taken until the system of taking expert testimony has been so radically changed that the proper restriction as to the manner of selection and appointment has been regulated, to the extent that the expert witness shall in all cases be an officer of the court, and occupy a position with reference to the subject concerning which he is to express an opinion of absolute independence and impartiality.

In this view the function of the expert would be advisory in the strictest sense. He would, and should, be the mentor and censor both to the court and jury, and thus would the average jury be relieved of the always too great responsibility of determining upon questions of such scientific delicacy as to require a technical knowledge that presupposes years of study and experience to attain.

Nothing can be more absurd and contradictory to the professional mind than to call together twelve men, selected for the most part *because* of their ignorance and stupidity and their unfamiliarity with the facts and circumstances, and compel them to sit in judgment upon the radical and sometimes chaotic disagreement of opinions of those whom education and years of continuous practical application have qualified them to express. The unintelligent juryman is thereby exalted to the lofty position of an arbiter upon the points at issue, obliged in the brief period of time to qualify himself as such, and systematically deceived, misled and narrowed as to the aspects of the case which he is permitted to consider under the rules of evidence.

Paradoxical as it may seem, however, there is a strong measure of doubt whether this system of consideration and decision by juries even of the kind referred to can be improved, for the simple reason that no other plan has yet been devised which would not have similar defects and be open to the same, and perhaps greater, objections.

A very distinguished jurist, writing reminiscentially of his experience as associate justice of the United States supreme court in support of the existing trial by jury, declares in effect that the differences and disputes of the members of that august court leading up to decisions do not materially differ from those of the average petit jury, and that notwithstanding their profound legal learning the actuating motives and influences are essentially the same, particularly as to matters of fact.

Furthermore, if reform could be accomplished in criminal jurisprudence by the modification of the jury system it would be impossible as, it is hardly necessary to state in this presence, the right to trial by jury must forever remain inviolate under constitutional provision. For the same reason it may also be said that the right of a defendant or plaintiff to call his own counsel and witnesses and cross examine those opposed to him can not be denied or in any degree curtailed.

It follows then that if reform in the presentation of medical expert testimony is ever to be accomplished, it can not be by way of any change in the jury system of trial at present in vogue. It is much more possible that it will come through an improved and acceptable method of obtaining, and submitting for deliberation by the jury, the associated scientific facts and relations.

In the judgment of the writer the following propositions would seem to fairly comprehend the circumstances:

1. The appointment of a commission of experts by the court in each case requiring it, the experts to be especially qualified by educational experience as such.
2. The establishment of an educational curriculum and a period of service in each branch of medical science by which the qualifications of an expert witness may be known and certified.
3. Just and adequate compensation commensurate with the character of the service should be awarded, and should in every instance in criminal cases be paid from the public treasury upon the certificate of the presiding judge. In civil cases the compensation might or might not be fixed by the court, but should be taxed as costs to abide the event, or, by agreement, the expense might be equally divided between the contestants in the action.

With these somewhat desultory remarks, for which it is not pretended that they convey any new or original ideas, but that they simply express the individual thoughts of the writer and endorse the views that are commonly entertained among those of the profession whose opinions are entitled to carry the weight of authority, your attention is respectfully invited to a brief history of the movement which is now in progress, and is rapidly assuming influential and promising proportions in the State of New York, looking to the correction of the evils of the prevalent method as far as may be by appropriate legislation.

During the session for 1895 of the Medical Society of the State of New York, a special committee, comprising some of the most noted and competent alienists and medico-legal authorities of the State, was appointed to coöperate with the standing committee on legislation to duly consider the subject and report the most feasible plan of procedure.

Soon thereafter an extensive correspondence was undertaken among the prominent jurists, alienists and medical experts of the country, in order to obtain a symposium of essays illustrative of the relative personal status of the individuals addressed for the subsequent guidance of the committee.

With notable unanimity, the opinions expressed in all the replies received were substantially the same in regard to the main propositions.

All agreed, first, upon the growing necessity for the reform; second, that the true solution of the problem consists in the appointment, by the common consent of the court and the contending parties, of a commission, or a board, of experts, in each case, to act in an advisory capacity in the presentation of the scientific aspects to the jury; and third, that absolute independence can only be secured by an arrangement whereby the honorarium shall be a public charge, the value of the service to be determined by the court,

1 Editorial, New York Sun, April 26, 1896.

thus divesting the proceeding of the commercial character so much to be deplored.

The greatest diversity of opinion appeared to be with reference to the appointing power—some advocating that the appointments should be made by the governor, and that the board should be a permanent one; many believing that the State should be districted for the purpose after the method in common practice in continental Europe. Others thought that a permanent board should be designated by the State Commission in Lunacy and be of a non-partisan character; and still others who expressed the view that the appointing power should be vested in the Board of regents of the State university, they to pass upon the qualifications of the incumbents in the same manner that medical practitioners are now licensed after examination by the State board of examiners, and that it be unlawful to designate any person to give expert testimony who does not possess the regent's certificate setting forth that he is duly qualified.

A general commission was suggested, to be permanently established by statutory enactment to represent all departments of science (and perhaps mechanics) upon which requisition might from time to time be made when the occasion should be such as to demand the service of an expert.

A special commission for each case was more commonly advised, to be named by the presiding judge, and to be composed of three or five members, one or two to represent the prosecution, one or two to represent the defense and one to be nominated as the special representative of the court; all questions of a technical nature to be submitted to them and their replies and conclusions to be in turn submitted to the court and jury, any or all of the experts to be subject to subsequent cross examination upon the report rendered should the parties to the action so elect.

With these data at hand, which seemed to contain a complete consensus of the general trend of thought upon the subject, the committee compiled a condensed report in the form of a preamble and resolutions which were promptly acted upon and unanimously adopted.

In accordance therewith, a proposed law was formulated under the intelligent direction of Dr. Carlos F. MacDonald, the president of the State Commission in Lunacy, and its introduction into the State legislature secured by the writer. It is believed that the bill embodies in substance the required measure of reform in criminal cases, recognizing of course the fact that no bill can be drawn which would be *entirely* free from constitutional restrictions.

STATE OF NEW YORK. No. 1943. Int. 1375. In Assembly. March 26, 1896. Introduced by Mr. Scherer—read once and referred to the committee on the judiciary.

AN ACT

To regulate the employment of medical expert testimony in criminal proceedings.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

SECTION 1. Whenever any person in confinement, under indictment for the crime of murder, attempt to murder, manslaughter, arson, highway robbery, forgery or other felony, may desire to present medical expert testimony in his defense, whether of a medical, surgical or chemical nature, he shall so inform the court at the time of his arraignment for trial, whereupon the presiding judge before whom such trial is pending shall appoint such number of experts as he may deem necessary to adequately represent both the prosecution and the defense, and the compensation of such experts shall be fixed by an order of the court at a rate that shall be reasonable for professional services of such a nature. The experts so appointed shall be persons of repute and qualified in the branch of medical science to which the question calling for expert opinion relates; and shall have full and free access to the evidence adduced on the trial, as well as to the defendant, if the issue involves his mental or physical state. On the completion of their examination, the said experts shall submit to the court for transmission to the jury as evidence a report in writing, attested by their oaths, setting forth their conclusion, together with the facts upon which such conclusion is based. If counsel on either side shall demand it, the experts may be sworn as witnesses, but their examination and cross examination as such shall be limited to the facts and opinion contained in their report to the court.

SECTION 2. All acts or parts of acts inconsistent with this act are hereby repealed.

SECTION 3. This act shall take effect immediately.

It may be surprising to state that at the first hearing before the committee on judiciary to which it was referred, although the bill was carefully scrutinized by the statutory revision commission (the State board of reference upon the phraseology of laws) the advocates of the measure were confronted by a question involving the doubtful constitutionality of the passage relating to the subject of cross examination. Contention was made that cross examination could not be confined strictly to the matters contained in the report adduced, and that the defendant would still have the right to go outside of the report and call witnesses to combat the testimony therein; and in case of his acceptance of the special expert commission such circumstances would place him in the position of attacking the testimony of his own witnesses.

You will agree that this is a knotty point, and observe how difficult a task it is to frame a law that would be entirely free from similar antagonism.

Another objection may properly be mentioned:

In a recent editorial comment,[1] attention was directed to an apparent ambiguity of expression regarding the report of the contemplated special commission, namely: That it does not specify as to whether the experts shall submit their report collectively or as individuals. If collectively, it may still be a question whether a majority and a minority report shall both be permitted, or a unanimous declaration required.

Of course the bill should be amended in this respect.

The proposed law will be modified in a way to meet, if possible, every objection raised, and upon that point it is hoped that some helpful suggestions may be made by the members of this section.

This legislative proposal is now pending in New York with no real expectation that it will be enacted during the current session. That would be almost unprecedented in so important a matter. But it may be written down that no effort will be spared nor opportunity neglected until the desired reform has been achieved.

The contest will be continuous and uninterrupted, and it is expected that the profession throughout the United States will give all aid and support possible, as favorable action in New York will greatly tend to influence similar legislation in all other States of the Union.

By way of comparison, it will not be amiss to introduce at this point the text of a bill which was presented to the legislature of the State of Minnesota several years since (1893), and about the same time in the legislature of Illinois in practically the same form.

This formulation was first reported to the Minne-

[1] American Medico-Surgical Bulletin, Vol. ix, page 556.

sota State Medical Society by Dr. B. J. Merrill, chairman of the section on medical jurisprudence. The proposition was very carefully studied in connection with the movement in New York State:

Be it enacted, etc.

SEC. 1.—In all cases pending in the courts of this State, civil and criminal, before or at the time of the trial of said cases, the judge of said court, when it is made to appear to him that the appointment of experts upon medical, scientific or mechanical questions is desirable, may appoint such experts to examine into the subject matter in controversy, said experts so appointed to be selected in reference to their impartiality between the contending parties; the number of such experts in each case to be fixed by the court.

SEC. 2.—In all cases where experts are so appointed, the court is to fix their compensation, and in all criminal cases direct the payment of the same in the same manner as witnesses on the part of the State are paid; in all civil cases the amount so fixed and determined by the court shall be taxed as disbursements by the successful party.

SEC. 3.—The court may order such experts to examine into any medical, scientific or mechanical question, and after such examination to testify in court in reference thereto.

SEC. 4.—The testimony of said experts so appointed by the court, shall be *prima facie* evidence of the statements and conclusions as to the questions in reference to which said testimony has been given.

SEC. 5.—The court may also fix and determine the amount to be allowed such experts for and on account of any medical, scientific or mechanical examination, analysis or test, which the court may deem advisable to have made, and direct the payment thereof, or permit the taxation thereof as costs as hereinbefore provided.

It is understood that considerable effort was made to secure the passage of this proposal in both the States mentioned, but it was successfully opposed in both instances. The bill has great merit, however, and should have met with a better fate.

It will be noted that it differs from the New York bill in several important respects:

1. It provides for civil as well as criminal cases.

2. It permits of unlimited examination and cross examination of the experts appointed, and does not specify a written report to the jury.

3. It makes provision for the regulation of analyses and tests in all cases requiring it, and also prescribes the payment of adequate fees for the same.[2]

4. It includes questions of a mechanical nature, but does not specifically mention those relating to surgical subjects, although the construction likely to be placed upon the terms "medical" and "scientific" would probably make satisfactory application.

Originality has not been attempted in this paper, nor has effort been made to treat any phase of this absorbing question to any extent exhaustively. It is simply what its title implies, namely, "remarks upon medical expert testimony and proposed relative legislation."

The drafted formulas are placed before the section in the belief that suggestive and critical discussion will lead to conservative results.

Let it be borne in mind that the New York proposal is nobody's pet, and the same may doubtless be said of the one introduced for comparison.

The true motive of all concerned is to secure the adoption of a wise and beneficent measure which will comprehend the requirements of the occasion, correct the prevailing abuses, and elevate our moral standing before the courts to the dignified position to which it is justly entitled.

Reform is urgently needed. The "cause is ripe" and the demand is rife.

[2] In New York State the penal code provides for chemical and other scientific analyses upon the order of the court, the compensation to be fixed by the district attorney and paid by the county treasurer upon the district attorney's certificate.

INSANITY IN COURT.

Read in the Section on Neurology and Medical Jurisprudence, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5–8, 1896.

BY L. HARRISON METTLER, A.M., M.D.
CHICAGO, ILL.

With the rapid growth of knowledge and the steady development of new forms of industrial activity, the employment of expert testimony for the instruction of the courts is becoming more of a necessity every year. This is admitted by all. The present method of securing this testimony is acknowledged to be both defective and inadequate. On account of this faulty method, expert testimony itself is occasionally most unjustly criticised and ignorantly ridiculed. From the method of its engagement to the system of expert testimony in general the blame has been transferred, and some narrow minded jurists have even cast slurs and insults upon the experts themselves, thus completely losing sight of the real cause of their dissatisfaction, namely, the ancient and absurd method in which the expert is brought before the court. Lord Campbell revealed a partial comprehension of the trouble, when he said that "skilled witnesses come with such a bias on their minds to support the cause in which they are embarked that hardly any weight should be given to their evidence." What gives rise to this bias might have been asked of the noble lord. He insinuates his answer in the statement that they come "to support the cause in which they are embarked." In other words, the expert is a biased individual, just as my Lord Campbell himself would have been, had he been engaged and remunerated by one or the other side in the contest. To secure an unbiased legal opinion from my noble lord, it was necessary for the State to elevate him to the bench and to pay him a wholesome sum out of the public treasury. Experts are human beings with the same human frailties as lawyers and judges, and I have a suspicion that among experts there is a larger, or at least equal number of individuals who honorably decline serving, and who often forego a most tempting fee when they discover that their scientific testimony will be damaging to the parties who have summoned them. As he is now placed the scientific expert is not an *ex parte* witness and Lord Campbell's *biased* insinuations in regard to the honesty of the expert, reflects more unfavorably upon the legal profession and the legislative powers, in whose hands the maintenance of the present defective system so largely rests.

Once a judge of Maine declared that if there be any kind of testimony that is not only of no value, but even worse than that, it is in his judgment that of medical experts, all of which criticism is highly commendable if the honorable judge is at the same time exerting his influence to induce his own guild to institute the needed reforms by which medical expert testimony may be able to exercise its proper function and to reveal to the court the value which the rest of the world recognizes it possesses. A New York judge very *judiciously* classifies witnesses as liars, blank liars and experts, which is all very facetious and may be allowed to pass as a very *judicial* joke. Mr. Weil, a lawyer of some acumen, once said: "The fact is the average lawyer does not qualify himself to examine an expert, he qualifies himself only sufficiently to conceal his own ignorance." I do not think

the average medical expert can be charged with such an unwarrantable delinquency.

Maudsley suggested as a means of softening the virulence and disgracefulness of the disputes between lawyers and doctors in our courts, the abolition of capital punishment. In the words of Mills: "Some of our learned judges are not without blame for this state of affairs. The decidedly antagonistic stand which they seem ever prone to take against reputable physicians in *habeas corpus* and other cases in which questions of medical opinion are at stake, has put the profession into such a frame of mind that in Philadelphia—and it may be the same throughout the country—many physicians now refuse altogether to make affidavit." It seems to me that these "learned judges" are so easily biased, considering the freedom from one-sided influences which their position and income enjoys in comparison with that of the experts as it now is, and considering the large amount of honesty of opinion expressed by experts, even under such unfavorable conditions, that these same judges are constitutionally less fitted to administer justice in court than are the experts they antagonize fitted to give scientific testimony.

Those who recognize the faultiness of the present method of expert examination anticipate very little reform for a long time to come. The legal fraternity has almost complete control of the judicature and legislation of our country. The medical profession has comparatively little to do with either. Now the trend of law and medicine are almost in diametrically opposite directions. Legal judgments are founded in large measure upon precedents; they are based upon authority which generally is better the more ancient it is; to a considerable degree the legal mind looks backward for its guidance. On the other hand medicine, being a science, looks forward and to-day recognizes facts and formulates principles that it scarcely dreamed of yesterday. Our modern judiciary system is hoary with age; and its strength and dignity rest largely upon its antiquity. On the other hand much of our knowledge of insanity is of very recent date, being founded upon discoveries in anatomy and physiology made within the last decade. At one time mental diseases were so little understood that there were perforce no experts upon them; their manifestations were simply strange *facts*, the decision of which was as much within the capability of the layman as of a medical man. The acts committed by an individual on trial for insanity could be as well established and the insanity itself (which was necessarily of a gross form) could be as well determined by an ordinary jury as by any body of professional men. The only questions to be solved were the commission of the acts and whether a supposedly sane person would have committed the same acts. The absence or presence of a rational motive and the power to distinguish right from wrong, were the only plausible and apparently reliable tests that could be applied. The psychology of that day was about as well acquainted with insanity as the law itself was; hence it readily acquiesced in the legal tests then formulated. Now, however, all this has been changed, at least in regard to our knowledge of insanity; whereas our system of judicature has remained the same. In regard to the conceptions of mental phenomena, law and medicine started out together upon the same path but the paths soon diverged, and now have become so widely separated that there needs to be an entire readjustment in regard to medico-legal questions. Medicine recognizes to-day special and complicated forms of insanity. It has discovered since the formulation of the old legal tests, particular varieties to which these tests are wholly inapplicable. It has uncovered the physical lesions for some of them at least. The diagnosis of them is now a matter of greater refinement and depends upon much more subtle symptoms than such signs as the inability to distinguish right from wrong or the absence and presence of certain motives. In a word our system of administration of justice has not kept pace with the progress of science; it has not readjusted itself to the newer scientific state of affairs.

Perhaps the most glaring fault in the present management of expert testimony, is its engagement by the opposing counsel. Human nature has its weakness in scientific men as well as in lawyers and when experts are thus hired they are almost forbidden to be experts by being made partisans. Even were the condition so Utopian that none but honest experts could be secured, that those whose opinions were found to conflict with the interests of the side engaging them would refuse to testify, there would always be some, equally honest, whose opinions would differ, especially upon points of science still open to controversy. They would be engaged and thus the court room would become the scene of a scientific debate much to the dismay and confusion of an uninformed jury. Such is the way things are managed at the present time. The counsel fixes the medical opinions for the court and then hires those experts, or self-styled experts, who will be most likely to support his side of the contest. Between the two sides a rhetorical display of scientific quibbling is presented for the edification of the court and jury; more often a roaring farce is performed; the judge becomes incensed, the jury falls into hopeless confusion, and the few deserving experts in the case are brought to shame and made the victims of most unjust sarcasm. Volunteer experts would be better than those paid like partisans for one side or the other; but as volunteers would be hard to secure, experts paid by the court or government should be employed and only such experts. That would be one step toward the elimination of the partisanship feeling in regard to expert testimony.

But the counsel tell us that their purpose after all in the cross-examination of opposing experts, is the elucidation of scientific *facts* and not the hearing of any scientific *opinions*; that one layman is as capable of deciding *facts* as another; and that a jury of laymen should be the only body to decide upon such *facts;* for the establishment of the truth or falsity or rather the presence or absence of *facts* in the case being tried, is the fundamental object of our great jury system. In the words of Hornblower (Hamilton's System of Legal Medicine, Vol. II, p. 131)" The primary object of expert testimony is not to prove opinions but facts in the shape of rules of science as are generally recognized." And again, the counsel tell us that the present method of engaging experts is the best because it carries out most effectively the great principle in our system of judicature, that every man under accusation has the right to interrogate and to confront his accusers and witnesses. Both of these arguments of defense set forth by our legal friends, are right in principle but wrong in practice as medico-legal questions are considered to-day. When the power of distinguishing right from wrong was the test and apparently the only test of insanity, and

when *facts*, scientific medical *facts*, were scarce in regard to the many mental phenomena of health and disease, the present system of our courts would have been fully adequate to lead to a decision. To-day, however, every intelligent man admits that there are new *facts* revealed by science that none but a skilled specialist can recognize. This is true of all the sciences as well as of medicine. The court, for instance, does not submit to a jury of laymen an abstruse chemic question but takes the facts detailed by an expert chemist and instructs the jury to accept them as detailed. The discovery of arsenic in a man's stomach is not left to a jury to decide, nor is its presence or absence dependent upon any arbitrary legal test, such as the discernment between right and wrong for insanity; but an expert chemist is called and his observations accepted as proof of the presence or absence of the poison. Likewise the decision of insanity in a case on trial should not be left to a jury, because insanity is diagnosed to-day upon finer symptoms than the mere power to discern right from wrong, etc. The *fact* of insanity can be affirmed only by a special student of the disease and the majority of laymen would be confused and embarrassed by what to him would be clear and self-evident. Furthermore, in many cases of insanity the only *facts* comprehensible to a lay jury would be certain strange acts, delusions, etc.; but to the expert those isolated, scattered facts, which would seem to mean so little to the average layman, might indicate a great deal. Hence, while to the jury the experienced expert may be able to enumerate only a limited number of facts within their comprehension, he from a long study of similar cases may be capable of giving a most valuable *opinion* in regard to the sanity of the prisoner. Certain impulses such as homicide in acute mania, suicide in melancholia, certain delusions as that of grandeur in the early period of general paralysis, religious exaltation, illusions and hallucinations in other special forms of mental derangement, may when described to an average jury as isolated *facts* or more general *principles*, bear very little weight, because such a jury has not been impressed with the importance of those isolated facts as evidences of mental aberration, by seeing them repeated and duplicated in hundreds of similar cases. The experienced expert, on the other hand, has seen such and from the few apparently unimportant *facts* is able to give to the court the *opinion* that the prisoner is a victim of one or other form of insanity.

I believe, therefore, most emphatically that an expert should not be put into the position of a *witness*. Often he has witnessed so little in regard to the prisoner at the bar as to render his testimony in regard *to* the *facts* about that prisoner's mental condition of small worth. The expert should occupy a *judicial* position, so that after a thorough examination of the prisoner, he can give a full and unbiased *opinion* of his mental condition, based upon the thorough examination and his large experience in the study of like cases. The increased refinement in the diagnosis of mental diseases at the present time, demands the exercise of an experienced judicial mind. It asks for something more than the bare statement of a number of isolated facts. A genuine expert is to-day, in the light of our increased knowledge, something more than a witness; he is a judge with an opinion to offer or he is at least an adviser capable of guiding the court's opinion. His worth is much diminished by putting him in the attitude of a mere retailer of certain scientific facts, which in their isolated presentation may throw but a limited light upon the case in hand.

The same explanation accounts for the inefficiency of the *hypothetic question* as a means of obtaining an expert's opinion. This form of examination prevents the expert from rendering a judicial opinion. As it is now employed it brings into prominence symptoms of little importance and suppresses others that may be of the greatest significance. If it is to be made use of at all (and the instances in which it is of any value are testamentary cases in which the maker of the disputed will is dead), it should at least be worded and presented by the court and not by either of the opposing factions. In the framing of the hypothetic question as it is now done, the partisan spirit enters and so construes the facts of the case as to make them appear otherwise than they actually are. Granting, however, that the question should be framed by the two sides in such a way as to eliminate every suspicion of partisanship, it may be presented to the expert and court in such a manner from the legal or lay standpoint as to be perfectly meaningless or completely unanswerable to the expert. In such a case an expert will wisely decline to say anything, for he will be obliged to keep within the limitations set for him and though he may know that a single word of explanation upon his part would change the whole face of the question, that word will usually not be allowed him. Thus his valuable knowledge will be lost in the trial. If he foolishly attempts to answer the question, and thus more often than is agreeable puts himself in a position not well fortified by his own explanations, he will sooner or later come to grief in the hands of the opposing lawyer, and appear before the jury in a most ridiculous and self-contradictory plight. This is not an uncommon exhibition in our courts, and it is one of the chief causes of the disrepute in which experts are held.

I believe that every case in which insanity is entered as a plea should have a separate medical trial. This need not in the least remove the case out of the jurisdiction of the court; for the same judge may preside and in accordance with the result of the medical trial, the prisoner may be sent to an asylum or referred to the ordinary court for a civil trial. In the latter, however, all questions as to the mental condition of the prisoner should be excluded. This would undoubtedly diminish the number of insanity pleas now entered for the defense of criminals. The criminal as well as his lawyer would hesitate before coming under the examination of a carefully selected commission of medical experts; whereas now he is almost certain he can confuse an ordinary jury and so secure a verdict not in accordance with his deserts. The very weakness of the present system is exposed in the enormous number of insanity pleas that are annually brought before the courts. Criminals recognize a source of strength in their own defense, in the difficulty experienced by the average jury in deciding upon a case of insanity. It is the greater misfortune, however, that the disadvantage works also the other way, for it is a notorious fact that the gallows has more than once ended the life of a poor demented creature, irresponsible for his deed and sent into eternity by the unjust verdict of a confused and ignorant jury of laymen. It has been argued that a separate medical trial or examination before a commission of experts would thwart the very purpose of our time-honored jury system, in which a man charged with a

crime is given the privilege of meeting face to face his accusers and of receiving his sentence at the hands of his peers. Now, I maintain that the present mode of examination is the one which contravenes the spirit of this fundamental legal maxim. If a man accused of a crime, enters a plea of insanity as his defense, or if he is suspected of being insane, he for the time being stands as the representative of some one of the many forms of mental disease. In a word, he is, as it were, that disease itself, whether he is attempting to counterfeit it or is actually its victim. It seems to me, therefore, to be a self-evident proposition and one that is almost axiomatic, that in the abstract the peers of such a man are those who know most about the disease which he is manifesting. The latter in their knowledge of it are equally its representatives, and they, like the prisoner, stand, as it were, in its place: certainly more so than any layman who knows nothing about such a disease. There can be no sort of parallelism or comparison drawn, in the abstract, between the victim of an abstruse and delusive form of insanity for which he stands in reality as the living representative, and a body of ignorant, inexperienced jurymen gathered haphazard from out the street, who have probably never seen or heard of the simplest forms of mental aberration and for whom a few hours' hurried explanation of it in a crowded, somniferous court-room can only afford a vague and uncertain opinion. Why, a class of first-year medical students would constitute a better jury than such a one for the trial of insanity, while the trial itself would be more in the spirit of our great jury system, for the medical students would, at all events, have seen a little of the possibilities and probabilities of disease. For a military misdemeanor a soldier is tried by a court-martial, it being understood that his peers are those who know most about the military rules and regulations that he has broken. A clergyman is tried for heresy by his fellows, because they alone are his peers in knowing most about the doctrines which he is supposed to have denied. Likewise a crime done by a supposed lunatic should at least have a separate medical examination to determine at least the lunacy of the criminal, for the legal peers of such a criminal are those who know most about the vagaries of lunacy.

In conclusion, then, I believe that the present method of examining cases of insanity in our courts is unjust because:

1. The engagement of the expert by the opposing counsel is prone to bias the expert and to nullify the truthfulness of his testimony.

2. The discovery of a number of isolated facts (which is the affirmed purpose of an examination in court) is not in the present advanced state of our knowledge of mental phenomena, the most reliable way to diagnose insanity.

3. The value of an expert's testimony is vitiated by the fact of his being placed in the position of a witness to testify to certain isolated facts, instead of the position of an adviser to the court to give his full and unbiased opinion.

4. The hypothetic question hampers even the most learned experts and in the end often places them in a contradictory and absurd attitude from which it is difficult for them to recover.

5. The present system does not carry out the abstract spirit of the law that every man shall be tried by his peers; but on the other hand works injustice in many cases of real insanity and favors the exercise on the part of criminals of feigned insanity.

6. The old legal tests of insanity, which are of a more or less popular character and were sufficiently adequate for the guidance of the average jury in former times, are not tenable to-day in the advanced state of our knowledge of mental phenomena and their manifestations.

The remedy I have already hinted at consists in the separation of the medical from the civil trial. The former is to be conducted in the presence of the judge by a commission of learned and experienced experts appointed by the supreme court or in any other way that will keep the appointments beyond the influence of politics; this commission to be remunerated by the State in accordance with the dignity and seriousness of its decisions. If the result of this trial or examination by the commission of experts, be that the prisoner is insane, no appeal is to be allowed, but the prisoner is to be removed to an asylum for medical treatment. If, however, the commission decides that the prisoner is not insane, then he is to be submitted to a civil trial in the ordinary way and punished or acquitted in accordance with the verdict.

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EXPERT TESTIMONY IN DISPUTED CASES OF INEBRIETY.

Read in the Section on Neurology and Medical Jurisprudence at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

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During the past year several very important cases have brought out the most widely divergent expert testimony, clearly showing the need of new study of this subject.

Disputed cases of inebriety are increasing every year. Not the petty contests of police and criminal courts, where the questions raised are technical for partisan purposes, but facts of great interest and profound questions of science on which large issues turn. In one case, the final disposition of over a million dollars turned on the question of the normal condition of the mind of a testator who used spirits to excess. In another case a forgery which implicated many persons, depended on the judgment of experts relating to the motives of an inebriate. Several murder and homicidal cases have been disposed of on the testimony of medical experts. The final issue of all these cases has been the subject of divergent views in both legal and medical circles.

The usual criticism that expert testimony is purchasable and unreliable to the highest degree, has become a common observation in court rooms. In reality the ordinary expert testimony that is vague and confusing becomes so through the faults of the legal battles of lawyers.

In every case two theories are assumed and the struggle is to prove the one and disprove the other. Facts, theories and statements of every possible character are gathered, grouped and twisted in every way possible for this purpose. Scientific opinions of every description that seem to sustain one view or the opposite, are marshalled and placed in their best form to carry conviction irrespective of the truth. The central object of the opposing counsel is to prove the truth of their side of the question and not to ascertain

the actual facts or principles of equity involved, and expert medical testimony is called for this special purpose. Consciously or unconsciously, the expert becomes a partisan and, with the counsel, believes a certain theory true, and in his efforts to sustain this position, under the cross fire of the opposing lawyers, appears to a great disadvantage. The fault is not that of the expert, it is the vicious legal system of ascertaining facts.

Suppose two physicians enter upon a partisan contest to prove that a given case is one of typhoid or simple derangement of the digestion, and each one gather and twist all possible facts to sustain his theory. The failure of both to secure the real facts and make clear their position would be inevitable. Take these two men in court with care-testing counsel to sustain and coach them. Then have the subject obscure and not clearly defined in fact or theory, and the wonder would be how any truth could be ascertained by such methods.

The present methods of securing medical men to sustain opposite views, by grouping a mass of statements which are half truths and distorted, strained conceptions, and enlisting physicians to defend them by assuming that they are complete facts, is danger- and utterly subversive of truth. The common experience of presenting to the expert a view of the case which supports the theory the counsel is called to defend, and convincing the expert that this is true, then retaining him on the trial is the beginning. Then the trial begins with the expert in possession of a certain class of facts which he is soon biased to believe.

In the meantime he has fortified these opinions by reading and examination of all the possible authorities, and grouped all the facts which support and make the theory clear. On the trial he hears the other side, but the constant presence of the counsel who is defending the theory he has been retained to support, neutralizes and explains away the opposing facts. Every night the counsel literally coaches the experts by arguments and explanations, and strengthens his former convictions wherever they may have been shaken by other testimony.

Finally, the expert is a partisan who is fully convinced of the truth of the theory he is called to support. He goes on the stand and under the cross fire of counsel fails to make his theory clear, or impress any one with respect for his fairness and scientific accuracy. He is prejudiced from the start; his scientific sense of judicial examination of facts is enfeebled; he has become, unconsciously or otherwise, imbued with a strong bias in the belief of the accuracy of a certain class of facts. Of course the pecuniary fees will in some cases add to this, but in most cases unconsciously. On the stand opposing experts who are equally partizan and confident of the truth of an opposite theory are able to detect and expose the errors of the other. Finally, the expert testimony becomes a mere word battle in which all the energies of each side are concentrated to win their theory. The "hypothetical case," which is supposed to group all the facts in one picture, is made to prove and disprove opposite theories by the merest word juggling, and the emphatic affirmative and negative answers demanded still farther confuse the real facts in question.

There can be no question that the fault is in the system, not in the medical men, who wisely or unwisely try to reach accurate conclusions along impassable paths and roads of study. The most celebrated cases which turn on medical testimony, and those of minor interest, show the same confusion of means and efforts to reach the facts, and the hope of change and improvement is removed to some future, when medical testimony will be given in commission and on paper, as exhaustive independent studies of the facts at issue.

There is another phase of expert testimony which needs a new study from a different standpoint. I refer to the disputed cases in which the question of how far, and to what extent, has the use of spirits impaired the brain and influenced the act in question. Strange as it may appear, the medical answers to this question are very largely colored by the previous convictions and personal habits of the expert. This is illustrated by life insurance applications in different sections of the country. Certain medical examiners will consider the continuous use of spirits, with an occasional attack of delirium tremens, of no importance as impairing the risk of the life of an applicant. In like manner a noted physician swore that the continuous use of spirits for twenty years would not necessarily impair the capacity of the brain. Of course the honesty of the witness must be assumed, but his prejudice and evident partisan attitude was apparent. We have reached a position now in psychologic research when the paralyzing effects of alcohol on the brain and nervous system can be asserted as an established fact. The fascination which causes it to be repeated and become a daily drink is from its narcotic properties. It brings relief from pain, rest and a sense of comfort which requires repetition and increasing doses to keep up. Its action provokes a desire for more and the injury of to-day seeks relief from the same drug to-morrow. This use may be continuous or in paroxysms, but in all cases there is positive injury, unknown in its nature and extent, until finally it manifests pronounced symptoms of degeneration and disease.

In any given case, where the history indicates continuous or paroxysmal use of spirits for any period of years, the inference of mental impairment and defects will be supported by an appeal to the facts. It may be safely asserted beyond fear of contradiction that no one can use spirits for any length of time and be sane and of sound mind. Any act which is in dispute, performed by a moderate or continuous drinker, is open to suspicion. In the history of any case, if the use of alcohol and other narcotics is established, the expert has a starting point from which to examine and study physical and psychical changes that show the real condition. The study of the drink history is the key that will clear up many of these cases. A practical illustration is found in the famous Ross case. Here, a homicide and suicide was committed, and a will written at about this time was contested. His conduct before and after the will was not unusual, but his drinking history showed continuous use of spirits in large quantities daily. From this it was evident that his mind was enfeebled, and although acting along lines of automatic activity he was clearly unstable and likely to explode any moment into some form of insanity. The more accurately his drink history was known the clearer the insanity of his case became.

The drink history is a very essential factor in the study of the symptoms and is of more importance

than change of conduct, appearance and thought. These may remain substantially the same, or be so concealed as to escape observation.

The mental state of a person at a certain time and in certain circumstances is to be judged from a great variety of conditions. This study should begin with heredity, family diseases, peculiarities and surroundings. Then go on to birth, nutrition, culture, diseases, injuries and surroundings. This leads up to the vast range of influences and their power over the mind and body, and furnishes a comparative clear conception of the physical and mental conditions present. Then comes the question of the disputed act, whatever it may be. Was this natural and along the line of his usual activities? Was the act and its motive reasonable and natural to him? Was it a natural sequel to his drinking history, or any other line of conduct?

These and other questions can only be answered by an appeal to the facts, and this appeal must be addressed not to one side of his physical and mental history, but to all sides. The expert must analyze groups and study all the conditions, and as in the diagnosis of disease, it is a question of facts and their meanings, not of theories or rulings of courts, or law questions. The case is one of murder or crime of magnitude, and the question is the mental state of the man. The legal method is to begin with the act, and go back and forward for evidence to explain it. In other words to first make an exhaustive study of the act, then go back in the history for evidence and indications which would point to this, or go forward for facts which would follow such a deed. If it is a will or forgery, or theft or assault, it is assured the act itself furnishes evidence of the condition of the mind which inspired it. The expert testimony is concentrated on the act; this is the same as requiring the medical man to form an accurate opinion of a typhoid or other case entirely from the present symptoms. To properly realize the state or conditions of the man at the time of the act, a life history must be gathered and studied, particularly the drink history. These facts of heredity of disease, of surroundings, of occupation of manner, of life, of his ambitions and purposes and customs and habits. Then the use and effects of alcohol on his life, and the changes, if any, which followed from its use. These and other contributing and influential forces followed up to the disputed act like links in a chain are all connected and all foreshadow the act in question, and all serve to show the real condition of the mind at the time. With these data to judge from, the experts would find no difficulty in making a correct diagnosis. From this point of view all theories would grow out of the facts, and no questions of gathering facts to support a theory would be thought of, and all studies of the act would follow as a stage in the history of the case.

Conduct and thought are the avenues through which unsoundness of mind is seen, and yet they are only properly compared by a study of a previous history. The continuous use of spirits, as a rule, is manifest in changed conduct and thought, yet this change may not pass the limits which would attract attention. This is seen in states of insanity where a semblance of reason remains, and much of the thought and conduct are apparently sane. To illustrate: A man killed his wife, and the act seemed sane and with motive. His conduct and thought before and after had no appearance of other than conscious reasoning of cause and effect. He was tried and convicted of murder. The defense of insanity rested on his drinking habits and the coolness of the act. It was treated with contempt. On the second trial a thorough study of the case showed an alcohol and epileptic ancestry. Severe diseases in infancy, neurotic defects and disorders of childhood. Early use of spirits to excess at puberty, then a degree of moderate drinking from this time on. Five years before the crime he suffered sunstroke. From this period on paroxysms of anger and strange impulsive acts frequently occurred, acts without reason at the time, which he manifested much anxiety to explain afterward. The acts were committed in a sudden impulsive way, the explanations seemed an afterthought and an effort to make clear what was unusual and strange before. Some of these explanations were clear and rational, others were strained and peculiar. In all cases there was a suspicious frankness about his statements that suggested some concealed delusion. He used spirits daily in small quantities, and every four or six weeks he would drink to stupor at night in his room. The next day his manner was changed, he was more talkative and excited, and seemed anxious that full explanations should be made of every event and act. In business he was more exact and methodic, and more irritable and intolerant of the errors and failures of those associated with him. He was sentenced to prison for life, and in a few months developed well marked epilepsy. It was evident that for years he had suffered from premonitory epilepsy, and the homicide was the result of this condition.

Recently a postmortem of a man hung for murder revealed a tumor in the brain, which had evidently been the growth of years. The man was an inebriate, had murdered a companion, and exhibited cunning to conceal the crime. His mental condition had been questioned, expert testimony could not define the disease from the act, and no particular history of the case was made. Seen from the facts of the postmortem, the crime was the act of an insane man. A diseased brain unable to reason and control its acts had been misjudged and judicial murder added to the first crime.

In a celebrated case of a clergyman whose conduct and impulsive drinking had been the subject of much social scandal, and on several occasions resulted in imprisonment, a postmortem at death revealed the real causes. A fragment of a ball received in the late war, was found incysted in the skull pressing on the brain. His life had been prominent by great extremes of character and conduct.

An eloquent, model clergyman and a low dishonest inebriate; great intellectual brilliancy and childish dementia, with paroxysmal explosions that were inexplicable. Expert medical studies had failed to detect the physical nature and causes which were clearly manifest by the symptoms. These studies were dismissed with the terms sin, vice, moral depravity, and given over to the devil. Such echoes of the dark ages are fortunately receding and growing fainter, and the medical man of to-day who uses these terms in explanation of strange conduct is sadly belated. The drink history is an unmistakable evidence of degeneration, of disease, of central brain failure to realize and control conduct and acts. While the expert may not be able to trace the exact lines and forms of known and defined insanities, he can always determine general principles of cause and effect. The use of spirits is a specific range of causes deteriorating

and destructive to all healthy normal brain power. The problem is how far the use of alcohol is a cause or a symptom in any case. How far it breaks up and injures the capacity to reason naturally on events and their meaning. This must be determined in each case from the separate facts and history. The expert must start out on a new original study in each case. He must start from the fact that the medical questions in the disputed case, are purely matters of cause and effect. The criminal or unjust act, the strange unusual reasoning, and the suspicion of brain failure are all susceptible of demonstrations from accurate exhaustive study.

An officer in the English India service was a murderer and forger. He was convicted and before sentence was placed under the care and observation of expert asylum physicians. In a few months a well-marked case of general paralysis appeared, and it was evident that the crimes had been committed in the preliminary stage. The experts in this case could not make out the form of the disease from the facts at command, although the evidence was clear that some form of degeneration was present; later and more exhaustive studies revealed the true condition.

The facts I wish to emphasize in this study are on the errors of the present methods of examining medical men in open courts on questions of facts relating to science. The great difficulty is avoiding a partisan attitude and taking sides in a disputed case. The legal methods of, from a brief study of the act in dispute, forming a theory, and bending all energies to support and defend it, are dangerous and thoroughly unscientific. The haste and confusion in which a medical man is expected to study supposed facts and ascertain their real meaning, and prove a hypothetic question, state positive convictions, is utterly subversive of truth. In every case the physician should insist on time and full opportunity to satisfy himself as to the actual conditions present in a desperate case. He should also insist in stating the reasons and facts on which his conclusions are based, and not be constrained to affirmatives and negatives where each answer depends on certain conditions which will vary.

The second fact which should receive prominence is the drink history in a desperate case. Here the same errors prevail. Theories of alcohol and its effects which have come down from the past together with legal conceptions of responsibility, must be put aside as misleading. Has alcohol in any degree raised the vigor and mental capacity of the person who has used it? Has his thought and conduct been more rational and normal from its use? If this can not be answered in the affirmative from the facts the opposite must be true. In all cases the fact that alcohol was used by the person whose mental condition is questioned opens up a new field of study.

Here critical analysis of facts will point out states of poisoning or marked degenerations that exist. Dogmatism here is fatal to the reputation of the expert, he must adhere closely to general principles and appeal constantly to facts. He must examine and reëxamine the facts persistently to eliminate all possible errors. The medical expert should take the position of a judge and give the conclusions and the facts on which they are founded, then he rises to the level called for by science and truth. Medical men called to give facts of science in court to-day should keep above the levels of courts and battles of counsel to maintain the power which their position demands.

THE NECESSITY OF REFORM IN MEDICAL EXPERT TESTIMONY.

Read in the Section on Neurology and Medical Jurisprudence at the Forty-Seventh Annual Meeting of the American Medical Association at Atlanta, Ga., May 5–8, 1896.

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The members of this section, without a dissenting voice, will agree with the title of this paper, and feel keenly the discredit brought upon the profession at every important trial where medical expert testimony is employed.

A trial, as I am writing this, is going on in Chicago in which a dozen medical witnesses are arrayed against each other on the question of the responsibility of a dipsomaniac, one set testifying that he is responsible for the killing of his wife, and the other that he is not. Similar discreditable displays have been witnessed in this city in the Cronin and Prendergast cases; indeed every city and every such trial is a most serious reflection on the integrity and capacity of the medical profession.

Medicine is not pure empiricism. Medical jurisprudence is a great compilation of scientific facts, and their judicious use is essential for the establishment of justice in many cases. Medicine is a learned, as it is a self-sacrificing profession, and under proper protection and with proper legislation, medical expert testimony can be relieved of the stigma that is attached to it. It ought to be no longer possible for lawyers to find physicians, who will have standing in courts, to build up this theory, or that theory of a case, as the necessities of the prosecution or defense may require.

This medical expert testimony is not only condemned by the leading thinkers of our own profession, but the legal profession in this country and Great Britain has been equally emphatic in its condemnation; for example, we find Lord Campbell of England, remarking, "Skilled witnesses come with such bias on their minds to support the cause in which they are embarked, that hardly any weight should be given to their evidence."[1] Again, Judge Davis of this country expressed an opinion that "if there is any kind of testimony that is not only of no value, but even worse than that, it is that of medical experts. They may be able to state the diagnosis of a disease more learnedly; but upon the question whether it had, at a given time, reached such a stage that the subject of it was incapable of making a contract, or irresponsible for his acts, the opinion of his neighbors, if men of good common sense, would be worth more than that of all the experts in the country."[2]

Again, another American judge has spoken almost as strongly: "There seems to be but one opinion as to the fact that this kind of testimony is extremely unsatisfactory. We are more and more confirmed in an opinion that the difficulty comes largely from the manner in which the witnesses are selected. If the State or the courts do not esteem the matter of sufficient importance to justify the appointment of public officers, it is certain the parties must employ their own agents to do it; and it is perhaps almost equally certain that if it be done in this mode, it will produce two trained bands of witnesses in battle array against

[1] Tracy Peer, 10 Clark & Fin., 191.
[2] Neal case, cited 1 Redfield on Wells, ch. iii, 101, par. 13.

each other, since neither party is bound to produce, or will be likely to produce, those of their witnesses who will not confirm their views." [3]

Taylor, in his work on Evidence, observes: "It is often quite surprising to see with what facility and to what extent these views can be made to correspond with the wishes or the interest of the parties who call them. They do not indeed wilfully misrepresent what they think, but their judgment becomes warped by regarding the subject in one point of view, that even when conscientiously disposed, they are incapable of expressing a candid opinion." [4]

In my opinion the time has come for a reformation, and I ask the coöperation of this Section in the efforts that are being made to devise some plan by which the present methods may be improved.

The International Congress on Forensic Medicine, which met in Paris in 1889, representing as it did, the best thought of the times on medical jurisprudence, deliberated thoroughly on this important question, and formulated the following proposition, which was adopted: "To guarantee the interests of society and of the accused, in all medico-legal investigations, at least two experts shall be employed. These shall be appointed by the judge."

Six of the medical societies of Chicago have had the subject under serious discussion, and as a result a joint committee of eighteen was appointed, of which the writer had the honor to be made chairman, and this committee, after due deliberation, have formulated and adopted the following draft of a bill.

A Draft of a Bill for an act authorizing the Judges of criminal jurisdiction in the State of Illinois, to appoint persons to act as expert witnesses:

Be it enacted by the People of the State of Illinois in the General Assembly represented, That the Judges of the Circuit and Superior Courts of the State of Illinois, be and the same are hereby authorized to appoint in the month of January of each year, persons who shall act as expert witnesses in the medical and other sciences in giving opinion upon the evidence, as presented in a hypothetical form, of criminal causes that may be on hearing in the courts presided over by the said judges. Such expert witnesses shall hold their said appointments for one year, or until their successors are appointed and qualified. They shall be entered as expert witnesses upon a list of such witnesses kept by the Circuit Clerk, and the said Clerk shall issue a certificate of appointment as such expert witness to the person appointed as above.

Sec. 2. Such expert witnesses shall be citizens of the State of Illinois, and shall be known in the communities where they reside for their professional competency and personal probity, and if physicians, they shall have been at least five years in regular and active practice. When expert opinion is desired in any cause pending in a criminal court, the trial judge presiding in such cause may, at his discretion, summon for duty under this act, such expert witnesses to the number of three. Such expert witnesses shall be paid for their services by the county in which the trial for which they are summoned is held, in such sums as may be named by the judge.

Sec. 3. It shall be the duty of such expert witnesses to give an opinion on the evidence as presented in hypothetical form in the case in which they are called. Such experts shall be subject to cross examination by both prosecution and defense; but such cross examinations shall be limited entirely to the subjects embraced in their opinion.

Sec. 4. In criminal cases previous to trial, if the State's Attorney deems it advisable to have expert opinion, he shall state to the court having jurisdiction of the cause, and the judge receiving such statement may summon expert witnesses to serve under this Act.

This bill with slight amendments passed one branch of the Illinois Legislature, but failed to reach a vote in the other. It met with much more favor than was anticipated and an effort will be made again this winter to secure its passage.

[3] Gay v. Mut. Ins. Co., 2 Bigelow, Life Ins. Cos.
[4] Taylor on Evidence, p. 73, par. 50.

DISCUSSION ON PAPERS OF DRS. SUITER, METTLER, CROTHERS AND BROWER.

Dr. Hughes, St. Louis, Mo.—I think that the question of expert medical testimony is a far more difficult question to determine by legislative enactment than at first sight appears. The court is undoubtedly entitled to an amicus curiæ in every question of mental aberration; the court can solicit counsel, friendly counsel, from science to aid it in forming its conclusions and judgments. The only thing that seems to be in the way is the neglect of legislators and other authorities, to provide means for the compensation of this counsel.

But after you shall have secured for the court all it requires or may ask in these cases, you still have the inalienable right of the individual accused or arraigned to have such testimony as his case, in his judgment or the judgment of his counsel, may demand. He still has the right, after you shall have enacted laws providing for expert medical testimony to be given in the interests of the court for the enlightenment of the court, to as much testimony in his behalf, or that will contribute to enlighten the jury, as may be necessary to accomplish that purpose and to secure his rights before the law. The chief difficulty in this whole question of medical expert testimony is not so much in the fact that the principle of giving expert testimony by experts as such before the jury, and for the consideration of the jury, is objectionable, as in the quality of the expert testimony itself; and the suggestions of Dr. Suiter meets my approbation entirely in regard to the efforts made to determine the quality of experts who shall be admitted to testify. I do not coincide with the views of Dr. Crothers in regard to the general weakness of medical men in their judgments in regard to expert medical questions. I do not consider that a medical mind is naturally less logical or weaker than the average mind. Some medical minds, like a few legal minds, and a great many more clerical minds, are lacking in trained logical discernment. If a man assumes to be an expert, he should think as an expert and cultivate the judicial faculty of mind and not go into cases biased, not decide upon the presentation of the case only conditionally by one side. I have never made any such mistakes as Dr. Crothers is talking about, although I am a western medical expert, and I have never made the mistake of committing myself to an attorney in any question irrevocably. I have taken facts given to me by attorneys and given conditional opinions, for which I have always exacted a consideration for the opinion itself, without regard to the use that might be made of it. I never took a contingent fee in my life. I have taken fees for time of service, conditioned that I might be required for so many days' service, provided the opinion that I had given, and which was paid for at the time, proves to be satisfactory, supplemented by another opinion when all the testimony was in, with the understanding that I was to have all the opposing testimony before my final conclusion was reached, where that was practicable. There is no reason why medical men that aim to be experts in court should not elevate expert medical testimony in such a manner as to stop this outcry against it. Medical men make no more errors in judgments than lawyers. Lawyers say that the errors of medical men are buried in the ground, but the errors of lawyers are before us constantly; the decision of one court is reversed by another, and lawyers have to have a succession of courts, appellate courts, supreme courts, to correct the errors of judgment of the lower courts; and the arraignment does not hold good in regard to medical expert testimony.

The question in regard to the effect of alcohol in questions of mental aberration, is not whether the man has drunk so much or so little, not whether the man has had such and such drinking habits, and then a conclusion that therefore that man must be out of fix mentally; but it turns upon the question of disease which can be established by methods of obser-

vation familiar to all psychologists, neurologists and alienists, and that is the underlying question in all cases of mental aberration, whether it be produced by alcohol or irregular habits or over-strain. The toxic effect of alcohol does not prima facie make a lunatic. There must be an inherent instability of nerve element in the organ, brought about by repeated potations destroying the integrity of the cell or neuron that gives final instability to mental operation. And the alienist, interrogating his patient carefully and finding that to be the fact, says to the court that he believes this man is diseased, or is insane and irresponsible, and because he is so diseased that his mental operations are not normal, they are out of harmony with his natural character; and thus the individual is placed in disharmony with his environment. The change has come over that individual by reason of disease, and alcohol has been the exciting and it may be the predetermining effect or the chief factor. The individual that makes a business of going into court upon the hypothesis that because a man drinks whisky and commits a crime he is therefore insane, will be exposed in error by a judicial-minded lawyer, capable of discerning appearances from real facts by the proper logical processes.

The criteria of all mental aberration resolve themselves into the question of disease. If it is not a question of disease, medical men have nothing to do with it before the courts; it is out of the province of the alienist or of the neurologist. If it is only a question of conjecture based upon the knowledge of the man having drunk alcohol, in the case of alcoholic insanity anyone can conjecture that that was probably the reason the man committed the crime. But in every form of mental aberration it is a question of disease, whatever may be the exciting cause. So far as all forms of aberration are concerned, except those rare forms which may be called hereditary, and which even in those instances are marked by a departure from natural habits of thought, feeling or action of the individual, we are enabled by careful interrogation of the patient to establish the systematic evidences of disease in the individual's brain and mind, just as we determine the existence of disease in the body. All disease is a perversion of the physiologic action of the organism or of the organ from the normal; and all mental aberration is that same thing. It obeys a certain law as any other physical disease. The substratum of all mental disorder being physiologic disorder of the brain, you have manifestations just as in any other diseased organ. You come back to the proposition of Cabani and you find it almost the same. We do not say that the brain secretes thoughts as the liver secretes bile and the stomach secretes gastric juice, but it obeys these same laws and it displays thought upon the same condition, and if it is out of order so as to constitute the condition of irresponsibility, the character of the brain's functioning will be so transformed as to make the brain act unnaturally, just as the liver acts unnaturally, the spleen, pancreas or any other organ of the body, the intestinal tract, the bladder, the heart; and that organ will be out of harmony with its environment in the organism. Its functioning will be disturbed in relation to the organism and in relation to the individual's environment, and so will an individual's character be transformed and changed, thus placing him out of harmony with his surroundings. It is not difficult for the average medical expert to detail all forms of mental derangement, whether they are produced by alcohol or other causes in that category, and be able to make the thing plain by the coöperation of the reaction tests applied to the urinary excretions, by the ophthalmoscope and other plans within our reach to confirm the conclusion that that man's brain is deranged, and that the departure from the natural habits of thought, feeling or habit of that individual which attracts our attention is the result of that brain disease. These conditions can generally be placed very plainly before the court by experts, so as to bring conviction to the average jury, and at the same time reflect a reasonable amount of credit upon our profession and not make the impression that medical men merely guess at these conclusions.

DR. MOYER—The subject can be divided naturally under two heads: 1, that the personal attitude of the medical expert testimony as given in our courts, is defective, inadequate and even offensive in the eyes and to the mind of man; 2, such being the case, the remedies that are proposed to overcome these defects.

Regarding the first proposition, I do not regard the present system of giving expert testimony as nearly as bad as has been stated here. Now and then there is a case presented, in which there has been a gross miscarriage of justice, or perhaps a conflict of the evidence which is simply appalling. Such a case attracts public attention forthwith, and the whole theory of our present medical jurisprudence is condemned. I believe that there are a large number of cases, both civil and criminal, tried in our courts, in which the present system is adequte and effective, in which the truth is ascertained, and just verdicts are rendered. This is the rule; the exceptions to it are the cases which attract the attention of the public and most medical men.

I do not, however, advocate the present system of giving expert testimony as the best, as I think that it is capable of improvement, but we should approach the subject with care, and we should make very short steps in advance, lest we fall into a worse state of affairs than we have now.

If we consider some of the causes by which medical expert testimony is made difficult, I think we can approach the question of reform with a little clearer apprehension. The fault is not all with the method in which experts are summoned; it is not due to the fact that the lawyer goes to the physician's office, explains to him his theory of the case on a partial statement of the facts, secures his testimony, and makes him a partisan. There are other objections and other difficulties that are inherent in the constitution of society and human individuals themselves. Human institutions are not perfect; I do not think that our legislatures are perfect. There is no remedy that can be devised which will bring about a perfect result; the question is whether its defects are to be less than the present system.

The causes of these defects are partially in the nature of things, the defectiveness of individuals, the defectiveness of jurisprudence generally. But there are also defects in ourselves and in medicine. Medicine is not an exact science. The opinions that medical men give in courts are largely based upon judgment and experience. We can only have a perfect medical jurisprudence when we have an exact medicine; that seems a long distance in the future. In view of the fact that medicine is in an inexact state, some subjects almost chaotic, with wide divergences of opinion, we should approach the subject of a remedy with very great care, and an attempt to make a wide and sweeping departure is very ill-advised. We do not know exactly what the truth is in a great many cases, and even though we may agree on the major proposition in a given case as to where the truth lies, there may be a large number of minor propositions admitting of a wide difference of opinion. As long as this is the case it does not behoove us to set ourselves up as judges in a court of law. We do not know enough about medicine yet to do it; we have to improve medicine very much before we can take such a strong ground.

I now pass to a consideration of the remedies which are proposed. These are naturally divided into different classes: those which, according to the continental system, would limit the function of the jury; would make really a jury of experts, not subjecting their opinion to cross-examination, but the jury to take their decision on that part of the case as final. The other system, as has been recited in the bill from New York, and the one from Illinois, consists not in sweeping away cross-examination—limiting it somewhat perhaps as in the case of the bill

from New York—but simply changing the manner in which experts are to be summoned; giving them some definite standing; providing for compensation for these experts, and doing away, so far as possible, with bias among them.

In this respect I agree with the bills that have been presented but I shall never give my consent to any other step in this direction until that has been taken.

As to this New York bill, it does not seem to contain any definition of expert testimony. That would seem to be an important omission. What is expert testimony? Is it opinion testimony; if so, where does the difference between fact testimony and opinion testimony come in? Lay persons give opinions in court; they can give an opinion in most of our States as to the insanity of a person. "Do you think such a person was insane?" It is perfectly competent for any witness to answer that question.

Then, there is absolutely no provision in this bill for another exceedingly important testimony; that is, shall a person who is previously in possession of facts be allowed to give opinions as well? It is proposed to summon into court medical experts, presumably not familiar with the facts in that particular case. (This is provided for in the Illinois law by hypothetic statements.) A man makes a postmortem examination; he is summoned into court, and his opinion, as well as the recital of the facts of the postmortem, are asked for. Perhaps his opinion is more valuable because based on things he sees at the time; better than any subsequent opinion formed by hearing a relation of the facts. In this New York law we are met at once with that question: Shall a man who has previously examined a patient (a blood stain, or the contents of the stomach) be allowed to give his opinion under this law or not; or shall the opinion on the case be solely confined to these experts? Under the New York law the hypothetic opinion can alone be given experts who are all summoned. It seems to me that this is a fatal defect in the drafting of this bill.

Dr. Hughes—Have you been asked on the witness stand to give your opinion hypothetically, and then, in a second opinion, to give your opinion upon all the hypotheses in the case, as well as upon your own information?

Dr. Moyer—In Illinois that is a very common form of question. When a postmortem examination is made there may be no man accused, and no man on trial. Is the man who makes that postmortem examination to go into court, and give his opinion as to what the cause of death is? That opinion is formed long before anybody is arraigned for trial. Shall he give that opinion?

Dr. A. Walter Suiter—That is what he made the postmortem examination for.

Dr. Moyer—It seems to me, that this is one of the defects in the bill; that a person may be liable to be put in possession of facts long before a trial, for instance, the direction of a bullet wound, the facts of postmortem examination; a stomach is submitted to a chemist for examination, perhaps under the suspicion only that there has been foul play. There is no case in court, there is no man arraigned. Then a man is summoned as a fact witness, and he states what he found at that postmortem examination. Is he to be permitted to give his opinion? It seems to me that that class of testimony is shut out by that bill, and that is the most valuable kind of testimony that comes into a court of law; the opinion formed at the time of personal examination.

Regarding the view of the matter brought out by Dr. Crothers, I think he carries his opinion as to the effect of inebriety too far.

He says that experts are required to make yes and no answers to leading questions. There is no court in any State of the Union where such a practice prevails. He can qualify his answer until his exact idea is placed before the jury.

Dr. Rohé—I am much more favorably disposed toward this Act of the New York Legislature that was not passed than Dr. Moyer seems to be. However, it does not cover the subject fully; an additional section would be advisable.

During the past winter it has been one of my duties, as a member of the Committee for the Baltimore Neurological Society to prepare amendments to the Maryland Code, so far as relates to lunacy. When the criminal procedures are against lunatics, or in the cases of suits against lunatics, there are certain means by which the defense of insanity may be brought before the court and tested. It was proposed in these amendments to authorize the court in any case where one was accused or on trial, that the court should be authorized to appoint a commission of three physicians qualified and advanced in medical science, and experienced in the treatment of insane persons, who should go into court and hear the testimony (if it be that the trial were going on), and then consider the testimony, and report to a court, under oath, their findings. If they did not agree, or if the court for any reason were satisfied with the findings of a commission, the court may discharge that commission and appoint another commission, or revert to the old established form of inquiry by a jury. The object was to get a report which was the expression of all the members of the commission, and that that commission could be cross-examined by either the prosecution or the defense. It was not a prosecuting commission or a defense commission; it was a commission of the court itself.

I rather decidedly object to bringing in any question of civil procedure. When a question of money is involved, the person who can get the best lawyers and the best experts, can win the case.

But here is a case where an individual's life is at stake; where the person accused has no money; where the State has to pay expenses. The State ought to select and be responsible for the expert testimony in this case.

Dr. Marcy, of Massachusetts—In Massachusetts we are suffering, perhaps more than any other State, from the necessity of reform in this respect. The best men in Massachusetts will not appear as experts in courts. I myself have refused to go into courts except in the defense of another practitioner. I only express the opinion that is common in our State. I am glad to tell you that the legal profession feel it themselves as strongly as we do that something must be done to correct the abuses which have arisen.

In a discussion we had in Boston not long ago the judiciary of the State met some of the very best members of our profession, and this seemed a common ground upon which to meet: that the judges themselves should have a large power in selecting the class of medical experts who should be considered as a sort of judicial body, to which these questions should be referred.

Dr. H. S. Drayton, of New York—For several years past the Bar Association of New York has been discussing this subject; the Society of Medical Jurisprudence in New York City, also the Medico-Legal Association, and by reference to the proceedings of either of those societies it will be seen that for the last four or five years this matter has been one of constant discussion. It has been under the consideration specially of a commission, and every year at Albany the matter is brought up for discussion in some way.

The matter of a commission appointed by the court in each case seems to be chiefly favored, and yet that is not universally approved. Some favor a commission appointed by the State, but politics would be likely to intervene.

With regard to the giving of testimony in court, I have had a little experience, and I have never been very badly used or abused by lawyers. I remember that celebrated case of Carlyle Harris. Nearly every great man, every physician who stood before the country as an expert, as eminent in his department of particular service, was very seriously treated by

Dr. Sullivan, the prosecuting counsel of the city. Dr. Sullivan, having a good medical education, used his knowledge as far as possible for the purpose of mixing up the professional witnesses, and seemingly did it very successfully. However, I think that Dr. Wood and the other physicians did not suffer very much in the opinion of the communities at large, for the reason that the common sentiment is not so much in favor of the lawyer side of the subject as it is of the medical side.

In regard to answering questions yes or no, a hypothetic question was given to me in a case in Newark, N. J., in a murder case. I had had an opportunity to examine the accused very carefully, and told the lawyers who wished me to testify just my opinion, in fact I wrote it out very carefully and said, "If you are satisfied that that opinion, if ventilated in court, will meet your requirements or your wishes, I will testify." In New Jersey the witnesses in these cases are paid for by the county, and it is not a matter of a fee from the defendants. I testified there, and at the close of my testimony a hypothetic question was administered. I think it was about five minutes in length and I was required to answer "yes" or "no." I answered it practically "no," but I turned to the jury and made a statement. The counsel for the prosecution endeavored to stop me. Then I turned to the Court: "Your Honor, may I be permitted to answer this question in my own way?" He said: "Certainly; by all means explain your views to the jury." In that case I was the only physician on that side who received a fee; my bill was honored without any discount.

In New York I have pursued the same policy; when invited to be a witness, or take part in any case, I have examined the accused, examined into the case, and written out an opinion, and I would suggest that that is a capital thing to do. Your attitude in regard to the case will be clarified, and you will be understood as representing certain opinions.

DR. BISHOP, of Pennsylvania—The question that concerns us most is in regard to the selection of these witnesses, whether these experts should be permanent officers or only chosen for the particular time. I have seen a good deal of legal testimony, having been interested in a good many contests, and I find the great trouble is that the physician when he gets upon the stand is inclined to make a speech. Doctor, preacher and lawyer, when they get in the witness stand, think it is an excellent occasion to air their knowledge and try to make a speech. If they are asked a hypothetic question, and then asked to answer "yes" or "no," all they have to do is to say they do not understand it. If you do not understand a question make the lawyer explain it.

DR. MOYER—Dr. Drayton refers to some difference of opinion as to how these commissions should be appointed, or as to how long they should remain in force. There has been none between those who have taken part in discussing this question. None have ever favored a permanent commission. That is what we know as the continental system. We agree that the best method is the appointment of separate experts by the court for each case.

DR. SUITER—We in the State of New York do not force this bill, and simply want to correct it so as to cover every detail. We are ready to receive suggestions at any time. This is in the hands of some of the most competent experts and alienists in the State of New York, and we are making a determined effort to have this matter corrected in some degree. The question as to whether civil cases should be included in this bill, came up, and for reasons which have been very well stated by Dr. Rohé, the civil cases were left out. We thought this bill would be an entering wedge and there could be subsequent legislation when the proper time came for it.

Dr. Drayton was incorrect in his statement that this subject was being constantly brought up in Albany. I have had charge, more or less, of medical and medico-legal legislation for a great many years in the State of New York, and this subject has not been brought before the legislature during that time. There is no dispute in reference to the method of appointment, so far as the State of New York is concerned, and everybody is agreed that the appointment should be made by the court and the county bear the expense.

DR. HUGHES—It often becomes necessary for what are sometimes termed speeches to be made by the medical expert—that is, the elaboration and elucidation of his testimony. No medical expert on the witness stand is obliged to suffer himself to be confined by attorneys to a categorical answer, and whenever an expert permits it, when his meaning can be further elucidated, he puts himself at the mercy of the attorney against him. It is a favorite method of attorneys with experts on the witness stand to propound questions which they think admit only of a categorical answer, and secure only such answers; or questions which they wish to have answered only categorically. The medical expert should always be on the alert for that kind of interrogatory, because it is always the business of the lawyer to make the witness *his* witness; his questions are always so framed, if he be an adroit attorney, so as to favor the point which he wishes to elucidate. It often becomes necessary, then, for the expert to decline to make a categorical answer, and to so frame his answer that it can not be misunderstood, and if this involves making a speech, then he should make that sort of a speech. When I was young in psychiatry and the guest of Dr. Isaac Wray, he told me: "Some day you will be called into court, and I will tell you one thing from my experience, and that is, never to permit a lawyer to compel you to give his kind of an answer, that is, a categorical answer when you know that science requires a more elaborate answer." I have never followed any other rule. I do not think it is necessary for a medical expert, who knows the subject upon which he is testifying, to be outwitted by a lawyer. Of course, if he does not understand his subject up to the degree of enlightenment which his day affords, he ought not to go on the witness stand; if he does so know it, there is no danger of any lawyer knowing more than he does.

I would say that this was an enactment proposed, with this additional qualification put right here in the ninth line (referring to copy of New York law proposed):

"The presiding judge before whom such trial is had may appoint such experts as he may deem necessary to adequately represent both the prosecution and the defence,".

"Not by the recognized legal right of both prosecution and defense to such additional expert testimony as they may deem, with consent of the court, essential to the maintenance of their cause," etc.

A man who is on trial for his life is entitled to all possible defense, and no one can deprive him of the right of summoning individuals to testify in his behalf. If this right were attempted to be abridged by statute, it would have to go to the supreme court, and it would be declared unconstitutional.

In our State the law is defective in regard to compensation, because you can get such expert testimony as you are able and willing to pay for, and the State has to rely on voluntary expert testimony. Thus the State is crippled in prosecuting the case.

We ought to favor this enactment, because it is a step in the right direction, and it does not complicate the question of expert testimony very much. The legislature should have their attention called, and it is proper that this body should call their attention, to the fact that there are glaring defects in the provisions as to the qualifications of medical experts.

Operation and Cure of Perforating Tumor in the Duodenum.—Landerer reports the first case of this kind on record in the *Mitth. a. d. Gr. d. M. u. C.* No. 2. The usual difficulty is in the clinic diagnosis, but whenever an ulcus ventriculi perforatum is diagnosed and the operation discloses nothing wrong in the stomach wall, the possibility of a duodenal tumor should be borne in mind.—*Wien. K. Rund.*, No. 33.

INTOXICATION AND INSANITY.

Read in the Section on Neurology and Medical Jurisprudence, at the Forty-seventh Annual Meeting of the American Medical Association at Atlanta, Georgia, May 5-8, 1896.

BY J. T. SEARCY, M.D.

TUSCALOOSA, ALA.

I will be glad to limit the meaning of the word intoxication, in this paper, to the injurious effects on the cerebrum of toxic agents present in the circulation. Toxic agents in the blood, of course, have their chemic effects upon other structures, but in the ordinary interpretation of the word, the symptoms of intoxication are those that belong to the brain. I will use the word in that sense.

This organ is exceedingly sensitive to the action of certain agents; so much so, in certain instances, that it seems to be the only organ affected, or affected so far in advance of others that their disturbance is not appreciated. The exceedingly soft colloid character of the functionating central parts of its nerve cells and fibers render them the most sensitive of all the structures of the body to some agents; and their excessively rapid functional motion is most delicately disturbed.

The nervous system, indeed the whole body, may be divided into sensating and non-sensating structure. This is only a fact in a comparative sense, because there are no defined limits of the property of sensibility anywhere in the living world. The broad generalization is commonly admitted, that all *living* structures are more or less sensitive. In biology there is an advance of grade in this property as we ascend in the classification of species. Within the body of man the property is more decided and distinct in some organs and parts than in others. The nerve centers particularly have it as their function, and, among them, it improves in delicacy and distinctness until we reach the cerebrum, where its most refined excellence is called consciousness. In man, so "centralized" is the faculty, that all conscious action may be said to be cerebral. Sensibility in the human being is carried to such a degree of centralization that the cerebrum is practically the only sensorium. It is the organ of all "feeling," the physiologic *ego*. The recognition of this as a physiologic fact will explain many phenomena of the brain; in that of intoxication it gives ready explanation to many of the symptoms produced.

In intoxication the conscious feeling of the man is affected and subjectively interests him most. His "feelings" are altered, and he is concerned favorably or unfavorably as he is comforted or discomforted.

In addition to being physiologically the conscious organ, the brain is also the organ that adjusts the entirety we call "the man" to his environment. The other nerve centers have also adjustment as their function, but they adjust the organs of the body internally to each other. The brain adjusts externally.

The comparative excellence of structure and function of one man's brain makes him excellent in his external activities, and the comparative weakness or defectiveness of another man's makes him less excellent or competent. We judge of the integrity and functional capacity of this organ by the *emissions* it makes, which in the aggregate go to make up the exhibitions of the man's intellectual capacity and constitute what we call his conduct and character.

We judge, therefore, of the effect of a toxin and of the degree of intoxication by the man's recital of his own "subjective" feelings; and we judge "objectively" by the "symptoms" shown in his brain's emissions. The symptoms of intoxication have been discussed in medicine since medicine first began. Because it relates seriously to the transcendently most important organ in the body, it is a live question.

There are a great many agents that act intoxicatingly. Some enter the circulation from within the body, are produced there; others are introduced from without.

We hear much said now-a-days about *auto-intoxication*, by which is meant the intoxication that is produced by toxins produced within the body. The unqualified word intoxication popularly means the series of symptoms produced by alcohol, or some other such agent, introduced from without.

The word *insanity* is more properly a popular or a legal term than a medical one, which fact occasions the trouble often found by doctors in giving a medical definition to it for legal use. Legally, insanity relates to conduct alone, and not especially to the brain condition that produces it. The gradually increasing popular recognition of the fact, however, that all conduct, good and bad, excellent and defective, depends upon brain condition, has led, of late years, more and more to the popular and legal reference of all cases of defective conduct to the medical profession, in the same way other defective functions are referred to them.

Properly, because it is a legal term, insanity simply means that the person has reached such a *degree* of aberrant conduct that he has to be supported, controlled or restrained by others, or by the State—he is disabled to that degree. It is always a question of degree and a matter of opinion. The doctor's opinion is taken as of most value.

Insanity indicates an *extreme* degree of cerebral defectiveness, which implies that there are other grades of impairment above the insane level. This is a fact open to every day verification, and it is a fact particularly related to the subject before us. Intoxication can be shown to be the cause of different grades of defective conduct ranging all the way upward from the insane level.

Cerebral intoxication varies in the person according to two factors or sets of factors; the first is the character of the agent and the amount of it in the circulation; the second is the peculiarity of the particular brain, peculiar in the way of being more or less sensitive to the particular agent, or peculiar in the way of being inherently defective, which abnormality is rendered more apparent by the action of the toxin. In other words, intoxication varies according to the toxin and the dosage, and according to the abnormality or idiosyncrasy of the particular brain.

Subjectively considered, by the man himself, the toxin produces discomfort or comfort. This is the direction in which he first considers it or principally considers it. In the action of many, probably of most toxins, the sentient result is that of less conscious activity, which means less sensation, or a more comfortable state.

Consciousness occurs only when there is functional action going on in the cerebrum; when there is no cellular motion, there is no consciousness; this occurs naturally in sleep and artificially in anesthesia; when the brain is partially rendered less capable of functionating by the chemic action of a drug, there is diminished sensibility—more comfort. Comfort is a

negative condition, meaning no discomfort. Discomfort is a constant or most frequent condition of many brains to whom all cerebral or bodily effort is more or less painful. Cerebral hyperesthesia is a very frequent condition as a part of neurasthenia or cerebrasthenia. In this condition, the over-sensitiveness, in time, is increased by the injurious or chemic effect of the toxin. If the agent simply stiffen or slightly harden the delicate structures so as to prevent or to make less their functional activity, it produces less consciousness—more comfort. This varies with the character of the toxin, but in time produces hyperesthesia or neurasthenia.

In intoxication there is more or less a sense of incapacity, dullness and confusion; sometimes, a more comfortable state because there is lessened sensibility. Sometimes, on the other hand, cerebral effort or activity produces more discomfort, so that, as a sequel to continued intoxication, comes hypersensitiveness with irascibility, irritability, forgetfulness and worry; all exhibits of cerebral impairment. If the person is naturally erratic or peculiar or hypersensitive, he is rendered more so. A cerebrum tending already toward hypochondria, melancholia, mania or paranoia, is more inclined that way. In short, intoxication always injures the cerebrum for the time being, sometimes permanently, and in certain persons increases original defectiveness to the permanency and grade that is called insanity.

Toxins, such as ptomains, leucomains and other toxic albuminoids, arise from the disintegrations of disease in the system; and there are also natural waste products which, if retained in the circulation, prove highly toxic, such for instance as are eliminated by the kidneys, the liver, the bowels and the lungs. Infection comes into the circulation from many directions; the scavengering of the system is most important work on that account.

Microbic disintegration of cerebral structure proper is not often seen. Inflammation of tubercular bacilli occurs in the meninges, and other meningeal inflammations are said to be microbic; cerebral syphilis may be this. Upon the true functionating structures of the cerebrum, however, microbes most often have no direct, but indirect effect by the toxins they produce elsewhere.

Diseases affecting the general system, like the exanthems, fill the circulation with toxins. Some brains are very sensitive under these conditions, and delirium is a consequence; there are always more or less confusion, dullness, listlessness and incapacity, as a consequence of such intoxication. In the extreme of life, *in articulo mortis*, the complete arrest of cerebration from this cause, in a large number of cases, removes the pain and distress of dying.

Cerebral toxicity, from disease in different organs of the body, varies with the organ. Diseases of those organs, whose function it is to remove waste toxic material, are always serious to the brain. The kidneys, liver, alimentary canal, lungs and skin, are organs of this character. We often have the unremoved waste toxins of the system in the blood added to those directly produced by the inflammatory disease of the excretory organ. Acute rapid disease of such organs often produces delirium; more chronic disease for this reason sometimes gradually induces the more permanent condition of insanity. The delirium and the insanity indicate, usually, brains already sensitive, weak or defective.

In an insane hospital, where the worst cases of defective cerebra are found, it is very easy to note the effects of auto-intoxication. The part the digestive tract plays in the rôle of insanity is often very evident. In conditions of certain forms of dyspepsia, particularly in conditions of constipation or torpidity, auto-intoxication can be shown, and its relief demonstrated by removing the toxin by cathartics and alimentary disinfection. Stercoremia, copremia, and the common condition, "biliousness," afford instances of it.

A large proportion of the insane suffer from some form of nephritis, and to it can be traced many of their more insane periods or "spells," when the already weak or defective cerebrum is made more aberrant by uro-toxicosis.

Toxemia in women, during gestation, and after their confinement, during uterine involution, especially if there is sepsis, and during lactation, is by no means an uncommon thing. Puerperal mania or insanity in some form, is a result in extreme cases. It is a rare thing that the parturient woman shows no signs of intoxication in some of its milder forms.

A long chapter could be written on auto-intoxication. Literature on this subject is getting more and more abundant. I have said enough to show its importance as it relates to insanity.

Intoxication by agents introduced from without is a frequent occurrence and, as it relates to brain hygiene, is little appreciated.

As physicians, we would be very much handicapped in our practice if we did not have cerebral toxins among our medicines. They constitute a very popular line of drugs; popular with the doctor, because popular with his patient. All anodynes and anesthetics are of this class. Most frequently, the urgent symptom to be relieved in our patient is pain or discomfort. Pain is a brain condition. If disturbed or disintegrating action in distal parts can not be conveyed to the sensating brain by nerve lines that we have rendered incapable of transmitting by our toxin, there is no sense of it; or, if we render the cerebrum unconscious by our toxin, we accomplish the same object, there is no pain. We accomplish artificial anesthesia with such an agent as chloroform by a complete suspension of cerebral functions, while the functions of the lower centers, which adjust internal actions, are left to continue. If we push the anesthetic farther we suspend them also, fatally to our patient.

Toxins nowadays are known also to have injurious effects upon peripheral nerves. Peripheral neuritis is now ascribed most often to this cause, in conjunction with exposure, fatigue, or some such condition which renders these nerves more sensitive to the toxin. Peripheral pains, such as make so prominent a symptom in grippe and dengue, probably have this source —headaches, sometimes.

I believe it is true, under certain conditions or with some toxins, toxicity can be of the peripheral nerves at the same time and by the same agent that the cerebrum is affected. The difference between an anodyne and an anesthetic may be this; the one affects more generally the nervous system, the other principally the cerebrum. This distinction is necessarily not well drawn. It is a good hypothesis, however, that anodyne or anesthetic effect in the relief of pain or discomfort occurs by the arrest of the function of the transition of motion along nerve lines or, most fre-

quently, by the arrest of conscious motion in the cerebrum. The anodyne, cocain, administered hypodermically, hardens chemically the nerve lines leaving the locality, so there is no transition of motion to the sensorium from the part, and no pain; though later, we have its anodyne effect on the cerebrum, obtunding in a general way the sense of disintegrating action, or pain.

The effects of alcohol, on the other hand, generally begin in the cerebrum; though we do have local anesthesia in the stomach, and in time, in some cases, neuritis in the periphery as an effect of it. We may correctly suppose that whenever we arrest or abate pain with a toxic agent, we do it most often in the brain by hardening the axis-cylinders of nerve lines, or the central part of nerve cells, in this way preventing or lessening their functional motion. A good deal is being written to show the changes in the nerve cells of the cortex, in the way of enucleation, diminution in size, and changes in length and shape of processes by the continued use of certain toxins. Degeneracy of axis-cylinders in nerve lines elsewhere is also reported. The cerebrum (the sensorium) is the most important organ that suffers; it is impaired by the excessive or the continued use of anodynes and anesthetics, in numbers of instances.

In many persons the effect of the continued use of such agents on their peculiarly susceptible or defective cerebra is so injurious as to increase the original condition of over-sensitiveness to neurasthenia, or to carry their original defectiveness or weakness to the stage of permanency and degree called insanity. The continued use of such agents as luxuries, because of the artificial comfort they give, works wide-spread harm. The popular and extensive use of alcohol and nicotin as luxuries, not to mention other toxins, leads to increase of cerebral and neurotic defectiveness and disease and, in some, induces the extreme cerebral condition of insanity. A narco-maniac or an inebriate, in the large majority of cases, has had an original defect of brain, preceding his drink habit, that has been rendered more decided by repeated intoxication. The brain is a very much abused organ, and one sorely omitted in our private and public sanitation. In the use of such agents as luxuries, the brain effect is the one sought after, and in proportion to the amount taken and the length of time, injury is done. Intoxication, owing to inherent peculiarities, is more injurious to some brains than to others.

DISCUSSION.

Dr. Frederick Peterson of New York—I think this question of intoxication as the cause of insanity bears strong testimony to the progress of psychologic medicine of late years, because of the increase in the number of the cases which are put under the heading of toxic insanities. Formerly by toxic insanity we meant merely alcoholic insanity, or insanity due to lead and other poisoning, or cases of bisulphid of carbon poisoning, etc. But since the investigations in regard to the toxins manufactured in the body, we have come to look upon a large number of other cases that were formerly considered idiopathic or without etiology, as cases of toxic insanity. Beside, I think it is now pretty well believed that many cases of recurrent and of acute mania and cases of melancholia and hypochondriasis may properly come under that heading. The means of discovering whether it was really due to auto-toxicism are not always efficient. In certain cases that are due properly to putrefactive or fermentative changes in the intestinal contents, we have the means of ascertaining, sometimes by testing the urine. Usually the discharges from the bowels give no particular evidence of auto-intoxication, although in cases where there is intestinal intoxication we do sometimes find that there are periodic attacks of gaseous diarrhea. Our chief proof, however, of this probable etiology of many cases of melancholy and mania, is in the treatment by intestinal antisepsis and diet. I think the chief means of treating these cases is by a properly regulated diet, milk, vegetables, etc., by the washing out of the stomach and intestines with hot water, and by the use of certain antiseptics, like salol, given in fairly large doses, two hours after meals. I have found that remarkable success could be attained by such means.

CONTROL OF TUBERCULOSIS FROM A STRICTLY MEDICO-LEGAL STANDPOINT.

Read in the Section on Neurology and Medical Jurisprudence, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5–8, 1896.

BY CHARLES WILSON INGRAHAM, M.D.
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How far can legal measures, whether municipal, State or National, be carried to control tuberculosis? This is now one of the leading questions before the medical profession in this and in other civilized countries. That decisive legal interference will be necessary before tuberculosis can be brought under control, there is no doubt. In the minds of all, physicians, legislators and tuberculous invalids themselves, who have given the question more than ordinary thought, the necessity of legal control is realized. It is estimated by competent authorities that 450 persons die every 24 hours in the United States from tuberculosis. A disease which is responsible for a human fatality so large and so continuous should be classed with dangerous contagious affections, as one requiring the strictest hygienic management designed to minimize the infection arising from each individual case. No one expects to obtain a complete destruction of tubercular infection as it is generated, and only a comparative control of the infection may be expected at best. The medical profession is unanimously agreed that it is not the tubercle bacillus alone which is responsible for the immense mortality of tuberculosis. It has been proven repeatedly that a certain percentage of human beings are more or less completely immune against tuberculosis, and such may be repeatedly exposed to the infection of the disease in a concentrated form and still escape contracting it; while again a certain percentage—and unfortunately it is a much larger percentage than the former instance—become affected from comparatively slight exposure to infection. So, therefore, constitutional idiosynocrasy, not always synonymous with constitutional degeneration, is an important factor, though tuberculosis can not develop even in the most susceptible without the presence and activity of the tubercle bacillus. It will require generations, even though the most corrective modes of living are carried out, to eliminate hereditary tendencies to tuberculosis to a noticeable degree, and the most that we can do in this generation is to initiate a movement in the right direction and leave future generations to do the rest. What we can not do as regards decisive constitutional improvement, we can do as regards the infection of the disease.

The question is, how far can the Government carry legal measures designed to control tuberculosis, and not infringe upon the natural rights of American citizenship. We can not, nor is it necessary to treat

the tuberculous patient as though he were a leper, but we can, I believe, form and apply a legislation which shall be just to the consumptive and the public, and at the same time have the desired effect of controlling tubercular infection.

There is scarcely an intelligent person of the present age who does not thoroughly understand that tuberculosis is a contagious disease, but for all this the public at large do not seem to comprehend the necessities of the situation with the keenness that they appreciate the contagious nature of smallpox and diphtheria, and until they do we can scarcely expect them to make any decisive changes in their present customs regarding tuberculosis. Tuberculosis is such a common disease that laymen, as a rule have but little fear of it from a contagious standpoint, and look upon those who demand that strict means be employed to destroy the contagious elements as alarmists, or as individuals who wish to increase the misery of unfortunate invalids. At the present time there is little encouragement returned to those who endeavor to inform consumptive invalids of the dangers which they, through carelessness, expose others. That the majority of consumptive invalids are a danger and menace to health and life in their respective neighborhoods can not be doubted, and yet it is easily possible for them to overcome any and all dangers. Intimate knowledge of the disease fosters intelligent action and coöperation. Therefore it should be the effort of every physician to do all in his power to disseminate appropriate information among his tuberculous patients.

With this brief introduction I will come at once to the main consideration of my paper, namely, what legal measures are necessary in order that we may immediately effect a reduction in the prevalence of tuberculosis, eventually gain control of it, and finally exterminate it; that is, exterminate it so far as is possible to exterminate an infectious disease. There are *five* measures of leading importance which must be adopted and enforced before we can expect to see tuberculosis controlled.

1. The strict registration at the office of local boards of health, whether country, village or city, of all residences in which consumptive invalids reside, in order that such residences and surroundings may be thoroughly disinfected after the removal of such invalids, before the house, apartment or room is reoccupied.

2. Systematic monthly inspection of all factory employes, to exclude from factories tuberculous workmen, which is necessary, not alone as a means of protection to fellow laborers, but to increase the chances of recovery of the sick ones who might in their desire, and oftentimes necessity to labor and earn, sacrifice their only chance of recovery. Factory infection is a prominent source of disseminating tubercular disease, and I have in mind several large manufacturing establishments to which I have distinctly traced the cause of many cases of tuberculosis; not to confinement associated with factory work, but to infection deposited in and about the floors, machinery and furnishings.

3. The thorough instruction of all tuberculous invalids capable of affording personal medical attendance. Experience has shown that family physicians have thus far not accomplished as much as might reasonably have been expected, in impressing upon the minds of consumptive patients the necessity of destroying all infectious matter. I believe it is necessary for the health officials to assume the entire responsibility of instructing this class of consumptive invalids in all the details outside of medical treatment, concerning their disease. I think family physicians will welcome the day when the health officials assume this responsibility. It would not in any way infringe upon their professional relations with their patients, and would relieve them of a great anxiety.

4. The next measure I would suggest is the erection of State hospitals for the *compulsory* care, treatment and education of the indigent class of consumptives. By education I mean their instruction in hygienic matters, not alone as concerns tuberculosis, but in every sense of the word hygiene, as applied to everyday life. By the indigent class, I mean those invalids who can not afford suitable medical attendance and necessary medicines, and nourishing preparations upon their own responsibility. Persons who in health would be capable of caring for themselves and families in comfort, might, being afflicted with tuberculosis, become so reduced financially as to be classed in this instance, as indigent. In these State hospitals there should also be *sentenced* by health officials for a greater or less term, according to the seriousness and persistence of their offense; those persons not eligible from financial circumstances, who might persist in carelessly exposing others to the infection of tuberculosis, for without doubt many consumptives who even with a competent knowledge of the infectious nature of their disease would not exert any effort to protect others. Unless the State hospital plan for the care of indigent tuberculous persons is instituted on a National scale, we can not hope to gain any apparent control over the disease, for the majority of such indigents in their ignorance and carelessness scatter sufficient infection to perpetuate tuberculosis, though all other sources were perfectly eliminated.

5. My final suggestion is the extermination of tuberculosis from among dairy and stock herds, in order that human beings may not be exposed to the disease through the medium of meats and milk. This portion of the subject is receiving active attention at the hands of many of the State boards of cattle commissioners and State boards of health, but they are greatly handicapped in their work, and until the measures previously enumerated are attended to, they can accomplish but little to control the spread of tuberculosis among cattle. When the cattle commissioners go into a dairy herd and slaughter one-third, two-thirds or more, as the case may demand, their efforts may be compared to the surgeon who has by active means, healed an external ulcer or sinus due to constitutional causes, without removing the constitutional cause; the ulcer is sure to break out again, and so is tuberculosis in the dairy herd, for it must be remembered that the cattle become diseased principally through the carelessness of human beings, and so long as the present condition of affairs is allowed to continue, the control of tuberculosis in dairy herds will be an impossibility, and all efforts toward such control an immense and unnecessary expense to the government.

This then is the brief summing up of what I believe to be necessary, and I see nothing in any of the five measures advocated which would in any way infringe upon the legal rights of individual consumptives, under the laws of the United States. The medical profession must not wait for the politicians to inaugurate suitable medico-legal measures as regards tuber-

culosis. If we await action from purely political sources we will live to see the ratio of deaths from tuberculosis doubled. The AMERICAN MEDICAL ASSOCIATION, as the greatest representative body of physicians, is an appropriate organization to take the initial steps. There is no doubt as to their abilty to do what is necessary to be done.

SURGERY OF THE NASAL VESTIBULE WITH REFERENCE TO CERTAIN FORMS OF STENOSIS AND FACIAL DISFIGUREMENT.

Read In the Section on Laryngology and Otology, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5–8, 1896.

BY ROBERT CUNNINGHAM MYLES, M.D.

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NEW YORK.

The surgery of the nasal vestibule has not received that serious and careful attention which its importance demands. Abnormalities in this region not only obstruct the gateway to physiologic respiration, but also disagreeably alter an otherwise pleasant facial expression. Frequently operative procedures achieve a cosmetic result which were intended only to relieve nasal stenosis. It would be well to define the nasal vestibule as being that part of the nasal fossa which extends inward from the margins of the anterior nares from one-half to seven-eighths of an inch. Nearly all of this part of the nasal fossa is lined with scaly or pavement epithelium, and the balance of the nasal membrane is covered with ciliated and non-ciliated columnar epithelium. Attempts to enlarge the lumen of the vestibule by excision of the surface tissue, excluding a part of the septum, almost invariably produces the opposite results, by narrowing it. The contraction is usually due to the large amount of fibrous tissue in the membranes beneath the pavement epithelium. I have seen many cases in which the patients have been made worse by operations, where the surgeons did not recognize nor consider these principles, and the results were especially bad in those cases where the amateur or persistent rhinologist worked under the theory that the way to make a hole larger was to bore off or excise its walls; but the theory worked with the logic of the Irishman's ditch—"the more he cut off it the longer it got."

In former times when the electric trephine was used much more frequently than now, it was not uncommon to see cases where the membrane, and sometimes a part of the bone, had been removed from the floor of the nose, at the point where there is an elevation caused by that part of the nasal process of the superior maxilla, which extends downward and inward to the anterior nasal spine. In these cases the cicatrized membrane forms in a web-like manner across the floor, and extends from the septal wall across to the outer side beneath the junction of the ala and the nasal process. This condition greatly diminishes the ingress of air and the egress of secretions. I soon learned that any attempts to relieve the condition by cutting or excision only made it worse. I adopted the method of passing a small trephine through the band, along the floor, and afterward inserting a string or a small tube, leaving it in for a few months, until the healing was complete; carrying out the process used in piercing the ear lobes. When practical it is best to leave the tube in place for about six months, until the elements of the tissues shall have become absorbed and fixed. It is a simple matter to remove the bridge-like band by making a section on either side with a Grafe knife, and afterward insert a Berens cork or an Asch's perforated tube for a week or two. The results have been almost invariably good, usually leaving a little excess of elevation of the floor at the point.

I have had three cases of complete occlusion of the vestibule: One the case of a girl 18 years of age, who informed me that her left nostril had always been stopped, and that she had only been able to force a little air through the right side. Examination demonstrated a membranous occlusion about one-third of an inch within, extending from the superior part of the vestibule, near the upper lateral cartilage, down to the floor. There was a pin-hole perforation through the one on the right. After using cocain locally and hypodermically, I cut through the membrane, which was about one-quarter of an inch thick, above and below, put in the rubber tubes, and finally cut away the tissue from top to bottom. I placed three rubber, tubes, successively, side by side, sewed them together, and introduced them into the fossa; they were worn for a few months with most excellent results.

One of the cases was in a man 17 years of age. He was unable to breathe through either nostril, although a little air could be forced through the right one. I opened the right nasal fossa, after the manner described in the other case; the membrane was about an inch thick and extended from the floor to the anterior end of the middle turbinated body; the fossa remained patulous and satisfactory. On the left side, after cutting through the fibrous web in the vestibule, I found that the fossa was obliterated, and the space from the anterior to the posterior nares, and from the middle turbinated body to the floor, was filled with fibrous and cartilaginous tissue. I trephined and cut through about two and one-half inches of solid adhesive tissue; this caused severe pain, the cocain crystals and deep injections did not seem to obtund the parts effectively. I had no trouble in keeping the parts beyond the vestibule open, as they have no tendency to adhere or contract when they are not in contact. The vestibule was kept open by the usual method. The patient's general health improved rapidly; he slept well; the nervous system recovered from an extremely depressed state.

I will not have much to say concerning procedures for improving the general appearance of the nose, for the subject is of sufficient importance to require an individual paper.

There are two methods which are being employed: one, the implantation of metal plates and supports; the other is carried out by cutting or sawing the bones, cartilages and tissues, removing some parts, transposing others, and fixing the parts temporarily with apparatus, until they are permanently fixed by inflammatory adhesions, caused by the fractures or the incision into the parts.

Dr. John O. Roe of Rochester is a pioneer in the latter method, and it has been my fortune to see some wonderfully artistic work which had been done by him.

There is a great field for exercise of genius in the department of cosmetic nasal surgery, and the question as to whether the progress will be made through the surgery of the external nose, or through the vestibule, is to be decided in the future. I think that

the avenue will be through the anteriors nares, on account of the external scarring.

There are certain forms of partial stenosis which are due to deflections of the anterior part of the triangular cartilage within the vestibule of the nasal fossa.

For several years past I have been operating for the relief of this class of vestibule stenosis with satisfactory results. There are two conditions which usually confront us in these cases; first, a projecting anterior extremity of the triangular cartilage, which extends across the vestibular space and approaches the margin of the ala; the second condition embraces the various forms of deflections with more or less thickening of the convex side of the cartilage. Since so many authors have written extensively and advocated various methods for relieving this latter condition, I have decided not to discuss the subject on account of time and the length of the paper that would be required to treat it in a manner its importance demands.

In those cases which come under the head of the first condition, the space between the ala and the projection is so narrow that when inspiration takes place in a rapid manner the atmospheric pressure forces the ala against the cartilage. These patients become accustomed to contracting the muscles on the side and front of the face for the purpose of pulling the ala away from the cartilage. Others sleep with the hand on the cheek, instinctively elevating the ala. This condition may be overlooked, especially when the nasal speculum is introduced, consequently it is well to test the inspiratory capacity without it, with the mouth closed, and also with each nostril respectively closed.

I have attained but little success in attempting to replace this tip by fracturing the convex cartilage in the opposite nostril, and afterward maintaining the segments in position with mechanical appliances until union takes place.

The operation consists of first carefully cleansing the vestibule and then making it aseptic with solutions of 5 per cent. carbolic acid and 1-1000 bichlorid of mercury. After this the anterior part of the fossa, posterior to the vestibule, is carefully packed with bichlorid and iodoform cotton. Extreme precaution is used in regard to asepsis in everything. A perpendicular incision is made about two or three millimeters posterior to the margin of the projecting cartilage. The incision is usually about an inch long and extends down to or near the floor. The perichondrium and the mucous membrane are dissected from both sides of the cartilage, and a piece about ten to fifteen millimeters in length and two to four millimeters in width is removed with great care, especially in reference to making a counter opening in the membrane. I never remove the anterior upper part of the cartilage, which is left for the purpose of sustaining the tip of the nose in its proper position. Delicate knives, periosteal elevators, Dr. Noye's eye speculum, a small needle holder, the smallest size curved needle, and a pair of self-registering rat-tooth forceps are the most essential implements. I have found in certain cases a small knife with short, lateral curve very useful in making the transverse cut for severing the cartilage. The wound is very carefully cleansed, all blood clots and ragged edges are removed and the parts are brought together with very fine silk sutures. In the majority of these cases the wound unites by first intention and the after-treatment consists of filling the vestibule with aseptic cotton, and leaving it in place from two to three days. The results are beneficial from a respiratory sense; the appearance is much improved, and a decided improvement in the quality of the voice usually follows.

Another form of vestibule stenosis, which ought to be placed in the second class, is caused by a deflection, and circumscribed ecchondrotic growth or enlargement on the convex side of the triangular cartilage, can be relieved by this method of sub-perichrondial dissection. In case 3 the atmospheric pressure has caused a depression in the space between the upper and lower lateral cartilages; the stenosis was almost complete when he applied to me about one month since. I dissected out a large growth, which was situated on the septum opposite the depression, and three-quarters of an inch from the margin of the anterior nares. Cocain made the operation painless. The wound was brought together with four stitches; it united by first intention; in five days the dressing was left off and a small glazed line was all the evidence to indicate the place of operation. The stenosis was relieved and the breathing through the nostril was comfortable.

DISCUSSION.

DR. JOHN O. ROE, Rochester, N. Y.—The point that Dr. Myles has made in regard to the ill-advised attempts frequently made to enlarge the vestibule of the nose by cutting out the interior of the passage, is well taken. This procedure invariably results in decreasing the size of the opening instead of enlarging it, for the reason that when a portion of the constriction is cut away, the circumference of the uncut portion is correspondingly lessened, and when the cut edges become coaptated during the process of healing, the lumen of the passage is made smaller. The vestibule of the nose may become narrowed by a variety of causes. In those cases in which it is obstructed by an exostosis which we frequently find in the floor of the vestibule, this exostosis should be removed subcutaneously in order to leave the mucous membrane uninjured, thereby avoiding the contraction of the passage. This is best done by making an incision in front of the eminence down to the bone and raising the mucous membrane together with the periosteum over the entire elevated portion of the exostosis. By cutting through these tissues on the posterior side they can be raised out of the way and the bony growth removed either by drill or saw. When this is completed the mucous membrane of the periosteum can be replaced, leaving the passage of the nostril unobstructed. The vestibule of the nose is often very much narrowed by the collapse or dropping inward of the alæ of the nose from a weakening or partial paresis of the dilator naris muscles, thus allowing the alæ to be drawn inward against the septum during inspiration, thus increasing the obstruction to ingress of air. I have removed this difficulty by making one or two incisions through the cartilage of the ala, and inserting a dressing into the nostril sufficiently large to distend the alæ quite widely until the cut made through the cartilage has become firmly healed and fixed in this position, thereby maintaining the nostril freely open and preventing the collapse of the alæ on inspiration. I was also much interested in Dr. Casselberry's paper on the reduction of spurs of the nasal septum by electrolysis, although I have never employed that method. I have not done so for the reason that I have always disposed of spurs and ridges of the nasal septum by what seems to me to be a very much easier and simpler method—by simply cutting the spur away. If the spur is located on the cartilaginous portion, I employ a suitable small cartilage knife for its removal, and if

located on the osseous portion of the septum I remove it with a saw or the Curtis drill. I have not attempted the more complicated methods because my patients do not object to having these obstructions removed in this manner. In the case of removing a small enchondroma, it can be so easily and quickly done with the knife that if the parts are thoroughly anesthetized with cocain the patient is neither alarmed nor incommoded by the operation, and sometimes scarcely realizes that anything unusual is taking place. In regard to the danger of denuding the parts of mucous membrane, I have never experienced any difficulty in this respect after a cutting operation, if but a limited portion of the membrane is removed. Even in some cases where quite an extended area of mucous membrane is removed, I have observed it from day to day spread over the parts when maintained thoroughly aseptic, so that in a short time the site of the operation, from the loss of the mucous membrane, could not be perceived. After the use of the cautery, however, I have observed extensive scars and areas in which the mucous membrane had been replaced by fibrous tissue, thereby causing much annoyance from the dryness of the nose and the formation of scabs and crusts over the parts in which there were no mucous glands to lubricate the part.

Dr. Max Thorner, Cincinnati, Ohio—I would like to refer to Dr. Myles' paper. The obstruction of the nasal vestibule is by all means the worst thing that can happen after operations. In the operation advocated by Dr. Myles I think we have means to prevent such occurrence. One case I had was that of a young man who had been kicked on his nose by a mule, and there was entire occlusion of the right nostril. I made the incision and occlusion followed, and it was as bad as before, if not worse. Later on I made a flap from the upper lip, turned it upward into the nose and sewed it to the inner surface of the ala nasi, after having loosened it from its adhesions. Then I packed the nostril with iodoform gauze. The result was not an ideal one, but the improvement was great and permanent.

Dr. Hanau W. Loeb, St. Louis, Mo.—I was impressed with the statement of Dr. Myles in regard to maintaining an opening. I remember one case in which there was complete stenosis as a result of smallpox; there was complete adhesion of both edges to the septum. To maintain the opening I used two rubber tubes, which were made after the fashion of Simrock's spectrum. These were worn without discomfort for six months, later being worn only at night, and at present there is a complete opening.

NASAL HYDRORRHEA.

Read in the Section on Laryngology and Otology, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5-8, 1896.

BY D. BRADEN KYLE, M.D.

PHILADELPHIA, PA.

True nasal hydrorrhea is an exceedingly rare condition, not being mentioned in many of our works on nasal diseases. It is true there are many conditions which simulate this, but the well authenticated cases are rare. Let us first review the subject as to cause.

No special lesion can be named, the peculiar discharge being present under so many different conditions. It may follow trauma, with escape of cerebrospinal fluid, but probably an injury of that degree would prove fatal. It may be associated with nasal growths, as polypi, but in the one case thus far reported Bosworth thinks the polypi were the result and not the cause. Nerve lesions, as involvement of the fifth pair; this would act in two ways, both nerve influence and blood supply would be altered and the condition would properly constitute a reflex neurosis. Carious teeth and cerebral lesions may be exciting causes in the same way. Malaria in the chronic form; the repeated chills driving the blood to the internal organs and chronic congestion, in addition to the general anemic condition produced, with the necessarily lessened vascular tone, may cause the entire mucous membrane to become cyanotic. Atrophy of the optic nerve existed in at least one case. Hardie quotes seven cases in which optic atrophy existed, but does not give the references.

The cases in which no mention of any circulatory lesion is made and some lesion, as of the ethmoid or antrum existed, does not prove it the cause, as these lesions may be present without true nasal hydrorrhea.

In reviewing the cases thus far reported, it is my purpose to exclude all, excepting those cases, the reports of which include the clinic history, and in which the hydrorrhea existed independently of any associated nasal lesion. After a careful search of the literature on the subject I have been able to collect twenty-seven cases; sixteen collected by Bosworth, with two reported by him; three by C. E. Bean; one by A. R. Anderson; two by Hardie and Wood: one by Keiper, one by Emory Jones, and the one reported in this paper. The following is a tabulated list of the cases thus far reported:

The first sixteen were collected by Bosworth, and the seventeenth and eighteenth were reported by him.

1	Reis	London Medical and Surgical Journal, 1834, Vol. IV, p. 823.
2	Forster	New York Medical Times. 1852, Vol. II, p. 113-115.
3	Elliotson	Medical Times and Gazette, London, 1857, Vol. XV. p. 290; also Brown's Arch., Vol. III, p. 665.
4	Davies	Lancet, 1870, Vol. II, p. 292.
5	Tillaux	Traité d'anat. topograph. Second Edition, Paris, 1978, p. 62.
6	Paget	Medical Press and Circular, London, 1878, N. S. XXVI, p. 432; also. Trans. Clinical Society, London, 1879, p. 43.
7	Althaus	Brit. Med. Jour., 1878. Vol. II, p. 831, also Med. Chir'l Trans., Vnl. LII, p. 29.
8	Fischer	Deutsche Ztschr. für Chir., Leipzig, 1878, Vol. XII, p. 369.
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10	Leber	Graefe's Arch., Vol. XXIX. 1. 273.
11	Nettleship	Ophth. Review, London, 1883, Vol. II, p. 1-8.
12	Priestley Smith	Ophth. Review, London, 1883, Vol. II, p. 4.
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14	E. B Baxter	Brain, Vol. IV, p. 525.
15	Mathiesen	Norsk Magazine for Laegevidenskaben, Jan. 1877, p. 41.
16	Vieusse	Gaz. Hebd. 1879, No. 19, p. 298.
17	Bosworth	Diseases of Nose and Throat. Vol. I, p. 261.
18	Bosworth	Diseases of Nose and Throat, Vol. I, p. 262-263.
19	C. E. Bean	14th Annual Congress, American Laryngological Association.
20	C. E. Bean	14th Annual Congress, American Laryngological Association.
21	C. E. Bean	14th Annual Congress, American Laryngological Association.
22	A. R. Anderson	Brit. Med. Jour., London, 1892, Vol I, p. 276.
23	C. M. Hardie and F. A. Wood	New York Medical Journal Vol. 52, p. 264-8, 1890.
24	Hardie & Wood	New York Med. Jour., Vol. 52, p. 264-8, 1890.
25	G. F. Keiper	New York Medical Jour., Vol. 58, p 101, 1893.
26	Emory Jones	Ophth. Review, Vol. VII, No. 78, p. 97.
27	D. Braden Kyle	American Medical Association, May 8, 1896.

Bosworth in his text-book very properly divides the reported cases into two classes: 1. Those in which the escape of fluid is passive and painful and which phenomena he explains by involvement of the trifacial nerve. 2. Those in which the fluid gives rise to intense irritation. Yet this does not differentiate as to the irritating nature of the fluid, but is rather a classification as to symptoms and not varieties. A review of the cases reported gives such a variety of causes that a classification would be impracticable.

The history of the case I wish to report is as follows: Two years ago the patient—male, aged 40, first presented himself for treatment. His general condition was fairly good. For about six months he had had a profuse watery discharge from his nostril, which was, when he presented himself for treatment, constant, but which at first had occurred at usually irregular

intervals; sometimes as often as three or four attacks daily. The discharge was clear and profuse, although no definite estimate of amount could be made, the reaction was alkalin; it gave the patient a sensation as of strong salt water snuffed within the nostrils and was very irritant, not only to the mucous membrane, but also to the muco-cutaneous surfaces. The attacks at first were usually preceded by headache and severe sneezing, which came on suddenly and without warning, and were followed by profuse discharge. With the beginning of the discharge both the headache and sneezing were relieved.

An examination of the nostrils during the attack showed the mucous membrane of the anterior cavities swollen, edematous and boggy, often entirely obstructing nasal breathing. The membrane did not present the appearance of acute hyperemia, but more that of a chronic congestion, being of a dull bluish-red or pink tinge. The naso-pharynx and pharynx were slightly involved, but not to the extent of the anterior passages.

On examination between attacks, the mucous membrane, though slightly edematous, was paler, the color apparently being due to a pigment deposed within the cells (which later proved to be the case); the membrane on pressure was soft and boggy, and pressure left indentations, which slowly filled, a characteristic of passive congestions. The naso-pharynx was slightly paler than during the attack. This condition continued for several months, the attacks becoming more irregular, yet more frequent until when he had been under my observation for five months the discharge was almost continuous. The general appearance of the patient was that of a severe attack of hay fever. There was no evidence of antrum or ethmoid disease.

I had the eyes examined, with negative results. I made careful and repeated examinations of the urine, suspecting possible uric acid diathesis, but while the urine was of a rather low specific gravity, from 1.012 to 1.018, the chemic analysis revealed nothing except a low per cent. of urea, but by the increased amount of urine the total daily excretion was from four to five hundred grains. Microscopic examination showed no casts, but many leucocytes, and desquamated epithelial cells, which, from their shape and condition, being water-soaked, evidently came from high up in the urinary tract. During this time, although I had tried every known remedy, he gradually and persistly grew worse. In looking up the literature of the subject, I noticed malaria mentioned as a possible cause, and on questioning the patient, he said that one year before the beginning of the attacks, he had had malaria. I also discovered that before living in Philadelphia he had been in a distinctly malarial district. While at the beginning his general condition was good, during this time he was losing flesh, although not rapidly. I then examined his blood for evidence of malaria.

The blood examination showed, by the Thoma-Zeiss hemocytometer, 4,800,000 red corpuscles per cubic millimeter; white, 8,000. Hemoglobin, by Von Fleishl's hemoglobinometer, was 60 per cent. of normal. There was considerable free pigment. The red corpuscles, while about 3,000,000 showed almost a normal appearance, the remaining 1,800,000 were irregular, crenated and corrugated, some few showed segmentation and the peculiar kidney-shaped corpuscles were present. The leucocytes were normal.

Careful examination did not show much, if any, enlargement of the liver and spleen.

Tube inoculations had been made repeatedly from the nasal secretion and while growths showed many bacteria present, yet never was there present any but what had been found in other conditions, or the ordinary bacteria found in abnormal discharge from the nares. The only one present which is decidedly irritating was the streptococcus, although out of repeated inoculations this particular germ was found only twice and then not in any number, thus excluding bacteria as a probable etiologic factor.

A small piece of tissue was removed from the left nostril, and hardened in picric and chromic acid solution, infiltrated with acacia, frozen and cut. The sections showed a small round cell infiltration of the submucosa, and dilated vessels with thinned walls. The epithelial layer was desquamated, the cells showing cloudy swelling and granular and hydropic change; the connective tissue cells were pigmented.

After the blood examination, as the patient told me quinin made him nervous and irritable, I gave him bromid of quinin, in 5 grain doses every four hours and in addition 1-16 grain of the double sulphid of arsenic, which is a so-called alterative tonic. This treatment internally, with local applications of benzoinol, to which had been added to each ounce menthol 2 grains and oil of sandal wood 3 drops, was kept up for over two months. The patient after two weeks showed slight improvement and at the present time, while not entirely relieved, is comparatively well. The attacks are very slight and usually follow exposure or over-exertion.

From a review of the cases, I think the majority, at least, belong to the second class and that in these if not in all nasal hydrorrhea is a symptom or local manifestation of a constitutional condition. I regard the constitutional lesion as varying, but in the second class of cases, in which the one reported belongs, as usually associated directly or indirectly with some circulatory lesion in which the venous return is impeded, producing in the nasal mucous membrane a cyanotic condition, analogous to congestive lesions in organs, as the lungs, liver and kidney, largely made up of mucous membrane, and not necessarily the site of acute local inflammatory conditions. Mucous membranes, when repeatedly congested, tend to remain so, allowing the leakage of serum into the perivascular tissue which, when near the surface, becomes edematous and the epithelial cells undergo, in their effort to elaborate the excess of fluid, hydropic degeneration; the membrane relieving itself and again becoming infiltrated, accounting for the recurring attacks. Practically the condition may exist in any mucous membrane as is shown in the case reported by Miles, in which this condition existed in the mucous membrane of the intestines. The lymphatic supply may be involed as shown in one of the cases reported by Miles (Trans. Internat. Ophth. Congress, Heidelberg, 1888). Because of the intra-vascular pressure the tissue would undergo simple atrophy and impair to a great extent sensation, and cases with this induced condition must not be confused with those properly of the first class.

Owing to the varied symptoms and etiologic factor, no regular plan of treatment can be formed; but each case must be treated as to cause, and irritation during the attack should be relieved by sedatives.

UNCOMMON ACCIDENTS FOLLOWING OPERATIONS IN THE NOSE AND THROAT.

Read in the Section on Laryngology and Otology, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

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It is now almost ten years that the late Professor Nussbaum commenced his monograph "On Accidents in Surgery" with these words: "Of surgical accidents, avoidable ones as well as unavoidable, there are so many, that if one would attempt to enumerate them all one would hardly know where to begin and where to end. Unfortunately, owing to human vanity, almost exclusively successful cases are reported, while unfortunate events are not published, although one unfortunate accident is often more instructive than ten successful cases." Such considerations have prompted me to report to you to-day a number of accidents following operations in the nose and throat, which have happened during the last eleven years. I do not attempt to enumerate all or even the majority of undesirable sequelæ that I have seen; but I purposely omit all such cases, as are frequently observed and have often been described, for instance lacunar tonsillitis or pharyngitis following intra-nasal operations; acute purulent otitis with or without complications, adhesions forming in the nose, epistaxis, etc. But I shall confine my remarks to a few cases which are rather remarkable on account of their rarity.

Case 1. Functional aphonia, following cauterization of the pharynx for chronic follicular pharyngitis. The patient was a young lady, 18 years old, who was studying elocution. She was referred to me on account of her voice failing during any prolonged attempt at loud reading or speaking. She had a well developed chronic lateral and follicular pharyngitis, and some remnants of adenoid vegetations, in cushion shape, at the vault of the pharynx.

Treatment consisted mainly in galvano-cauterizations, repeated at intervals of from eight to twelve days. One day, after a number of treatments had been given with a very noticeable improvement of the voice, a large hypertrophied follicle, situated nearly in the center of the posterior pharyngeal wall was cauterized, when suddenly the patient said in a whisper that her voice was gone. There was complete aphonia. I was naturally alarmed. Upon laryngoscopic examination the image was found to be the same as in functional aphonia; the vocal cords approximated during an attempt at phonation for an instant, but separated again at once. This condition lasted for a few days, when it vanished almost as suddenly as it had appeared, without any special treatment. There was at no time a recurrence of this reflex phenomenon, although the same treatment was continued for some time, with the result of entirely restoring the voice of my patient. This patient was a strong and healthy young woman, and did not at that or any time thereafter belong to the great army of hysteric women.

Case 2. Temporary amaurosis following cauterization of the nose. Mr. J. H., 40 years old, was under my care about ten years ago for nasal polypi. A great many of them were removed by the cold wire snare. When the nose was thoroughly cleared there remained a few very small ones in the crevice between lower and middle turbinated bodies, which could not be engaged in the snare. I decided to destroy them with the galvano-caustic burner. One day, following such a treatment on the previous afternoon, Mr. H. called on me in great excitement, telling me that he could not see with the right eye, the side operated upon. The eye, upon examination, did not show any difference from the normal: he could discriminate between light and dark, could see objects held closely before his right eye, but could not count fingers at a distance of five feet. Ophthalmoscopic examination was entirely negative. Vision improved after five days and was gradually and entirely restored within four or five weeks.

Case 3. Loss of memory following an insignificant operation in the nose. A boy of about 16 years of age, from one of the interior towns of Ohio, was operated upon for almost complete nasal obstruction. There was a marked deviation of the septum and enormous hypertrophies of the lower and middle turbinated bodies. These hypertrophies were removed at intervals of from four to six weeks, the boy returning to his home after each operation. After two or three operations had been done, without any untoward symptoms, the boy returned for another operation. This time I succeeded in removing but a small piece, the size of a green pea, from the middle turbinated. There was but moderate hemorrhage, but as the boy had just passed through an attack of tonsillitis, I decided not to do any more. I saw him the following day at 10 A.M., found him apparently in good condition, and he left on an afternoon train. When he arrived home about four hours later, he was in an almost absent minded condition. During the night the family physician telegraphed me to inquire what anesthetic had been used. I learned the following day from a letter of the physician that the boy had a high temperature when he arrived, his conjunctiva were hyperamic, pupils dilated, he wae complaining of headache, and above all was absolutely unconscious of everything that had happened since he left home. The pain and fever subsided within two daye; the pupils became again normal; but the loss of memory remained for about six weeks, during which time his mental activity was very much impaired. Gradually during the course of the next two or three months, all his mental faculties returned, although the memory remained sluggish for some time. When I saw him several months thereafter, he was in perfect health and his parents had the courage to have the treatment continued, which was thoroughly successful without any further accident.

Case 4. Intubation in an adult followed by a fatal edema of the larynx after extraction of the tube. J. B., 18 years old, had been suffering eight years from what was considered asthma, the dyspnea having increased of late to an alarming extent. The history was entirely negative; syphilis could not be traced. The patient appeared to be in great distress. His respiration was labored, noisy and accelerated; on exertion his face had a livid color and was covered with a cold, clammy perspiration. The stenosis of the larynx was extreme. The ventricular bands were greatly thickened and the vocal cords buried in masses of infiltrated tissues. The encroachment on the lumen of the larynx increased in the subglottic space, the opening for breathing being scarcely the size of a thin lead pencil.

The smallest tube of the intubation set for adults was introduced without any difficulty. It was well oiled and the larynx had been previously anesthetized with a 5 per cent. solution of cocain. The tube is somewhat larger than the largest tube of the set used for children. The patient could readily breathe through the tube and complained of no pain. It was my intention to permit the tube to remain in the larynx for twenty-four hours, but on the following morning, about fifteen hours after the introduction, the patient returned and begged me to remove the tube. He stated he was greatly annoyed by it and could not take any food whatever. I extracted the tube without any difficulty, with the understanding that it was to be reintroduced in the evening. The patient was greatly relieved, was able to take some water, and left my office after a few minutes feeling comparatively comfortable. About fifteen minutes later he was found dead on the sidewalk, about a half square from my office. He had walked about one and a half squares when he felt bad and asked the driver of a passing wagon to take him to my office. Scarcely had he been seated when he fell back and died before he could be lifted from the wagon. A physician who happened to pass there shortly afterward found no sign of life.

The unfortunate accident can be easily explained. After the pressure exercised for fifteen hours by the tightly fitting tube upon the infiltrated tissues had been suddenly relieved a subglottic edema ensued causing a fatal issue within a short time. This rather unusual case teaches us a lesson to keep a patient upon whom intubation for a chronic stenosis has been practiced, under strict surveillance for some time after the extraction of the tube.

Case 5. Severe spasmodic cough and neuralgia after a nasal operation. Miss B. K., aet. 24, consulted me on account of excessive sneezing which had been troublesome for several years, but had become well-nigh exhausting of late. The anterior and lower portion of the left middle turbinated was enlarged to almost the size of a cherry, of a deep purple hue, and touching the septum. Upon the lightest touch with the probe an excessive fit of sneezing was sure to follow, which would immediately stop after the application of a 4 per cent. solution of cocain. This hypertrophy was removed with the cold snare. One half hour after the operation the patient had a most severe attack of coughing, a symptom which was

entirely new, and not long thereafter a most intense neuralgia of the left side of the face developed; nothing short of morphin and chloral hydrate would give her rest during the following night. The neuralgia lasted for several days when it gradually disappeared, while the spasmodic cough vanished only after two and one-half weeks. There was no local condition present that could account for it, the wound having nicely healed without any disturbance and without further interference. There was afterward no return of these symptoms, nor of the sneezing.

These few cases are reported simply for the reason that they appeared to me somewhat unusual. In fact all of them at the time, when my experience was less, were rather alarming, although fortunately, with the exception of the fourth case, they ended well. Yet, as any one is likely to meet at any time with accidents which are not common, and which can not be expected according to our usual experience, I thought these cases, collected at random from my note book, of sufficient interest to be placed on record.

DISCUSSION.

DR. J. E. LOGAN, Kansas City, Mo.—I have had some experience similar to Dr. Thorner's. My patient was similarly affected with this extreme irritability of the nostrils and experienced a great deal of the same trouble of excessive sneezing. I only refer to the case to make this suggestion, that in most of these cases the focus of irritation is in the anterior chamber. I have found that the application of the galvanic cautery to the middle turbinate has brought me better results than complete or partial removal with the snare. In this patient I removed considerable portion of the middle turbinate and packed with iodoform gauze, and for several months afterward the patient had a disturbed sense of smell. He was troubled with the odor of iodoform for months. It disturbed me, and while in New York I had him go to a friend of mine and he confirmed my opinion that it was due to the very nervous temperament of the patient. The sneezing did not return, but the perverted sense of smell remained for six or seven months.

Accidents liable to happen as the result of operations in the nasal cavity are many, for the reason that the nose and throat, especially the laryngeal cavity, are the seats of great reflex action, more so probably than any other cavity of the body and I am not surprised that the removal of the enlarged follicle was the cause of the aphonia. I have found the cause of this sudden aphonia to be very hard to explain. In the case in which there was involvement of the cords without loss of muscular power it would lead me to suspect hysteria; the cords would be under the control of the patient to a certain extent. I have had this experience with hysteric patients.

DR. W. E. CASSELBERRY, Chicago, Ill.—I wish to say in support of Dr. Thorner, that I believe one may have temporary impairment of the voice reflexly produced by operations on neighboring parts independently of a suspicion of hysteria. In one case of combined operation for tonsils and adenoids on a boy 5 years of age, the tonsils being removed with the cold wire snare, after the operation he spoke in a high unnatural voice, which lasted for about six days, when he gradually regained his proper tone. It could not be ascribed to other than irritation of peripheral nerves.

In reference to the case involving the middle turbinated body, I would ascribe the loss of memory to the use of cocain. I have seen some curious temporary mental effects produced by it. In regard to the middle turbinated body, I would say that while I have advised operations upon it under certain conditions, I think we should be cautious. From the intimate association of the vessels of the middle turbinated body with the cerebral meninges, it is perhaps surprising that serious results should not be more frequently encountered. Operations upon this body should be restricted to those cases in which there is a very clear and decided indication therefore.

DR. CLINE—In Dr. Thorner's case in reference to the aphonia I am inclined to think that it was the result of the cocain. I recall three similar cases which I think were due to it. One, a man of very nervous temperament whose sphincter muscles were paralyzed for several hours. He also seemed to be unable to speak, which I attributed to the cocain. I am not in favor of the free use of cocain unless I know my patient.

DR. THORNER—The discussion has been partly diverted to cocain poisoning which I did not consider. The operation which caused the temporary loss of memory was done on the soft parts of the middle turbinated and not on the bone itself. Operations on the middle turbinated are much more dangerous than on the other parts. If you will examine the connections closely you will readily see that it is a dangerous place to operate and the wonder is that we do not have accidents more frequently. As to the operation for the removal, I always prefer the cold snare. This simply cuts away the bone as clean as can be done. The old way of tearing out is certainly dangerous. The galvano-cautery is also very dangerous here. I have heard of a number of deaths that were the result of cauterization. And how many are not reported? There are others who favor the removal with the cutting forceps, which if properly done is also well adapted for operations of this kind.

The principal danger of operations in this vicinity lies in the anatomic relations. We have the immediate region of the orbit separated from the ethmoid cells by the lamina papyracea. We have also the nerves and blood vessels passing through the foramen opticum, through the fissura sphenoidalis, etc. The roof of the nasal cavity is thin and separates it from the brain. And yet there are and will be cases which must be operated upon.

DR. JOHN O. ROE, Rochester, N. Y.—In regard to the case in which the effect of the cocain seemed to be quite unusual, I am also of the opinion that all the manifestations were the result of cocain. Some patients are so extremely susceptible to its influence that all sorts of neurotic manifestations are caused by it. Notwithstanding this fact I daily use cocain in my work freely and indiscriminately without the slightest bad results. With patients who are so extremely susceptible to cocain we must use it with great care. In the case of a patient under my care not long ago, one single drop of a 4 per cent. solution put into her nose would cause agitation of the heart, and a few drops would cause extreme dyspnea, so much so that suffocation would seem imminent. I was obliged to resort to general anesthesia in order to perform the necessary operation in her nose. I find that by giving these patients quite a large dose of tincture digitalis a short time before employing the cocain and giving whisky in sufficient doses to very nearly intoxicate, this susceptibility to cocain is overcome, so that all these unpleasant symptoms and cocain complications are entirely obviated. In the case of the patient just referred to, I have had occasion recently to do a slight operation on her nose, and by the use of digitalis and whisky I was enabled to use all the cocain necessary to complete the operation without pain. In regard to the cerebral complications resulting from operations in the nose, I have observed in the cases reported, that these complications more frequently result from operations upon the middle or superior turbinated bone than in any other portion of the nose. These bodies are a portion of the ethmoid bone, which is closely connected with the cranial cavity, and it is for this reason that under certain conditions disturbances in these parts may be transmitted to the meninges.

DR. ROBERT C. MYLES, New York, N. Y.—As for the fainting from the use of cocain I think it is very common. I have adopted the plan of preventing the solution from extending over a larger area than that on which I intend to operate, and I believe a strong solution is better than a weak one. I also employ the reclining position as a remedy. I have noticed in a number of cases that were in the incipient stage of fainting, when they were placed in the horizontal position they recov-

ered at once. Sometimes a hot room will cause fainting. A peculiarity is that there is very little absorption about the tongue and throat, but in the nose it is very rapid. In regard to operating on the middle turbinated I think that the old way of tearing the body away with forceps is unsurgical and unsafe. The membrane continues through the cribriform plate into the cranium, and it is remarkable that serious consequences are not reported more frequently. The turbinated body can be removed neatly and effectively with the ethmoid clippers or scissors and a cold wire snare.

A CLINICAL STUDY OF TWENTY-ONE THOUSAND CASES OF DISEASES OF THE EAR, NOSE AND THROAT.

BY SETH SCOTT BISHOP, B.S., M.D., LL.D.

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CHICAGO.

The following statistic table of 15,300 cases, combined with a table of 5,700 cases already published, represent the records of 21,000 treated during the past seventen years at the Illinois Charitable Eye and Ear Infirmary in Chicago. The following table was compiled for me by my assistant, Dr. Charles L. Enslee.

My first classification was instituted for the purpose of establishing a basis of calculation of the influence, if any, exerted by occupation, age or sex in the causation of diseases of the ear, nose and throat.

The condition of each patient at the time he first presented himself at the clinic is presented to determine the relative frequency of the different diseases.

As is common in charity hospitals, a considerable number of those who applied for treatment belonged to that class of laboring people who have no definite trade or fixed occupation. In order to facilitate investigation and simplify the tables as far as possible, all those occupations that were closely related to each other in nature and effects were grouped under one heading. For example, under the classification of clerks were embraced salesmen, bookkeepers, office employes, etc.; with teamsters were grouped car drivers, peddlers, etc.; cooks and bakers were classified together; brass molders, iron molders, etc., were classified with iron workers; plumbers, gas and steam fitters appear together; such closely allied occupations as stone cutters, stone masons, bricklayers and plasterers in which the influences and exposures are very similar, are grouped together under the head of day laborers, a term borrowed from the laborers themselves.

The combined tables show that of the 21,000 cases, there are 11,119 patients with occupations, classified under twenty-eight headings. Of this number, 3,813 had out-door work and 7,306 in-door. About 34 per cent. are out-door occupations and 66 in-door; or about twice as many in-door occupations as out-door.

The largest number of any one class were in-door workers, 3,045 domestic servants. Next in order were about half that number of the out-door class, or 1,508 day laborers. Then follow groups of the next highest numbers; 858 clerks, 460 iron workers, 452 carpenters, 400 sewing women, 378 factory workers of all kinds, all in-door occupations before we reach the out-door class again in going down the scale.

While the great stores and factories furnish a large number of patients, the homes contribute 5,615 females, including the servants, seamstresses and women without occupation, or more than one-fourth the whole number of the combined tables. These facts are significant when we take into account the slight difference between the number of males and females affected under the age of 15 years. Out of 6,162 children under 15 years of age there were 1,484 boys and 1,590 girls between the ages of 6 and 15 years; and 1,641 boys and 1,447 girls under 6 years.

[1] Occupation.	W. No.	Ext.	F. B.	In. C.	Fur.	Ac. R.	Ac. L.	Ac. 2.	Ac. S. R.	Ac. S. L.	Ac. S. 2.	A. S. & N.	C. N. R.	C. N. L.	C. N. 2.	C. S. R.	C. S. L.	C. S. 2.	Au. P.	M. D	Int.	D. M.	N. Ph.	Ad.	Ly. T.
Bakers	58			12		2	4	2	2	2	2	8	4	4	12	2	4						6		
Blacksmiths	148	2		40	2	1	2					16	8	4	30	1	2						31		
Butchers	62	2		8		4	2					3	2		2								8		
Carpenters	452	6		54		2	2	3	12	6		24	6	1	22	2	10	3					74		6
Cigar Makers	58	2		4		1			2			6	2		2		2						8		4
Clerks	858		4	110		4	2	1	2	1		16	16	14	124	26	36	2	1	2	8		186		6
Coopers	28			6								2			1								2		
Day Laborers	1499	18	8	298	2	8	10	4	12	34	2	82	70	80	559	75	63	46	12	2	4	1	294		4
Domestics	3045	153	14	245	15	12	5	13	44	55	21	198	180	125	1195	22	76	153	16	18	25	2	492		28
Engineers	104			14					4			14			86	2		9			2		22		
Factory Workers	308	8		50		14	8	2	14	14		19	16	11	124	22	10	10	1	2	8	1	90		6
Farmers	272	4	2	19		5	4		4	4		12	9	10	93	15	12	6	4	7	1		90		4
Iron Workers	460	8	3	93	2	2	4		5	7	2	43	4	4	140	10	8	11	4	7	4		59		4
Janitors	128		2	24			4	2	2	2	2	2		2	58	6	2	2	2	1			6		
Miners	27	2		3		1									12	2							4		
Musicians	82			8								3	1	4	12	2				2	1		6		
Painters	115	2		20	2			2				14	4	5	36	10	2	2		3	2		11		
Plumbers	47	1		10								6	2	2	1	2	1						3		
Printers	115			28	1				2			6	6	1	22	2	5	2	4				14		1
Professions	174	2		11	2	3	4		2	3		10	2	4	45	5	13	4	2				19		1
R. R. Laborers	77			21		2	4	3	2	1	1	3	7	11	55	5	2	2		3			19		
Sailors	400	8		17		4						38	22	21	155	35	9	17	2	3	2		33		
Sewing Women	378	1		34				2	4	3				2	42	2	4	7					12		
Shoemakers	102	2		17						1			20	4	31	10	2	2	2		1		14		
Tailors	122	1		18						4		6	4	5	133	3	13	1					36		
Teachers	73	2		5		4	2		1	1		6	2	2	22	2	4	2					11		
Teamsters	453	9		51		3	4	2	2	9		10	6	4	45	1	2	4					18		1
Tinners	118			12		2	2		1	1		6	2	1	55	5	13	2		1			19		
No occupation, males	694	26	4	125		4	2		2	10	2	44	21	11	333	23	31	10	2	3	1		33		1
" females	508	28	5	28		4	2		15	30	1	26	30	24	245	32	18	49	12	7	2		12		3
Boys 6 to 15 yrs.	927	31	14	128		2	4		7	12		81	25	16	150	50	49	48	2	2	2		2		6
Girls "	1028	31	4	68			4	2	8	9		48	25	18	190	41	50	56	4	4	1		2		2
Boys under 6 yrs.	1398	72	20	48	12			4	12	34		94	20	16	409	90	112	77	12	15	4		24		46
Girls "	1171	64	14	67	4			2	33	41		22	27	25	435	217	84	108	6	18	10		24		57
Total	15300	468	101	1690	45	73	69	45	297	300	113	908	516	552	4772	707	645	818	92	123	107	65	2176	75	243

[1] From the writer's forthcoming book on Diseases of the Ear, Nose and Throat (in press).

THE ABBREVIATIONS EMPLOYED ARE:

W. No.—whole number.
Ext.—diseases of the external ear.

F. B.—foreign body.
In. C.—inspissated cerumen.
Fur.—furuncle.
Ac. R.—acute inflammation of the right middle ear.
Ac. L.—acute inflammation of the left middle ear.
Ac. 2.—acute inflammation of both middle ears.
Ac. S. R.—acute suppurative inflammation of the right middle ear.
Ac. S. L.—acute suppurative inflammation of the left middle ear.
Ac. S. 2.—acute suppurative inflammation of both middle ears.
A. S. & N.—an acute suppurative inflammation of one middle ear, with a chronic non-suppurative inflammation of the other.
C. N. R.—chronic non-suppurative inflammation of the right middle ear.
C. N. L.—chronic non-suppurative inflammation of the left middle ear.
C. N. 2.—chronic non-suppurative inflammation of both middle ears.
C. S. R.—chronic suppurative inflammation of the right middle ear.
C. S. L.—chronic suppurative inflammation of the left middle ear.
C. S. 2.—chronic suppurative inflammation of both middle ears.
Au. P.—aural polypus.
M. D.—mastoid disease.
Int.—diseases of the internal ear.
D. M.—deaf mutes.
N. Ph.—naso-pharyngeal catarrh.
Ad.—adenoid growths in the vault of the pharynx.
Hy. T.—hypertrophied tonsils.

Of all these children 3,037 were girls and 3,125 boys, leaving a difference of only 88 more males than females under 15 years. Between the ages of 6 and 15 years there were 106 more girls than boys. Under 6 years there were 194 more males than females.

Sex seems to have no influence in the production or prevention of diseases of the nose, throat and ear. It appears that up to the age of 15 years both sexes suffer nearly equally. Possibly a reason for this may be found in the similarity of the lives and habits of the sexes during this early period. But the classes of society that afford clinical material at the medical charity institutions are such that necessity requires them to abandon the pursuit of an education at about the fifteenth year, and to enter upon bread-earning vocations. Thenceforth the divergence in habits and environment increases. The males are either out of doors more than before, or confined chiefly to mercantile houses and factories. The females become domestics, clerks, shopgirls and seamstresses.

An interesting question pertains to the relative frequency of diseases of the right and of the left ear, and of diseases of one ear as compared with diseases existing coincidently in both ears. The above table shows that in acute inflammation of the middle ear there is but a very slight difference in the frequency of involvement between the two ears, and both ears were affected in 24 per cent. of all the cases. In acute suppuration of the middle ear again there is too little difference between the two ears to take into account. In 15 per cent. of all these cases both ears were involved.

In the 5,849 cases of chronic non-suppurative inflammation of the middle ear the two sides were about equally affected, but a great contrast is now offered in the relative frequency with which both ears are involved in the various middle ear diseases, for in this instance nearly 82 per cent. of all the cases presented bilateral aural affection. Sufficient importance must be attached to these undeniable figures in formulating our prognosis when only one ear is already diseased, for it follows, almost as the night the day, that if one ear has become seriously affected, especially with the sclerotic form of dry catarrh, the other becomes subject to the same destructive process.

In chronic suppurative otitis media the two ears suffer nearly equally, and it appears that both ears are simultaneously affected in a little more than 60 per cent. of the cases. In 3,149 instances of unilateral diseases of the ear, there was an excess of only 37 cases of the right over the left. This fact is mentioned particularly because the opinion has often been expressed that one ear was much oftener affected than the other, some specialists believing that the right was affected, by far, more frequently than the left ear.

The tables show that about 13 per cent. were afflicted with nasopharyngeal diseases, but the actual number would be much in excess of this figure. The Infirmary being an eye and ear hospital strictly, not as great prominence has been given to the nose and throat affections as would be desirable, this part of the diagnosis sometimes being entered on the patient's cards instead of upon the record books.

About 0.8 per cent. had diseases of the mastoid process, which was nearly twice as prevalent in males as in females.

Deaf mutes formed about 0.5 per cent. of the 21,000 cases. There were three times as many males as females.

The largest number of any one class of diseases were 8,858 with chronic non-suppurative inflammatory processes of the middle ear, or 42 per cent. of the whole number. Next in numerical order come 3,664 cases of chronic suppurative inflammation, or 17 per cent.; and the next highest number, 1,010 cases of acute suppuration, or 5 per cent.

Children under 15 years of age constitute about 29 per cent., or more than one-fourth of the whole number of cases. Very many of them dated back to attacks of scarlet fever, measles and the earaches, and "running ears" of infancy, so that a much larger percentage than appears should probably be credited to the period of childhood. Only a small proportion of the children were brought for treatment during the acute stage of inflammation. Only about 10 per cent. were acute cases, leaving 90 per cent., or nine times as many who had not applied for treatment until the inflammation had reached a chronic stage. Indeed, only 13 per cent. of the adults were seen in the acute stage of their troubles.

Columbus Memorial Building.

ELECTROLYSIS IN THE TREATMENT OF DETACHED RETINA.

Read in the Section on Ophthalmology, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5-8, 1896.

BY W. T. MONTGOMERY, M.D.
CHICAGO, ILL.

Within the past few years various remedial agents have been advocated with more or less enthusiasm in the treatment of detachment of the retina. One of the more recent of these agents, and one which from its action and the nature of the disease seemed to promise as much or more than any other treatment, is electrolysis. One of the most full and encouraging reports on the application of electrolysis in detachment of the retina, is by Dr. Terson, and was published in the last July number of the *Annales d'Oculistique*. Dr. Terson reports twelve cases treated with one recovery which had lasted nine months, and five improvements which had persisted for from two to nine months. Within the last six months four cases of detachment of the retina have been treated in the Illinois Charitable Eye and Ear Infirmary, two by myself and two by Dr. B. Bettman. In the treatment of these cases we, in the main, followed the recommendations of Dr. Terson. Positive electrolysis was used; the eye was punctured by the strong platiniridium needle at some point of the sclerotic corresponding to the detach-

ment and a current of five milliampères applied for a period of one minute. The eye was thoroughly cocainized so that the puncture was made without pain, but when the current was turned on the patients complained of severe pain. In Case 2 the pain was so severe as to prostrate the patient and he absolutely refused to submit to it again. In Case 1 the pain was severe enough to bring out beads of perspiration. The after-treatment consisted of the instillation of a 1 per cent. solution of atropin sulphate, the compress bandage and rest in bed for one week. No noticeable reaction followed treatment in either case.

Case 1.—Andrew J. F., age 29, mechanic, Norwegian, July 30, 1895, was admitted into Ill. Charitable Eye and Ear Infirmary. Patient states that the sight of his right eye has always been poor, V — bright light = amblyopia. Eight days ago was struck on the left eye with a piece of wood, and this eye has been almost blind since. On examination, external appearance of eye normal. The ophthalmoscope shows large blood clot in vitreous. Vision—fingers at six feet. Pressure bandage applied, and small doses of hydrargyrum bichlorid and potassium iodid was ordered, and the patient kept quiet. August 30, patient was discharged with V 20-30, some small floating opacities of vitreous remaining. September 30, patient was readmitted with extensive detachment of the retina. V motions of hand in temporal field. Patient says his sight failed suddenly the day before. Ophthalmoscope shows almost complete detachment, only a small area of nasal portion remaining. Treatment: rest in bed, bandage and hypodermic injections of the muriate of pylocarpin, saline cathartics. October 15, no improvement. Electroylsis used. Bandage and quiet. October 25, no change. Needle used again, but owing to breaking of wire in holder battery did not act and operation resulted in simple evacuation of subretinal fluid. December 5, patient thinks he can see better. Field is enlarged but can not distinguish objects. Electrolysis again used. December, 15, field and visiou not so good. Is now about as it was before electrolysis was used. Patient was transferred to Dr. W. H. Wilder, who injected sterilized rabbit's vitreous, according to Deutschmann. Violent reaction followed, but this subsided within a week. There was no improvement of vision. Jan. 7, 1896, patient discharged as incurable.

Case 2.—M. C., age 65, laborer, American, was admitted into Infirmary Oct. 23, 1895, with umbrella detachment of retina of right eye. Left eye lost from the result of an injury years ago. Present trouble came on suddenly three months ago. No history of an injury or previous trouble. V = motion of hand. Electrolysis used November 6. No improvement. Electrolytic needle used again, but as in Case 1, the battery did not work, the result being only puncture of sclerotic and escape of subretinal fluid. December 5, patient thinks he sees a little better, but we can not detect any change in the detachment. Patient refused to submit to further operative treatment, and was discharged at his own request. Feb. 14, 1896, patient readmitted with acute glaucoma, which he states came suddenly one week ago. Pupil widely dilated. T + 3. Eye totally blind. Pain excruciating. February 27, pain continues. Eye excised.

Case 3.—P. L., age 40; laborer, Irish, was admitted into Infirmary Dec. 30, 1895. Left eye blind for three years as the result of an injury. Vision of right eye began to fail three months ago. On examination cornea clear, pupil dilated, numerous floating opacities in vitreous. T — 1. No distinct vision and only poor perception of light. Detachment of the retina in upper and temporal portions. Pilocarpin treatment used until Jan. 10, 1896, without any improvement. Electrolysis used. The eye was bandaged and patient kept in bed. January 25, no improvement. Electrolysis again used, making three puncture. March 25, still no improvement. No further treatment.

Case 4.—M. B., age 67; farmer, Irish; admitted Dec. 26, 1895. Right eye normal. First noticed flashes of light in left eye three weeks ago. Eight days ago he suddenly noticed cloud before eye, as he expressed it. On examination, cornea clear, pupil dilated. T —? Detachment of retina above, hangs down and nearly covers optic disc. No distinct vision. The pilocarpin treatment was used without benefit. Jan. 20, 1896, electrolysis, single puncture. February 15, no improvement. Electrolysis repeated, the sclerotic being punctured three times at this sitting. March 22, no improvement. Patient discharged by request.

The cases we have reported were all of extensive detachment. Only one, Case 1, can be claimed as presenting conditions fairly favorable for successful treatment. This patient was young, his general condition was good and the detachment recent when the electrolysis was first used. Of the other cases, their ages were 65, 40 and 67 years and the detachment had existed from one to four months. If we are warranted in drawing any conclusions from such a meager report they would be: 1, that the treatment is exceedingly painful, but is not immediately followed by severe reaction; 2, that it is valueless as a curative agent in detachment; 3, it may be a factor in exciting inflammatory glaucoma, as occurred in Case 2.

THE ABUSE OF WATER IN SURGERY.

BY EDWIN WALKER, M.D., PH.D.
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The art of antiseptic and aseptic surgery has advanced with the science of bacteriology. Surgical technique has changed as our knowledge of germ life has advanced. While some observers before Lister seemed to have had a vague idea of the relation between wound infection and microörganisms, to him belongs the credit of putting first the knowledge, scanty as it was, into a distinct shape and to practice antiseptic surgery. He acted on the knowledge at that time and his failures were in a great measure due to the lack of that information we now possess. He supposed the chief source of infection was from the air. Tyndall's observation seemed to prove this, consequently he bent his energies to devise a means of purifying the atmosphere.

Only a few years ago, when operating rooms were small and the air was laden with carbolic spray, the operator and patients were deluged with antiseptic solutions. These stood in puddles on the floor so that one had to wear rubber boots or wooden shoes. I have seen a carbolic spray play directly in an abdominal incision for an hour. Great emphasis at that time was placed on the preparation of the room in which the operation was to take place. The walls were wiped down and the floors scrubbed with antiseptic solutions. Since, however, we have found that infection from the air is very little, and the number of organisms contained in it is so small that the danger is practically *nil* when compared with other modes of access, viz.: hands, instruments, dressings and fluids during the operation. Experiments have shown that even in apartments where decomposing fluids are present, as in water closets, the number of microorganisms in the air is very small. This knowledge has led to the abandonment of cumbersome methods, and little by little we have evolved a simpler and more reliable technique.

Perhaps no greater change has occured than in the use of water and antiseptic fluids. Many accidents were due to the over-use of the latter, and they were responsible more than anything else for the tardy adoption of antiseptic surgery. Many deaths charged to the new method were due to ignorance of principles and excessive use of poisonous agents. This subject has been fully discussed and the danger fully set forth by many observers; still we find surgeons who think it necessary to irrigate a clean wound or wipe it out with sponge or gauze, moistened in some antiseptic solution. The danger of infection from the air is very slight, and if the hands of the surgeon, his instruments and sponges, have been rendered strictly

aseptic, the introduction of antiseptic fluid in the wound is entirely superfluous. It has been proven that blood serum is a reliable antiseptic which is non-irritating and makes the very best covering for a cut surface, and it is fully able to render harmless all the germs that will enter the wound from the atmosphere. An antiseptic solution, or even water, is not only unnecessary but absolutely harmful. Bichlorid solutions produce superficial necrosis and any fluid damages more or less the integrity of the tissues, besides they furnish the very moisture necessary to the development of the bacteria. I do not wish to dwell at any length upon this branch of the subject, for I believe that most surgeons have long since abandoned the use of antiseptics during operations. I have referred to it because recently I have seen surgeons insult clean wounds in this manner. I heard not since, that a surgeon of some prominence in this State filled wounds with protonuclein, thinking thereby to hasten union. It seems almost incredible that anyone would introduce dead elements to replace the living; for even if protonuclein does contain the corpuscular elements, they certainly could not be as reliable as the fresh blood.

It is especially with regard to the use of water that I wish to speak. Most surgeons have within the last few years much curtailed its use. Landerer in 1889 recommended wiping with dry bichlorid gauze and packing the wound carefully to control hemorrhage and remove all surplus blood, so that the wound would be dry when it was time to close it. The dry method has been adopted partially at least, by most surgeons and is considered by all a marked advance. Few, however, fully appreciate the extent it should be applied and many operators still use too much fluid, too much irrigation and too much wet sponging. In most recent articles I find irrigation recommended after many operations, which in my experience have done better without, and we will have much better results when we abandon irrigation except in those cases where mechanically, it is impossible to remove foreign substances or septic material in any other way, and these cases will become gradually less as we apply efficient means of drainage and keep the parts dry afterward.

The first objection against water is that, as ordinarily obtained, it is not sterile. When emergency operations are undertaken, boiled water is rarely at hand, and if it is it has to be cooled with water that has not been boiled. Washing the wound with water that is not sterilized is a hazardous proceeding and is liable to carry more infection than it washes out. The following, taken from Warren's pathology, page 787, fully expresses the idea: "A cubic meter of air may contain from 1,000 to 20,000 germs, but in a drop of putrefying fluid millions of bacteria may exist. Schimmelbusch reckons that the number of germs that settle upon a space a decimeter square amounts to about sixty or seventy during one-half hour's time in V. Bergmann's operating theater. In a cubic centimeter of water of the river Spree, which flows past the clinic, it is estimated there exists about 27,000 germs. Assuming, now, that a boatman should injure his hand and should wait one-half hour in the clinic before it is dressed, he would receive upon the surface of the wound, covered probably with a blood clot, between sixty and seventy bacteria. If, however, he attempted to 'cleanse' the wound in the Spree water and bind it with a dirty handkerchief, the number of organisms that would come in contact with the wound would amount to probably between thirty and forty millions."

I know it will be argued that water is easily sterilized by boiling, but unfortunately we usually have to delegate that part of the work to some one who is uneducated in aseptic methods. Who of us has not in our haste, after carefully boiling the water, found it too hot for use, cooled it with plain water, and then to ease one's conscience a few bichlorid tablets were dropped into it; or having directed some one to get the water ready, have seen the temperature tested with a dirty hand or it is brought in a vessel which has been in service in every branch of household life. It is practically impossible, even with trained help, under the most favorable circumstances, to attain absolute asepsis, and when that part of the work devolves on those who are not especially trained it is sure to fail.

To test this subject I had three trained nurses prepare three pitchers of water, telling them that it was to be used for an operation. They each washed out a pitcher with sapolio and scalded it with boiling water, then after boiling the water thoroughly for one-half hour poured it into the pitcher, and covered it carefully with a clean towel. The result of a bacteriologic examination by Dr. Kerth, showed germs in two of them while one was sterile.

If we have prepared our hands and instruments and the skin of the patient properly, in any clean operation, dry wiping with sterilized gauze will remove all blood and render the wound dry and clean. Blood clots and the tissue which may be cut away, can be removed without one drop of moisture, and these wounds will heal more kindly and are less frequently infected than where water is used.

Thus far I have only spoken of clean wounds, but I believe the same is true of infected wounds and in cavities, mucous and serous, where infection exists prior to the operation. I do not speak dogmatically because sufficient experience has not been collected to fully establish the fact, but from my observation dry sponging has been more efficient than irrigation. I do not include in this assertion, cavities, sinuses, etc., which mechanically are almost impossible to clean without water. When this is the case, after thorough washing, the parts should be dried and efficient drainage established and dry methods employed afterward.

In operations in the uterine cavity the same general rules should be followed. After curetting for endometritis or removal of the products of conception before the third month when not infected, I never irrigate. Since abandoning washing out with antiseptic fluids, my cases have done much better. The packing remains sweeter and the discharge following is less. Twice in the past year I have been compelled to empty the uterus at the second month for vomiting. (I may add by way of parenthesis, that they were the only two cases in which I have had to resort to this measure.) In both, the os was dilated by steel instruments, and with the curette and Martin's forceps the fetus and membranes were removed, the cavity wiped out with sterilized gauze and packed with iodoform gauze. This was done under strict aseptic precautions. In neither case did the temperature rise to 100, or was the pulse at any time above normal. After the third month and where infection has occurred, it may be better to irrigate in some cases,

on account of the difficulty of removing all foreign matter without it. I have, however, treated a large number of this class entirely by the dry method with most satisfactory results.

It is possible, rapidly and thoroughly, to remove all debris even in quite a large uterus with the finger, a dull curette and curetting forceps. I have not had the accidents so often spoken of in this connection, due to instrumental interference. The unfavorable sequence (pelvic inflammations, etc,) are often due, to the forcing of pus through the tubes by the irrigation. I have known peritonitis to follow irrigation of the uterus several times. I am very partial to the use of Martin's heavy forceps in these cases. With them the uterus can be more rapidly emptied than by the curette alone, and in many cases they are more efficient than the curette or fingers. I have never had any unfavorable results from them. So far, I have not treated the infected puerperal uterus by the dry method, nor has it to my knowledge been employed by any one, but it has been so successful in my hands in smaller infected uteri, that I shall try it the next case I have to treat.

Formerly I performed operations on the cervix, vagina and external genitals under constant irrigation with antiseptic solutions, and later with sterilized water, as was the general custom. The later works on gynecology (Keating and Coe) recommend it. Since adopting the dry methods my results have been much more satisfactory. So much so that I have entirely abandoned irrigation in all operations on the genital tract. No water, not even a wet sponge is used. I use irrigation to cleanse the parts before the operation, but after the first cut, not a drop of water is used.

Irrigation in the abdominal cavity, while still employed by many operators, has been entirely abandoned by a large number. It seems impossible to wash out with any degree of thoroughness the abdominal cavity. In aseptic cases it is certainly superfluous, and in pus cases the careful protection of the cavity by gauze, and wiping out with the same material, has been more satisfactory in the hands of many. Careful, thorough work renders irrigation superfluous except in rare instances. The dry method seems to me more rational, and in my experience has been attended with better results. This method possesses great advantages to the surgeon who does much of his work in their patients' homes. He can pack his bag with everything he needs thoroughly sterilized, and after he has disinfected his hands, use absolutely nothing on the premises. When I go from home to perform surgical operations, I take everything I need except the water to wash my hands, and I think by this method I exclude many avenues of infection. If antiseptics or water are used, it adds that many more chances of trouble. The instruments should not be immersed in any fluid for the same reason. Simplicity all along the line is the watchword, and every additional detail may furnish a loophole for the entrance of the enemy. A fair trial will convince any surgeon of the superiority of the dry method.

Magnan's Sign in Chronic Cocainism.—Ribakoff has had occasion to observe a couple of cases of severe chronic cocainism in which Magnan's sign was the predominant symptom. This is a hallucination of the cutaneous sensibility, characterized by the sensation of a spheric foreign body under the skin, varying in size from a grain to a nut. This sensation is peculiar to this intoxication and its differential value should be more generally recognized.—*Gaz. d. Osp. e d. Clin.*, August 4.

EXPERIENCE OF AN AMERICAN PHYSICIAN IN MEXICO.

A CASE OF MALIGNANT EDEMA—A MEXICAN FUNERAL.

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The patient was a laborer, 38 years old, who had received a crushing injury to the foot from a car wheel, which passed over it high up on the instep. The accident happened on Sunday and he arrived at the hospital Tuesday afternoon, sixty hours later, after a journey of 200 miles.

The injured foot had been wrapped in cotton waste, such as is used about the engines for cleaning purposes. I sent for a Mexican physician and then prepared to operate, with the assistance of a couple of servants. I put the patient to sleep with chloroform, changed to ether and then gave the cone to one of the servants. The leg was prepared for amputation just above the ankle, the operating table being outside the house in the shade of the building. As I began to operate the Mexican doctor arrived and greatly to my relief took charge of the anesthetic. I placed the instruments in two basins on two chairs so that I could reach them without much difficulty, as I had to procure my instruments as well as do my own sponging. In one pan I had a knife, a saw, a pair of artery forceps and a needle threaded with silk. The other pan contained a few other instruments which I thought might be needed. As the bone was sawed through the doctor took it in his hands to lay it down thus getting them covered with blood and pus. I picked up an artery and put on a ligature and then looked for more but could not find any. The doctor noticing my difficulty, wiped his hands on the patient's clothing and swept his fingers over the stump in search of other vessels which might need tying. As he also was unsuccessful, I motioned (we could only communicate by signs, as I could not speak Spanish and he could not speak English and we had no interpreter) to him to loosen the Esmarch bandage so that we might find the other arteries by the bleeding. He did so but no blood appeared, even downward stroking of the leg failed to reveal any spots bleeding sufficiently to require tying. The wound was then closed in the usual way with silk sutures, a drainage tube put in and a dressing put on. Before closing it however, I irrigated very carefully with a solution of bichlorid of mercury. in the hope that I might remove the infection implanted by the doctor's hands and with the expectation that I would discover, at least, a second artery that would need a ligature. We now turned our attention to a rather insignificant injury in the other leg, a triangular wound of the skin over the thickest part of the calf, exposing the muscles which appeared to be uninjured. This was carefully washed out with a bichlorid solution and an iodoform dressing put on. On Wednesday I repeated the irrigation of this wound, which seemed to be in good condition. On Thursday the dressing was saturated with a bloody fluid and I irrigated it several times with hot bichlorid solution. Friday the discharge was more copious and the leg slightly swollen. In washing it, I separated the muscles with my fingers and irrigated very thoroughly between them. All day the swelling increased so that at 4 o'clock the leg seemed ready to burst with the tension and it was almost black. Bloody fluid ran in a stream through the mattress to the floor. Several incisions were made from the knee to the ankle, the

first one was three-quarters of an inch deep and gaped nearly two inches.

My Mexican friend predicted that the patient would die before morning but suggested that he have some medicine. At my request he wrote a prescription which I took to the drug store. The druggist gave me two bottles full (one was not large enough); one held about twenty-four ounces and the other sixteen ounces. Directions: half a teacupful every three hours.

Amputation was out of the question, and the patient died the next morning, five and a half days after the injury. The stump of the amputated leg was healing well with very little suppuration.

Never having seen a Mexican funeral, I thought this a good opportunity to do so. The patient died at 4:30 A.M., and at 7:30 the Mexican physician wrote out an application for a burial permit. This I took to the "civil judge," who copied the document entire into a large book. He then asked my name, age, birthplace, whether married or single and the number of children I had. The last question followed the previous one, though I had just said that I was unmarried. I signed my name to what he had written in the book, paid $1.25 and was given the permit. This was taken to the custom house, endorsed by an official there and we were free to proceed with the funeral. A coffin was obtained for $2.50. It was made of light wood, painted black and trimmed with white stripes. A cross was painted on top and "1893" on the head end.

The body was wrapped up in the sheet on which it lay and put into the coffin. Four cargadores, hired for the purpose (at 50 cents each), put it upon their shoulders and took it to the graveyard. In twenty minutes we arrived at the "Cemetery of the Angels." This is surrounded by a high stone wall through which we enter by an iron gate under an imposing stone archway. On passing this gate we came into an enclosure of, perhaps, five acres, containing quite a number of monuments. This was the "yard of the first class." Walking through this we passed by another gate into a second enclosure of about the same size constituting the "yard of the second class." The entire surface of the ground here was level except for irregular piles of earth here and there, and bare except for seven or eight small mesquite trees. Not a spear of grass! Not a flower! Near the middle there was a row of ten open graves, about five feet deep and separated from each other by about a foot of earth. The loose earth was piled up in a windrow at either end of the row of graves. Here the bearers set down their burden. An attendant, who had followed from the entrance with two short ropes and five shovels, took the permit, the coffin was opened for his inspection but he disdained to look. The lid was put on again and fastened with two or three small nails driven in with a small stone picked up near by. The coffin was then lowered into the grave nearest the path and the five men began shoveling in the dry earth, talking and laughing, meanwhile; but about what, I did not know.

While they were thus engaged I employed myself examining the mound of earth under my feet. I was standing on a human femur. On looking more carefully I found that the earth was covered and filled with human bones! A tibia, a scapula, a radius, half a dozen ribs in a pile, part of a pelvis, bones of hands and feet without number! Easily fifty bones in sight without disturbing the earth a particle! Meantime the grave was full, no mound being made, one of the cargadores said "lista" (ready or done), and we turned away. The burial over, the funeral services ended! Antonio Hernandez under the sod! No, under the sand, gravel and the bones of his predecessors in this particular spot. Four hours before, he began his last long sleep, now begins his last long rest (?) No, five years hence his bones will be notified that their lease is up and they must move. The landlord wants the ground for another tenant. Then his skull, perchance, may sit on a pile of earth, as two skulls sat to-day, and watch his successor take his place. The bones of his hands and feet will be a part of the earth which fills the grave over the newcomer.

I made inquiries and found that this cemetery was eighteen years old and that every five years the ground is reopened for new burials. The bones are supposed to be gathered up and deposited in a trench dug for that purpose, but that many of them are returned to help fill up the newly opened grave, I, myself, witnessed. The rich buy lots and dig graves eighteen to twenty-four (!) feet deep, in order that their bones may not be exhumed in the next turning up of the soil.

What an impression is made on one accustomed to the orthodox funeral at home! The darkened room or church, the expensive felt-covered silver-trimmed coffin, the crape, the flowers, the people with their sympathy and tears. The pall-bearers, dressed in black, with white gloves and bared heads. The hearse with its somber plumes and black horses, the long procession of carriages; the cemetery, with its trees and grass, flowers and monuments; the throng of people about the open grave, the measured tones of the minister repeating the solemn burial service, all culminating in the "ashes to ashes, dust to dust," as the clods roll in upon the coffin.

To one who carried such an impression of what a funeral ought to be, the Mexican way seemed forbidding enough.

But is not that, in some respects, a better custom than ours? The object in putting a body into the ground is, or ought to be, to resolve it into its elements. There it is put in as light a coffin as possible and buried in dry soil where disintegration will rapidly take place. Here we put it in a strong, sometimes a metallic, coffin and inclose this in an outer box; thus retarding decomposition as much as possible. There a funeral costs $6 or $7, here even the poor will spend $100 or $200 on a funeral, for coffin, carriage, flowers, etc., even when they are too poor to pay the doctor or even buy the decent necessities of life. If prejudice is so great that cremation can not soon be made general, people might, as a step in the right direction, be compelled to use coffins of wickerwork or very light wood so that nature's work of purification might be facilitated, and not retarded.

In five years, buried in Mexican soil, the body disappears, except the bones. Investigations in our cemeteries would reveal a very different condition. We should not regard with such horror the customs of other people without considering the end sought. The feeling of abhorrence we have for new or strange customs is only relative and disappears when we become accustomed to them, particularly if any good end is attained thereby.

As I left the cemetery I was approached by the attendant with a request for money to buy pulque for himself and the cargadores. Returning to the

hospital, I took the mattress, bedding, dressings and indeed everything combustible which had been about the patient, into the back yard, saturated it with kerosene and burned it. The room was scrubbed, then washed with a solution of carbolic acid and left open and unoccupied for some time. There were other patients in the hospital who had wounds, but none of them became infected.

200 Oakwood Boulevard.

A NEW FIGURE-OF-8 PEDICLE LIGATURE.

BY F. SHIMONEK, M.D.
MILWAUKEE, WIS.

The following pedicle ligature is, so far as I know, original:

I have used it with much satisfaction for the last nine months. It is an improvement upon the old



FIGURE 1.

Worllich ligature, because it can be quickly tied, whether it be used singly or as a continuous ligature; for very broad pedicles only one knot is required; the



FIGURE 2.

threads cross naturally when passing through the pedicle. It is better than the Tait ligature because of its applicability to any breadth pedicle and can be safely tied, and without any trouble whatever.

An armed needle is passed through the pedicle, as shown in Fig. 1. That part of the ligature passing through the eye of the needle is withdrawn from it, as shown in Fig. 2. We now have the needle and ligature passing through the same opening in the pedicle, and yet are independent of each other. Take that part of the ligature corresponding with the handle of the needle, carry it half way around the pedicle and pass it through the eye of the needle as shown in Fig. 3.

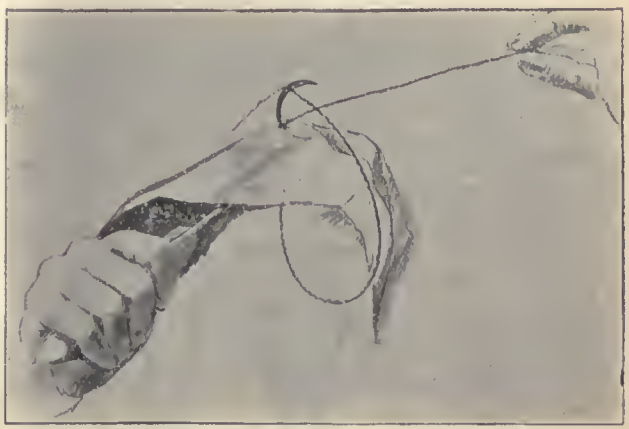


FIGURE 3.

Now withdraw the threaded needle from the pedicle, thereby forming a loop upon one side of the pedicle, the ends passing and crossing through the same opening appear upon the other side and may be tied,



FIGURE 4.

as shown in Fig. 4, or, in a very broad pedicle that can not be securely tied with one figure-of-8, the needle may be passed through the pedicle at a distance of one-half inch or more, threaded with one of the free ends, then unthreaded of that end and again threaded

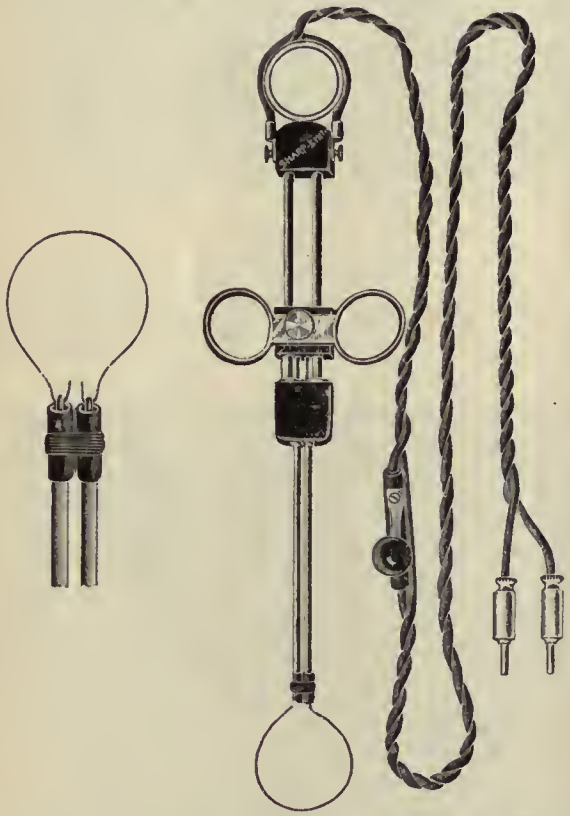
with the other one, and so on, until the entire pedicle is encompassed and the free ends tied.

307 Grand Avenue.

A HANDY FORM OF HOT SNARE FOR TONSILLOTOMY.

BY HENRY GRADLE, M.D.
CHICAGO.

It is acknowledged by many throat surgeons that the galvano-cautery snare is the best instrument for the removal of tonsils, because its acts very efficiently and prevents bleeding. Any one who has used either the hot or the cold snare for tonsillotomy has been able to observe that the wire loop slipped over the tonsil, after the latter has been pulled forward with a tenaculum or appropriate forceps, will grasp a larger portion of it than can be sliced off with any form of



guillotine. But with slight experience the snare will be found even more thorough than the use of bistoury or scissors. The cold wire, however, is quite painful and with a Wyeth's snare it may even happen that the wire is pulled out of the stylet instead of cutting completely through the tonsil, if the gland is fibrous in consistency. The hot wire on the other hand cuts its way as easily as a sharp knife, even if only a dull red heat is employed. As this degree of heating is sufficient to stop all bleeding it is unnecessary to bring the wire to more than a dull red glow and indeed we only inflict more pain and produce a slower healing wound by heating the wire beyond this point. Since the current raises the wire progressively to a higher temperature as the loop gets shorter, it is best to press on the key and accordingly close the current in an intermittent fashion. The wound heals a little more slowly than a clean cut with the knife. But if the wire is not unnecessarily hot I find the wound entirely cicatrized in from five to ten days, according to the size, which is perhaps, two days more than for a corresponding tonsil cut with the knife.

The hot snare prevents bleeding entirely. If a few drops of blood appear they are due to unsuccessful grasping with the tenaculum. However trivial the bleeding may be in most tonsillotomies, anyone who has ever worked over one of the "exceptional" cases of tonsillar hemorrhage can appreciate the advantage of a bloodless operation. Even if fatal cases are very rare, annoying bleeding from tonsil cuts is not uncommon, especially in adults.

My reasons for devising a new instrument are the weakness of the ordinary snare canulæ and especially the loss of time incurred in wiring the hot snare as it is found in the market. I have hence designed a snare for tonsillotomy, which, however, can be used for any other purpose where straight and not very thin tubes are applicable. It consists of a handle made of two parallel brass bars, 11 cm. long, mounted in rubber blocks at both ends. A third rubber block slides along the bars when guided by the fingers inserted through the rings on the block, while the thumb rests in the ring at the rear end of the handle. The sliding block holds two insulated steel stylets which when pushed forward, protrude through the two canulæ in front of the handle just far enough to allow a wire to be slipped through the eye in each stylet. The two canulæ, 9 cm. long and 2.5 mm. thick, are insulated by separation along their length and by a soft rubber tube slipped over the end, while their ends are strengthened by wire wound around the rubber insulation. Steel (piano) wire is a better material for the loop than platinum on account of its stiffness. The instrument can be used with a loop nearly 11 cm. in circumference, but this size is rarely required. If a few suitable lengths of wire are prepared with their ends bent sharply, as shown in the accompanying cut, the burnt or softened wire can be replaced in a few seconds.

As shown in the figure the current enters the instrument through the cords permanently attached beside the rear ring, passes along the brass bars to the stylets directly through metallic contact in the front block as well as indirectly through the canulæ to the stylets and wire loop. Good connection is thus assured. I have not been able to devise a better place for the key which establishes the circuit than in the length of the cords twelve inches from the handle. Experience in over twenty-five operations has taught me that this arrangement is a practical one. The hand which seizes the tonsil with the tenaculum (put through the wire loop) presses the button as soon as the loop is in place.

The instrument has been made for me by Messrs. Sharp and Smith of this city.

SELECTIONS.

The Less Frequent Hazards of the Bicycle; Defects of the Tandem Wheel.—The editor of the *Boston Medical and Surgical Journal*, July 23, comments upon some of the less common accidents of 'cycling as follows:

"Although the worst casualties usually occur to riders going at high speed, there are certain conditions which render falls even when going at a low rate of speed serious and disfiguring. Of these the principal is that in a large number of cases, particularly those which are due to suddenly running into an obstacle, the weight of the head and body being carried

high, and the legs arrested by the handle bars, the head, and particularly the face, is the first to reach the ground. A man taking a 'header' from a horse starts from such a height that he may turn a complete somersault and land in a sitting posture, but the bicycle is so low that the victim strikes the ground face first, and when he has plowed over a few yards of gravel or pavement, his physiognomy is usually somewhat altered. A particularly dangerous accident is the breaking of the front fork of the wheel. Here the victim never has time to get his hands before his face, and fracture of the nose and jaw with serious laceration of the soft parts almost invariably results. These falls are so quick that before a man has time to let go of the handle-bars his face strikes the ground. In fact in headers from the bicycle generally, there is no time to let go of the handle-bars in order to protect the face. Sprained wrists and broken arms are therefore comparatively rare, while broken noses and serious lacerations of the face, mouth and eyelids are common. Bruises, sprains and abrasions of the shoulders occur if the face escapes. The danger of the breaking of the front fork is especially great in the case of the tandem wheel, where the fork has to bear the weight of two instead of one, and the danger from any flaw in the steel of which it is constructed is consequently greater. The writer has recently seen two young women who were seriously disfigured by falls due to the breaking of the front forks of second-grade tandem bicycles. The moral for young men who wish to give their sweethearts a taste of the joys of riding tandem would seem to to be to buy none but a first-grade wheel and take the front seat yourself. Although accidents to the face, head and shoulders are the more common, fractures of the legs and bruises and sprains of the knee occasionally result from bicycle accidents, and internal injuries are by no means unheard of. A case of rupture of the pancreas due to a blow in the epigastrium by the handle-bar has recently been reported. The bicycle is proving itself so important a means of providing fresh air and healthful exercise to a vast number of people that the good done by it greatly overbalances the harm resulting from occasional accidents, most of which can be avoided by careful riding and by the selection of a well-constructed, standard wheel."

Fifty Cases of Pernicious Anemia.—The London *Lancet*, August 29, refers editorially to the work done in recent years in the elucidation of pernicious anemia, and analyzes the report by Dr. Richard C. Cabot of Boston on fifty carefully studied cases of that affection. The *Lancet* commends Dr. Cabot's work in regard to the corpuscular changes, especially as to coloration and shape. The observer has not found the pallor of the corpuscles equally marked in all cases. Where deformities in shape were present one of the commonest is the absence of any central biconcavity, the corpuscles being swollen up and taking appropriate stains in a smooth, even manner quite different from the normal corpuscle.

"Variations in shape (poikilocytosis) were more apt to be present, if at all, toward the fatal end of the case. Of thirty-six cases in which this point was noticed ten showed little or no variation from the normal shape. The deformities when present usually belonged to one of a few types such as are usually pictured in connection with the disease. The racquet-shaped and sausage-shaped cells were specially common. These variations of shape were not commoner in pernicious anemia than in any severe case of secondary anemia or chlorosis. This opinion coincides with that of other modern observers, although at one time it was held that the condition of poikilocytosis was one peculiarly characteristic of the pernicious form. According to Dr. Cabot's experience, the distorted forms of the red corpuscles were not infrequently absent in pernicious anemia—in more than one-fourth of his series. The variations in size were more constant than deformities. They were present in 90 per cent. of these cases, both microcytes and macrocytes being seen. Here, again, Dr. Cabot corroborates the writings of other authors. Most of the latter, however, lay more stress on the large numbers of microcytes which are usually seen, frequently in groups of twenty or more together, while macrocytes, as a rule, are only present in small numbers. The increase in the average diameter of the corpuscles was present in eighteen of this series, so far as could be judged by measuring a few corpuscles in each case and then endeavoring to apply the standard so obtained to a large number, a method easily adopted in ordinary clinical work. Very frequently the large corpuscles showed the lack of biconcavity mentioned above. The Ehrlich-Biondi method, which was used in all these cases, stains normal red corpuscles straw yellow. In nineteen cases of the series there were present certain red cells which contrasted distinctly in color with the clear yellow of the surrounding corpuscles. The color of these atypically stained cells varied through various shades of brown to purple. This reaction is not so well known as the other properties of abnormal red cells and is worthy of further investigations. In only one of the thirty-five cases examined were nucleated red corpuscles wanting. In the thirty four others there were seen from 1 to 568 nucleated red cells in the space covered while making a differential numeration of 1,000 white cells. As many as nine different varieties of nucleated red cells were noted in addition to the cells with dividing nuclei (some of them of normal size, some as large as any megalobast) and cells showing karyokinetic figures. In no case was there observed any sudden and marked increase in the number of normoblasts, such as has been mentioned by some writers as a point of favorable import. As a rule, the number of megaloblasts steadily increased as the patient grew worse, while the relative proportion of normoblasts diminished. Cases where the whole number of nucleated corpuscles, or the proportion of megaloblasts, was relatively large seemed to be neither better nor worse off than those where only a few were to be found, but on the whole it is to be concluded that an increase of these cells in the blood of any one case is a bad sign."

Galvano-Cautery in Uterine Surgery.—Dr. Charles Jewett, in the *Brooklyn Medical Journal*, September, offered some remarks on the claims of cautery in the treatment of uterine cancer and of procidentia. These remarks were made in the course of a discussion before the Brooklyn Gynecological Society on true and false methods in this branch of surgery. Dr. Jewett contended that the cautery had not received the attention that it deserves. The first and most obvious advantage is its complete antisepsis, an attribute that can not be marred by the carelessness of either the operator, assistant or nurse. In certain cases, no doubt all the diseased and infected tissue can be removed, and the results reported by Dr. John Byrne and his associates commend the operation as one deserving to stand side by side with hysterectomy until experience has proven that hysterectomy gives better ultimate results than the mere removal of the diseased tissues with the cautery knife." The cautery knife is, too, a very valuable adjunct for at least the first step in vaginal hysterectomy. It frequently makes this part of the operation a bloodless one, and it obviates the necessity of hemostatic sutures in the vaginal wall at the close of the operation. It is one which I have used with satisfaction. Theoretically, total ablation, on the other hand, appeals to the judgment of the surgeon in cancer of the uterus, as it does in cancer of other organs. In carcinoma of the breast the surgeon considers it necessary to remove not only all the diseased tissue, but the entire mammary gland, and with it the pectoral muscles and all of the lymphatic glands that are known to be or that might be involved. A similar rule is enforced in the treatment of cancer generally. If there is any criticism on the Doctor's method it is the uncertainty that the operation reaches all the infected tissues of the uterus. With reference to the theory offered as to the action of the current on the structures left behind, I can not agree with him. The current which runs through the cautery knife passes from one pole of the battery to the loop or knife and back again to the other pole of the battery, none going out into the tissues. I assume that the galvano-cautery does not differ in effect from any other kind of cautery. The action of the instrument must be simply that of a hot knife or iron. The tissues are disinfected, the cancerous elements are destroyed, only so far as the slough goes; at least that is my belief. The use of the cautery in the treatment of procidentia is a method we are familiar with through the teachings of Dr. Byrne. No doubt the results are quite as permanent as in many cases of ventral fixation and of most other operations for the purpose. The effect, I take it, of the knife is to set up an inflammation, with resulting proliferation of tissue, which blocks the pelvis and holds the uterus up. The inflammatory products must be absorbed in time—I am glad to know it is ten years in some cases—but ultimately we must expect the uterus to come down again."

The Medicine of Life Insurance Is yet in its Infancy.—The editor of the *Medical Examiner* offers the following thoughts upon the higher plane of insurance:

"Insurance medicine is yet in its early stages. Within the last fifty years it has made great advances. There is no doubt that in the course of time, for that is a great element in the collection of statistics of this character, greater accuracy will be reached in everything relating to the medical phase of life insurance. The best medical men of the profession are needed and sought for to act as examiners—men who are capable of accurate observation and of securing accurate records. While the first is possible, the latter is not always so, as applicants will not state or do not know the facts in all cases. Conclusions drawn from inaccurate data are themselves defective, and allowances in practice must necessarily be made. But no department of an insurance company is beyond the reach of law. If the status of a company as reported to the insurance department of a State, is found to be below the required standard, the causes are immediately sought for and the appropriate remedy is applied. If the medical department in any part of its organization is found to be at fault, then the State will require such changes to be made as will remedy any defect discovered. These defects are so far-reaching and cumulative that they can not be otherwise than disastrous if allowed to exist. The medical department of an insurance company is one of the necessary and important divisions of its organization. Upon its efficiency and integrity depends the very existence of the company."

The Narrowing Field of the General Practitioner.—The following is a portion of an essay by Dr. Onslow Gordon of Brooklyn in *Weir's Index*, inculcating a higher self-confidence and a less constant reliance upon specialists. He holds that specialism is overdone to an extent injurious to general medicine, and a concert of action is needed. He further says:

"Within comparatively few years the field of the general practitioner has been very much narrowed, and present indications point to still greater inroads upon his field of usefulness. Should he be crowded into such narrow quarters that he will be unable to exist, the fault will be largely his own. It requires but a moment's reflection to convince one that the number of good, all-around physicians is rapidly growing smaller and that the tendency is toward specialism. While I have nothing to say against specialism in medicine, and would not wish to go back to the time when there were no specialists, as we owe very much to them, and there are certain lines along which they can do better work than the man who tries to cover the whole field of medicine and surgery, I think that the general practitioner is too dependent upon them at the present time. A very large number of physicians (especially the younger members of the profession) are doing a larger business as distributors of cases than as practitioners of medicine; 'they shake the bush and the specialist gathers the fruit.' There is not a member of this Association that has not repeatedly seen the specialist called upon to open a simple abscess, remove wens, dilate for anal fissure, remove tonsils, ingrowing toe-nail, perform circumcision and do an innumerable number of operations that the family physician should blush to decline. All surgical cases are sent to the surgeon, gynecologic cases to the gynecologist, throat and nose work to the laryngologist, heart and lung affections to the chest specialist, nervous diseases to the neurologist, diseases of the rectum to the rectal specialist, genito-urinary ailments to the gento-urinary surgeon, joint and bone diseases to the orthopedic department, eye and ear troubles (however slight) to the ophthalmologist, and skin diseases to the dermatologist; we can also find specialists who will call us good fellows if we will turn over our stomach, kidney and hernia cases; yet there are very few specialists who will decline to treat a patient, no matter what his ailment may be, if the *money* is in sight. While the people of moderate means still tolerate the family physician as an obstetrician, the more favored in worldly goods are looking for a specialist when an accoucheur is desired. If matters continue on these lines, the specialist, or more properly speaking, the general practitioner, will leave for himself possibly acute coryza and constipation. The tendency to rely on the specialist has grown to such an extent that there are many physicians who will not remove a retained placenta, suture a recently lacerated perineum, however simple, open an abscess or venture a diagnosis in any obscure case. It is the custom of the times that makes them hesitate to rely more on their own judgment and call into action the ability their patients have a right to expect them to have. It has been well said, 'The wise and brave conquer difficulties by daring to attempt them.' Perhaps the time will come when the general practitioner will be consulted only as to the advisability of calling a specialist and whom to call. All this can but tend to belittle the family physician in the eyes of his patients, limit his ability and impair his usefulness, to say nothing of his loss from a financial standpoint. The physician who has no confidence in himself can not expect others to trust him with their lives. I believe there will always be room for the well-equipped general practitioner, unless he persists in turning away all of his most interesting cases. By so doing he will help educate the rising generation to believe that they are to depend on the family physician to treat slight ailments only."

The Lancet on the Health of Chicago.—The London *Lancet* for August 29 has the following interesting annotation about Chicago's health, taking up anew, although in an incidental manner, the thread of certain investigations that were made by that journal in 1893, at the time of the great exposition. The annotation opens by referring to the report, printed in April of that year by a special *Lancet* committee, or "Sanitary Commission," of inquiry concerning the water supply of Chicago, and says:

"When, three years ago, we undertook an investigation into the drainage and water supply systems of the city of Chicago we acted primarily in the interest of our own countrymen who, in the year 1893, were visitors to the great exhibition; but as we then remarked, the matters examined were of even more abiding importance to the residents in Chicago than to her visitors, and it was very gratifying to us to gather from the way in which our action was received by the city authorities that they took the same view. Since that date our own opportunities of collecting information concerning the sanitary history of the city have naturally been occasional only, but we have from time to time heard with a lively interest of the progress of the large engineering works required to secure efficient drainage on the shores of Lake Michigan and the effective use of the boundless supply of excellent water which the lake brings to the city's door. A return from the Bureau of Vital Statistics, for a copy of which we are indebted to the courtesy of the Commissioner of Health, shows that the effect of the water supply upon the health of the city is made the subject of constant and watchful attention and certainly the results of the observations made illustrate in a very striking manner the close—we might even say exact—relation between the two. This is well exhibited by a diagram which accompanies the Commissioner's report for the month of June last in which the mortality rates from intestinal diseases for six months are collected. Upon this diagram one curve shows the varying condition of the water supply, the badness of the water in the sense of pathogenic quality being measured by the height of the curve in successive weeks; a second curve shows in the same way the weekly series of mortality rates due to typhoid fever; and a third a corresponding series of mortality rates due to other acute intestinal diseases, such, apparently as enteritis, gastro-enteritis and diarrhea. Between the water curve and the second mortality curve the correspondence is most striking. The water supply was at its worst in the week ending December 28 last; the mortality from intestinal diseases was greatest in the following week. The water curve shows culminating points in the weeks dated January 25 and February 15, in each case followed by a maximum point in mortality from intestinal diseases a fortnight later. A marked amelioration in both conditions is indicated throughout the month of March, but in April, May and June the water supply became again pathogenic and within a week the mortality curve exhibits a corresponding increase, both curves approximating closely to that reached by them respectively in the month of January. In fact, the dependence of the one upon the other might almost be expressed by a mathematic formula. In the case of typhoid fever the correspondence is not so close and the difference is characteristic. The bad water maximum of December is followed after an interval of five weeks by a typhoid fever maximum in the end of January, and although the typhoid curve does not respond with the same precision as the curve of other intestinal diseases to the water maximum of the following April there is a traceable rise in typhoid fever mortality during June and it is matter of common observation that this disorder is less rife in the spring than in the after part of the year. Altogether the statistics produced from the health department of Chicago are most suggestive, eminently instructive and of much more than simply local significance."

Clinic Teaching in the Modern Hospital.—The *Sanitary Journal* of Glasgow, June, 1896, considers the subject of ampler provision for the use of clinic material at the infectious disease

hospitals, especially in new hospitals and in respect of the plans of proposed hospitals. The writer says:

"The primary duty of laying down the best known conditions by which the hospital may be rendered the best possible instrument for the treatment of disease being fulfilled, there remains to be recognized the clear duty of rendering it also an efficient teaching institution. I regard this duty as a very close second in importance to the first. Ten years ago scarcely one and one-half per cent. of the medical graduates of Edinburgh had obtained their knowledge of fevers from clinic study. It has only been since the treatment of infectious disease was taken over by the city that anything like general attendance at fever clinics has been given by the students of our medical school. Such attendance has now been made compulsory by the medical authorities. In the new hospital, we shall, I feel sure, as heartily afford facilities for clinic instruction as we have done hitherto in the old building.

"What I desire mainly to urge with regard to the hospital as a teaching institution is that, in constructing our new hospital, the city will have a unique opportunity to render, at a comparatively trifling cost, one of the most valuable services to the Edinburgh school of medicine that it has ever received. That service lies in providing adequate laboratory accommodation for bacteriologic research, and for the investigation of the whole natural history of all kinds of febrile disease. The Edinburgh school has never yet been able to take its proper place in relation to this all-important field of inquiry. The prosperity of its medical school tends, in no small degree, to the general prosperity of the city. Whatever, therefore, the city may do to promote the interest of the medical school, famous as it has been and is still, will be in reality a contribution to the best interests of the city itself. Down to the present time almost all the material which our increasing fever hospital affords for scientific investigation has gone to waste. Notwithstanding what has been generously provided by the Royal College of Physicians at its own charges, we have no adequate means of conducting such systematic inquiry as that which is carried on in the principal medical centers of the continent. The opportunity to meet this great defect now lies to our hand. In every well-appointed fever hospital on the continent, but especially in Germany, well-equipped laboratories are found, where students and graduates conduct methodic and patient investigation into every aspect of every kind of infectious disease. There is also provided a museum for the preservation of preparations made by the investigators, and there is, likewise, adjoining the laboratories, a well constructed postmortem room with the requisite appliances. Let it be the graceful part of the city to provide the necessary accommodation for the purpose now pointed out, which it is in a position to do in the simplest, most economic and yet most effective way. It may be assumed that the medical school will not be slow to do its part in making the best use of facilities so provided."

PRACTICAL NOTES.

Dry Heat of High Temperature in the Treatment of Chronic Joint Affections.—The apparatus which Dr. Wm. E. Wirt employs consists of a copper drum twelve inches long and nine inches in diameter, fitted at each end with a wooden ring and a hood of thick rubber. Having protected the back of the knee with cotton, it is enclosed in the apparatus, and heat applied to the outside by means of a Bunsen burner. Most patients tolerate a temperature between 250 and 300 degrees F., provided three holes are made in the drum to secure proper ventilation and so keep the air dry. This treatment gives immediate relief to pain and increases temporarily the mobility of the joint.—*Boston Med. and Surg. Jour.*, September 10.

Modern Treatment of Progressive Polyarthritis Deformans.—Physicians are too much inclined to consider this disease incurable. Its pathogenesis is still obscure, but it is probably due to some infection which rapidly localizes itself in the nervous system. It attacks both adults and young people, starting with one or two acute seizures, develops from below upward, attacking symmetrically the articulations of the members and then of the trunk, but scarcely ever causes visceral lesions. The usual internal remedies for rheumatic or gouty tendency, salicylate of soda, preparations of colchicum and alkalins in large doses, usually fail to produce any effect in this disease. The only internal medicines which prove effectual are iodin and the iodids combined with preparations of arsenic. It can be commenced with small doses of iodid or tincture of iodin, taken in the middle of the two principal meals, 4 to 5 and even 10 drops of tincture of iodin in a class of wine or of *eau suerée* or syrup of bitter orange peel in water. Or else a teaspoonful of the following: Two grams each of potassium iodid and sodium iodid in 120 grams of dist. water. After fifteen days of this treatment it is to be suspended and a teaspoonful of the following taken in the same way with the meals in a tablespoonful of iodotannic syrup: Sodium arseniate 0.05 gram in 120 grams of dist. water. The sodium arseniate can be replaced by Fowler's solution taken in progressive doses, increasing from 3 drops at each meal to 6 drops and then decreasing a drop a day until the original dose is reached. This treatment is to be continued several months, alternating the arsenical medication with the iodids. If, as sometimes happens, the iodid is not borne well, the tolerance can be increased by associating with it belladonna and arsenic in the following proportions: Potassium iodid, 4 grams; sodium arseniate, 0.02 gram; neutral sulphate of atropin, 0.001 gram, and 120 grams of dist. water. Take one teaspoonful in the middle of each of the two principal meals, in half a glass of Vichy water (Hauterive). In combination with this internal medication there should be external treatment to ward off the threatening anchylosis in the joints. They must be frictioned with a stimulating liniment, and as the frictions are to be made daily, irritation of the skin should be carefully avoided. The following is a good liniment for this purpose: Liquid ammonia, 50 grams, with 100 grams each of balsam of Fioravanti and spirit of lavender. The frictions may be followed by slight massage, but it is best not to massage the articulations and avoid imparting too active movements to the diseased joints. The different methods of electrization have all proved impotent, even long continued currents applied to the atrophied muscles consecutive to arthritis of this kind. Alkalin and salin baths, very hot and prolonged, sometimes produce good results, as also hydromineral treatment at Aix-la-Chapelle, Dax, Saint-Armand, Ragatz, Bourbonne-les-Bains, Bourbon-l'Archambault, etc. But in the torpid periods of the disease, to combat the articular deformities and restore mobility to the anchylosed members, mud and sand baths are excellent. These have been recommended for many years, but it is only comparatively recently that the establishments at Dresden (Dr. Fleming), Kostritz near Leipsic (Dr. Sturm), at Berlin (Dr. Grawitz) and especially at Lavey in Switzerland (Dr. Suchard), have really rendered these baths practicable. The Grawitz method enables baths to be taken at home in an ordinary bath tub at 122 degrees, but the best results are obtained at Lavey where the establishment is fitted up with appliances for whole or partial baths of sand, evenly heated to 122 and 140 degrees, absolutely free from gravel, clay, calcareous or organic matters. The partial baths are considered best as they do not debilitate. These baths produce an excessive cutaneous secretion which has been found to benefit to a surprising degree sciatic and chronic rheumatism and gout. They also modify very favorably cases of arthritis deformans. The Lavey water is also beneficial in rheumatic disorders.—*Rev. Int. d. M. et d. Ch.*, August 20, from the *Gaz. hebd.*, May 24.

Influence of Cold Baths on the Circulation.—A series of experiments on typhoid fever patients and persons in health, as well as numerous experiments on animals, lead Breitenstein to assert that the number of corpuscles in the blood greatly increases in the course of a cold bath, but as this can not be due to the formation of new corpuscles, it must be that corpuscles more or less stagnant in the viscera and other interior portions of the organism, are drawn to the surface by the effect of the cold bath.—*Revue Int. de M. et de Ch.*, August 25.

Abortive Treatment of Coryza.—Lermoyez orders a snuff made of hydrochlorate of cocain, 50 centigrams; menthol, 30 centigrams; salol, 5 grams; boric acid, 20 grams. A large pinch of this snuff, finely pulverized, every hour. Or a spray of a tepid and boiled solution of hydrochlorate of cocain at 1 per cent. every two or three hours. He also recommends a snuff powder, slightly antiseptic but not irritating, made of hydrochlorate of cocain, 50 centigrams; menthol, 25 centigrams; salicylate of bismuth and sugar of milk, each 5 grams. Brand's method is to wet a piece of blotting paper every hour with 10 drops of the following mixture: Pure phenic acid and liquid ammonia, each 5 grams; alcohol at 90 degrees, 10 grams; acq. dest., 15 grams, and inhale it a few seconds.—*Gaz. Méd. de Liége*, August 27.

Vaselin in Erysipelas.—Koester has been using vaselin in erysipelas for three years and studying its effects as compared with other remedies. He announces now that it is fully as efficacious as the rest, the fever lasts no longer, the lesions extend no more and the complications occur with no greater frequency. It is therefore much to be preferred, as it is so simple, and has none of the inconveniences inevitable with toxic and irritating substances.—*Revue Int. de M. et de Ch.*, August 25.

Maragliano Serum in Tuberculosis.—The *Gaz. degli Osp. e delle Clin.* of Milan, is constantly publishing reports of the results of treatment of tuberculosis with the Maragliano serum, and one cure after another is described, although the concession is made that the cure like the disease itself, is slow. The graphic reports certainly establish the fact that the fever disappears with the use of the serum, and Prof. Massei concludes a recent address on the subject with these words: "The dizzy rate of progress at this end of the century in all that regards therapeutics is shaking up old bones and revealing new ideals. Genius and perseverance have enabled Behring to cancel Napoleon's denunciation of medical science as he stood at the bedside of his nephew dying of diphtheria: 'This terrible scourge to humanity is a disgrace to science.' As an Italian, as a physician, as a man, I prophesy that the anti-tuberculosis serum is destined to as great a fate as the diphtheria antitoxin and that the name of Maragliano will rank in time among those of the great benefactors of humanity, Jenner, Lister, Pasteur and Behring."

Radical Cure of Hydrocele.—Incision with partial removal of the sac is to be resorted to when the sac is found to be thickened, or where it protrudes far into the inguinal canal. A modification of this operation is suggested, which it is believed will greatly simplify the usual procedure: It is performed by making a free incision over the long axis of the tumor, dividing the structures down to the sac, at the same time being careful not to open it. By means of an Allis's dry dissector, the scrotal tissues are quickly separated from the tunic, which is left slightly adherent posteriorly; this being the portion of the sac which covers the cord and is not disturbed. The sac is then made tense, fixed by means of a tenaculum, opened by a touch of the knife, and the fluid allowed to escape. The sac, having been thoroughly dissected from the scrotal tissue, is removed in a single piece by means of the curved scissors. The bleeding vessels are ligated and the wound dried. Should there be much hemorrhage from the edges of the cut sac, it must be controlled by a continuous suture passing completely over the margin. The portion of the tunica vaginalis lying over the cord is swabbed with carbolic acid, the wound irrigated with 1 to 1,000 bichlorid solution, a small drainage tube inserted, and the parts closed by silkworm-gut suture. An antiseptic dressing is then applied. The drainage tube is removed after twenty-four hours; the sutures after the seventh day.—Dr. Orville Horwitz, in *Jour. of Cut. and Genito-Urinary Dis.*, September.

To Remove Fish Bones From the Throat.—Fish bones can sometimes be expelled from the throat by giving from four to six ounces of milk, and forty minutes later an emetic dose of zinc sulphate. The vomit of coagulated milk carries the bone before it as a rule.—*General Practitioner*, July.

Alcohol in the Treatment of Carcinoma.—Dr. H. C. Howard reports satisfactory results from hypodermic injections of absolute alcohol, to which, if there is an open ulcerating surface, is added from 15 to 25 per cent. of tannic acid; this solution is also employed as a dressing to the surface. Of carcinoma of the breast he says: "I have employed this treatment in ten cases. Nine of the patients recovered and are in good health; in one case secondary extension to the liver took place. In these cases, it is my custom to pass the needle through and below the tumor and during the retraction of the needle to inject ten or fifteen minims of absolute alcohol into the tumor. This injection is repeated in four or five points in the tumor. The injections are repeated at intervals of two or three days and the time required for the complete removal of the growth is ordinarily about three months."—*Medical Standard*, Sept.

Treatment of Hemoptysis.—Letters addressed to representative physicians of Chicago, by Dr. Robert H. Babcock, requesting a statement of their treatment of pulmonary hemorrhage, elicited twenty-seven replies from which the following summary was tabulated: Eighteen insist upon absolute physical rest in recumbent or semi-recumbent positions, and three added that they permitted no talking. Cold to the chest is ordered by thirteen, usually in the form of ice. Nine administer opium and eight morphin hypodermically. Ergot is employed by fifteen, a few however stating doubt as to its utility. One administers Tancret's ergotin subcutaneously in doses of from 6 to 8 minims. Eleven are positive that ergot has no efficacy in controlling pulmonary hemorrhage. Six make use of acetate of lead, either with or without opium; two, tannic acid; two, gallic acid; one, dilute sulphuric, and another aromatic sulphuric acid. Six prescribe ipecac—five, the syrup, and one the powder in an emetic dose after the manner of Trousseau. Four give aconite, and two veratrum viride. Salt is recommended by seven, one of whom administers the salt freely, either by the mouth in water or in the food, or by the rectum (℥j of salt to ℥j of tepid water), or subcutaneously in the form of a normal salt solution. Four advise mild laxatives, but do not specify the one employed, with the exception of the advocate of salt, quoted above, who recommends phosphate of soda because "of the physiologic fact that the phosphate present holds the other salins in solution, thus making the common salt taken more effective." One only employs sprays to the larynx and trachea of solutions of "liquor ferri subsulphatis, 10 to 20 m. to ℥j, or the tincture of the chlorid of iron, from 20 to 30 m. to ℥j of water, repeated three or four times daily. One says he uses phenacetin internally, depending upon the cause of the hemorrhage, and (after the attack) rest, light diet, and tincture of iron internally. Two speak of employing ligatures to the extremities, close to the trunk, during the attack, one specifying slight constrictions of the lower extremities to prevent the return flow of blood to the lungs. Dr. Babcock states that for the hemoptysis of active hyperemia, he quiets the cough—preferably by phosphate of codein, ¼ to ½ grain hypodermically, or ½ to 1 grain by the mouth; prescribes syrup of ipecac in frequent doses until nausea is produced; and orders an efficient but not severe aperient, preferably Hunyadi or Rubinat water. If the hemorrhage arise within a cavity and be profuse, he orders the immediate injection hypodermically of one-fiftieth or even one twenty-fifth of a grain of sulphate of atropin. This dose promptly produces pronounced physiologic effects, but is not dangerous, and the initial increase in the heart's rate and vigor is offset by the vasomotor paresis occasioned, which diverts the blood to the periphery.—*Medicine*, September.

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SATURDAY, SEPTEMBER 26, 1896.

THE LANGUAGE OF MEDICAL TERMINOLOGY AND MEDICAL CONGRESSES.

An Eastern medical weekly (published at a center of culture with a university richly endowed in all its departments) editorially endorsed the cant of an English pedant against the use of Greek in medical terminology on the ground that: "Even when scientific coinages have been adopted into the language of the people, it is not always certain that men of fair culture correctly analyze them into their original constituents and real significance." This is clearly an apology for the "fair culture" of the following review of a "quiz compend" in the same number of this weekly: "There is a tendency to the use of Latin headings for familiar diseases which is to be deprecated, stomatomycosis for instance might well be written 'thrush' and 'coprostasis' might be simplified into 'lead poisoning.'" The "fair culture" which could turn into Latin such familiar Greek as stomatomycosis and coprostasis and could mistranslate the last into "lead poisoning," is one evidently not possessed by the vast majority of regular (American) physicians who, whether classically educated or not, have a sufficient working etymologic knowledge of Greek to avoid such blunders. The widespread nature of this working etymologic knowledge of Greek, a credit to the United States, argues for Greek as the international medical tongue. The English medical pedant, so admiringly quoted in the weekly of "fair culture" aforesaid, argues against the growing use of Greek in scientific terminology, with the futile British cant crushed by Macaulay (seven decades ago when he foresaw the conquest of Latin by Greek in scientific terminology) with the following vivid logic (*Edinburgh Review*, February, 1826): "The vocabulary of Latin is miserably poor, and its mechanism deficient both in power and precision. The want of the definite article and of a distinction between the preterite and the aorist tenses are two defects which are alone sufficient to place it below any other language with which we are acquainted. In its most flourishing era, it was reproached with poverty of expression. CICERO, indeed, was induced by his patriotic feeling to deny the charge. But the perpetual recurrence of Greek words in his most hurried and familiar letters and the frequent use which he is compelled to make of them, in spite of all his exertions to avoid them, in his philosophic works, fully prove that even this great master of the Latin tongue felt the evil which he labored to conceal from others.

"The Latin language is principally valuable as an introduction to the Greek, the insignificant portico of a most chaste and majestic fabric. On this subject our confession of faith will, we trust, be approved by the most orthodox scholar. We can not refuse our admiration to that most wonderful and perfect machine of human thought to the flexibility, the harmony, the gigantic power, the exquisite delicacy, the infinite wealth of words, the incomparable felicity of expression in which are united the energy of the English, the neatness of the French, the sweet and infantine simplicity of the Tuscan. Of all dialects it is the best fitted for the purpose both of science and of elegant literature. The philosophic vocabularies of ancient Rome and modern Europe have been derived from that of Athens. Yet none of the imitations have ever approached the richness and precision of the original. It traces with ease, distinctions so subtle as to be lost in every other language. It draws lines where all the other instruments of the reason only make blots. Nor is it less distinguished by the facilities which it affords to the poet. There are pages, even in the Greek dictionaries, over which it is impossible not to glance with delight. Every word suggests some pleasant or striking image, which wholly unconnected as it is with that which precedes or that which follows, gives the same sort of pleasure with that which we derive from reading the Adonis of poor Shelley, or from looking at those elegant though unmeaning friezes in which the eye wanders along a line of beautiful faces, graceful draperies, stage chariots, altars and garlands."

With the nineteenth century evolution of science, Greek, in the contest for existence in scientific terminology, conquered Latin (once the dominant language of culture) as the fittest to survive. That this victory of Greek will continue there seems no reason to doubt. Greek owes its dominance in science not to

the cloistered scholar but to the working scientist for the practical reasons laid down by MACAULAY, whose prophetic notions as to Greek have been more than fulfilled. Greek has naturalized itself in every European tongue as the language of science; even German terms give way to it in all but nativistic German cant.

It is an open question whether the very qualities which render Greek of such value in scientific terminology do not unsuit it for debate, which to-day seeks expression in terse terms. The dominance of English is due to its monosyllablic peculiarity, in which it surpasses all Caucasian tongues. The readiness with which English, adopting loan words, modifies them to its own terse grammatical forms, aids its progress. It is intruding even on the French in France as witness les "five-o'clockers" (women attending 5 o'clock teas), and la "struggle-for-existence." English orthography and pronunciation are its chief defects. Here Greek as a practically dead tongue (destitute of the shiftings due to evolution) has an advantage somewhat offset by differences between British and European continental pronunciation; differences daily becoming less. Greek is not taught as a colloquial but a literary language, which unsuits it for debate. French, the language of diplomacy, as we have repeatedly said, has the enormous advantage (for medical congress) of being a tongue in which foreigners understand each other better than they do native Frenchmen. Italian has the great advantage of approximation to phonetic orthography, but lacks the terseness and energy of French and English. German is widely known as a literary tongue to medical scientists but is involved and open to orthographic and phonetic objections. The difficulties in the way of one language for medical congresses are such as can only be removed by evolution. On this the growth of English-speaking communities must exert an enormous influence. The attempt to found a world language (volapük) on English by German philologists, is a recognition of this influence which must increase with scientific development in North America, Australasia, South Africa and India. Greek will, however, remain the language of scientific terminology. The international medical spoken language will take many decades to produce and meanwhile international medical congresses will probably continue to be polyglot, notwithstanding the ease with which French could be made available for these gatherings.[1]

THE MICROBE AS A FACTOR IN EVOLUTION.

The beneficent as well as maleficent microbe has at last achieved recognition as a factor in human evolution, of which fact a recent review by Prof. E. RAY LANKESTER of a work by a Mr. ARCHIDALL REID ("The Present Evolution of Man," Chapman & Hall, 1896) in the September number of the *Fortnightly Review*, is in evidence. Mr. LAWSON TAIT, many years ago, wrote a paper showing that the law of natural selection appeared to be suspended in the case of man, and Mr. REID, independently recognizing this fact, seeks to find the real agencies that take its place. War, exposure, famine, the struggle with wild beasts, all the elements that entered into the evolution of the savage or primitive man are ineffectual now, and the survival of the fittest must depend on other determining causes than those that so obviously prevail throughout the animal kingdom. Mr. REID finds the chief desired factors in the germ diseases which are now in all parts of the world producing changes and a selective process "tending to the evolution of new generations of men endowed with other qualities than those possessed by the rejected of this agent." Tuberculosis, syphilis, and all the other civilized scourges introduced among and decimating or exterminating the native races of various portions of the world, are there, as elsewhere, only culling out the unfit and leaving their survivors in a higher, or better, or more resistant stage of physical development. What we have long called acclimatization is, according to this author, only a synonym for evolution, and when applied to races instead of individuals is solely the result of the accumulation of hereditary inborn variations.

Whatever of truth there is in these ideas is not new to the medical public, but as applied to evolution it seems to have struck so eminent a biologist as Professor LANKESTER as a novelty. We have long recognized the fact that many non-self-protective infections appear to produce a racial immunity, that familiarity with them breeds a sort of physiologic contempt, and that this is an important element in the adaptation of the species to its special environment. But its relation to general racial evolution or devolution has not so far been a question of very great medical interest.

Disease germs are, however, not the only apparent evils from which Mr. ARCHIDALL REID sees beneficent results to the race, he finds alcohol and opium also elements in the improvement of mankind by their selective action in removing the unfit from among us. In this he is not original; the same idea has been offered by others, notably, by Dr. BERRY HAYCRAFT in his work, "Darwinism and Race Progress." Like all other human vices or weaknesses these bring on individual degeneration and weed out their victims, but that any race becomes immune to their effects is something that so far has not been satisfactorily proven. The findings of the English opium commission, which seem to be taken as gospel by the author and his critic, as to the habituation of the Indian races to opium, were too clearly "for revenue only" and have been riddled by competent authority in India itself. There has been as yet no such convenient authoritative government statement in regard

[1] See the JOURNAL, Vol. XXV, p. 1065. "The International Scientific Language."

to alcohol and his argument as far as this agent is concerned rests only on assumptions.

The question of human evolution under present conditions is, as Professor LANKESTER admits, a very complicated one, and no single cause or series of such can be made to cover all the possibilities. The fact that evolutionists are looking to medicine and pathology for suggestions and theories which, while novel to them, are familiar to the physician is worth a passing thought.

THE SECOND STATE HOSPITAL FOR THE INSANE OF MARYLAND.

Another pariah has been redeemed from opprobrium as a social outcast. The bars and shackles which restrained the sufferer with a mind diseased, have been relegated to the scrap heap upon which thumb-screws and branding-irons have been cast. The creature, formed in the physical image of the God of the Universe, no longer wallows as swine, nor crawls on hands and knees with the beasts of the field, chained by the waist, like Nebuchadnezzar. The "lunatic asylum" has given place to the State hospital, under the superintendence of medical men of the highest professional attainments. The higher medicine of the close of the nineteenth century, which has made State boards of health, State boards of medical examiners and State licensing boards the arbiters of proficiency and responsibility, has lifted the attending physician of the asylum for the insane from the status of a subservient to the steward, manager or executive officer, by whatever title known, to the supreme control and direction of the hospital in which the most pitiable of afflicted invalids are sought to be restored to health, or tenderly cared for when unable to care for themselves.

The medical control of these institutions has brought about a complete revolution in their administrative systems with new methods of hospital construction. Dr. P. M. WISE's notable work in this direction in the St. Lawrence State Hospital at Ogdensburg, N. Y., upon which Governor MORTON has set the seal of approval by appointing him to the head of the Lunacy Commission, is about to be further developed in the Second State Hospital of Maryland, for which the ground has only recently been broken. To the enlightened and progressive late governor of that State, the Hon. FRANK BROWN, and his successor, the Hon. LLOYD LOWNDES, the one a democrat and the other a republican, and to an enlightened and liberal General Assembly, in which party lines and interests were for the time ignored, is due the projection of an institution in which the physician will have the untrammeled opportunity of carrying to its highest possible development the modern rational view of the treatment of insane invalids.

When the necessity for accommodations for the insane of the State, beyond the capacity of the hospital at Spring Grove, near Catonsville, Md., which was completed for occupation in 1872, compelled the legislature to make provision either by the enlargement of the existing institution or the creation of another, it judiciously consulted the superintendent in charge for the past five years, Dr. GEORGE H. ROHÉ, and wisely determined upon a new establishment, and after constituting a Governing Board of Managers, consisting of the governor, State treasurer and State comptroller, as ex-officio members, with six colleagues to serve six years, two being renewed every second year, intrusted to them the selection of a site and the determination of the character of the new institution. In the matter of site they associated with them a professional advisory board consisting of Dr. ROHÉ as chairman, Prof. HENRY M. HURD, of Johns Hopkins Hospital, and Dr. JAMES F. MCSHANE, health officer of Baltimore, with regard to the sanitary and other requirements of the contemplated structure. The result has been the acquisition of the Patterson estate of Springfield, an ancestral domain of 728 acres near Sykesville, on the Baltimore and Ohio railroad, about thirty miles from the city of Baltimore—an ideal locality for the purpose as to elevation, diversified surface, abundant water supply, drainage facilities, amount of arable farm land, accessibility with isolation, well wooded and traversed by rapid brooks discharging into the Patapsco river, with an attractive landscape and as equable climatic conditions as are to be found within the State.

The old Patterson manor-house has been converted into quarters for the superintendent, an annex wing containing the senior assistant's and secretary's quarters, offices, board rooms, visitors' rooms, store-rooms, etc., pertaining to the general administration. The distinctive professional feature of the new establishment is to be the erection of independent groups of hospital buildings, the number of these groups being indeterminate and dependent entirely on the future needs of the State. The several groups are to occupy elevations at considerable intervening distances, and each is to be complete in itself as to the accommodation and care of its invalid inmates, the preparation of food, messing, attendance, etc., with quarters for physicians and attendants, the latter not being allowed to live in the patients' buildings, where they are only when actually on duty, and where they are consequently not permitted to sleep or loaf. The first of these groups is that now under construction on a hill about twelve hundred feet east of the superintendent's quarters, and consists of three detached pavilions and a fourth or "service building." Each pavilion will contain from fifty to seventy-five beds, with common living rooms entirely apart from the dormitories, and a significant departure has been made in the very large proportion of general dormitory space to single rooms.

The practice of isolation is not to be encouraged. The asylum notion is to be subordinated to the hospital idea, the inmates being taught to consider themselves only as sick persons under treatment for remediable ailments. Every inmate who can be employed outdoors will be put to work at farm labor, or during bad weather will be given occupation with others as assistants in the kitchens, store-rooms, laundries, stables and workshops, and all required to go into the wash-rooms after their work and before entering the dining or living rooms. During the summer they will be required to bathe outdoors in an artificial lake along with the attendants or a medical officer. The pavilions are two-storied, and a most commendable feature are the fire escapes—short, wide stairs completely inclosed by brick walls, large enough to empty the several wards in two minutes. Two of the fire escapes in each building are to be used frequently as means of egress, in order to familiarize patients with their purpose.

The first group of buildings is to be completed and occupied before ground shall be broken for the second, thus permitting improvements in plan, the desirability of which experience may demonstrate, and a similar course will be pursued with the third, fourth and as many subsequent groups as may be required, the extent and conformation of the grounds making this possible. Thus it may be claimed that it is an institution that will never be completed while the probabilities of advance and development exist, since in the distant future, when the latest child shall have outstripped the eldest, the latter may be demolished to give place to a better.

When it came to be known that the patrimony of one of the aristocratic families of the State was to become a "lunatic asylum," the sentiment of the neighborhood was outraged, many of the residents being in real dread of the fancied dangerous element coming among them. Curious visitors and tradesmen after a while found the farm and tenant houses on the estate occupied provisionally by persons whom they supposed to be all employés, and only later discovered to be chiefly lunatics—the dreaded "madmen," and saw the customary operations of the cultivation of the extensive fields performed by men whom from their dress they learned to recognize as wards of the State. Admiration for the humane methods they saw in operation followed upon the sense of security from possible danger from the crazy folk; the local dealers and shopkeepers profited by the vicinage of a large able-bodied community, until now all classes are proud of the splendid establishment which they foresee is to be one of the most notable of its kind in the world.

We have felt it due to the profession that this admirable and satisfactory consummation of the modern idea of caring for the insane should be made known by this brief sketch of its details, looking upon it as a matter in which every member of the ASSOCIATION should feel the highest pride, and as further illustrating the ability of medical men to exercise administrative and executive functions as well as the merely therapeutic and sanitary duties of State and National establishments. This has long been the practice in the United States Army and Naval Hospitals, and the United States Government Hospital for the Insane, although not many years ago a retrograde attempt was made by the Navy to transfer the executive control of these to officers of the line, in face of the unsatisfactory working of this plan in certain European services; but it is now so well understood in this country by educated laymen legislators, that the proper care of the sick involves something more than the mere administration of drugs, and that the subject of expenditures for quarters, food, fuel, light, clothing and attendance is a necessary element of that care and is, therefore, the proper function of the medical officer and one he can only properly perform unhampered, that no fear need be entertained that his right to do so will ever again be questioned. Of this the prospective success of the Second Hospital for the Insane of the State of Maryland, under its able, energetic and progressive superintendent, Dr. ROHÉ, in whom the State authorities have shown their confidence by intrusting him with its erection, development and control, gives additional assurance.

THE DISFIGUREMENTS OF SMALLPOX.

In the last volume of the St. Thomas Hospital Reports, Dr. ROBERT CORY contributes an interesting line of proof as to the condition, as to vaccination, of persons who are scarred by smallpox.

We are apt to forget how great a blessing vaccination is until an outbreak of smallpox opens our eyes to the terrible nature of the disease from which the labors of JENNER protected us. Even those who live through the sufferings of variola not infrequently bear traces of the attack in loss of sight or painful disfigurement for life. Noticing the tendency to belittle the value of vaccination, Dr. CORY commenced in November, 1884, his investigations with the intent of placing on record the result of his labors. In 1888 he had collected notes of 152 cases, which he published in the "Transactions of the Epidemiological Society" of that year. Up to the time of writing he had collected 448, of these, 210 were admittedly unvaccinated before their attack of smallpox, or 46.87 per cent., and these admittedly unvaccinated people had smallpox at the average age of 6.58 years. Continuing he remarks:

"This age is indeed high when compared with the average age individuals were attacked with the disease in the last century; however, there are three circumstances to be borne in mind. First, the greatly

diminished prevalence of smallpox in the present day to that which obtained in the last century. It follows, therefore, that the opportunity to become affected is accordingly not so great, and this would delay the average age at which unvaccinated individuals contract the disease. Secondly, a large proportion of the unvaccinated individuals die of the disease, and these would, in the main, be infants; hence, we have a considerable portion of the youngest eliminated by death. And thirdly, only those who have been obviously pitted with smallpox are dealt with in this paper."

The editor of the *Medical Press and Circular*, thereupon offers the following comment:

Of those who professed to having been vaccinated 23.44 per cent. had no scar of vaccination. And, as a matter of fact 70.31 per cent. of those pitted by smallpox bore no evidence of having been vaccinated. Now, as Dr. CORY says, the proportion of the unvaccinated to the vaccinated in London is not more than 5 per cent., yet we have seen that people pitted with smallpox are to the extent of 52.51 per cent. unvaccinated. If there be no protective power in vaccination, how can this be explained? We think our readers will agree with the author of the paper —that vaccination is a marvelous preventive of smallpox, and that his labors have done much to demonstrate the fact.

CORRESPONDENCE.

Professional Complaints.

In a timely article of the *Medical and Surgical Reporter*, with the above caption, the writer touches upon many points which might be amplified almost into treatises.[1] The inspiration of the editorial is a symposium by six teachers in a contemporary popular magazine regarding the hardships of their position in life, the emphasis being upon the monotony of their vocation, inadequate pay and the influence of politics. Of the first of these complaints, we are called upon to say but little inasmuch as a grievance it is common to every pursuit; of the second, the complaint of our own profession, is entitled to more consideration, while the third seems never destined to be divorced from the growing paternalism of all institutions.

Our writer says very truly: "We believe there can be no dispute that the professional class is too large. Our own profession numbers at least twice so many men as are needed to care for the health of the country; the legal profession, even with its many collateral opportunities, is overcrowded, and a considerable share of the clergy are a dead weight on society. . . . . In professions like that of the teacher which can be filled with comparative ease from without, candidates inevitably tend to become the puppets of outside politics and the man who prefers to stand upon his own merits becomes unpleasantly aware of the pernicious tendency. On the other hand, the professions at whose entrance greater barriers are erected, like our own, or the ministry or the military are pervaded by a tendency to the development of an intra-professional intrigue which perhaps gives rise to more feeling and has as great disadvantages as the methods often brought to bear to secure advancement in the profession of pedagogy. Such things are no doubt regrettable, but so long as the supply is greater than the demand and the spirit of competition for mere place is so keen there is no remedy."

By way of corroboration rather than addition, we may continue the subject with other pertinent reflections, chief among which are the reports of absurdly large incomes. These partake of the egotistic form and indirectly, as intended, furnish pabulum for public gossip. A little analysis of the factors at once exposes the fallacious statement. Every physician's duties are more or less personal, in truth do not belong to the class that can be made available by the labor of others. Here at once is a limitation to anything beyond a mere living. The temptation to embark in enterprises based upon the honesty of promoters is strong we know, but all faith in the childlike blandness of human nature is doomed to discomfiture. As such the physician should content himself with his lot in life, that of being "passing rich" upon a moiety, of taking the consequences of what his business friends not unjustly style foolish philanthropics, and in order to avoid the sneers of his brethren we might even advise him to cherish some variety of code in secret. What else can he do but be content, he can not hope for wealth, inasmuch as he is destined to end his career, if long enough, with a salary or sanitarium. But hold, virtue is its own reward and the much quoted "room at the top" converges into an apex upon which an equilibrium can with difficulty be maintained. At all events, what one of all our host would enjoy a solitude where our ambitions could be no better satisfied?

UMBRA.

[1] See also this JOURNAL, August 8, "Medical Grievances."

BOOK NOTICES.

Index-Catalogue of the Library of the Surgeon-General's Office, United States Army. Authors and Subjects. *Second Series*, Vol. i., A—Azzuri. Washington: Government Printing Office. 1896.

This volume, according to Deputy Surgeon-General D. L. Huntington, includes 6,346 author titles, representing 6,127 volumes and 6,327 pamphlets. It also contains 7,884 subject titles of separate books and pamphlets, and 30,384 titles of articles in periodicals. The value of the Index-Catalogue to medical science can not be over-estimated, and it is pleasant to know that the work is appreciated in Europe as well as in America. Congress, in making annual appropriation for this work, has acted wisely.

The arrangement of the volume is the same as that of the first series.

Tenth Annual Report of the State Board of Health of the State of Ohio for the year ending Oct. 31, 1895. Columbus: 1896.

This volume shows that this Board is keeping pace with the sanitary advances made in other States, but they are seriously handicapped by being without any proper system of vital statistics. "No one," says the report, "knows the number of deaths or the number of births that occurred in Ohio during the past or in any other year. Thousands die and thousands are born of whom no official record is made or can be obtained. Crime is made easy, the settlement of estates and legacies difficult, and a study of the causes of death and means for their removal impossible from the lack of such records." The work is edited by Dr. C. O. Probst, the efficient secretary.

Food in Health and Disease. By I. BURNEY YEO, M.D., F.R.C.P., Professor of Therapeutics in King's College, London. New (2d) edition. In one 12mo volume of 592 pages, with 4 engravings. Cloth, $2.50 Philadelphia and New York: Lea Brothers & Co., publishers. 1896.

This book, which for some inscrutable reason appears to have been dipped in an indigo pot, is a valuable reference book for all interested in practical dietetics. Indeed, it might be fairly claimed for this study that every rational human being is practically interested in the subject, some of them intensely so. A work therefore upon such a subject naturally has a very wide circle of readers. Dr. Yeo has divided the work into two principal parts, the first of which relates to the food in health, giving its

nature, origin and purpose, classification, nutritive value and uses of the different classes: Animal foods, vegetable foods, beverages and condiments, et cetera. The second part treats of food in disease, in general, and with reference to particular diseases, artificial digestive agents, hospital dietaries, sterilization and Pasteurization of milk, and concluding with select recipes for invalid dietaries and a copious index. No general practitioner can afford to be without a good work on dietetics, and this of Yeo's takes rank with those of the higher order.

A Manual of Materia Medica and Pharmacology. Comprising all Organic and Inorganic Drugs, which are and have been Official in the United States Pharmacopeia, together with important Allied Species and Useful Synthetics. For Students of Medicine, Druggists, Pharmacists and Physicians. By DAVID M. R. CULBRETH, M.D., Professor of Botany, Materia Medica and Pharmacognosy in the Maryland College of Pharmacy, Baltimore. In one handsome octavo volume of 812 pages, with 445 illustrations. Cloth, $4.75. Philadelphia and New York: Lea Brothers & Co., publishers. 1896.

This work treats of official drugs; those once official and subsequently dropped; allied species of organic drugs and the unofficial synthetic compounds. The work is thus seen to cover a somewhat different field from the ordinary work on materia medica. Botany has been fully drawn upon in the description of medicinal plants, and the illustrations are superb. We think the author has made a serious mistake in ignoring the Centigrade thermometric scale and the metric system of dosage. The author says this was not done to disparage the metric system but because the old apothecaries weight is still universally used. This will indeed be news to the Committee on Revision of the Pharmacopeia. If all books were constructed on this principle no reform could ever be effected, or any advance made in the methods of scientific knowledge. We regret this the more as the step is deliberately taken in the face of the movements now going on in Great Britain, and the past decisive action of all our own scientific bodies.

From other standpoints the book can not be too highly commended.

The Methodical Examination of the Eye, being part 1 of a guide to the practice of ophthalmology for students and practitioners. By WILLIAM LANG, F.R.C.S., Eng. Cloth, pp. 96. London and New York: Longmans, Green & Co. 1895.

This work was written for the instruction of the surgeon who is beginning the special study of ophthalmology and as well for students. It is well illustrated, and its teaching is sound.

A Pictorial Atlas of Skin Diseases and Syphilitic Affections. in in photo-lithochromes from models in the museum of the Saint Louis Hospital, Paris, with explanatory wood-cuts and texts. By ERNEST BESNIER, Physician to the Saint Louis Hospital, Member of the Academy of Medicine, President of the Dermatological Society of France; A. FOURNIER, Physician to the Saint Louis Hospital, Professor of the Faculty of Medicine, Member of the Academy of Medicine; TENNESON, Physician to the Saint Louis Hospital; HALLOPEAU, Physician to the Saint Louis Hospital, Member of the Academy of Medicine, Professor agrégré of the Faculty of Medicine; DU CASTEL, Physician to the Saint Louis Hospital; with the coöperation of HENRI FEULARD, Curator of the Museum, formerly Chef de clinique of the faculty at the Saint Louis Hospital; Secretary L. JACQUET, Médecin des Hôpitaux, formerly house physician to the Saint Louis Hospital, secretary of the Dermatological Society of France. Edited and annotated by J. J. PRINGLE, M.B., F.R.C.P., Assistant Physician to the Department for Diseases of the Skin at the Middlesex Hospital, London. London: The Rebman Publishing Co., Ltd., 11 Adam Street, Strand. Philadelphia, Pa.: W. E. Saunders, Publisher, 925 Walnut Street. For sale by subscription only. Part 4. Price, $3 a part.

The contents of this volume consist of four plates: Mycosis Fungoides, Psoriasis, Tubercular Leprosy of the Face, Mycosis Fungoides, and various illustrations accompanying the text. We know of no work which will bring before the reader the magnificent models in the museum of the famous Saint Louis Hospital, so well as these. The coloring is very close to life and is an aid to diagnosis alone; even without the explanatory text it would take the highest rank.

Hare's Practical Diagnosis.—PRACTICAL DIAGNOSIS. The use of Symptoms in the Diagnosis of Disease. By HOBART AMORY HARE, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia, Laureate of the Medical Society of London, of the Royal Academy in Belgium, etc. In one octavo volume of 566 pages, with 191 engravings and 13 full-page colored plates. Cloth, $4.75. Lea Brothers & Co., Philadelphia and New York. 1896.

There are few medical subjects Dr. Hare has not written upon, and his flowing pen not only ornaments the topics touched, but he seems always to hit upon the most practical way of conveying instruction. We recently had the pleasure of noticing a work on diagnosis, in which chemistry of the normal and pathologic fluids, was made to assume the chief rôle in diagnosis. Here we have a work in which semeiology, the visible symptoms with which we are confronted, is made to tell the story of the patient's pathologic condition, the natural or Hippocratic method. The work is profusely illustrated and the illustrations are fine. The title of the volume is not a misnomer in this instance, for it is indeed a *practical* diagnosis. An excellent index concludes the volume.

A Vest-pocket Medical Dictionary.—Embracing those terms and abbreviations which are commonly found in the medical literature of the day, but excluding the names of drugs and of many special anatomic terms. By ALBERT H. BUCK, M.D. New York: William Wood & Co. 1896.

This is truly a vest-pocket book, being 3½ inches long, 2½ inches wide and ⅝ inch thick! This little book will be found an excellent one for student's use. There may be critics who would object to see "Paget's Disease of the Nipple" defined as an "eczema," or the statement that "pyo-nephrosis" is a necessary or common sequence of hydronephrosis; and above all, students should be taught the etymology of words used in medical science, altogether omitted from this little lexicon. Nevertheless its form is most convenient, and it is destined to be immensely popular. We therefore urge the author to include the etymon of each word in the next edition.

PUBLIC HEALTH.

Typhoid in Kankakee (Ill.) Insane Asylum.—It is reported that there are thirty cases of typhoid fever at the Illinois Eastern Hospital. Impure drinking water is supposed to be the cause.

The Female Criminal and the Prostitute.—The new book with this title completes Lombroso's remarkable work on the "Criminal," which is already a classic in anthropology. It is divided into several parts: The normal woman, the criminal woman, anthropometric and pathologic anatomy, biology and psychology of the female criminal.

Ontario Boards of Health Must act for Themselves.—The Ontario court of appeals holds, in the case of Township of Logan v. Hurlbut, decided in June, 1896, that, under the laws of that province, where members of a local board of health allow a person suffering fram an infectious disease to go into an adjoining municipality, they are liable to repay to that municipality moneys reasonably expended in caring for the sick person and preventing the spread of the disease.

Ohio Law as to Public Buildings, Extended.—Section 2572 of the Revised Statutes of Ohio has another time been amended, in this instance extending the penalties which it denounces for not providing proper exits, means for extinguishing fires, or not having the required inspector's certificate relating thereto, to the owner or person having control of any college, academy, seminary, infirmary, sanitarium, children's home, or other building used for the assemblage or betterment of people, in a municipal corporation, or in a county or township of the State, which county or township provision is also a new introduction

to the section, and will equally apply to the owner or person in control of a hospital, medical institute, asylum, opera house, hall, theater, church, or school house, previously being the persons mentioned in the law.

Tobacco and Cholera.—A recently published report of investigations of the effects of tobacco during the epidemic of cholera at Hamburg states that there were no live microbes after twenty-four hours in the cigars made up with water containing 1,500,000 cholera microbes to the cubic centimeter. There were no traces of microbes to be found in any of the cigars manufactured at Hamburg during the course of the epidemic. The microbes die in half to two hours exposure to tobacco smoke, Brazil, Sumatra or Havana tobacco. The smoke of any cigar kills the microbes. The smoke kills in five minutes all the microbes in the saliva. Another fact established is that none of the persons employed in the tobacco factories at Hamburg, contracted cholera.—*Gaz. degli Osp. e delle Clin.*, August 20.

Typhoid Fever Cause by Ice Cream.—According to the *Boston Medical and Surgical Journal*, August 27, a considerable, but not widely extended, outbreak of typhoid fever occurred during the latter part of July in the town of East Barrington, N. H. The cases were all traced to a single source. The first case was an unrecognized one, the patient being unwell but helping about the house and doing part of the milking. It is supposed that he must have in some way contaminated the milk, as by going to stool and not washing his hands before returning to his milking. The water supply was carefully examined and found to be all right. On Friday evening a party was given at the house and the guests were given ice cream made at home from the milk supply above referred to. Within the next ten or fourteen days fourteen of the guests came down with typhoid fever—eight in the town of Barrington, of whom one died; two in Lee; one each in Dover, Rochester and Woodbury, N. H., and one in Haverhill, Mass. All of these out-of-town cases were guests at the party. No other cases occurred in the town, and all were partakers of the cream.

The Offensive Water-Supply of Brooklyn.—The *New York Times*, September 5, refers as follows to the water-supply of Brooklyn, that has been the source of numerous complaints during the past two months: "The people of Brooklyn will read with a feeling of relief that the reports which show that at last both the Department of City Works and the Health Department are engaged in a thorough investigation concerning the condition of the water-supply. The engineers are inspecting the several sources from which water comes, and the Health commissioner has been authorized to spend a little money for the chemic and bacteriologic analyses which are needed. The examination of the water in the reservoir of final distribution seems to prove that the supply has not been polluted at the sources, but is affected injuriously after it has passed into the mains and delivery pipes.

"In some parts of the city the water has been bad for many weeks. It may not have been loaded with the germs of the so-called water-borne diseases, but it has been repulsive in appearance and odor and clearly unfit to be used. It is probable that the health of the people has suffered but little by reason of the presence of the objectionable matter in the supply, but even if this matter be only a vegetable growth the accumulation of it in a condition of decay should be prevented, because the presence of it can not be beneficial and may be injurious to consumers. With respect to the treatment of this problem there has been inexcusable delay. It is admitted by the Department of City Works that the water has been in this bad condition for about two months. The facts now disclosed by recent inquiry might have been ascertained some weeks ago. They should be used promptly and with energy now and the good name of the Brooklyn water-supply should be restored if an effective method of purification can be devised."

The Mayor of Brooklyn has given to the Department of Health, from the emergency account, the sum of $3,000 to be expended upon a survey of the water-sources, reservoirs and conduits. It is believed that the city authorities have been awakened to the importance of a permanent bureau of water-investigation—both chemic and bacterial—to be located upon the water-shed, and at some distance from the city. It is the estimate of those who are expert in the establishment of such a laboratory that not less than $20,000 will be needed, in the first year, for plant and running expenses. It is probable that this grant will be made, and be placed in the hands of the Department of Health.

Higher Education in Missouri.—State Superintendent of Schools, John R. Kirk, who has just finished the examination of applicants for admission to the medical colleges in the cities of St. Louis, St. Joseph and Kansas City, has made his report public. The examinations were carried on under the direction of the State Board of Health and were the result of the agitation last winter against the wholesale graduation of licensed physicians who were incompetent to practice their profession and were a menace to the public health. Although the examinations prescribed by Superintendent Kirk were not severe and were calculated to test the student's general information, and did not require a technical knowledge of any of the branches touched upon, over one-half of the prospective medical students failed to pass them. On this account the outlook for a large or even fair matriculation of students for the coming year is very poor. Of the three cities visited by Superintendent Kirk, only twenty-four applicants took the examination, and of these only eleven succeeded in passing. Last year at this time there were nearly 100 freshmen already admitted to the three medical colleges in Kansas City alone. Dr. Willis P. King, secretary of the State Board of Health, who has been more instrumental perhaps than any other member of the board in securing the new regulations, defended it with much vigor.

"I am heartily in favor of the new system," he said. "It can not help but effect a great and beneficial change in the present way of turning out incompetent doctors. We have in this State between fifteen and eighteen so-called medical colleges. That is a third more than in the State of New York and twice as many as there are in any other State. Our schools have been like brick mills. All that was necessary was enough mud, and the doctors were manufactured as fast as the machines could be operated. I look for many of these little institutions to close, for the licensing of young and incompetent men to go out into the State and experiment on helpless citizens is a crime and an outrage which I propose to try and stop. There are too many incompetent physicians now, and the rapid overproduction of them is alarming to one who knows what butchery and death their ignorance can cause. The State Board of Health will keep up its fight, and in time we hope to rid the State of this class of practitioners."

Other States would do well to follow the example of Missouri.

Medical Diplomas in Michigan.—A great many inquiries are received at the department of State in regard to the existence of a law providing for the registration of physicians, and frequent questions are asked as to the validity of certain diplomas, issued without examination or residence, and ostensibly entitling their possessors to the right to practice in Michigan. As an example of this class of correspondence, the following extract from a letter received by Secretary of State Gardner from a Canadian attorney, may be quoted:

"Is it necessary for a physician to register with any State medical association or council before he can lawfully practice medicine in your State. Is the diploma of the Wisconsin Eclectic Medical College, of Milwaukee, conferring the degree of M.D. (without residence or examination), upon a pharmacist duly licensed by the province of Ontario, sufficient in and by itself, to permit its holder to practice the profession of medicine, in all branches, in your State?"

The reply of Secretary Gardner contains information of interest to the holders of fraudulent diplomas, as well as to the county clerks who have in many cases registered them, supposing such registration compulsory under the law, although well knowing the fraudulent character. The reply was as follows:

"Registration of diplomas is required only in the office of the county clerk. No State board or council passes upon the validity of diplomas. There is nothing in the law requiring or authorizing a county clerk to register a bogus diploma, *i.e.*, one issued without residence or examination. The act refers to the 'graduate' (presumably in the usual sense), of any legally authorized medical college, and elsewhere provides for the return by supervisors of graduates of 'regularly established and reputable colleges.' To this category the possessor of a diploma issued by a fraudulent institution evidently does not belong."

ASSOCIATION NEWS.

Section on Obstetrics and Diseases of Women.

Milo B. Ward, Chairman, Topeka, Kan.; George H. Noble, Secretary, Atlanta, Ga.; Executive Committee, Jos. Eastman, Indianapolis, Ind.; F. H. Martin, Chicago, Ill.; J. T. Johnston, Washington, D. C.

As an effort has been made to keep a mailing list of the members of the AMERICAN MEDICAL ASSOCIATION interested in the Section on Obstetrics and Diseases of Women, please be kind enough to publish a notice to the effect that all members desiring to participate in the proceedings or to attend the meetings of this Section should send their names and addresses to the undersigned, as no communication concerning papers, program, etc., can be had with members not upon the proposed list. Most respectfully,

GEO. H. NOBLE, Sec'y, 186 S. Pryor St., Atlanta, Ga.

Other medical journals please copy.

The Ophthalmologic Section Reprint.

Gentlemen desiring to subscribe for the reprint of the Ophthalmologic Section, 1896, will please send their names to this office at once. Unless seventy-five subscriptions are received the volume will not be printed.

SOCIETY NEWS.

Utah State Medical Society.—The second annual meeting of the Utah State Medical Society will be held at Salt Lake City, Utah, October 6 and 7. Program: Address of welcome, Hon. Heber M. Wells, Governor of Utah; The etiology and management of suppurating pleurisies, Philo E. Jones, Salt Lake City; Amputation of thigh for tuberculosis of knee joint, with cases, H. J. Powers, Ogden; When and how should the State assume sanitary control in new settlements? Maj. A. C. Girard, Surgeon U. S. A.; Neurasthenia, R. W. Fisher, Salt Lake City; Auto-intoxication, Augustus C. Behle, Salt Lake City; Suppurative Keratitis, S. L. Brick, Ogden; A report of some cases of skin grafting in the treatment of burns and ulcers, S. H. Allen, Provo; Lead poisoning, K. A. Kjos, Salt Lake City; Irregularities of typhoid, Chas. F. Wilcox, Salt Lake City; Evolution and revolution in pelvic surgery, H. D. Niles, Salt Lake City; Hysterectomy, F. S. Bascom, Salt Lake City.

National Association of Nurses.—A convention representing different training schools and alumnæ associations, met September 2, in order to organize an association of nurses, which shall cover the United States and Canada. A constitution was drafted which will be submitted to the different bodies represented for their ratification. The object of the proposed association is to unite, protect and elevate the profession of nursing, and in drawing its outlines those of the medical associations have been to some extent copied, and the preamble of the AMERICAN MEDICAL ASSOCIATION largely drawn upon. The training schools and alumnæ associations included in this convention were the Royal Victoria; the Toronto General; the Massachusetts General; the New Haven; Presbyterian of New York City; Bellevue, and the New York; the Brooklyn City; the Orange Memorial; the Pennsylvania; University of Pennsylvania, and the Philadelphia; the Johns Hopkins; the Garfield; the Rochester City; the Illinois; the Farrand; and St. Luke's, Chicago.

Virginia State Medical Society.—This society began its twenty-seventh annual session at Rockbridge Alum Springs, Va., September 8-10, with a large number in attendance. The session, was opened by an address of welcome from Hon. A. H. Graham, of Texas, on the part of the Springs management. This was followed by an address to the public and profession by Dr. C. T. Brady of Marion, Va. His subject was "Moderation and Aim in Education." The speaker dwelt with especial emphasis on the importance of universal temperance and the avoidance of excesses in youth. Other interesting papers followed. The officers chosen for the ensuing year were President, George Ben. Johnston of Richmond; vice-presidents, W. C. Day of Danville, T. W. Simmons of Martinsville, L. H. Keller of Luray; recording secretary, Landon B. Edwards of Richmond; corresponding secretary, Jno. F. Winn of Richmond; treasurer, Richard L. Styll of Hollins. J. Allison Hodges was elected to deliver the address to the public and profession at the next annual session at the White Sulphur. Dr. Hunter McGuire's prize of $100 for the best essay on the status of serum therapy was awarded to Dr. Charles M. Blackford of Lynchburg.

Wayne County Medical Society.—At the regular meeting of the Wayne County Medical Society, Thursday evening, September 10, Dr. R. Harvey Reed read a paper on "Malignant Neoplasms." The meeting was well attended. Dr. Theo. A. McGraw, in discussing the subject, said: "The subject of malignant neoplasms is such a large one that one hardly knows where to begin in discussing it. It has been the prevailing opinion, until very recently, that all of these troubles arise exclusively from local conditions or local irritations, and that there is nothing constitutional about a cancer or sarcoma or any other tumor in the beginning; that is to say that whatever is constitutional is the result, not the cause, of the affection. I think that modern pathologists will hardly concur now in the theory of the purely local origin of cancers and tumors without being able, nevertheless, to closely define what there is in all neoplasms that is constitutional. I believe that there is something constitutional in every neoplasm or growth, not only of a malignant form, but of a so-called local or benign form, and that the origin in some way takes place directly from the cells which compose it, and that they begin to grow rapidly. I can conceive no other way to account for the growth of any tumor unless there is that loss of control upon that part of the organism so that the cells multiply and the part enlarges and grows just so fast and no faster, in other words, the control which allows of tissue growth just sufficient to the needs of the organism; in the case of benign tumors the check on multiplication is not so entirely lost as in some forms of malignant growths. When we have a growth of any tumor, it means that whatever it is that keeps away or retards growth in that part, has been lost or has been weakened, so that my conception of a tumor is something constitutional. Now the Doctor has described very well the different forms of malignant growths to which we have to adapt our means of treatment. The only treatment in my estimation is complete and thorough extirpation. Toxin has been tried in malignant tumors of every description in St. Mary's Hospital, and in private practice, and in no one case have we had any success whatever. I was talking with some New York surgeons when we had them here, and their report was that no one excepting Dr. Coley had

had any success with toxins in the treatment of malignant growths. Now I do not think just as Dr. Reed says, viz., that there is one case in a hundred curable by this morbid treatment, but the future may open up the possibility to us of something good. As far as our present knowledge is concerned there is just one thing to do with a malignant tumor, and that is to extirpate it, and extirpate it thoroughly, and if there is one need that modern surgery has now it is the perfecting of radical methods of operation. The surgeon does not see all cases of cancer or sarcoma. Why, just take cancer of the neck of the uterus and turn it over to the surgeon. He operates and expects to cure his patient. The surgeon should always be consulted in cases of malignant growths; the sooner the better; the earlier the more chance for final cure and the saving of life."

Dr. Hal C. Wyman said: "I would like to call attention to some successful methods and some unsuccessful ones. The particular notion in regard to cancer, and I use the term in a general sense, is that it is something that is to be helped by some irregular or clandestine method or operation, and for that reason quacks thrive. It is my belief that the regular physician may accomplish a great deal by constantly preaching the absolute necessity of early operation. If he will call up to the minds of the laity or patients suffering from carcinoma or sarcoma, that under modern methods of asepsis, and under anesthesia, the removal of these growths, when done early, is not fraught with much danger to life, or with any pain; in other words, that the removal of these neoplasms, when done by a scientific surgeon, is not essentially dangerous. If he will bring out these facts prominently before the public we could see these cases earlier and could have the privilege of removing tumors in time. The early removal of these tumors frequently leads to their non-recurrence. Even when they reappear a second time or a third time, or even a fourth time, removal has finally been followed by non-reappearance. I can see the necessity for the public to understand the need of early operation, and if they would only realize the fact that under anesthesia there is no pain and almost absolute safety, and also that with asepsis the danger from the wound is only a minimum, they would appear earlier for operation. So far as the operation is concerned it may be performed, except in rare cases without much danger, and it is the duty of every medical man to use every means in his power to secure an early operation. I am sorry that the profession is so at sea in regard to the matter, but we may find something in the future that will be of service to us. I can see the possibility of some antitoxin for cancer, like the diphtheritic antitoxin, and one which may take the place of operation. I would not say one word against the endeavor that is being made to find a cure. I think when a physician allows one of these cases to leave his hands and turns it over to the quack, he does wrong. I am glad that we have a little hope in regard to the possibility in the near future of the discovery of some toxin or antitoxin which will prove curative."

Dr. R. Harvey Reed, in conclusion, said: "You are all well aware of the fact that cancer and consumption have from the most ancient times been looked upon by the laity as incurable, and that is the reason why, as my friend, Dr. H. C. Wyman, says, these patients go to the quacks, because the quacks hold out luring inducements, the like of which we are not permitted to advance on account of our medical ethics. I hope that whatever I have said here to-night will stir up the profession to investigate this matter, and above all means do not turn over these cases to some one who knows nothing about handling them, and above all things do not allow them to go to the so-called quacks. It is the combined study, the combined work upon these diseases, that helps us in the treating of them. I believe that in the study of these diseases that we should, as do our explorers of the North Pole, keep right on, no matter what the result. In other words, keep right on till you get there."

NECROLOGY.

Charles H. Chalkley, M.D., at Richmond, Va., of inflammation of the brain, September 13, aged 36 years. He graduated from the Richmond College and entered the Medical College of Virginia, from which he graduated in 1880. Soon after he became a physician, he was appointed adjunct professor of chemistry at the Medical College of Virginia. He held this position until the University College of Medicine was established when he accepted the chair of chemistry and also became professor of medical jurisprudence and toxicology, which he held up to the time of his death. He also held the professorship of chemistry at the Mechanics' Institute.

F. W. Hance, M.D., a pioneer physician of Freeport, Ill., at his home in this city September 16, of heart disease. He was born in Ohio in 1822 and was graduated from the Medical Department of the University of Pennsylvania in 1849. He came to Freeport in 1853. He was elected mayor of the city in 1864 and also served as president of the Second National Bank.

D. J. Mosher, M.D. (Detroit Medical College, Mich., 1869), at Norwich, N. Y., September 8.—Orin M. Ward, M.D. (Bellevue Hospital Medical College, New York City, 1877) at Duncan Falls, Ohio, September 14, aged 45 years.

James Edgar Chancellor, M.D., at Charlottesville, Va., September 11. He was descended from a long line of Americans of English descent—the lineage running back to 1066. When Gaultier le Chancellor, as law officer of the crown, crossed over to England with William the Conquerer, as his chief legal advisor, the surname of Gaultier was dropped and it came by successive changes to be written Chancellor. From this family the name of the town of Chancellorsville is derived, a town made famous by the sanguinary conflict which took place there during the recent civil war. Dr. Chancellor was born in Chancellorsville, Va., Jan. 26, 1826; was educated at the classical Academy at Fredericksburg, Va.; matriculated as a student of medicine in the University of Virginia, session 1846-47, and graduated from the Jefferson Medical College, Philadelphia, 1848. Immediately after graduating he entered into an active practice, locating in his native county, at Chancellorsville. Subsequently he removed to Courtland, the county seat, where he enjoyed a large practice up to the outbreak of the civil war. In 1861 was commissioned assistant surgeon in the Confederate Army, and assigned to duty at the General Hospital, C. S. A., at Charlottesville, Va.; was commissioned full surgeon in 1862. In the spring of 1864 he was sent to the battle-fields of Wilderness, Spottsylvania Court House, and Richmond, as a member of the reserved corps company of surgeons.

In October, 1865, he was made demonstrator of anatomy in the Medical Department of the University of Virginia, which position he filled until shattered health, from a dissecting wound, necessitated his resignation in 1872. He was a member of the Medical Society of Virginia since 1871, and its president in 1883; permanent member of the American Medical Association since 1875, and the American Public Health Association since 1878. In 1885 he served as professor of diseases of women and children in the University of Florida at Tallahassee, and also filled the chair of anatomy in the same school; he resigned both chairs and, returning to Virginia, was appointed by the governor a member of the State Medical Examining Board in 1890. He has made frequent contributions to the literature of his profession, among which are named "An exhaustive paper on the origin and use of natural mineral waters of the United States;" "Ancient medicine, its history, etc.;" "Cremation and inhumation compared;" "Uses of iodoform in specific diseases;" "Removal of fibroid growth involving right parotid gland," 1863.

William Henderson Wilkes, M.D., died in Waco, Texas, August 14. He was born in Raymond, Miss., in 1833, and

enlisted in the Confederate Army as a private, from which he was retired with the rank of Brigadier-General. In 1868 he began practice in Waco, where he remained with the interval of a year during which he was a professor of obstetrics and diseases of children in Kansas City. In 1882 he was elected mayor of his city, and in 1885, was reëlected. In 1888 he declined the chair of the theory and practice of medicine in the Texas Medical College in Galveston. In 1891 he became president of the Texas State Medical Association. In April of the present year he again became mayor of Waco, and died in office after an illness of six weeks. He was a graduate of the University of Nashville in 1855.

WILLIAM M. MCLAURY, M.D., at New York City, September 8, of cerebral hemorrhage. He had been in poor health for some time. Dr. McLaury was graduated from the University of the City of New York, Medical Department, in 1860. He was a member of the New York County Medical Society, the Academy of Medicine, the Physician's Mutual Aid Association, the Northwestern Medical and Surgical Society, New York Society of Medical Jurisprudence and New York Academy of Anthropology.

WILLIAM CRANCH BOND FIFIELD, M.D., at Boston, Mass., of heart disease, September 10. He was born Aug. 27, 1828, in Weymouth, Mass. His family traced its ancestry beyond even early colonial days to England, where it gave the name to the town of Fifield. He was a graduate of Phillips Exeter Academy and of the Harvard Medical School in 1851. He went to England and took the full course in the Royal College of Surgeons. He was a licentiate of the Royal Ophthalmic Hospital and a member of the American Medical Society of Paris. From the beginning of his practice in Boston over forty years ago he took a high position in the profession. For fifteen years he was on the staff of Boston City Hospital and was on the consulting staff at the time of his death. He had also long been a fellow of the Massachusetts Medical Society.

EDWARD S. Farrington, M.D., at New York City, September 7, aged 31 years. He was educated at Yale, and was a graduate of the College of Physicians and Surgeons of New York, class of 1892. Dr. Farrington was connected with the outdoor work of Bellevue and New York Hospitals.

WILLIAM R. BRICKER, M.D. (Medical Department of the Western Reserve University, Cleveland, Ohio, 1857) at Shelby, Ohio, September 7. He was among the oldest citizens of Shelby, practiced his profession there over 50 years, having celebrated his 51st anniversary September 5. He was born in Schaefferstown, Pa., October 6, 1820.

ALEXANDER H. MCADAM, M.D. (Department of Medicine of the University of Pennsylvania, Philadelphia, 1863) at Philadelphia, September 9, aged 57 years. He was, for seven years, physician of St. Mary's Hospital, and since 1869 had been prominently connected with educational matters in Philadelphia.

WILLIAM M. KELLY, M.D. (Medical College of Indiana, Indianapolis, 1870), at Knox, Ind., August 28.

MISCELLANY.

For the Deaf and Dumb of Ohio.—The law has been amended so that it now provides that no person shall be received in the institution for the education of the deaf and dumb of that State under 7 (instead of 8) years of age, or remain there longer than twelve (instead of, as heretofore, ten) years.

The Megaloscope.—The *Ungarisches Archiv f. Med.* No. 3, describes an instrument constructed on the principle of the telescope which magnifies the objects shown by the endoscope. The illustrations are specimens of the work of the megaloscope showing the finest details of various sections, urethritis granulosa, etc., in the natural tints.—*Wien. k. Rund.*, No. 33.

Ohio Charitable Societies Can Sell Real Estate.—Section 3,794 of the revised statutes of Ohio, providing when and how religious societies may sell, exchange, or mortgage their real estate, whether held in trust or not, has been amended, among other respects, by extending its application to any charitable society or association, and this whether the trustees are willing to take steps in the matter or not.

Contrast Staining.—Bacteria and cell-nuclei can be differentiated rapidly and easily by first staining the prepared dry section with a diluted watery solution of methylene blue, then rinsing it in water and after drying, placing it in a watery solution of eosin, 0.1 to 100, for one minute to a minute and a half. The eosin drives out the blue and takes its place in the tissues, while the bacteria retain the blue longer. This method is recommended in the *Deutsch. med. Woch.*, August 20, as exceedingly simple and sufficiently accurate for general purposes.

Ink for Writing on Glass.—*Nouveaux Remèdes*, August 24, describes a new ink that will write on glass, and can take the place of paper labels on bottles, etc., as it is indelible. It is made by dissolving 20 grams of brown lacquer (not heated) in 150 c.c. of commercial alcohol, and mixing this, a drop at a time, with a solution of 35 grams of borax dissolved in 250 c.c. of distilled water. It can then be colored as preferred; 1 gram of methylene violet, for instance, will produce a handsome ink.

A Child in Legal Definition.—In a case brought under a statute "for the prevention of cruelty to children," the supreme court of Georgia holds, Collins v. State, that the word "child" as used therein, means one of tender years, or a person between infancy and youth, and that a male person who has attained the physical strength and stature of manhood, and who is "almost as large as his father, but not quite as strong," is not a "child," in the sense in which the word is used in such law.

Confirmation by Bacteriologic Diagnosis of Epidemic Cerebro-Spinal Meningitis.—When Heubner announced his discovery on the living of the microbe of this disease, he remarked that lumbar puncture would become still more important as a means of differentiation. Fürbringer now reports several cases diagnosed by lumbar puncture promptly and accurately, with the discovery of the meningococcus intracellularis in the spinal fluid. The cultures showed the characteristic diplococci enclosed in the capsules which refracted the light like a halo around them. The cocci were often assembled in four, six and eight pairs, especially in the older cultures. The median dividing line in the pairs of cocci forming tetrads was very distinct and noticeable. Gram's solution usually decolorized them like the gonococcus, but occasionally the microparasites partially retained their coloring.—*Deutsch. med. Woch.*, August 20.

New Jersey Law as to Indigent Insane Amended.—The New Jersey statute of 1895, respecting hospitals for the insane and the admission of indigent patients thereto, was amended by an act approved March 26, 1896, omitting, in the first part of Section 1, the clause apparently tending to restrict its application to any county "in which there is a hospital for the insane," and providing that application for an investigation of a case may be made not only to any judge of the court of common pleas in such county, as heretofore, but also to any judge of a criminal court established in a city of the first class in such county, while police justices are deprived of jurisdiction.

Provision for Ohio's Aged Deaf and Dumb.—A law was passed in Ohio, April 27, 1896, providing that any incorporated association organized for the purpose of providing a home for aged and infirm deaf and dumb persons may enter into a contract with the board of county infirmary directors of any county for the care and maintenance at such home of any aged or infirm deaf and dumb person who may be an inmate of the county infirmary or who may, under the laws of the State, be entitled

to admission thereto. And in every such case the county in which such infirmary is situated shall, during the period such person may remain in such home, pay to such association, annually, a sum equal to the per capita cost of maintaining inmates in the infirmary of such county.

Decision Relative to License to Practice in Colorado.—Attorney General Carr has recently decided that the State Medical Board of Colorado has no right to revoke a license to practice except after conviction of some penal offense.—*Denver Med. Times*, September.

Improvement in Transportation of the Wounded.—Meyer of Berlin, has invented a new spring floor for ambulances which rests on four rubber balls 1½ cm. thick and 12½ cm. in diameter. The balls are filled with air and held in place by bowl shaped rests above and below fitted with springs. There can be two of these floors, one above the other to secure extra elasticity.—*Deutsch. med. Woch.*, August 20.

Traces of Poisons in Normal Urine.—Kossa accidentally noticed indications of poisons in normal urine, and further investigations confirmed this experience, disclosing traces of arsenic, copper and mercury in the urine of numerous healthy individuals examined. He is inclined to think that these substances are not totally eliminated by the organism, and that in time the accumulated amounts might have an important bearing in certain medico-legal cases.—*Wien. kl. Rund.* No. 33, from the *Ungar. Arch. f. Med.*, No. 3.

Petroleum from Linseed Oil.—The paper read by Professor Sadtler at the recent A. Ph. A. meeting was a record of some very interesting experiments upon linseed oil. It was shown that by subjecting this oil to destructive distillation, under pressure, various products identical with certain petroleum hydrocarbons can be produced. This fact is of greater significance than is at once apparent. It bears directly upon and affords proof of one of the two theories regarding the origin of petroleum. These theories are, one that petroleum is of animal, the other that it is of vegetable origin. Possibly both are true. Without discussing the theory of animal origin, Professor Sadtler's results would seem to prove the theory of vegetable origin. *Pharm. Era*, September 10.

Ohio's New Electrocution Law.—By law passed at the recent session of the Ohio legislature, the mode of executing a death sentence must, in every case, for a crime committed after July 1, 1896, be by causing to pass through the body of the convict a current of electricity of sufficient intensity to cause death, and the application of such current, it says, must be continued until the convict is dead. This must be done by the warden of the Ohio penitentiary, or by a deputy, not only within the walls of the penitentiary at Columbus, but also within an inclosure so constructed as to exclude public view. Moreover, all such executions or electrocutions, must take place before the hour of sunrise of the designated day.

Healing of Wounds among the Negroes of Africa.—A surgeon writes to the *Deutsch. med. Woch.*, August 20, from Kamerun, expatiating upon the almost miraculous way in which the wounds of the negroes there heal without complications. He describes a dozen cases of severe wounds, among them five received while out on an expedition, compelled to march through pouring rain with no food but wild bananas, and exposed to the constant fire of the natives at close range, the bullets often nothing but scraps of iron so that the wounds resembled those made by an explosion, and with no surgical attendance for twenty-one days, as it was not a military expedition. The recoveries were rapid and complete with no complications; in some cases a surprising lack of sensitiveness in the parts wounded. He is inclined to ascribe this extreme power of reaction to a race peculiarity, as the absence of wound infecting bacteria in the primeval wilds is not absolutely established, although they must certainly be rare. In fifteen months of residence there he has never heard of such a thing as puerperal fever, and has only had one phlegmon in 906 patients treated. He remarks in conclusion that the surgeon in West Africa is certainly justified in proceeding with the utmost audacity in the conservative treatment of his black patients.

Russian Jury Discounts Expert Testimony.—In a recent case where a young wife admitted killing her husband, it was brought out that she had a sister who evinced a sudden aversion to her husband on the night of her marriage, and, thereafter being placed under medical observation a report was rendered by the expert that she had probably committed the crime while suffering from the psychologic equivalent of epilepsy, it being observed that she frequently suffered from such complete absences that she did not recognize those around her and that in these instances there was a complete failure of the reflex action of light upon the eye; yet, nothwithstanding this expert testimony, she was placed on trial by jury, convicted and condemned.

Ohio Institutions to be Inspected.—An Ohio law was passed in April, 1896, which provides that every private or public hospital, reformatory home, house of detention, private asylum and any institution exercising or pretending to exercise a reformatory or correctional influence over individuals in the State of Ohio, shall be open at any and all times to the inspection of the commissioners of the county in which such institution is situated, or the board of health of the township, or other municipality in which any such institution is situated. It also makes it the duty of each and every county commissioner to visit, unannounced, every such hospital and other institution in his county at least once in every six months, to note the sanitary condition thereof, and the condition and treatment of the inmates thereof. And it shall be the duty of the county commissioners to file a full and complete report of the investigations of such institutions with the prosecuting attorney of the county, which report shall be open to the examination of the public. Any official agent or employe, or other person refusing to permit or in any manner interfering with the inspection of any such hospital or other institution, by the county commissioners of the county, or by the board of health of the municipality in which the same is situated, shall be deemed guilty of a misdemeanor, and shall, upon conviction, be punished by a fine of not less than $25, or six months' imprisonment, or both, and for each subsequent offense a fine of not less than $100 and six months' imprisonment.

The Peppermint King—According to the *Chemist and Druggist*, July 25, Mr. H. G. Hotchkiss of Wayne County, New York, bears appropriately the above title. About fifty years ago that gentleman kept a store at Phelps, near the Wayne County line in the peppermint belt. Mr. Hotchkiss had taken peppermint oil from farmers in payment for goods until he had on hand so much of it that he would lose money if he could not dispose of the lot for $1,000. The problem was to find a market for all that oil from an unknown peppermint-producing district. He put his oil in tin cans and took it to New York City. None of the drug houses would buy it, because they did not believe that it was pure. This emergency brought the business ability of Mr. Hotchkiss to the surface. The now old-fashioned 21-ounce, lipped ink bottles had just come in and Mr. Hotchkiss purchased a lot of them, removed his peppermint oil from the tin cans, and after satisfying himself that it was as pure as any oil then on the market, placed it in the bottles, hermetically sealing them, and consigned the oil to a house in Hamburg, naming his price if the oil was accepted. At the end of several months' waiting Mr. Hotchkiss received a draft for the amount he had asked for his oil and an order from the Hamburg house for another consign-

ment. Most of the oil was sold back by the German firm to the dealers in New York who had refused to have anything to do with it when Mr. Hotchkiss offered it to them at first hand. The demand for Wayne County oil grew so rapidly that the cultivation of peppermint became the chief occupation of the Wayne County farmers. Mr. Hotchkiss gave up all other engagements and devoted his whole attention to the growing and distilling of peppermint. The average annual yield of peppermint oil in Wayne County is now 150,000 pounds, nine-tenths of which is controlled by the Hotchkiss family of Lyons. Mr. Hotchkiss still packs the Wayne County oil in bottles made after the exact pattern of the bottles in which his original shipment to Hamburg was packed in 1844. For years the Wayne County oil was considered by the trade superior to all others, but the distinction between Wayne oil and Michigan oil has now been dropped from most of the New York price lists.

Are Deaths from Anesthetics due to Failure of the Respiration or of the Circulation.—Despite the dicta and the experiments of Surgeon-Colonel Lawrie of the British army to the effect that the breathing claimed the undivided attention, the London *Lancet* has been engaged in a series of exhaustive inquiries. The members of its commission have investigated 716 deaths from chloroform.

The report presents three series of cases: Series A, derived from the report of the Committee of the Royal Medical and Chirurgical Society, contains 86 cases of death under chloroform; series B, derived from an analysis of the fatalities recorded between the years 1860 and 1891 in various British and foreign publications, contains 596 cases, and series C, derived from the inquiries made by circulars, contains 27 cases from hospitals and 7 from private practice. All these were carefully examined in such a way as to eliminate, as far as possible, the personal belief of the examiner, and to preserve only what had been placed on record by competent persons who were present when death occurred. According to this testimony, in the 716 deaths from or during the administration of chloroform, the pulse was observed to fall first certainly in 183, and propably in 44 more, or more than 31.5 per cent. The respiration was noted to fail first in 73 cases, and probably in 7 more, or only about 11 per cent. Both functions are said to have failed simultaneously certainly in 58 cases and probably in 19 more; and in 322 the point was not noted with sufficient accuracy to justify the statement of any conclusion. But the fact remains that, in nearly one-third of the whole number of fatalities, the recorded opinion of those present was in favor of the result having been due to the failure of the heart rather than to failure of the respiration. It is pointed out, also, that experiments on animals are apt to be misleading, because the subject selected would usually be healthy, while most human subjects in the operating room are diseased. It is suggested, also, that deaths during surgical operations not of a severe kind sometimes occurred before the discovery of anesthetics and were vaguely attributed to shock. The cause, whatever its nature, probably still exists, and its victims are charged to anesthetics. The objection to ether as an anesthetic by most English surgeons has been based chiefly upon the slowness with which it operates and the distress which its administration causes to many patients. Both these disadvantages have now been overcome by combining nitrous oxid with the ether fumes until unconsciousness is produced. Instead of the ether cone an apparatus similar in some respects to that in a well-equipped surgeon-dentist's office is employed. The patient breathes easily into the mouthpiece, the first three or four inhalations being of the gas alone. The ether fumes are gradually substituted. In two minutes the patient is unconscious, and there is no choking or distress such as the ether alone often produces. The latest report upon the possible dangers of chloroform is likely to lead to the rapid introduction in this country of this new and safe form of anesthesia.

To Recover Medical Expenses.—In cases of personal injury of a plaintiff through the negligence of a defendant, the supreme court of California says that there is no doubt but that, under a proper pleading, the injured party may recover for such necessary medical expenses as he may have become liable to pay though not in fact paid before suit brought. But the allegation of the complaint must correctly describe the expense as to being one that had been paid or simply incurred. Thus, the court reverses, in McLaughlin v. San Francisco & S. M. Ry. Co., decided July 31, 1896, a judgment for the plaintiff, holding that evidence that the plaintiff had incurred a liability to pay $750 was not admissible under the allegation of his complaint that in attempting to be cured he had necessarily expended, in doctor's bills, the sum of $750.

Hospitals.

THE VIRGINIA HOSPITAL, Richmond, Va., which has undergone most extensive repairs and improvements, after having obtained a handsome and commodious addition, is receiving patients again, after having been closed since July 1. The entire building has been remodeled, and taken in connection with the commodious "John Pope Annex" just completed, makes this one of the most modern and best equipped hospitals in the South.

NEW YORK FLOATING HOSPITAL WORK.—There were 46,253 women and children carried on the Floating Hospital during the season of 1896. More than seven hundred cases of severely sick children were treated in the wards without a death taking place on board.

THE PUBLIC SERVICES.

Army Changes. Official List of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from Sept. 12 to Sept. 18, 1896.

Captain William B. Davis, Assistant Surgeon, is relieved from duty as Attending Surgeon and Examiner of Recruits in New York City, to take effect upon the completion of his examination for promotion and ordered to Fort Brady, Mich., relieving Captain Charles Richard, Assistant Surgeon. Captain Richard, upon being thus relieved is ordered to New York City as Attending Surgeon and Examiner of Recruits.

Captain Louis Brechemin, Assistant Surgeon, is relieved from duty as Attending Surgeon and Examiner of Recruits, Baltimore, Md., to take effect on completion of his examination for promotion, and ordered to Fort Sherman, Idaho, for duty.

Captain W. Fitzhugh Carter, Assistant Surgeon, will be relieved from duty at Fort Sill, Oklahoma Territy, Oct. 1, 1896, and ordered to Baltimore, Md., as Atte ding Surgeon and Examiner of Recruits.

First Lieutenant William E. Purviance, Assistant Surgeon, is relieved from duty at Fort Sherman, Idaho, and ordered to Fort Columbus, New York, for duty relieving First Lieutenant Thomas J. Kirkpatrick, Jr., Assistant Surgeon. Lieutenant Kirkpatrick, on being thus relieved, is ordered to Fort Douglas, Utah, for duty relieving First Lieutenant George D. DeShon, Assistant Surgeon. Lieutenant DeShon, on being thus relieved is ordered to Washington Barracks, D. C., for duty.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending Sept. 19, 1896.

Medical Inspector Daniel McMurtrie, promoted to medical director from September 3.

Surgeon L. G. Heneberger, detached from naval hospital Widow's Island, Maine, ordered home, and then await orders.

Change of Address.

Brooks, S. D., from St. Louis, Mo., to U. S. Marine Hospital, Port Townsend, Washington.

Hull, Geo. S., from Chambersburg, Pa., to Pasadena, Cal., Box 176.

McGahan, C. F., from Bethlehem, N. H., to Aiken, S. C.

Pritchard, W. B., from 347 W. 58th street, to 105 W. 73d Street, New York, N. Y.

Reichman, Max, from 624 S. Center Avenue, to 616 W. 12th Street, Chicago, Ill.

Woodbury, Frank, has returned to his office and residence at 218 S. 16th Street, Philadelphia, Pa.

LETTERS RECEIVED.

Ayer, N. W. & Son, Philadelphia, Pa.; Alma Sanitarium Co., Alma, Mich.; Alta Pharmacal Co., St. Louis, Mo.; Allenburger, C. A., Shelby, Neb.

Blodgett, F. J., New York, N. Y.; Battle Creek Sanitarium, Battle Creek, Mich.

Christopher, H., St. Joseph, Mo.; Cantrell, G. M. D., Little Rock, Ark.; Cleaves, Margaret A., New York, N. Y.

Dussau, Anibel Eustace, New York, N. Y.; Drevet, Mfg. Co., The, New York, N. Y.

Ellis, W. H., Barron, Wis.

Freeman, Leonard, Denver, Colo.

Gosa, E. L., Sheffield, Iowa; Gutten, B. C., Oshkosh, Wis.

Hadenstein, I., New York, N. Y.; Hughes, C. H., St. Louis, Mo.; Haughton, R. E., Richmond, Ind.

Johnson & Johnson, New Brunswick, N. J.

Kilbride, Thos. F., Ayrshire, Iowa; King, E. A., Sweet Home, N. C.

Loanoo Rubber Co., Boonton, N. J.; Laughlin Pen Co., The, New Haven, Ind.

Musgrove, Thos. W., Fairhaven, Wash.; Merrick, M. B., Passaic, N. J.; McNew, H. L., Honey Grove, Texas; Martens, E. J., St. Louis, Mo.

Nolder, S. M., Fairmount, Ind.; Noyes, Guy, L., Traverse City, Mich.

Richardson, E. H., Atlanta, Ga.; Reyburn, J. A., Elkhorn, W. Va.; Rawson, A. A., Corning, Iowa; Reed & Carnrick, New York, N. Y.; Riley, N. H., Boulder, Colo.

Straw, J. R., Ashland, Wis.; Shertzer, A. Trego, Baltimore, Md.; Stearns, F. & Co., Detroit, Mich.; Seaman, Frank, New York, N. Y.; Small, Freeman E., Portland, Me.

Tompkins, Christopher, Richmond, Va.; Truax, Greene & Co., Chicago.

Vandervort, F. C., Bloomington, Ill.

Wood, E. S., Fairmount, Kan., Walton, Ernest F., New York, N. Y.; Willinghom, R. H., Niagara, Ky.

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ORIGINAL ARTICLES.

OTO-MASSAGE IN SUPPURATION OF THE EAR; ITS VALUE FOR THE RELIEF OF DEAFNESS AND IN THE TREATMENT OF THE SUPPURATION.

Read by title in the Section on Laryngology and Otology, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5-8, 1896.

BY LOUIS J. LAUTENBACH, A.M., M.D., PH.D.

Surgeon to the Pennsylvania Eye and Ear Infirmary; Nose and Throat Physician to the Odd Fellows' Home; Late Chief of the Eye Clinic of the German Hospital, etc.

PHILADELPHIA, PA.

Upon several occasions I have presented various aspects of oto-massage, but, beyond having noted in one of my papers that I considered the deafness occasioned by suppurative disease of the middle ear peculiarly favorable in its reaction to massage, I have not publicly considered suppurative disease in connection with the subject. I have often been asked the value of the method in the deafness and tinnitus, the results of suppurative disease. On expressing my opinion that it was of especial value in both conditions, I have naturally been lead to explain why this was the case.

In considering the value of massage in the treatment of cases of suppurative disease or of the defects from suppurative disease, the subject naturally divides itself into two parts: 1, the consideration of its application and value in cases undergoing suppuration; 2, its importance in those in which the suppuration has ceased, deafness being present with or without tinnitus.

Eliminating for the present all the acute suppurative cases, those attended with extreme pain and swelling of the parts, we will study a typical case of chronic suppurative disease. It will present, in addition to the discharges, which may be meagre or profuse, watery or ropy, colorless, pustular or bloody, a greater or less degree of deafness with or without tinnitus, accompanied usually by a full or swollen feeling within the ear, with perhaps a little tenderness and with occasional attacks of pain.

The usual treatment for such cases has been careful cleansing of the meatus and middle ear, usually by syringing with warm or medicated water, followed occsionally by cleansing with peroxid of hydrogen solution, and then after thoroughly drying the ear with cotton and perhaps using the Politzer bag or the Siegle speculum, or both, the insufflation of some drying or absorbent powder, such as aristol, iodoform or boracic acid. The ordinary mild cases are apt to do fairly well under such routine treatment, especially if it be persisted in, and they often develop a decided improvement in hearing, as well as a marked diminuition and, frequently, an entire cessation of the ear discharges.

In contradistinction to this the dry method is used by many. The meatus is carefully wiped out with cotton, after which, if a probe can be passed through the perforation, the middle ear is cleansed as thoroughly as possible. Then by means of the Politzer air bag and Siegle speculum, the discharges lying low down in the ear are forced toward and through the perforation in the membrane and the middle ear and meatus are again cleansed with dry cotton, after which drying powders are used.

An objection to be urged against the first method above outlined is the syringing of the ear. In my opinion this, in many cases, prevents the cessation of the discharge; the water or medicated liquid finds its way into the deeper parts of the ear and not being removed, lies there and acting as a forcign substance, excites irritation and inflammation in the surrounding tissues and thus increases the amount of the discharge. Of late, the dry method has come more and more into vogue. It has the advantage of removing foreign matters from the ear cavity without subjecting the ear to the possible disadvantages of having the pus replaced by other foreign particles. But both methods fail in entirely removing the exudated materials from the middle ear cavity—the former method washing out much of the discharge and diluting the rest—the latter removing considerable but allowing some of the discharge to lie on the floor of the tympanum, as well as leaving a layer of the discharge adherent to all the surfaces and an especially large amount to remain in the attic and on the ossicular structures. In these cases to remove the discharges which otherwise are irremovable I employ massage instruments, using them as cleansers and dryers of the middle ear cavity. To illustrate this method of using massage I will briefly outline the treatment of an average case of middle ear disease with suppuration. Finding that I am dealing with a case of suppuration of the chronic type, I dry out the meatus with a cotton-covered probe and if the perforation in the drumhead be sufficiently large to allow of it, I by the same means cleanse the middle ear as much as I am able, then by the Siegle speculum I suck out as much of the pus as possible and dry the meatus once more, then I inflate with the Politzer bag and force out a little more discharge, which I remove with the dry cotton. I then apply to the patient a pneumo-massage apparatus of medium strength and gradually increase the suction. I succeed in drawing into the meatus and about the perforation of nearly, if not, all of the discharge which may have adhered to the crypts and along the walls of the middle ear. After drying with cotton, I once more use the pneumo-masseur and again dry, after which I use the drying powders or astringent antiseptics, if any of these be neccessary. If the ear discharge be too thick or too firm for removal in this manner I then soften the discharge by the use of 3 per cent. solution peroxid of hydrogen, after which I proceed as above outlined.

In using the pneumo-masseur for the purpose of

removing the adherent discharges from the middle ear cavity, I try to use it as forcibly as necessary without in any way imperiling the integrity of the structures, especially avoiding the production of any hemorrhage. I have found by experience that I can usually commence with an exhaust pressure of two ounces to the square inch. and gradually increase it to about half a pound to the square inch, often as much as a pound, and rarely up to two pounds to the inch. With an exhaust from half a pound to a pound, the discharges are usually quickly removed, in from three to ten minutes, 300 or less strokes per minute usually sufficing.

Previous to my using the metronomic masseurs, I endeavored to accomplish this same effective cleansing by the use of the Siegle speculum but, necessarily, the results were indifferent. Since I have used the pneumo-masseur in the manner described I find that I can stop the suppuration more quickly than formerly, and often accomplish this result without any therapeusis to the ear whatever. This, however, is not usually the case, and to a considerable extent I rely upon stimulating and drying powders in connection with thorough cleansing and drying.

In acute cases I apply the suction massage just as soon as is possible, believing that adhesions, ulcerations and destruction of the tissues result often from the pressure of the discharge, from its direct corrosive effect and its fermentative results as well as from the progress of the inflammatory affection.

As soon as the pain is sufficiently allayed so that the treatment is bearable, I apply to the ear either the metronomic ear masseur or a little electric suction pump and clear the middle ear of all its discharges and accumulations. By securing a clean surface early in the course of the disease I hasten reparative action and avoid the ofttimes destructive effects of the decomposition of unhealthy pus.

These ear discharges lying in the middle ear, envelop the ossicles, fill up the space between the promontory and the membrane, and generally occupy all possible spaces, gluing all together. As a result of this we have occasioned abnormal adhesions between the ossicles and between the ossicles and the surrounding walls, as well as occasionally ligamentous bands between the membrane and surrounding structures; again, in other cases, the disease results not in a tying together of the various parts, but a rending asunder of normal structures, in ulcerations, necroses and sloughings.

In the one case we have anchyloses, adhesions, abnormal growths and thickenings followed often by sclerotic changes, in the other we have necrotic changes with often loss of one or more of the ossicles or greater destruction of the tympanic membrane or ulceration of the mucous lining of the middle ear with inflammation extending, perhaps, into the mastoid or involving the internal ear. It is on account of these often serious results that there is an urgent necessity for prompt action, with the idea of restoring the parts as soon as possible to as nearly a normal condition as can be attained. It is therefore necessary if anything can be gained by pneumo-massage, to apply it as early as is admissible.

In some cases I have used the masseur during the acute stage of the attack with marked benefit, allaying the pain and for the time being increasing the amount of suppuration and apparently shortening the attack. I presume the reason for this is that much of the pain in these cases is occasioned by the retention of the discharges, the tissues being filled with discharges which, finding no outlet, have commenced to burrow more and more deeply, the infiltration ever extending, and when the pressure from the central inflammatory area is released by means of the exhaust apparatus, the tissues adjoining empty themselves of their contained discharges, thus relieving much of the abnormal tension of the surrounding infiltrated zone, the lessening of the pressure relieving the pain, and the frequent application of the method tending to prevent extension of the inflammation.

From my experience with this method of cleansing the ear, I am convinced that there would be fewer cases of secondary involvement of the internal ear if the practice above outlined was more generally followed. When we consider that the cases of internal ear disease are the most difficult and unsatisfactory with which the ear surgeon has to deal, the necessity of their avoidance is evident. I know of no other measure of relief which exercises such a powerful influence in the avoidance of this complication.

I very much desire to go more deeply into the subject and illustrate it by cases, but I find this to be impossible as I wish to refer to another aspect of the matter, the improvement in hearing brought about by oto-massage in suppurative cases as well as in cases of deafness occasioned by suppurative disease.

Strange as it may seem, I have found in no class of my chronic ear cases such marked improvement of impaired hearing as in those in which the defect was caused by suppuration. Sclerotic changes are rare in these cases until long after the subsidence of the suppurative disease. I will refer to two such cases of deafness, the result of suppurative disease. Two years ago I reported the case of a woman 38 years old who had scarlet fever in her first year. When I saw her the ears were discharging and there was very poor hearing power. After she had been using the massage treatment for some months, not only did the discharge stop, but the hearing improved so much that she had no conscious difficulty in hearing conversation; the watch being heard twenty inches ($\frac{20}{60}$) from the ear. The progress of this case was a steady gain in hearing power from the commencement. From the time of my report to the present there has been no diminution in hearing power.

I will briefly note another case. Miss C. M., 15 years old came to me Dec. 1, 1894, for chronic suppurative disease of the left ear. There was a large perforation and a fair amount of whitish discharge, not very gluey. There was no watch hearing on contact. I treated her ear without massage and succeeded in about four months in stopping the suppuration, but the perforation did not heal. I endeavored during another two months to heal the perforation, without success. The hearing distance had improved at this time to hard contact hearing for the watch. I then endeavored to restore the hearing by means of massage, using the pneumo-masseur, but especially the phono-masseur, neglecting the perforatian, hoping it would heal spontaneously. Now, after ten months of such treatment (one visit per week), she hears the watch at ten inches, the perforation remaining unhealed.

In these cases the two kinds of massage are valuable—the phono to stimulate the nerve, which is more easily accomplished in such cases by reason of the

perforation allowing the sound to be carried more directly to the internal ear—the pneumo-masseur being used to break down adhesions and restore abnormal or diseased parts to more healthy action by reason of the stimulation thus produced.

To indicate the value of phono-massage, the following experiment will serve. April 26, 1896, I tested the hearing of the right ear of Mr. C. M., aged 28, and found it to be for the watch one-quarter inch. His is a case of old suppuration with bone involvement—one which has gone on for twelve or fifteen years and which he thought was incurable. The strong phono-masseur was used on his ear for forty minutes with the result that the hearing for the watch was increased to one and one-quarter inches. This increased hearing usually gradually disappears unless the treatment is regularly applied. If this be done it usually increases, the amount depending on the nature of the case. This immediate increase in hearing is a very frequent experience in my work, and one which I usually secure except where there has been most extensive destruction of the middle or internal ear structures. In dry suppurative cases where I do not succeed in producing an almost immediate temporary increase in hearing distance, my conclusion is that permanent results are very difficult to attain.

In conclusion the facts may be summed up as follows: In acute suppurative conditions, pneumo-massage should be tried and if the application be not too painful it will relieve the swelling and the severity of the inflammatory pain and shorten the attack; the purpose of this suction massage being to remove from the ear all possible suppuration and thus, by relieving the tension, lessening the frequency of ulcerations and necrotic processes and preventing adhesions and deep infiltrations of the surrounding tissues.

In cases of suppuration that have passed the acute stage the pneumo-masseur is to be used for the purpose of relieving the ear of its discharges and for the relief of extreme tension, preventing ulcerations and necroses, as well as to overcome the formation of adhesions and for the stretching, absorption and destruction of these adhesions when formed, and to stimulate the drumhead and its connecting structures to normal, functional action. The phono-masseur is to be used in these cases for the purpose of restoring to the ear nerve and its terminals the normal tone and overcoming the sluggishness to response engendered by inaction and disease.

In cases of deafness following upon suppurative disease the pneumo-massage is useful for limbering up the diseased and stiffened tissues, to restore their normal action and tone, and to break or stretch abnormal adhesions, to overcome anchylosed joints and give to the ossicles their normal motion, while at the same time improving the circulation of all the middle ear structures—the phono-massage being again used for its effect upon a sluggish, diseased and non-responsive nerve ending.

1723 Walnut Street.

Intravenous Injections of Sublimate in Ocular Affections.—Angelucci has found rapid and thorough recovery follow the use of intravenous injections of 20 centigrams of sublimate and 60 centigrams of chlorid of sodium, in 100 grams of distilled water. The dose increasing from 2 to 16 milligrams. The cases favorably affected were all of syphilitic origin: Iritis, irido-choroiditis, papillo-retinitis, etc., but the results were negative in all non-syphilitic troubles.—*Revue Gen. d'Ophth.*, August 31, from *Arch. di Ottalm.*, No. 3.

STRICTURE OF THE UPPER PORTION OF THE TRACHEA SUCCESSFULLY TREATED BY DIVULSION THROUGH THE LARYNX.

Read in the Section on Laryngology and Otology, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5-8, 1896.

BY JOHN O. ROE, M.D.

ROCHESTER, N. Y.

The following case of stricture of the upper part of the trachea, due to organic contraction, can not, on account of its rarity, fail to be of interest.

On November 23, 1895, Miss D., aged 27 years, was referred to me on account of frequent and urgent attacks of dyspnea, which had for a considerable time been exceedingly distressing to her. She gave the following history: In March, 1888, she had a severe attack of diphtheria, from which it was thought at the time she had fully recovered. During the following year, however, it was noticed that she had edema of the feet. The edema was found to be associated with albuminuria and was ascribed to that cause. Notwithstanding this she enjoyed a fair degree of health.

In October, 1890, she became hoarse nearly every day as evening came on. This hoarseness continued until December, when she began to have considerable difficulty in breathing. The family physician found a swollen condition of the larynx, which he regarded as a consequence of the albuminuria. He treated her with steam inhalations, compelling her to remain in bed for about three months continuously with the object of maintaining a uniform temperature and preventing her from contracting cold. During this time her health was very good and she gained ten or twelve pounds in weight; although she had one or two severe attacks of dyspnea, lasting three or four days at a time. These were attributed entirely to the renal disturbance, since albumin and casts were found in the urine.

After a time the dyspnea subsided and in April, 1891, she began to go out. Shortly after, however, she took cold, and had another severe attack of dyspnea, lasting several days. As warm weather came on her dyspnea disappeared. Her voice during the period, since her first attack of hoarseness, had remained quite clear.

In August, 1891, she went to Canada and remained there until fall, feeling quite well. She continued to feel quite well during the fall, but during the winter she had frequent attacks of dyspnea, very similar to those of previous winters. During the following summer she had no special difficulty in breathing, although during July, August and September she was aphonic.

During the fall of 1892, she had at times much difficulty in breathing, and that winter she spent in Southern Pines, South Carolina, where she gained much in general health. Her breathing, however, was not materially improved, although the atmosphere there was remarkably dry. She came home May 1, 1893, and during the following summer was quite well, having little or no difficulty in breathing.

During August the cartilaginous portion of her nose began to diminish in size and for about a year afterward there was a gradual settling of this portion of the nose. During November, 1894, she had inflammation of the right lung, which nearly proved fatal and very much increased her difficulty in breathing.

During the following winter her dyspnea was frequently very urgent. These attacks of dyspnea were aggravated very much by accumulations of mucous below the obstruction in the trachea, which she had great difficulty in expelling. After expulsion of these accumulations her respiration was for a time very much improved. As the warm weather came on, her dyspnea diminished, and during the summer of 1895 she was quite free from it, and felt very well. As in previous years, when the cold weather came on, her trouble increased, and last October her dyspnea became very urgent, although her voice remained quite clear.

On November 23, when she came under my care, there was found on examination a chronic subglottic laryngitis, with considerable infiltration of the subglottic region. About three-fourths of an inch below the larynx there was an annular constriction, which appeared something like a membranous formation. Notwithstanding the fact that no history of syphilis could be obtained, as the girl's character was beyond question, the sinking in of the nose appeared more or less positive evidence that the trouble was of a specific nature.

Previous to the time that her nose began to diminish in size, her dyspnea was attributed entirely to the albuminuria, and she was treated accordingly; but after this manifestation it was thought that a specific trouble must be the cause of the difficulty. Since it seemed so certain that it must be of that nature, I placed her upon an antisyphilitic treatment, in both large and small doses, but with no benefit whatever. In fact, the dyspnea was aggravated by it, whereas iron and strychnia improved her condition.

Locally I attempted to reduce the subglottic laryngitis by sprays and insufflation of a power composed of tannin, sugar of milk, and a small quantity of morphia. This appeared to lessen the subglottic congestion, but had no effect in lessening the constriction in the trachea.

On December 4, the dyspnea became so urgent that suffocation seemed imminent, necessitating either tracheotomy or intubation of the larynx. The latter was resorted to and the tube was retained for two days, when it became so irritating as to require removal. It had the effect, however, of so enlarging the constriction that the dyspnea for a considerable time entirely disappeared. The constriction gradually returned, and in February it again became necessary to introduce the tube.

As the tube was being introduced by the aid of the mirror, she suddenly threw her head forward, bringing the end of the tube quite forcibly against the anterior portion of the trachea. As she jumped back, the tube was brought out. She at once, however, experienced complete relief from her dyspnea, and on the examination of her larynx, I found that the tube had broken down the anterior portion of the constriction so that the lumen of the anterior portion of the trachea was quite free.

Seeing that this constriction could be disrupted, I introduced a pair of Grant's forceps, with blades closed, until they passed below the constriction. I then opened the blades until the widest portion of them nearly filled the trachea. Holding the handles firmly I drew the blades up in the constricted portion, so dilating it as to break down much of the posterior portion of the constriction and leave the trachea quite free. As the glottis did not permit the forceps to open wide enough to fully break down the stricture, I had a pair of dilating forceps with double-jointed blades so constructed as to increase the expansion of the lower blades to the full width of the trachea and to completely obliterate the stricture.

Since that time the constriction has shown little or no tendency to return. An occasional dilatation of the trachea with the forceps is sufficient to maintain the opening. The respiration and voice are quite normal. By following up the dilatation of the trachea in this manner when there is a tendency of the constriction to return, I have every reason to believe that a permanent cure will be effected.

This has been to me an exceedingly interesting case, being one of chronic subglottic laryngitis, to which was added organic constriction in the upper part of the trachea. This case is of special interest on account of the uncertainty as to the exact cause of the condition, and also on account of the history of repeated attacks of dyspnea extending over so long a period.

How much of this trouble we may ascribe to albuminuria, it is difficult to say. We all recognize the condition of edema of the larynx and aphonia, associated with albuminuria, which we term albuminuric aphonia, and we know that specific taints uncontrolled by ordinary antispecific remedies may excite all sorts of conditions. Subglottic laryngitis is a disease that is not of frequent occurrence, and is therefore not commonly met with in our daily work. We know, however, that its cause is frequently involved in obscurity, although it is usually associated with lymphatic affections and the conditions termed scrofula; that it occurs usually in young females from fifteen to twenty-five years of age, and that the treatment which proved serviceable in this case is the one that is recognized as the most beneficial in simple chronic subglottic laryngitis. Simple absorption of the tissues of the nose without ulceration results only, so far as I am aware, from a specific cause. We must therefore believe even in the absence of every other manifestation that the underlying cause was a latent hereditary taint of a specific character which produced the subglottic laryngitis and ulceration of the upper portion of the trachea and the resulting stricture, as well as absorption of the tissues of the nose.

DISCUSSION.

Dr. J. E. Logan, Kansas City, Mo.—Is it not probable that this case is more or less of a specific type? The Doctor states that it was simply a settling of the cartilaginous septum unattended by any ulceration, and that the bony septum was intact. This would make it a very peculiar and interesting case. I have seen many of those cases which had no evidence of external ulceration, but there would be an ulcerated condition of the septum.

A FEW REMARKS ON THE CLINIC USE OF ORTHO- AND PARA- CHLORO-PHENOL.

Read in the Section on Laryngology and Otology, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

BY CONRAD BERENS, M.D.

ONE OF THE WILLS HOSPITAL SURGEONS. PHILADELPHIA, PA.

In the *University Medical Magazine* for October, 1894, there is a brief note of reference to ortho-chlorophenol, quoting N. Simanoffski, who is reported to have used it for reducing hypertrophies of the mucous membrane overlying the inferior turbinates of the nares. Simanoffski made but a preliminary report, and referred also to para-chloro-phenol. The endorse-

ment of ortho-chloro-phenol was of such a nature that I was induced to make some trials with it, as well also as of para-chloro-phenol. Ortho-chloro-phenol is a heavy limpid liquid of exceedingly irritating and pungent odor. It is rapidly soluble for clinic purposes in glycerin, and from this may be reduced in strength again and made soluble in water. For clinic purposes the para-chloro-phenol, which occurs in amorphous crystals, is best used by fusing to the end of a probe. In my work I have fused the crystals to silver. Para-chloro-phenol is not so satisfactory clinically, and is very much more cumbersome and inconvenient in its application. The conclusions of Schourmo in regard to its irritating properties, particularly in laryngeal conditions, are fully borne out by clinic experience. There is no denying the correctness of the statement of Spengler (*Brit. Med. Jour.* 1896, No. 1,827), as to its antiseptic properties, but I would take issue with him as to its efficacy compared with ortho-chloro-phenol. My experience having taught me that the latter is just as active an anesthetic, and is a very much more convenient form for clinic purposes. The use of ortho-chloro-phenol for the reduction of engorgement of the erectile tissue overlying the inferior turbinates is much more satisfactory than the cautery—with less destruction of tissue and less intense reaction. In acute engorgement of the erectile tissue, I have found nothing more satisfactory than its application by means of a small dossil of cotton dipped in the drug and applied anteroposteriorly to the parts after they have been prepared by the use of cocain. The effect of the cocain having passed off after the thermo-electric cautery has been applied, patients as a rule complain of intense pain, and frequently of epistaxis, not to mention the enormous inflammatory swellings and frequent adhesions to the septum. Ortho-chloro-phenol is slightly anesthetic, and this anesthesia is more persistent than that of cocain. As a consequence after the action of the cocain has passed off that of the ortho-chloro-phenol continues, and the patient reacts without any inconvenience. There being less inflammatory reaction it is natural that there should be less deeply seated initial lesions, but the drug has no place in the treatment of true hypertrophy, or hyperplasia of the region under discussion. In ulcerous conditions more especially of the septum nasi, the application of the glycerole of ortho-chloro-phenol 10 per cent. has invariably proved satisfactory in my hands. In ozenatous conditions after freeing the nares from the offensive accumulations, and thoroughly cleansing the nasal mucous membranes with dry absorbent cotton, I have found nothing that will so quickly remove the offensive odor of the disease as two or three applications of 10 per cent. ortho-chloro-phenol in glycerin. In these cases I persistently but very gently rub the solution over the diseased parts, and the patient is much gratified by the sudden removal of the offensive odor of the disease. I have yet to see however a case cured by the application of this or any other drug; that is, having no longer necessity for any applications to the nares. In laryngeal conditions I found that it will not in any sense take the place of ichthyol or iodoform as a local application. If a caustic effect is required, as for instance upon deeply seated ulcers or upon granulations in the pharynx, it is not to be considered, as its effect is too mild to be taken into consideration. In laryngeal diseases the results of persistent application have not lead me to resort to its use excepting in the event of failure of lactic acid, ichthyol or boro-glycerin. In three out of fifteen cases of laryngeal tuberculosis in its very incipiency, I have found ortho-chloro-phenol, in full strength, to give better results than any other local application. In two instances, most gratifying results were obtained by the application of 10 per cent. ortho-chloro-phenol to large ulcers of the epiglottis, both occuring in cases of advanced tuberculosis.

For the removal of growths of any sort in the larynx, I would not encourage the use of the drug, as it is not only slow, but also liable to cause acute inflammatory reaction—in one instance, giving rise to very severe dyspnea. In aural diseases its use has been attended by more gratifying results than those gained by the use of any other drug. The application of a pledget of cotton saturated with the 10 per cent. of the glycerol of ortho-chloro-phenol to an incipient furuncle of the external canal, in many instances has resulted in the abortion of the disease, while no dressing has proved more satisfactory after I have been compelled to open the furuncle in the canal. Though I have used a dossil of cotton saturated with it as a dressing after opening the furuncle I have never yet seen a recurrence of the disease at a sufficiently early date to warrant me in believing that there had been any material allowed to remain in the ear disinfected. A small pledget of cotton saturated with the solution and applied to the point of attachment after removal of polypi of the external canal, has always proved effectual both in destroying the extremely offensive odor, and in encouraging a rapid healing of the parts. In suppurative otitis media it has proved exceedingly effectual in 10 per cent. in glycerin. I will cite but one case as an illustration of many. Miss E. M., aged 22, applied to me in July, 1893, with chronic suppurative otitis media of the right ear; more than two-thirds of the inferior portion of the membrana tympani had been absorbed. The suppuration had continued with more or less severity and an offensive odor, since the early childhood of the patient. I employed every method for the relief of the symptoms and checking the disease, even curetting the floor of the middle ear, where the disease seemed to be confined, the attic not appearing to be involved. Boro-glycerin in 50 per cent. solution, ichthyol, nitrate of silver, zinc, nitrate of sanguinaria, douches, powders as iodoform, aristol, etc., were used without result. The discharge continued to be offensive and muco-purulent in character, no matter how thoroughly the application at the previous visit had been made. In December, 1894, after having thoroughly cleansed the parts I inserted a pledget of cotton saturated with 10 per cent. ortho-chloro-phenol in glycerin. The patient was instructed to return the following day. To my surprise the entire appearance of the parts had changed, the mucous membrane had become more healthy in appearance, and the discharge had lost its odor and golden yellow color. In five days and after three applications the discharge entirely ceased, and has not recurred since, excepting in the spring of 1895, when the patient was attacked by an acute rhinitis, and three days afterward complained of discharge from the ear. A single application of ortho-chloro-phenol caused this to cease after twenty-four hours, and there has been no discharge since. The patient as a rule complains of considerable burning pain on the first introduction of the cotton saturated with the

drug, but this rapidly subsides and leaves a sense of comfort. It has been my custom to dress the ear daily, or not later than every other day, and in no instance of chronic suppurative otitis media have I had any but the most gratifying results in its use. In acute suppurative otitis media I have found that in any strength it seems to aggravate the disease. The greatest objection raised to the use of the drug comes from the patient, who complains of its odor. Even weak solutions of the drug unquestionably give rise to an all-pervading and pungent smell that is more penetrating than that of iodoform. This objection, particularly in the application of the drug to the ear, may readily be overcome by closing the external meatus with a small piece of absorbent cotton. In conclusion then, I have no hesitation in recommending the further clinic use of ortho-chloro-phenol in the belief that it will prove a valuable addition to the pharmacopeia of the rhinologist and aurist, and prove itself worthy of the fullest confidence, especially in those cases where the commonly resorted to medicaments have not only failed to relieve the patient, but have disappointed the expectations of the surgeon.

THE ELECTRO-CAUTERY SNARE AS AN EXCISING AGENT IN DISEASES OF THE NOSE AND THROAT.

Read in the Section on Laryngology and Otology at the Forty-seventh Annual Meeting of the American Medical Association held at Atlanta, Ga., May 5-8, 1896.

BY HANAU W. LOEB, A.M., M.D.

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ST. LOUIS, MO.

It is only a natural sequence which impels one who has given the electro-cautery snare a trial for the treatment of one of the various conditions for which it is recommended, to extend its application, to find new uses and to confirm those whose work has forced them to admit its growing utility. Especially is this to be expected in view of the recent improvements in electric appliances.

At the meeting of the AMERICAN MEDICAL ASSOCIATION at Detroit in 1892, I presented an electric snare which[1] I had devised, and stated its indications and uses in nose and throat diseases. Since that time I have, by greater opportunity, enlarged its sphere of usefulness and fixed my own views in favor of a wider range of application of the electro-cautery snare in nose and throat affections. From its very nature it is adapted for amputation or excision. Any organ or growth or portion thereof which can be engaged within the snare may be removed, without danger of hemorrhage, for not only will there be less hemorrhage than when a knife or cold snare is used, but absolutely no bleeding in the vast majority of cases.

The snare, which was exhibited before this body four years ago, I again present though it is unmodified, except, that in order to accommodate the increasing field of application, it has been made in two sizes. By reason of its ready separation, its simple construction and its constituents, it is easily cleaned. Being covered with hard rubber it is not open to the objection which the old time snares received on account of their lack of cleanliness.

Until over three years ago, I relied upon the ordinary galvanic and storage batteries, without complete satisfaction; constant attention was required to keep them in order and even when the greatest care was observed the battery would often fail at the critical moment.

In December, 1892, I began to use the Aloe converter and since that time I have never been subjected to any annoyance on the part of the appliance supplying the current. The converter is applicable only to the alternating current and is similar in its design and purpose to the transformers which are now used to reduce electricity of high electro-motive force to a lower tension.

The instrument which I have, reduces the voltage from 104 to 1, 1½, 2, 3, 4, 5, 6, 7, or 8 volts, and is therefore suitable for the cautery or the light.

In construction, it consists of iron core with a large primary coil of fine wire and a smaller secondary coil. The ratio of turns of the wire in the primary and secondary coil will depend upon the transformation required. Thus when the voltage of the house current is 104 to secure one volt the primary would have 416 turns to 4 of the secondary; for 2 volts the ratio



would be 416 to 8, for 4 volts, 416 to 16; for 8 volts 416 to 32. From 4½ to 6 amperes are required for the proper action of the snare with No. 5 piano wire (⅓ mm. in diameter).

Lichtwitz[2] describes a fairly elaborate instrument which he uses and which he presents as one by means of which the quantity of electricity may be measured. He finds that ten amperes are necessary for ordinary tonsils and twelve for the larger, when the wire used is ⅓ m.m. in diameter.

There are several very good appliances in use for utilizing the constant current which alone is available in some cities.

It therefore follows that at the present time no one need deny himself the use of the electro-cautery snare on account of electricity producing apparatus; for, whether the current be alternating or direct the supply will be reliable and precise. For some years a valid objection was entertained to the platinum wire on account of its lack of firmness. Since iron or steel wire has replaced it however, the same degree of stiffness of the loop is obtained whether the cold or hot snare be used.

The electro-cautery snare is from the very nature of things of but recent use. So far as I can learn Middledorf [3] was the first to employ it in the removal of tonsils.

According to Kijewski and Wroblewski [4] the galvano-cautery snare was used by Koehler and Korzeniowski [5] to remove a large polypus which filled the entire nasal cavity. Voltolini, [6] in his great treatise upon the galvano-cautery considered the value of the snare lessened by reason of the insufficiency and inconstancy of current.

Since the publication of this work and especially since the introduction of an apparatus which provides for the regular and certain supply of electricity, this and the somewhat similar objection of Beverly Robinson [7] are answered. So satisfactory has been this answer that the advocates of the electro-cautery snare have increased immensely, until they include many who are willing to replace by it many operative procedures which legend and practice had almost established forever. In fact the most enthusiastic advocates are those who have had most experience with it and its greatest opponents are generally those who have used it infrequently or not at all.

Thus Sendziak [8] complains that Jurasz, after employing the electro-cautery snare in only two cases, came to the conclusion that it was inconvenient, painful and disagreeable to the patient on account of the odor it leaves.

The electro-cautery snare has been recommended and employed in the following diseases of the nose and throat:

1. Nose: *a*, anterior and posterior turbinal hypertrophies; *b*, polypi and other benign growths; *c*, malignant neoplasms; *d*, spurs.
2. Rhino-pharynx: *a*, polypi; *b*, fibromata.
3. Pharynx: *a*, hypertrophied tonsils; *b*, tonsillar neoplasms; *c*, palatal neoplasms; *d*, elongated uvula; *e*, hypertrophied lingual tonsils.
4. Larynx: *a*, neoplasms.

I. NOSE.

1. *Anterior and posterior turbinal hypertrophies.*—In these conditions the electro-cautery snare is almost ideal, permitting the operator to remove quickly the redundant and hypertrophied tissue by means of an operation which is bloodless notwithstanding the great vascularity. It is quite as easy to engage the hot as the cold snare and the celerity, the painlessness and freedom from hemorrhage should commend the former over the tedious cold snare.

Sajous [9] prefers the electro-cautery snare for posterior turbinate hypertrophies, stating that it is necessary to use a rhinoscopic mirror in order to see the seat of operation. I consider that this is not only unnecessary, but awkward. A far better plan is to place the finger in the rhino-pharynx and thus guide the loop over the hypertrophied tissue.

McBride [10] says it should be used whenever the tissue can be engaged and Greville MacDonald [11] prefers the electro-cautery snare for the removal of large pieces of the turbinated in spite of the objection that it induces considerable inflammation in the neighborhood from the generation of steam and that the cicatrization is delayed. I can not permit this objection to go unchallenged for at least in my own cases it has not been revealed. Among the laryngologists who consider the cold snare as superior for anterior and posterior hypertrophies, may be mentioned Onodi,[12] Zwillinger,[13] Polyak,[14] Eaton,[15] Hack,[16] while Baumgarten [17], Schmidt [18] and others commend the hot snare.

2. *Polypi and other benign growths.*—The essential advantage of the electro-cautery snare in the removal of polypi is the fact that so many may be removed at one sitting; whereas it requires considerable time to dispose of a number by means of the cold snare; with the hot snare it is only the question of a few minutes. The smaller instrument which I have devised is quite as convenient and easy of application as any cold snare, and one needs only inquire of a patient who has had both methods applied, to learn that the hot snare is far more agreeable, less painful, more rapid, less bloody and more preventive of recurrence. So far as the inflammatory and infective sequelæ are concerned after a thorough trial of more than four years, I am convinced that they are no greater in one than in the other. In one single case, an acute otitis media followed the separation, doubtless influenced by the unwarrantable exposure to which the patient subjected himself. The operation was performed in the morning and before night the patient had permitted himself to be drenched by rain several times. He failed to report at my office until the fourth day after the operation. I feel therefore that the hot snare may be held blameless of this result. Surely the lessened time of operation should make infection less apt to occur than with the cold snare with which too often no aseptic and antiseptic precautions are taken.

McBride [10] in this connection makes the assertion that it is better to use the electro-cautery snare, when it is desired to remove all the polypi at one sitting. Ingals [19] uses the electro-cautery snare but prefers the cold, while Greville MacDonald [11] claims that there is no advantage over the cold snare, while there is the greater disadvantage of inflammatory action induced by heat and steam generated by the hot wire.

In answer to this, it may be stated that the heat and steam which MacDonald and others claim are generated will not produce any bad results if the snare is properly applied and used. If the wire is drawn tight the tissue which is influenced by the heat will be so constricted and the time of its application so insignificant, that it can have but little influence in this regard. It is often difficult, sometimes impossible, to observe the cauterized stump, demonstrating that at least in many cases the effect of the heat and steam is *nil*.

Schmidt [18] states that after using the cold snare for three years he returned to the electro-cautery. This, I am sure, will be done by many if they give the latter a fair trial. I am inclined to agree with Ball [20] and others that cauterization of the base resulting from the galvano-cautery ablation of polypi is productive of good results. In keeping with the progress of rhinology, I do not believe that mere cauterization of the base will prevent recurrence. Indeed my common practice now is to remove all larger polypi with the hot snare, and if the bone is found affected the smaller polypi with the diseased bone are then removed.

The electro-cautery snare is also available for the removal of other benign growths in the nose, and I have used it with good effect in fibroma, adenoma and papilloma. In one case of fibroma which projected from the rhino-pharynx, the vascularity was very great, the growth bleeding upon the slightest provocation; yet, the electro-cautery snare caused the loss of but a few

drops of blood. In the case of adenoma I first used this instrument but in the later recurrences abandoned it, since on account of the softness of the tissue and slight amount of blood which was lost, I could operate quite as well with forceps.

Zarniko[21] inclines to the cold snare for removal of inflammatory fibroma, claiming that if it is applied as he suggests, the loss of blood will be inconsiderable.

3. *Malignant tumors.*—The electro-cautery snare has in this class but a limited range, which is in the direction of securing a portion of the growth for microscopic examination.

4. *Spurs.*—Although advocated by a number of laryngologists, I have never taken kindly to this form of treatment. The saw, drill and curette are eminently more satisfactory. The electro-cautery snare is by no means as free from objection in operations upon bone and cartilage as upon softer tissues.

II. RHINO-PHARYNX.

1. *Polypi and fibromata.*—These may well be considered together as the terms are used interchangably by many. In appropriate cases the belief seems to be fairly general that the hot snare is of greatest service, although the electrolytic treatment seems destined to overshadow all other forms, except where a more serious operation is indicated. However, many still maintain the superior value of snaring where this is possible. Thus Michelson[22], Lincoln[23], and Schmidt[28] report cases of rhino-pharyngeal fibroma treated in this way. I have used the electro-cautery snare in two cases of rhino-pharyngeal polypi with success and without return. In a case of rhino-pharyngeal fibroma with projections into the nasal cavity I snared off as much as was possible to reach with the instrument. On the whole the efficiency of the electro-cautery snare in rhino-pharyngeal tumors depends upon the possibility of engaging the growth in the loop and its extent and attachment.

III. PHARYNX.

1. *Hypertrophied tonsils.*—In the removal of hypertrophied tonsils, the electro-cautery snare has received greater attention than in any other affection. After this method was introduced, according to Lichtwitz[2] the operation lost caste but was revived through the writings of Knight, Loeb, Garel, Schmidt, Heryng and Sendziak. All of these continue to favor the electro-cautery snare except Knight, who writes[24], after a complete résumé upon the subject of hemorrhage following tonsillotomy that he favors the guillotine.

Flatau[25] intimates that those who have experienced serious hemorrhage after tonsillotomy are much inclined to replace the tonsillotome with the electro-cautery or electro-cautery snare and McBride[10] states that its use is only justifiable in preventing hemorrhage, which he states is a rare contingency. Bresgen[26] dismisses its consideration with the remark that there is no reason for its use as it does not prevent hemorrhage. Bosworth[27] objects to the procedure on the ground that it requires ten to fifteen minutes and Potter[28] advised that the snare be not adjusted too deeply on account of the sloughing beyond the seat of cauterization.

Ingals[19] favors the cold snare. On the other hand there is a great array of experienced advocates of electro-cautery tonsillotomy. Lichwitz[2] is strong in his preference. Yerwant[29] states that it is more prudent to use the electro-cautery snare in adults so as to obviate hemorrhage. Heryng[30] has given his evidence in its favor for hard fibrous tonsils, extensive hypertrophy and hemophilia. Sendziak[18] advocates it forcibly and conclusively, stating that any one without prejudice will be entirely satisfied with this method. Schmidt[18] favors the electro-cautery snare beyond all other tonsillotomy instruments. He denies that it requires a longer time than the operation with the tonsillotome and insists that it is to be preferred on account of the certainty that hemorrhage will not occur. Huguenin[31] advises the use of the electro-cautery snare whenever tonsils are pedunculated and Helot[32] also prefers this instrument. There is to my mind no question as to the safety of galvano-cautery tonsillotomy so far as hemorrhage is concerned. A few cases of hemorrhage following this operation have been reported, but never a serious one. They could all probably be explained upon a satisfactory basis. In more than 300 tonsillotomies with the electro-cautery snare I have nerver observed a loss of more than a few drops of blood. In only one case was there a secondary hemorrhage, which doubtless resulted from a lack of attention on the part of the patient. I think this will compare favorably with the experience of those who use the knife or tonsillotome. In fact the proof is stronger when it is considered that the hemorrhage would be far greater if the advocates of the knife would remove as much as is ordinarily removed with the galvano-cautery snare.

Numerous instances of hemorrhage after tonsillotomy attest to the possible seriousness of such an occurrence. Heryng[30] collected fifty-nine cases of severe and even serious hemorrhage; other cases have been reported by Blairs,[33] Fuller,[34] Catuffe,[35] Moure,[36] Thorner,[37] Jessop[38], and Lennox Browne.[39]

Another great advantage which the galvano-cautery snare possesses over the tonsillotome consists in the large amount of tonsillar tissue which it is possible to remove and the precision of the operation which makes it possible to remove just what one desires. With the tonsillotome the amount of tonsil removed is purely accidental. If the instrument possesses a fork or lifting device, the amount will depend upon the pulling power of the fork, which to the surgeon can not be known until after the excision. If there is no fork, the pillars of the palate will limit the removal, and therefore it must be very exceptional to remove the entire tonsil. Quite different is it with the electro-cautery snare. It is my custom to pull the tonsil from its palatal bed by means of a pair of sharp-toothed forceps and then engage the wire so that it is possible to remove the entire tonsil. I have again and again made so complete an excision that not a vestige of tonsil tissue remained. This I do not consider a dangerous practice; at least it has been eminently satisfactory up to the present time. I can corroborate the experience of Schmidt,[18] who states that he has frequently seen enlarged tonsils of which one-fifth only had been removed by previous tonsillotomy.

As to the great length of time which some writers maintain is necessary in operating with electro-cautery snare, the expression is born of inexperience, for no one who undertakes it a number of times can fail to acquire sufficient dexterity to operate with celerity. It never should require more than one minute, providing the apparatus is in proper working order; considering the improvements that have been made, nothing short of this is to be anticipated. On the whole it must be admitted that the electro-cautery

snare is to be commended for the removal of hypertrophied tonsils in that it obviates all danger from hemorrhage and makes the operation one of precision, not one of the purest guess-work.

Even in tonsils which are impacted between the palatal pillars it will be found of service, since in almost every case it will be possible to pull out a portion and engage it in the snare, thereby not only securing the advantage of cauterization, but also the removal of a portion of the hypertrophied tissue.

2. *Tonsillar neoplasms.*—Any tonsillar growth which has not involved and attached itself to neighboring structures is susceptible of excision with the electro-cautery snare. This does not imply that the mere removal with the snare will constitute a cure for such an affection. However, if the growth involves the tonsil alone, and the entire tonsil is removed, the method should offer at least as good a result as any other. In a case of lymphosarcoma of the tonsil I snared off a large piece of the tumor for microscopic examination, without causing any hemorrhage and without influencing the growth of the tumor. Wolfenden[40] states that he removed a sarcomatous tonsil by means of the electric snare, and I consider it a procedure which should be utilized in the earlier cases.

3. *Palatal neoplasms.*—Tumors of the palate which may be engaged within the loop are suitable for removal with electro-cautery snare. I have used it twice for palatal papillomata.

4. *Elongated uvula.*—In my previous paper[1] I called attention to removal of elongated uvula by means of the electro-cautery snare, which I had practiced for some time. Shortly after this DeBlois[41] in a paper before the American Laryngological Association, took a similar position. Lennox-Browne[42] states his preference for the galvano-cautery where the uvula is thin, but he does not specify the snare. He operates by pulling the uvula downward and cutting it with the galvano-cautery where he desires. On the other hand Morgan[43] and Ingals[19] prefer the cold snare. That hemorrhage is a possibility, one needs only to refer to the paper upon this subject written by Morgan[37] in which attention is called to a great number of instances of uvular hemorrhage collected from ancient and modern medical literature.

Besides entirely preventing all possibility of hemorrhage the hot snare operation finds an indication in the ease with which the uvula can be engaged, the perfect stump which remains, the smaller amount of pain succeeding the operation as compared with ordinary uvulotomy. It is my practice after the uvula has been properly cocainized to permit it to fall into the loop and after deciding exactly where the section is to be made, to draw the wire tight and send the current through. So pleasing are the results from this method of operating, that I now use no other plan.

5. *Hypertrophied lingual tonsil.*—My own experience in this particular affection is confined to one case; however, it seems to offer an inviting field at least. Sendziak[8] commends it highly.

IV. LARYNX.

1. *Neoplasms.*— Some writers are disposed to favor the electro-cautery snare in these affections, but it seems to me that there are serious objections on the score of inaccessibility, impossibility of keeping the site in perfect view, the danger of inflammatory reaction and the possibility of the excised tumor falling into the larynx. These are, however, the judgment of opinion rather than of experience.

In conclusion I desire to state that the electro-cautery snare has a possible indication in laryngeal tumors and nasal spurs; an inviting one in hypertrophied lingual tonsils, palatal, tonsillar and rhinopharyngeal growths and a certain one in the removal of hypertrophied tonsils and turbinates, nasal polypi and elongated uvula.

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DISCUSSION.

Dr. W. E. Casselberry, Chicago, Ill.—I think the success of treatment by the electro-cautery snare depends very largely upon the perfection of one's apparatus. I think that Dr. Loeb deserves a great deal of credit for having designed an apparatus by which he can gauge and perform these operations with facility. He is fortunate in having his converter and an alternating current. I have been unable to find a satisfactory galvano-cautery rheostat by which to use directly the Edison or continuous current, so I use the storage battery. I use for this purpose the double American cell, keeping it stored constantly by the Edison current in connection with my light so that the flow of the current from the battery seems to be uniform. I am not accustomed to take out nasal polypi with the cautery snare. I formerly did it but have stopped for the reason that it makes the nose sore. I can remove about as many as I care to at one sitting with the cold snare. I remove tonsils in adults sometimes by the cautery snare. It has the advantage of avoidance of hemorrhage and the disadvantage of making a very sore throat. I think, to remove the uvula by the cautery snare, I must make a more painful wound than by the usual method.

Dr. Hanau W. Loeb, St. Louis, Mo.—I expected to hear more criticisms than have been made and I think perhaps they

would have been deserved, for I am sure that my love for the electro-cautery snare has made me rather dogmatic. I use a better instrument than those usually employed. Most of the instruments have too large a handle and are too heavy, but I have somewhere in the gray matter of my brain a little handle in view which will greatly obviate this trouble.

I think Dr. Casselberry deserves a great deal of credit for his faithful work with that abominable machine, the winding cautery snare. I use the McIntosh handle, which has a sliding arrangement by which the loop is tightened in a moment.

It is unfortunate that in so many cities the direct current is still used. Since the consolidation, however, of the Edison and Thompson companies, they are not using them so much, and soon the alternating current will be utilized in all of the larger cities. In reference to trouble from cauterizating the adjoining part, if the wire is drawn tight before sending the current through this will be obviated. The trouble with the instruments is that you have to pass the wire through the cannula and then back again. In mine there are two perforated wires which are threaded like a Sajous snare.

There is no question but that in many cases the inflammatory reaction from the electro-cautery is greater than the cold snare, for the reason that the surface is free from all germs; since I have become more familiar with the use of the instrument I have severe inflammatory results less frequently. It is the best in operating upon the uvula because one is not required to pull down the tip in any way. I simply let the uvula fall into the tip and turn on the current. In the scissors operation you are apt to cut off more than is necessary of the mucous membrane, and in addition the inflammatory results are greater. I have presented this paper because there is a scantiness of literature in regard to the cautery snare for operations in the nose and throat. I hope that when we next speak on the subject, I will have more in favor of it.

ON BONY GROWTHS INVADING THE TONSIL.

Read in the Section on Laryngology and Otology, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

BY ALEX. W. STIRLING, M.B., C.M. (Edin.); D.P.H. (Lond.)

ATLANTA, GA.

The cases which I bring before you are interesting, I think, from the points of view of both the anatomist and the practical surgeon.

The first is that of a young lady of excellent personal medical history. Her only complaint had been slight chronic hypertrophic rhinitis, and for a few years some enlargement of the tonsils, especially the right, both of which secreted caseous matter and were at times a little painful. The inferior turbinated bones and the varicose veins of the lingual tonsil had been cauterized by one throat specialist, another had cauterized her right tonsil, and a third had cauterized cysts in both.

When tired she frequently complained of pain which she believed originated in the right tonsil and radiated thence to the mastoid and the right nasal bones, as well as to the right eye and shoulder. When squeezing out secretion she could feel a local tenderness in this tonsil.

On examination with the finger I was able to make out a hard immovable mass coming from behind the tonsil forward underneath it to the level of its anterior surface, but forming practically part of its substance. Its point is rounded, apparently about one-eighth of an inch in diameter, but becoming broader and somewhat flattened laterally as it extends outward, backward, and slightly upward. The finger pressed in front enters an angle formed by it and the inferior maxilla, and when pressed behind it enters another angle formed by its approximation to the right side of the vertebral column. The tenderness felt on pressure appears to be due to the nipping of the tonsillar mucous membrane between the finger and the hard body. Nothing of the kind can be discovered on the left side.

The second case consulted me on account of large polypi of both nostrils from which she had suffered for years. She is 64 years of age, has asthma and a week cardiac muscle, but otherwise is in good health. There is nothing of note in her family or personal medical history. On examining her throat I observed a slight protuberance just above and in front of her right tonsil. With the finger I found it to be nearly the same as that described in connection with Case 1, with the following points of difference. In the second case it exists on both sides, though it is not quite so prominent upon the left side; it is also higher, farther forward, perhaps a little thinner, and with a more apparent upward direction.

The growth is quite immovable, and there is no unnatural tenderness on examination. The patient has never had the slightest trouble with her tonsils. I have been able to examine the throat of one of her daughters, but could find nothing unusual there.

The third case is a brother of Case 2, aged 65. He likewise has been free from throat affections or any infirmity which might have a bearing on this subject. On both sides he has the same peculiarity, but differing from the previous cases in that the hard masses are altogether in the posterior part of the tonsils, are much longer, reaching a full finger breadth below the level of the lower tonsillar border, are perhaps rather more slender and, for nearly half an inch of the lower end on either side, cartilaginous to the touch and movable.

The question now arises, what are these substances? They are evidently not tonsillar calculi, because they have none of their characteristics except tenderness. In view of the fact that they have given rise to no symptoms whatever in two cases, and from their formation, position, and immobility, it seems to me certain that they are not the result of disease, but that they are rather congenital peculiarities, having however a distinct interest in cases of disease in their neighborhood.

In endeavoring to come to a decision relative to their origin, let us examine the bony structures from which they might arise, for they can be nothing else than bone. They all arise on the outer side of the throat, and it may be from the lower jaw, the vertebral column, or the base of the skull. If they came from the lower jaw to which they closely approximate, they would move along with it, but not one of them does so. They do not come from the bodies of the vertebræ, because the finger can exclude these. The pterygoid plates are too far forward; the spines on the posterior extremities of the wings of the sphenoids are rather less unlikely, but they too are somewhat too far forward and are distant. It is much more likely that the growths are simply prolongations of natural prominences than entirely new formations; by a process of exclusion we are limited to the transverse processes of the vertebræ and the styloid process.

The tonsil is situated on the level of the upper part of the body of the axis or of the disc between it and the atlas. The transverse process of the axis is small and does not move on rotation of the head. The bones under consideration do move along with the head on rotation, and come into much greater and visible prominence when the head is turned toward the side opposite to that under examination.

We are therefore reduced to the atlas which is as

regards rotation of the head a part of it, and the styloid process. To which of these the bones belong is a question of interest chiefly in view of the possibility of their becoming carious or involved in an operation; for disease affecting the styloid process might spread to the main body of the temporal bone, and the delicate structures in relation with it, and if the atlas were in any way injured at least a serious condition of things might arise.

Upon this atlas, kindly lent to me by Dr. Grandy, with this skull, the posterior limb of the transverse process which ought to, but does not, join with the anterior to complete a foramen, is nearly an inch in length, and were it longer would reach the region of the tonsil if its curve were continued, or were a little accentuated; and its direction would correspond fairly well with that of the growth especially of the first case.

The direction and size of these growths afford no satisfactory point for differentiation. Neither does the movement of rotation, and the only way to distinguish between them, of which I have been able to think, is that the skull proper moves when the head is nodded, which is not the case with the Atlas. These bones move with the head on nodding, and I therefore conclude that they are styloid processes. Other arguments in favor of this view are the presence of cartilaginous terminations in the case of the male patient, and the well-known variability in length of the styloid processes. I have been able to obtain little or no assistance from literature in making my diagnosis. Among the books on anatomy and diseases of the throat which I have been able to consult, I have found only one reference to such a condition as this. A few cases of exostosis of the bodies of the vertebræ, having no resemblance to these, have been recorded. Three widely-known specialists on throat diseases with whom I have been in correspondence, and one of the most experienced of European anatomists have all informed me that they have never seen such a condition as I described to them.

The one reference to any such which I have seen is in Scheeh's book on diseases of the mouth, throat and nose. He refers to a case "described from the anatomic point of view by W. Gruber," and another from a clinical aspect by Lücke, while Weinlechner is said to have broken away a piece of bone which caused inconvenience in swallowing. These are recorded as abnormally long styloid processes.

This condition of the tonsil is not to be looked upon as a mere anatomic curiosity, for in two at least of my three cases an attempt at tonsillotomy might have been met with considerable difficulty had a correct diagnosis not been previously made, and it might be of consequence in other operations in that region. As regards treatment, there is no necessity to interfere in the cases of the elderly people. The tonsils are troublesome in the first case, and it is a question whether removal of part by the guillotine, cautery or otherwise, or even the breaking up of it with a blunt hook might not result in so tightly stretching the mucous membrane over the bone as to produce pain or even ulceration and exposure of the osseous tissue. Personally, unless in case of urgent necessity, I should be averse to removal of the latter on account of possible secondary mischief in the bone, or of interference with the attachments of muscles and ligaments.

DISCUSSION.

Dr. W. E. Casselberry, Chicago, Ill.—I saw these very interesting cases. The first case to which he has reference, is a very distinct pointed prominence on the right side occupying the location of the anterior pillar, which covers it more than the tonsil, although when it is stretched forward the tonsil will cover it. The curvature inward and the position would satisfy me that it was a styloid process turned inward toward the throat. The other case had much the same condition but is not so pronounced. The committee agreed that the case was an abnormal styloid process. It is of some importance in connection with possible operations on the tonsils. In regard to operating, laryngologists should take palpation more into consideration. Upon palpation they would discover that there was something of a hard nature and would be warned against operating. I do not think anything serious would occur if an operation was attempted; I think the instrument in both cases would slide over the projecting point rather than go through it. I would not make a tonsillotomy in that case or canterize it, because the somewhat enlarged tonsil affords a useful padding to the short-pointed projecting styloid process.

PORTABLE COMPRESSED AIR APPARATUS AND NASAL SAW.

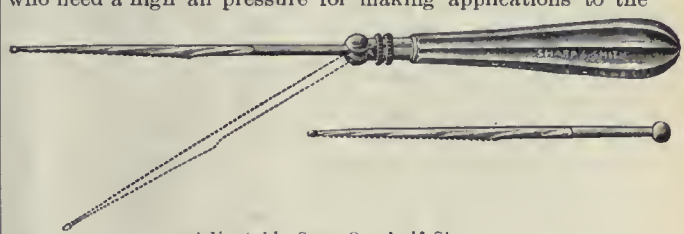
Presented to the Section on Laryngology and Otology, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

Dr. E. Fletcher Ingals, Chicago, Ill., presented a portable compressed air apparatus, with the following remarks: This is a compressed air apparatus designed for treating patients where



Portable Air Compressor, One-quarter Size.

we are obliged to carry an apparatus with us, as for instance in going to theaters to treat actors; or for the use of patients who need a high air pressure for making applications to the



Adjustable Saw, One-half Size.

larynx or Eustachian tubes. It consists of a cylinder eight inches in length and three and a half inches in diameter, capable of withstanding eighty pounds pressure. The cylinder has a movable head that will slide in so that the spray tube, pump and all other parts of the apparatus may be placed inside the cylinder when not in use. To use it the head is drawn up against a rim with a rubber washer and quickly fastened by clamps that make it air-tight. The air tube is one and a half

feet in length, so that the patient can hold the cylinder in the lap while the application is being made. A bicycle pump is employed, which is of convenient size to go inside the cylinder when packed, but is of sufficient size to enable one to easily obtain forty pounds pressure. The cylinder filled with compressed air by this means holds sufficient to throw a strong spray the length of time necessary for treating five or six patients.

The price of this first apparatus, without a case was $15, but as more are made the manufacturers say they can be furnished in a leather case with space for a reflector, throat mirrors and extra solutions, if desired, for $15. The case complete with the extra space for other instruments will measure only eight and one-half inches in length, four inches in width and five inches in height, or without space for head mirror will measure eight and one-half inches in length, four inches in width and four inches in height.

Dr. Ingals also presented a nasal saw with an adjustable handle that could be set at any angle. The instrument was provided with two blades, one to cut forward the other backward. It had proved very satisfactory. It was made entirely of metal.

HYSTERIC DEAFNESS.

Read by title in the Section on Laryngology and Otology, at the Forty-seventh Annual Meeting of the American Medical Association at Atlanta, Ga., May 5-8, 1896.

BY H. V. WÜRDEMANN, M.D.

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MILWAUKEE, WIS.

That protean affection, hysteria, may be considered a purely functional disease. There is, however, usually some concomitant affection or lesion which may be deemed to be the cause. This may excite a local hysteric attack in a patient predisposed by mental or moral influences. Some actual injury or shock to the part is in many cases the predisposing cause for the local manifestation. Affections of the sight are frequently seen; indeed, in most hysteric persons it is possible to find some defect of the visual field.

Hysteric deafness is very rare. In the *Medical News*, Feb. 14, 1891 I reported such a case. Since that time two more have come to my notice:

Case 1.—Hysteric deafness and blindness in a woman after injury to the head.

Aug. 29, 1892, a woman, age 42, was sent to me on account of monaural deafness. She gave a history of a railroad accident a few days before in which she had been struck on the left side of the head: had been prostrated and in bed after arrival in this city. She claimed to have had severe pain in the left ear the day before and discovered that this was totally deaf.

Status Presens: Patient very nervous and excited. There was a contusion with swelling over the left orbit and malar bone of same side, which patient thought was broken, but examination showed no evidence of fracture. The vision of this eye was slightly reduced for distance and she claimed that she was not able to read ordinary print. Objective examination of the eyes was negative; the refraction and fundus normal; pupillary reaction and pupils normal. Contraction of the visual field on the affected side. Examination of the ear showed a normal drumhead and no visible cause for the pain or deafness. She could only hear loud sounds on this side. That of the right was normal. Tuning fork placed on vertex was heard only on the right side and not at all on the left by aerial or bone conduction. There was no tinnitus or aural vertigo at this time. Two days later the left ear appeared totally deaf. She complained of great pain in the back and leg of this side and of hypresthesia. She asserted that the whole of this side was weaker than the other. Objective examination showed left hemihypercesthesia and a questionable hemiplegia. Treatment advised was absolute mental and bodily rest with bromid of kalium and valerian. Diagnosis at the time was hysteric deafness, the locality of the functional disturbance being probably influenced by the character and place of the contusions. A prognosis was given of probable recovery either after the effect of the primary shock had passed away or after the lapse of some weeks.

One month later I examined her again, finding that she could hear a loud voice but could not understand spoken words on the left side; hearing on right side normal as on first examination. Objective examination negative. Tuning fork only heard on the right when placed on the vertex. She was excitable and had an anxious countenance and complained of pain in the back of the head with creepy sensations and weakness on the left side of the body. Also had pain in the ear and roaring sounds which were immediately relieved by weak galvanic electricity. Patient had a fainting fit in the street car on returning home from my office. The vision was blurred for reading in both eyes in a few minutes. There was now no contraction of the visual fields and the vision was normal for distance. About three months later the railroad company having settled with a moderate sum for damages, the hearing gradually came back to the affected side, and examination one year later showed that it was normal.

Case 2.—Hysteric deafness and blindness in a child after pulling the ear.

Nov. 9, 1893, an anemic child, aged 11, had trouble at school several weeks before when the teacher pulled her right ear. She became totally deaf on that side and partially so in the left within a few hours; complained of her sight and was light shy. Was given near-sighted glasses (—1 D.) by a jeweler, with which she claimed she could see better, and without which she kept her eyes closed.

Status Presens: The child was apparently apathetic and stolid. The right concha was red and exquisitely tender to the touch caused, as I observed, by furtively pulling the ear when she thought she was not being watched. The membrana tympani were normal. She has slight hypertrophic rhinitis for which the mother had been douching the nose with a syringe and salt water. Patient could not understand what her mother said, although she had been shouted to for a couple of weeks, but she was apparently observant of our conversation. On taking the child aside I found that she understood me when I talked in an ordinary tone of voice. All tests for hearing were useless.

Her vision was R. and L. 6-18 with her glasses and without them she would not read any letters. I explained the case to the mother and commenced at once to make a decided mental impression upon the child, *i. e.*, to hypnotize her. I told the mother in the child's presence, in a manner to give her the impression that I did not wish the patient to hear what I said, "that I was about to do an operation that would cure her at once." The child seemed apathetic but responded to the usual hypnotic suggestions and on brisk Politzerization with chloroform vapor, could immediately hear ordinary conversation, her mother's voice as well as mine. Hearing tests showed that she could hear the acumeter, the watch, whisper, voice and tuning fork at a normal distance and in a normal manner: besides this she could read all the test letters to 6-VI without glasses. These were taken away from her, but a subsequent examination showed that the eyes were 1 D. hyperopic. The child would not allow of a second Politzerization without hypnotic influence, but the effect of the one given was sufficient to cure the case. Tonic treatment was instituted, and as long as the case was under observation (six months) no return of the hysteric symptoms recurred.

I can not ascribe either of these cases to malingering entirely, although in many cases of traumatic hysteria there is a tendency toward deception. It is probable that the disturbances of special sense in both cases were entirely beyond personal control and were only to be cured by outside suggestion. The first case would not submit to such treatment, but in the second it was thoroughly successful. I have seen other cases of hysteria relieved in quite as remarkable a manner.

805 Grand Avenue.

Amblyopia Consequent to Chronic Endometritis.—Monte Mor describes in *O Brazil Medico*, August 1, a case of almost total blindness accompanying chronic uterine disturbances. Dilatation and curettement with antiseptic injections, etc., cured the endometritis in fifteen days, and with it the amblyopia. He queries whether the visual trouble could have been of hysteric origin, but adds that the duration, over a year, argues against this supposition.

THE ANATOMIC CHANGES IN TWO CASES OF RETINAL DETACHMENT.

Read in the Section on Ophthalmology, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

BY ROBERT L. RANDOLPH, M.D.

BALTIMORE, MD.

I have selected these two cases as being fairly typical of the two principal conditions leading to retinal detachment: first, a spontaneous detachment due to fibrillary degeneration of the vitreous body, and the second case was one where a small round-cell sarcoma had lead to propulsion of the retina away from the choroid.

In case one the detached retina as it sprang from the papilla appeared like a funnel having a neck about one-fifth of an inch long and which at this distance from the papilla commenced to assume the funnel-like shape. The retina was detached below, all the way around to the ora serrata. Above at a point one-sixteenth of an inch posterior to the ciliary muscle it was lying in position. From this point it turned backward and then passed directly down to a point which lay in the pole of the lens, and from here took a course forward and then upward and finally lost itself in the ora serrata. That part of the funnel which had an upward direction was thrown into numerous and intricate folds and enclosed in its meshes a mass of vitreous body, while that part which passed below was composed of the entire thickness of the retina which appeared quite normal. The peculiarity of this portion was the absence of folds. The inner surface of the retina at the widest part of the funnel was covered with a thick mass of vitreous body and the angle which was formed by the ciliary body in front and by the retina behind, as it fell backward and downward from the ora serrata, was filled with coagulated material and fine fibrillæ, which latter passed forward and served to form numerous bridges across this angle. The ciliary processes were covered posteriorly with several layers of the vitreous fibrillæ. The zonula was not distinguishable as such, it no doubt being merged into the vitreous fibrillæ. That portion of the vitreous lying between the retina and choroid was empty. No doubt we had a fluid here during life. At some points anteriorly could be seen what are described by Nordenson as the choroidal tufts, which appeared like little bridges uniting the retina and choroid. There was nothing worthy of note about the choroid and the same could be said of the ciliary body, iris and lens. There was a great quantity of material in the interior chamber which was probably transudate, coagulated by the hardening process.

Microscopic Changes.—The changes in the retina were very noticeable and particularly in the anterior part of the eye. The anterior portion of the detached retina was the seat of the most marked degenerative changes, the retina itself resembling closely a reticulated tissue in which there was hardly a trace of the several layers. Posteriorly it was easy to recognize the several layers but they gradually disappeared toward the ora serrata and the only evidence of a layer was a single row of granules which marked the course of the external granular layer. The layer of rods and cones was intact in several places but this condition was usually found in the posterior half of the eye. At those points where the retina was thrown into very intricate folds this layer was more apt to be absent, but even in this situation it was sometimes present. In those situations where the layer of rods and cones was absent its place was filled by a mass of albuminous drops, which were arranged in layers one on top of the other. On the inner surface of the retina one could see the meshes of the vitreous fibrillæ, which appeared to be exercising traction upon the surrounding retina. This layer of fibrillæ was tolerably rich in nuclei. In one place the retina had curved around so as to form a loop, on one side of this loop all the layers were to be seen with the exception of the ganglion cell layer. The layer of rods and cones could be plainly seen as well as the external limiting membrane. On the opposite side of this loop the only layers which were present were the external granular and the external molecular, the latter to a very limited extent. The inner layers in this situation had been pulled out of all shape by the vitreous fibrillæ. The external granular layer presented generally a very irregular border line appearing at points as papilla-like projections, due I think to the folding of the retina. The layer which occupied the usual position of the nerve fiber layer and which to a large extent was that layer, was the seat of numerous nuclei. The radiating fibers of Müller showed generally a wavy course. The line of demarcation between the ganglion cell layer and the nerve fiber layer was difficult to make out. This was no doubt to be attributed to the traction exerted upon the nerve fiber layer by the fibrillæ and also by the very irregular course followed by the radiating fibers. As a rule the ganglion cells had dropped out of the section and it was impossible to identify this layer. An examination of the neck of the detachment, or as I have called it, the neck of the funnel, showed no remains of the vitreous body.

This neck appeared to be a mass of connective tissue in which it was impossible to distinguish any of the retinal layers though it seemed to be made up largely of the granular. At the papilla there was no semblance of the retinal structure. There was too at this latter point a notable absence of blood vessels. Upon the neck of the detachment on all sides there were resting several layers of albuminous drops. The fibrillæ were for the most part devoid of nuclei. They often appeared as though they came directly out of the retina and made their way into the vitreous body or as though they were prolongations of the radiating fibers, so intimate was their connection with the latter.

Choroid.—On the inner surface there were several layers of albuminous transudate resting on the pigmentary layer of the retina, which layer had remained behind as it usually does in such cases. Increased nucleation was everywhere present throughout the choroid, and further than the points just mentioned; there was nothing noteworthy in this part of the eye. The vitreous body was entirely wanting in the posterior part of the eye. Just behind the lens it seemed to be transformed into granular debris devoid of fibrillæ, while in other portions it was composed apparently of the fibrillæ which have been described. The lens, iris and ciliary muscle were normal.

The chief points then about the pathologic anatomy of this case were: 1. The widespread atrophic degeneration of the retinal layers and especially of the layer of rods and cones. As a general thing the granular layers were the only ones which were preserved. 2. Swelling of Müller's fibers. 3. The presence of

albuminous drops in various localities, especially between the choroid and retina and along the neck of the detachment, and finally the transformation of the vitreous body into the fibrillæ.

The second case was that of a boy aged 7 years who came to the Johns Hopkins Hospital early this spring. His parents had taken him to an oculist several months previously and at that time his eye was not thought to be in a serious condition. He had been complaining for the last three weeks of severe pain in his right eye and his parents had noticed a whitish yellow reflex from this eye. This was very noticeable when he came to the hospital. The tension of the eye was decidedly elevated and the conjunctiva was injected. Vision in this eye was completely gone. I advised enucleation and the eye was removed the following day. The macroscopic condition was as follows: The tumor involved almost the entire nasal half of the retina, filling up that side of vitreous space both above and below. It extended backward and seemed to proceed from the nasal side of the optic nerve and, advancing into the vitreous, stopped at a point about a quarter of an inch posterior to the lens. Over the area occupied by the tumor there was no trace of the retina to be seen. On its free side the growth was quite nodular and one of the nodules projected across to the temporal side of the eye and almost reached the retina on that side. The retina in the temporal side of the eye was completely detached.

Microscopic changes: The tumor was scant in intercellular substance and was made up of small round cells. Blood vessels were quite numerous and they were usually filled with red blood corpuscles. Large areas of the growth failed to take on the hematoxolin stain but stained with eosin. These were evidently necrotic areas. Hemorrhages were frequently seen. Wherever the tumor was present the retina was indistinguishable, the tumor having grown into it. The tumor cells were found in the optic nerve as far back as a quarter of an inch from the papilla. The vitreous body had been crowded over to the temporal side of the eye and transformed into the characteristic fibrillæ, which were exerting traction upon the retina and had pulled it into intricate folds in the anterior portion of the eye and just behind the lens the traction was enough to pull the retina backward to such an extent that there was only a short, narrow bridge separating the latter from the growth. The layer of rods and cones was nowhere visible, and as in the first case, the ganglion cells had dropped out of the section. The internal and external granular layers were clearly definable from the equator around to the ora serrata. The retina posterior to the equator was very much thickened and broken down, failing to stain. At one point only, and for a very short distance, the external limiting membrane could be seen. The fibers of Müller were somewhat swollen and had a wavy course, which more or less disturbed the position of the retinal layers. The choroid nearly everywhere had been attacked by the growth; large and small heaps of sarcoma cells were present in this coat, and generally they were resting under the pigmentary layer of the retina, which latter was pushed up. This condition extended around as far as the ciliary region on the nasal side and on the temporal side a short distance from the papilla. There were no albuminous drops. The principal changes in this case were the conversion of the vitreous body into fibrillæ and the atrophic degeneration of the retina in the anterior part of the eye.

It would seem then that fibrillary degeneration of the vitreous body is to be found in both classes of cases. In the case of spontaneous detachment it was evident that the fibrillæ were largely concerned in pulling away the retina from its normal position and from the arrangement of the retinal folds shrinkage or contraction from within must have been going on. In this case there was a considerable exudate consisting of albuminous drops resting on the membrana limitans externa, which exudate no doubt played a part in separating the retina and choroid. These two conditions would explain the detachment in the first case and similar ones. In the second, the presence of the sarcoma was sufficient to lift the retina from its position, though even here it was clear that the retina was subject to a force from within which helped to pull it still further away from the choroid. I failed to discover a rent in the retina in either case.

In conclusion, then, the most striking anatomic change in these two cases was the fibrillary degeneration of the vitreous body, a condition which I think is found more or less in every case of retinal detachment, and which probably is the chief element in the pathogenesis of the disease.

ETIOLOGIC FACTORS, OTHER THAN MYOPIA, IN THE PRODUCTION OF RETINAL DETACHMENT.

Read in the Section on Ophthalmology, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5–8, 1896.

BY H. O. REIK, M.D.

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BALTIMORE, MD.

Of all cases of retinal detachment, between 40 and 50 per cent. occur as the result of high degrees of myopia with the severe choroido-retinal changes that attend this refractive condition. In most of these cases the separation occurs spontaneously, but even in those in which it is the direct or immediate result of traumatism the eye has been previously prepared for this accident by the weakening of its tissues. In a study of the other 50 or 60 per cent. we are compelled to attribute their origin to quite a variety of causes.

The first of these to consider, because of its frequency, is trauma. Whether the eye be myopic or hypermetropic, diseased or healthy, a wound and particularly one that penetrates the sclerotic and choroidal coats, may give rise to intraocular changes that result in disorganization and separation of the choroid and retina. A myopic eye, or one that is the subject of choroidal or retinal disease, is predisposed to detachment, and in such cases often a very slight blow will produce very serious consequences. Any severe blow, or injury about the head, may produce detachment, and Dr. Maher has reported a case which he believes, and with apparently good reason, to have been caused by the use of forceps at birth.

The next largest number of cases are the result of pathologic conditions of the choroid or retina produced by those diseases of the kidneys which may be grouped under the general title of albuminuria. It is not uncommon to find associated with Bright's disease a retinitis or choroido-retinitis with more or less

impairment of the vision, and in a small percentage of these cases detachment takes place. The anatomic seat of the eye lesion in this disease is probably the blood vessels, and as the supply vessels of the retina are end arteries any interference with their function is not compensated for as readily by collateral circulation as would be the case in other parts of the body. So, almost always an extensive edema of the retina exists, which, owing to the loose attachment of that tissue, gives rise to the production of delicate folds in the membrane and later these may amount to a positive detachment, with its tendency to spread over the greater part of the fundus. Occasionally, however, the detachment is brought about in a different way. The vessel walls are sclerosed and weakened by the general disease, and any influence which tends to suddenly increase the blood pressure causes a rupture of the vessel wall with consequent hemorrhage, and the blood clot, if it be sub-retinal, produces a mechanical separation of the retina from its bed. It would appear from the cases reported that detachment occurs most frequently in that class of kidney troubles in which we have to deal with what is known as the small granular kidney. As very many of the reports, however, do not state the pathologic nature of the kidney lesion, it is difficult to arrive at any definite conclusions in this direction. The above supposition, however, is what one would naturally be led to expect, as it is in association with the small atrophic kidney that retinitis albuminuria is most common. Just as the retinal inflammation may occur in any form of nephritis, either acute or chronic, so may detachment be the ultimate result.

The class of cases which probably offers us the most favorable prognosis is that occurring in the albuminuria of pregnancy, for here, if necessity arises, the cause of the disturbance may be removed, and with that element withdrawn there is a remakable tendency to spontaneous recovery. There seems to be no particular time in the course of pregnancy when we may anticipate retinal complications, as retinitis has been observed in every month, yet it is probably most liable to occur in the latter part of gestation, when the greatest tendency to general edema exists. Schoeler reports cases of two sisters, both of whom suffered during pregnancy from detachment of the retina without any signs of albumin or retinitis.

The following case of retinal detachment was related to me by Dr. Randolph. It is especially interesting as having occurred during labor. The woman was the mother of eight children and always had easy labors. Just before the birth of the ninth child her physician had made a thorough examination of her urine but had not discovered anything pathologic. The labor was an exceedingly painful one and lasted for twenty-four hours. At the height of one of her pains, and just after she had made a violent effort, she noticed that everything became blank before her right eye. Since then she has been practically blind in that eye. When seen by Dr. Randolph there was nearly complete detachment of the retina in the right eye, the left eye being quite normal. The case was seen a few days after the labor. I think that the violent efforts and straining which she was constantly making led to a rupture of one or more of the retinal vessels which discharged their contents beneath the retina, thus forcing the latter away from the choroid, producing a detachment. When we consider the frequency of subconjunctival ecchymoses following great efforts at stool or in children with the whooping cough, it is not strange that hemorrhage from the deeper vessels of the eye should have followed the violent efforts of a woman in labor.

A few cases of detachment due to diabetic retinitis have been reported, but such cases are extremely rare, as diabetes is but seldom complicated by retinal disturbances.

Galezowski found it, I think, in about 2 per cent. of his cases; syphilis is given as the cause, and the same writer reports four cases the apparent result of sympathetic ophthalmia.

Dr. Mathew Owens of Brisbane, reported in 1884 two rather peculiar cases of double retinal detachment occurring in previously healthy eyes, as the result of sunstroke. Both men were cattle rangers and the sunstroke was followed immediately by detachment. The men were young and there was no history of any diseased condition that might have predisposed them to detachment. In considering the cases Dr. Owens offers the following as a possible explanation: "It was shown by Boll that eyes which have been exposed to the influence of various colors are affected very differently as regards the pigment epithelium layer. If eyes have been exposed to red or yellow, or kept in darkness, the pigment layer is quite easily separated from the retina, but not so if exposed to white, green or blue. The retina and pigment are so closely united that they can not be separated. . . . The eyes of both patients had been exposed for some hours to the sun's glare, retinal hyperemia was present, sunstroke came on; the sinuses of the brain being engorged there was an impediment to the return of the blood to the brain from the congested fundus, effusion of serum took place, and the retina was quite ready to be detached because its pigment layer had been exposed to the yellow glare of the dried up ground." It is a rather unique explanation, and one which in my opinion is somewhat forced.

Erysipelas of the face and neuralgia of the fifth nerve in a small number of cases, have appeared to be the cause of retinal detachment.

Separation may be produced mechanically by hemorrhage or by sero-purulent exudates such as occur in purulent choroiditis or in phlegmon of the orbit. Tumors in the choroid or retina, or a cysticercus developing beneath the retina may also be causative factors. The tumors are usually glioma, or choroidal sarcoma.

In every case of detachment the cause should be determined, if possible, because of its important bearing on the treatment. Rydel has given statistics to show that 5 per cent. of all our blind have become so from retinal detachment. Despite the greatest care taken, however, in examining these cases, there still remain a large percentage in which no cause for the lesion can be ascertained. In these cases the patient usually gives the history of having been perfectly healthy, with an eye that was either emmetropic or hypermetropic, and no exposure to injury of any kind. The first symptom is a slight cloudiness of the vision, or a limitation of some portion of the visual field. It is not attended by pain and it is only the loss of vision, more or less complete, that causes the patient to consult an oculist. Some have thought that disturbances of the sexual nervous organization might be an explanation of a few cases, and in that connection quote Hutchinson as saying that "sexual abuse may produce

degeneration of the vitreous," but I can find no case recorded where there is any conclusive evidence of this having been the cause. Sudden suppression of the menses may result in hemorrhage, and that in detachment.

The pathology of this affection has not been satisfactorily explained. It was formerly held that the retina was pushed forward by a transudation from the choroid. This hypothesis now has few adherents.

A second theory, now generally known as the Leber-Nordenson, and which is the one most generally accepted, attributes the attachment to traction from the vitreous side. The active cause here is held to be a shrinking of the vitreous, which ruptures the retina and permits the fluid from the vitreous cavity, pressed out by the contracting tissues, to pass through the rent into the subretinal space.

This hypothesis assumes not only a shrinking of the vitreous, but an adhesion between the vitreous and retina and a rupture of the retina previous to its detachment.

That rupture of this membrane necessarily precedes its detachment I do not believe. I can not see the need of this supposition in regard to a tissue so loosely attached to its bed as is the retina, and, furthermore, if it does always occur we should be able to see it in a greater number of cases. In a very large percentage seen, even in early stages, it is impossible to find a rupture and even Leber, who considers it so important to his theory, found it positively, in relatively fresh cases, in only about 50 per cent.

It may be that in some cases, at least, the change in the vitreous humor is a chemic one, which leads to an interchange of fluids between that body and the blood vessels of the choroid, and that detachment is produced in accordance with the diffusion theory. This theory, so ably advanced by Raehlmann, has not received the consideration it would seem to merit.

Though the immediate cause of displacement is so obscure it is probably safe to say that the vitreous is always the seat of pathologic alteration, though such changes may not be, and often are not, apparent by ophthalmoscopic examination. One can hardly conceive, except in case of intra-ocular growth, or of subretinal hemorrhage, of detachment occurring when the vitreous is of normal consistency and exerting its usual pressure on the surrounding parts.

TREATMENT OF DETACHMENT OF THE RETINA.

Read in the Section on Ophthalmology, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

BY CASEY A. WOOD, M.D.

CHICAGO, ILL.

Without taking your time with a historical sketch of the various remedies employed in the treatment of detachment of the retina I may say that the earliest efforts of the ophthalmic surgeon were directed to puncturing the subretinal sac, as it was found that this usually brought the displaced membrane into its normal position. As, however, the detachment was found to occur a second or a third time or, indeed in many cases, as often as it was replaced, various expedients were resorted to with the hope of rendering the cure permanent.

Before speaking of these matters in detail let me remind you that replacement of the membrane does not necessarily mean a restoration of the lost visual function, although it is a *sine qua non* of that restoration. Nor do the visual acuity and the extent of the visual field form a proper measure of the success of a remedy for detached retina *as such*. A badly damaged retina (as in the long standing cases) perfectly replaced may give results much less satisfactory to the patient than an imperfect replacement of an otherwise healthy membrane—such as we commonly find in recent examples of this disease.

I pass over the treatment by rest in bed, with or without such adjuncts as bandages, the local use of eserin and atropin, the internal administration of salicylates, purgatives, diaphoretics, potassic iodid, pilocarpin injections, starvation, iridectomy, sclerotomy and puncture of the sclera, to take up certain other surgical proceedings that are now claiming attention as being more or less novel.

I had been attached for nearly a year to Professor Schöler's Klinic in Berlin when he first began to experiment with intra-vitreous injections of iodin in this disease. Consequently, I have had excellent opportunities of observing its effects. Although much was hoped and expected from the procedure and a number of cures have certainly resulted from its use, the evidence is on the whole against it as a dangerous and by no means certain remedy. That numerous eyes have been entirely lost from the employment of Schöler's method, I am obliged to confess, and I do not think that, even in its modified form, one would be justified in employing it. Most of you will also recollect Gelpke's experience. The patient, a healthy man, 66 years of age, with detached retina, received under strict precautions a vitreous injection of three drops of iodin mixture. *In two days he had a purulent choroiditis* and in six days he died of acute meningitis.

Other less active and more certain expedients may be employed to produce all the effects which Schöler claims for the iodin injections. We may dismiss, also, as needless and dangerous, the injection of irritating fluids—such as potassic permanganate, suggested, I think, by Darier—through a puncture in the sclera. To this category, too, belong De Wecker's device of a gold suture and Galezowski's catgut suture, all three intended to produce local inflammatory areas and so bind choroid and retina together.

Wolfe of Glasgow, made a long incision (6–10 mm.) through the sclera, the underlying conjunctiva being pulled away by hooks, and so obtained free and continued drainage of the subretinal fluid. In fifteen eyes he had improved vision (lasting five months to a year) from ½ to 1-50; in five cases the results were *nil*, and in two instances the eyes were lost. Even when performed under strict aseptic precautions the danger of infection through these large wounds must be considerable.

Gillet de Grandmont first advised electrolysis of the subretinal fluid. Simi of Florence, among others, has successfully tried this method in a case of recent detachment, using a 5 milliampère current for sixty seconds, and two weeks subsequently the same current for seventy seconds. There were signs of reaction in both iris and vitreous and the exudation disappeared, but the detached portion remained opaque and was clearly outlined from the healthy retina by a pigmented line.

Terson of Toulouse, from a study of twelve cases in which he employed electrolysis of the post-retinal fluid, believes that the method of Gillet de Grandmont

with a single needle attached to the positive pole is superior to those of Abadie and Schöler, the latter of whom employed the bipolar plan—making two punctures in the globe.

Posterior Ophthalmotomy.—Galezowski[1] formerly relied on iodin injected into the post retinal pocket (1886) with aspiration of the contained fluid. If necessary he followed this with a catgut suture, passed like De Wecker's earlier gold stitch, through all the eye coats. This latter procedure usually succeeded in binding the retina to the choroid but as it was followed in two instances by severe intraocular inflammation he abandoned it in favor of the operation which he now recommends as free from danger and quite as successful. He calls it posterior ophthalmotomy. The instrument used is in the form of an arc of a circle, like a curved needle, so that a sufficiently large puncture and counterpuncture can be made and a sufficient number of retino-choroidal cicatricial points produced to keep the detached membrane in place when it has once returned. He has already followed this plan some seven times—in five cases with partial, in two with great success. In one instance of a man aged 50, with a double detachment, of long standing on the left side, but recent on the right, he obtained a complete cure in six weeks. The linear cicatrices could be made out with the mirror; the visual field and central acuity were very greatly increased.

Probably the most recent, original and important contribution to the rational treatment of retinal detachment has been made by Deutschmann of Hamburg, which first appeared in his *Beiträge zur Augenheilkunde*, although he has since (in May, 1895) given an abstract of the brochure in the *Deutsche med. Wochenschrift*. He prefixes the account of his methods by a reference to Erik Nordenson's work with Leber.

Apart from certain rare forms of the disease, detachment is due not so much to a primary deposit of water from the choroid behind the retina as to the dragging upon this coat by a diseased and shrinking vitreous. The detachment is merely one of the signs of the vitreous disease. Nordenson shows that without losing its transparency the vitreous develops a fibrillar quality, decreases in volume and in shrinking allows the vacant space to be filled with serous liquid. This change in the consistence of the vitreous body is not unfrequently accompanied by proliferation of the vitreous elements as well as by a chronic inflammation of the choroid. Portions of the thickened vitreous remaining firmly attached to the retina are, with it, liable to be dragged toward the center of the posterior chamber. Deutschmann's first proceeding, which he names *Netzhautglaskörperdurchschneidung*, is intended to sever all connections between the shrinking vitreous and the retina, to allow of a free communication between the posterior chamber and the serous collection behind the retina, to empty the latter space so that the freed retina may return to its normal position, and lastly, to produce adhesion between choroid and retina at certain points; these indications are met by the following operation: The previously atropinized eye is cocainized and a double edged knife, of the Graefe pattern, is introduced at the chosen spot, the conjunctiva being pushed to one side. It pierces all the ocular coats, sclera, choroid, and the detached retina. Thence the knife is passed obliquely through the vitreous mass until it touches the opposite wall of the bulb. It is now carefully moved to and fro toward either side making a vitreous discission and is finally removed, and a light occlusive and antiseptic bandage applied. Slight hemorrhage occurs at the point of entrance of the knife and inflammatory action is set up about the incision points in both choroid and retina. This latter process is relied upon to permanently fix the retina to the choroid and so resist any subsequent pulling of the vitreous.

The patient is now kept in bed for eight to fourteen days, until the ophthalmoscope shows that the case is cured. The atropia is continued for several weeks longer. When the retina does not lie perfectly flat on the day after the operation, a delay of a few days may be made in the hope of its complete return to the normal position. If this fails the same procedure is to be resorted to, as often as is required, until the desired effect is obtained. Deutschmann has operated ten times upon the same patient with good results at last. He thinks that repeated thrusts of the knife are safer than, and as effective in inducing a sufficient degree of adhesive inflammation between the retina and choroid as the application of the Paquelin or electro-cautery point to the sclera, or, piercing that also, to the choroid and displaced retina beneath.

He refers in his short article in the *Deutsch. med. Woch.*, to eleven patients treated by him, to date. Upon four the Paquelin cautery was employed and the sclera pierced. Of these four, two were partially relieved and two not benefited. Of the remaining seven, where the cautery was omitted, total replacement ef the retina was obtained in six instances, with decided improvement in vision. This satisfactory condition has persisted in one case for four years, three cases two years, one case one year and one five months. In the case, where least benefit accrued, only one operation was made, the patient declining further interference.

The author advises this operation in those more favorable cases, where the displacement is recent and not too widespread and where disease of the coats is not advanced.

In another class—in their nature more hopeless—he has employed quite a different and novel remedial process, which he styles "*Kaninchenglaskörpertransplantation.*" This was first tried on a patient 28 years of age, with bilateral detachment of the retina. The left eye had suffered a sudden and total separation of the retina from the choroid. The eye was soft and vision was reduced to perception of light in the upper part of the field. Both anterior and posterior retinal spaces were filled with a sero-sanguineous fluid. Deutschmann removed this bloody serum and with an ordinary hypodermic syringe injected into the empty vitreous cavity the freshly prepared, aseptic vitreous of a young rabbit, diluted with a $\frac{3}{4}$ per cent. solution of common salt. The addition of the sterilized salt solution was intended to allow of easy flow of the vitreous as well as to act as an irritant and bind the choroid to the retina. The result was marvelous. The operation was performed Feb. 4, 1894. On April 28, V = $\frac{1}{2}\frac{7}{0}\frac{}{6}$; on July it was $\frac{1}{7}\frac{}{0}$ and Jäger No. 3. F. of V. for white was uncontracted and has so continued.

Deutschmann has, to May, 1895, performed this operation on six patients and seven eyes, and in four obtained results that hitherto would have been regarded as impossible. In all, central vision before the operation was reduced to perception of light or

[1] Galezowski: Mem. et Bull. de la Soc. frs. 1895, p. 170.

shadows and most of them were cases of total detachment.

In case 2, which was of many years standing, there was beginning secondary cataract; V= eccentric finger-counting at four feet. Result: Useful central vision, replacement of the detached retina and enlargement of the eccentric field to twice its previous size. Case 3, total detachment from injury. V= hand movements. Visual result not very encouraging. V=finger counting at 2 and 3 feet eccentrically.

In the other cases the result was uniformly favorable. The patients have been under observation for from a year in Case 1 to five months in Case 6 after the replacement of the retina. This operation may have to be repeated two or even three times and it must be remembered that an inflammatory reaction follows each injection.

Detachment of the retina does not occur often in this country, but I have on my records six cases that consented to be treated for a sufficient length of time to make my experience with them worth mentioning. The treatment for two scleral punctures, one iridectomy and the other three had prescribed for them continued rest in bed with pilocarpin injection. Only in one case, treated by puncture and pilocarpin, was there a permanent cure, the retina being replaced, the visual field expanded, and the central vision now equals finger counting at seven feet, although at one time it was reduced to perception of light. This continued for nearly a year, when I lost sight of the patient. My experience of this disease in my own practice, public and private, and in that of others lead me to think, with Bull of New York, that we have as yet discovered no better device than that resorted to with occasional success by the older ophthalmologists, viz.: rest in bed, bandages, atropin and the internal use of some absorbent. Instead of the long continued use of pilocarpin, especially when that drug is ill borne by the patient, we may substitute soda bicarbonate and potassic iodid, well diluted with water. In all recent cases where the eye is quiet and there is no vitreous strand to sever, conjunctival puncture of the sclera may do temporary good and vision may be improved. Division of fixed membranous bands in the vitreous may be done without causing much reaction and may prevent extension of the disease. He does not approve of Schöler's method.

In conclusion, this review of the treatment of detached retina would be incomplete without a reference to spontaneous cures. Many such cases are recorded; indeed one may safely say that of all the histories of cures, temporary and permanent, at least 10 per cent. were accomplished without treatment. So numerous and well authenticated are they that I think that a large percentage of the results obtained after iridectomy, after removal of the lens, from the use of atropin, bandaging, pilocarpin, etc., even some cases of cure following posterior operation, are really brought about by local and general rest—by putting patients in such a position that they can not by over exertion of any kind make a bad matter worse. The retina, having meantime broken loose from its connections with the shrinking vitreous, returns to its natural position—and the treatment, medical or surgical, receives the credit.

This is the proper season to increase the membership in the ASSOCIATION. Let everyone secure *one!*

REPORT OF A CASE OF RETINAL DETACHMENT AND EDEMA OCCURRING IN CHRONIC BRIGHT'S DISEASE.

Read in the Section on Ophthalmology, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5-8, 1896.

BY LOUIS F. LOVE, M.D.

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PHILADELPHIA, PA.

When we take into consideration the blood conditions existing in albuminuria, it seems strange that the occurrence of retinal edemas and detachments are not more frequently found. The vitreous body is undoubtedly nourished from its surroundings, and Raehlman long ago demonstrated that by injecting strong salin solutions into the vitreous he was able to produce retinal detachment and that the fluid secreted was densely albuminous, so that it seems rational to say that any cause which produces profound changes in the circulation would interfere with the balance of osmosis between the vitreous body and the choroidal vessels. I believe that by a careful chemic and microscopic examination of the general blood conditions, especially the liquor sanguinis, we might be able to benefit, at least, some of our patients to whom we are at present useless. In detachments taking place in high myopias or resulting from inflammatory conditions, this line of investigation would be of no avail; but in those cases arising without apparent cause, such as we occasionally see in emmetropic eyes, that such a research might be of use. This case is reported for the reason that it is not only rare, but because of the unusual prolongation of life.

C. D., a short, stout woman, aged 54 years, applied for treatment Oct. 26, 1892, giving the following history: Had always enjoyed good health. Lately slight headaches and dyspnea upon exertion. She is the mother of five children. three living, no miscarriages, menopause at 46. Four years ago her vision in her right eye failed suddenly. About two weeks ago she noticed a dimness in the left eye. The present eye conditions were as follows: O. D. V. = counting the fingers at ten inches. O. S. V. = $\frac{20}{70}$ + S. 2D. = $\frac{20}{30}$ + S. 4D. type 1D. 12c to 25c. The eyes are rather deeply set, ocular and tarsal conjunctiva pale, the arcus senilis well marked above, the color of the irides brown, right pupil 3 mm. and very sluggish to light; left pupil about $2\frac{1}{2}$ mm., active to light. Anterior chambers shallow, strong reflexes from both lenses. Right eye Tn — left Tn.

Ophthalmoscopic examination O. D: A few very fine floating vitreous opacities; the nerve decidedly atrophic; the vessels diminished in size and a retinal edema extending well out when an extensive retinal detachment was plainly seen superiorly and inferiorly, giving the characteristic delicate gray undulating tremulous protruding membrane. The vessels could be traced from the papilla out into the detachment, and in places showing sharp bends and partially hidden from view by the folds of the separate surface. The disc is seen best with + 3D., the detachment with about + 7D. Left eye lens seemingly hazy, disc very red gray, veins slightly enlarged, arteries normal in caliber, carrying poor blood, a large area of hemorrhagic extravasation in the macula region and a few white plaques found just above the disc. H. = 4d.

Examination of the urine was as follows: Straw color, acid, specific gravity 1018; albumin in moderate

amount, no sugar; microscopic examination hyalin casts, pus cells and few blood corpuscles.

The patient was under the care of Dr. J. C. Wilson, who saw her on four or five occasions, between Nov. 1, 1892, and March of the following year. His report to me was as follows: There was cardiac hypertrophy, accentuation of the aortic second sound and slight pre-tibial edema. She improved in respect to the headaches and restlessness while under treatment by strychnin and nitroglycerin, together with a carefully regulated dietary.

The woman was not seen again until Nov. 6, 1895, three years after the first examination. O. D. V. = light perception only. O. S. V. = $\frac{20}{70}$ + S. 2D. V. = $\frac{20}{30}$. Ophthalmoscopic examination shows vessels thread-like in the right eye, apparently similar conditions of retina as existed when first seen. The left eye, the nerve quite gray, vessels about normal in size, in the macula region a brownish black area, and above the disc there are characteristic changes of an old retinitis Brightii. The patient states that her general condition is about the same, enjoying fairly good health; she has taken no treatment since March, 1893, but adheres somewhat to the regulated dietary as ordered by Dr. Wilson.

1762 Frankford Avenue.

DISCUSSION ON PAPERS OF DRS. RANDOLPH, REIK, WOOD, AND LOVE.

Dr. J. A. White, Richmond—In considering the etiologic factors of detachment we are to some extent groping in the dark. Apart from myopia, tumors, subretinal hemorrhages and effusions, I do not think we have any very sure foundations for explaining the many cases we meet with where there is no apparent cause whatever. It is important to know the cause in order to decide upon the method of treatment, but in many cases this can not be established. When we come to consider the treatment we are still as badly off as we were many years ago. The old treatment of rest, diaphoretics, pilocarpin, etc., give us as good results to-day as any of the operative procedures. It is only in the recent cases of detachment that we have had any satisfactory results from any of the methods. I have tried rest, iridectomy, sclerotomy, paracentesis and sclero-puncture. I do not advise operative measures except in recent cases where the macula is involved, and even then I do not if there exists a condition likely to lead to hemorrhage. Electrolysis may be a good thing; certainly much has been claimed for it. The galvano-cautery is too dangerous, and should be placed in the same category as the injections of iodin. Deutschmann's method has been mentioned, but neither he nor anyone else has had sufficient experience with it to warrant very favorable reports. One method that has not been mentioned here is that of Strau. He frees the conjunctiva from the sclera over the site of the detachment, makes three little slits in the sclera, and then unites the conjunctiva over this with sutures and allows it to heal. He then makes injections in this region of a 1-5000 bichlorid solution, and has claimed very good results. It is simply an experiment, like all the others, and may be discarded. I have not tried the injections of rabbit's vitreous according to Deutschman. I have watched a few cases in private practice from their start. One was in a physician and associated with myopia. He has a low grade of myopia and wears a —2.50 D for distance, and with it has had for fifteen years almost perfect vision. Recently he said that he had a little spot in his eye; I paid no attention to it, thinking it simply a musca volitans. Some time later he complained of an increase of this spot, but I could not find any opacity with the ophthalmoscope. Later a slight spot became visible, looking like a floating string, and I then told him that his vitreous was undergoing liquefaction, though he never had any alteration of the refraction or any changes in the choroid that I could determine. Soon I noticed a secondary detachment, and although we gave treatment by rest, pilocarpin, etc., at once, in sixty days the detachment was absolutely total. He from the first refused an operation, because he was well acquainted with the subject, and knew the slight chances of success.

Dr. Lyman Ware, Chicago—I did not for a moment question the correctness of the report of Dr. Terson's cases, but I was not convinced that electrolysis was the cause of the result. Is the using of a positive pole a rational treatment? One of the first things settled in regard to the use of electricity was that the positive pole produced coagulation and the negative pole diffusion. Would not absorption be best brought about by the use of the negative pole? The fact that we have such a variety of treatments offered shows that none are very satisfactory.

Dr. A. R. Baker, Cleveland—I wish it were possible to make a more scientific classification of these cases. In the case of hemorrhage, tumor or trauma the detachment is simply an incident, and in those cases produced by Bright's disease, if the cause could be removed the case would recover. Formerly I made a sclero puncture, but lately I have omitted that. Besides rest I give them diaphoretics, and in some cases we have found considerable benefit. One case where there was almost complete detachment in one eye existing for a number of years was followed by detachment in the other eye. I kept him under treatment for six months, and discharged him with fairly good vision. About three years later I found him back in the hospital, blind and without any prospects of recovery. Treatment is very unsatisfactory.

Dr. G. E. De Schweinitz, Philadelphia—I would deprecate the report of cases of retinal detachment submitted to operative interference, before sufficient time has elapsed to test the sufficiency of their cure. I would suggest that Deutschmann's result in human beings with injections of sterilized vitreous be repeated in animals.

Dr. D. S. Reynolds, Louisville—I am unprepared to accept the details of the pathologic changes described by Dr. Randolph. It is by no means clear that the drawings furnished are sufficiently accurate to support the accompanying descriptive language. The normal retina can not be shown to contain pigmented layers, yet Dr. Randolph's report contains a reference to that impossible condition. In my own experience results have been in some cases very encouraging at first, but in a few months fatal relapses have occurred. In persons under fifty years of age, in good robust general health, medicinal treatment often yields brilliant results, but in nearly all cases subsequent return of the detachment of wider areas surely comes on in due course of time. I have seen it most always in myopes, but never in any but progressive cases. My attempts at operative treatment have yielded results in no wise more encouraging than that by the salicylates, pilocarpin and the iodids, with rest in bed. Much remains yet to be done before we may claim any permanent recoveries from any treatment.

Dr. R. L. Randolph—While nothing positive has been added to the therapeutics of this subject, I think we have gone over the whole field thoroughly, and it is always a help to know the present status of any subject.

Dr. A. R. Baker, Cleveland—The question has often been suggested to my mind whether we have detachment in this class of cases. I have seen but few except in high degrees of myopia, and become so accustomed to think of it in this way that I have almost quit looking for any other cause.

Dr. F. W. Higgins, Cortland, N.Y.—In looking up the subject of edema of the retina in Bright's disease, I noticed one cure reported by Brecht (Archives f. Oph., Vol. xviii, 2, p. 102) of marked detachment of the retina in nephritis. He considers it very rare and due to some predisposition.

THE USE OF CAUSTICS FOR EPITHELIOMA OF THE LIDS.

Read in the Section on Ophthalmology at the Forty-seventh Annual Meeting of the American Medical Association held at Atlanta, Ga., May 5-8, 1896.

BY FRANK TRESTER SMITH, A.M., M.D.

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CHATTANOOGA, TENN.

This subject was suggested by the following case which came under my observation.

Frank S., age 64, of Chattanooga, at the age of 43 had had the right eye destroyed by an explosion. The ball was shrunken and the lids adherent, so that this eye was entirely useless.

The left upper lid presented an ulcer about one-third inch in diameter covered with a dry scab; on the inner and outer sides there appeared to be a blister. The trouble began twelve years ago from a small scab which was picked off from time to time and the ulcerated surface had gradually grown larger. A few days before, some empiric had made an application which had caused the ulcer to double in size, after which the borders had become blistered. A soothing application was prescribed with the idea that the blisters would disappear, but the bases became hard and the contents gelatinous. The case did not improve after several weeks' treatment. The diagnosis of epithelioma was made, and an operation, consisting of the total removal of the inner half of the lid and supplying its place by a plastic operation, advised. The patient was myopic and presbyopic. Left vision 20-200 with 2 dioptry concave lens 20-70. While preparing for the operation the patient came under the care of an empiric who by means of some caustic, apparently destroyed the pathologic growth, and it was replaced with a smooth cicatricial tissue, leaving the lid intact and much more useful and ornamental than any plastic surgery could have devised.

The case suggests that in some cases of epithelioma of the lids, especially where we can not operate, that caustics should be used. In this case the pathologic tissue extended so as to require the removal of the entire thickness of the lid by any cutting operation, and any surgeon would certainly have removed at least half the lid and even then there would probably have been a reappearance of the tumor. Nearly all this was removed and the lid left in good shape, with the loss of a small amount of tissue, by the use of caustic in unskilled hands. It can but suggest that if the caustic had been carefully and thoroughly applied the cancer cells would have been thoroughly destroyed.

Dr. A. R. Robinson, of New York, called attention to the advantages of the use of caustics in the treatment of cutaneous epitheliomata in an instructive paper read before the Tri-State Medical Society of Alabama, Georgia and Tennessee in 1895. For use about the eye he recommended a solution of chlorid of zinc in a 20 per cent. solution of cocain.

The objection to the use of caustics, in this location, is that some of it may come in contact with the eyeball and cause ulceration. For this reason these growths are removed by cutting.

The advantages of the caustic over the knife are that there is usually less destruction of tissue, and with the destruction of the same amount, the result is surer, because the necrosed tissue is surrounded with an inflammatory zone and the products of the inflammation tend to destroy the pathologic cells for a distance beyond the part extirpated. This is more likely to be the case if the wound is allowed to suppurate, as it is generally conceded that the toxin of germs which produce suppuration are destructive to the cells of epitheliomata.

Some of the caustics have an elective action on the cancer cells. This is notably the case with arsenious acid, which should be used weaker than in Marsden's paste; three parts of acid to two of gum acacia. It is said this will not attack normal tissue for twenty hours. It is believed that by having the case under constant observation during the application, that caustics can be used safely on the lids, in many cases, to the advantage of the patient. I am aware that this position is opposed to that of most oculists but I have been told that some of the members of this Section have used caustics instead of the knife. However, I have been unable to find any literature on the subject.

MEDICAL PARIS.

NOTES FROM MY SKETCH-BOOK.

BY L. HARRISON METTLER, A.M., M.D.

CHICAGO, ILL.

In his powerful romance, "Les Mystères de Paris," Eugene Sue, who, by the way, was a physician and the son of a physician, paints a vivid picture of Parisian low life, locating most of his scenes in the crowded tenements and narrow alleys which once occupied the ground now covered by the immense buildings of the Hotel Dieu. When these buildings were constructed, only a few years ago, the remains of the historic Hotel Dieu, as well as many another ancient landmark, were swept out of existence. The Ile de la Cité, with the noble old cathedral of Notre Dame, the gruesome Morgue, so strangely fascinating to Dickens, the Hotel Dieu, so often pictured in history, poetry and romance, the Palais de Justice, the oldest monument in the city, and the matchless Sainte Chapelle, the gem of medieval architecture, constitutes only a small section of modern Paris, but it is the richest in historic lore and romantic anecdote. In one of the ancient streets, now vanished on account of the encroachments of the Hotel Dieu, dwelt the shrewd physician, Theophraste Renaudot, who, in 1630, printed the first Parisian newspaper, *La Gazette de France*. The wily Theophraste had observed something of the power of human curiosity and had cunningly undertaken to gather news from all quarters for the amusement of his patients. Of course his clientage rapidly increased and in a short time he was more in fashion than any of his practicing brethren. But all Paris could not be expected to be on the doctor's sick list at the same time, and were even such a pleasant thing possible his suite of apartments would not be able to accommodate such a glorious rush of practice. Accordingly the doctor decided to publish weekly some fly-sheets, containing the latest news from other countries. For this he needed a license and obtained it *cum privilegio* in 1632. The success of the venture surpassed the most golden dreams of even the medical imagination. Similar fly-sheets had already been issued in Venice, for which a small coin, *una gazzetta*, was asked, whence comes the name of our modern gazettes.

One day as I was coming out of the Hotel Dieu, a student, with whom I happened to get into conversa-

tion and to whom I had just mentioned several special clinics which I had learned were to be given, asked me where I obtained my information in regard to all these things. Of course I told him and then wondered if old King Clovis did not turn over in his grave to think that a Chicagoan must needs inform a descendant of the proud Franks in regard to his cherished Maison Dieu. The Hotel Dieu Hospital, or God's Hostelry, known in early history as the Maison Dieu, is said to be the most ancient hospital in Europe. The actual date of its foundation appears to be in doubt, though there are reasons for thinking that it had its origin under Clovis, King of the Franks, who flourished during the latter half of the fifth century. Saint Landry, who was Bishop of Paris about the middle of the seventh century, is the reputed founder. It is probably this hospital that is mentioned under the name of St. Christophe in a charter of 829. The Maison Dieu was not the direct offshoot of a monastery, as many other hospitals were. In accordance with the decree of Charlemagne, promulgated in 816, that at each See one of the canons should govern the hospital, and that the latter should always be near the cathedral, the Maison Dieu was erected within the shadow of the Notre Dame cathedral and was, until quite recent times, under the control of its chapter. At first it was more than a mere harborage for the sick. It was a charitable organization, embracing every form of aid to the poor and outcast. The first building to bear the name of Hotel Dieu, on the south side of the Place du Parvis Notre Dame, was commenced by Philippe Auguste, who named its first ward the Salle St. Denis. Queen Blanche of Castille added the Salle St. Thomas. It was then almost entirely rebuilt by St. Louis, who added especially the Salle Jaune and two associated chapels on the river bank. For nearly a hundred years after this it was wofully neglected, but when Louis XI. ascended the throne its prosperity revived. This king did much to favor it, and built the exquisitely beautiful gothic portals of the two chapels near the Petit Pont, which, together with the elegant renaissance gable belonging to the Salle du Légat, were the particular artistic features of the building until its destruction by fire in December, 1772, when many of the sick inmates perished and the rest were hastily received by the archbishop in Notre Dame. Henry IV. added two wings and greatly increased the revenue of the hospital. Were it not for the frightful loss of life and the burning of the charming chapels, the destruction of the old hospital was a blessing rather than otherwise. It was small, badly arranged, and anything but architecturally beautiful. Victor Hugo describes its front as "furrowed and rugged" and says its roof from the tower of the cathedral looked as though it were "covered with pimples and warts."



PARIS, LOOKING NORTHWEST FROM THE TOWERS OF NOTRE DAME CATHEDRAL. HOTEL DIEU IN THE FOREGROUND.

The next building that was erected to take the place of the old Hotel Dieu was devoid of all special features in the way of art and architecture. What little effect it did produce upon the artistic eye was completely lost by its juxtaposition to the great cathedral. It consisted of several irregular masses of buildings, and its portal, erected in 1801 after designs made by Clavereau, was severely plain and Doric in style. Beneath its peristyle stood the statue of the philanthropist Montyon, who was buried (1838) here, according to his desire, in the midst of the poor and sick. It was in this building also that the famous poet Gilbert died in 1780. In the reign of Louis XVI. the over-crowded condition of the hospital was a disgrace to the city of Paris and to the science of medicine. The monarch attempted some relief by erecting

four auxiliary establishments in the suburbs, namely, the St. Louis Hospital, the St. Anne Hospital, the Hospital for Incurables and the Hospital for Convalescents. A horrible picture of the wards at this time was given by Tenon, the president of a committee of investigation appointed by the Academy of Sciences. Convalescents were seen by the local commissioners in the same room with the sick, the dying and the dead. The insane were confined in neighboring rooms and apartments and kept the other wards in a continual state of excitement with their ravings. Operations were performed in the same room or ward in which there were beds containing other patients. In the days before the use of anesthetics we can well imagine that the cries and contortions of those undergoing operations would have anything but a favorable effect upon the other patients. During the French Revolution the name of the hospital was changed to L'Humanité. Finally the whole conglomeration of inadequate and unsightly buildings was demolished, an increased area was secured and the present vast, homogeneous and elegant edifice was inaugurated in August, 1877, under the direction of the architect Diet. It is an immense oblong stone building surrounding a courtyard of ample dimensions. The arrangement of the wings, gridiron-like, is the happiest imaginable for the introduction of air and sunlight into the interiors. Overlooking the courtyard is a peristyle or open porch all round the building where convalescents may sit in the open air. The work of the hospital comprises a service of about 810 beds. Of these 430 are for men and 380 for women. Medical cases take up 555 beds while 255 are given over to surgical cases. The history of the government of the hospital is interesting. Until 1505 it was under the management of the chapter of Notre Dame. After that year it was looked after by a committee of lay governors, eight in number, selected from the citizens of Paris. The selection was made by the mayor and aldermen and the appointments confirmed by the parliament. In 1654 the number of directors was raised to twelve. In 1690 Louis XIV. made some alterations in the government and formed the Grand Committee, including in that committee the archbishop of Paris, the former presidents of parliament, of the taxation court, of the court of alms, the commissioner of police and the mayor. To-day it is under the control of the Assistance Publique, one of the departments of the Prefecture of the Seine, as I explained in my last sketch. The oldest paper in its rich collection of archives is dated 1157, and from 1531 to the present there is a complete unbroken history of its work. Such is the story in brief of God's Hostelry, Paris, the oldest hospital in Europe, and one of the greatest in the world. Within its walls medicine has had one of its firmest strongholds and from its wards have issued many discoveries in science. Did I say the poet Gilbert died here? Many another poet has died here too; yea, and statesman and artist and soldier and king, whose names have never been emblazoned on the escutcheon of fame. Sickness is a great leveler of the human race; births and deaths emphasize the equality of man. A hospital is a place for thought, a great hospital awakens reflections that only eternity can answer.

As a frequent visitor to the Hotel Dieu I was intensely interested in some of the differences between French and American hospital methods. One day I accompanied a group of students, who were being instructed by the surgeon Kermisson, a spare, active, wiry sort of a man, who always wore a skull cap, through the wards. The operator hastened from one bed to another, examining this patient, performing a slight operation upon that one, prescribing for another, while the class arranged themselves as best they could about the foot of the bed, to see and hear what was being done. This walking through the wards has clearly its advantages for the student but disadvantages for the patient. The latter is excited and made nervous and it seemed to me was unnecessarily exposed to the contamination and germs of disease brought in by the students from the street. When an operation was to be performed a screen was placed by the attendants around a table at one end of the ward and the patient carried from the bed to the table. The patient, especially if it were a child, would scream and kick and thus disturb the entire ward. The morning visits of the staff were therefore always a time of excitement and turmoil, and in many respects the manner of them seemed to me to be unfortunate and primitive in the light of the scientific knowledge of the present day. Among the group of students, men and women, about twelve or fifteen in all, elbowed one another for a closer view or rattled their tongues in chatter like flying shuttlecocks. Modesty appeared to be an unknown quantity in such a group; science and knowledge alone were the guiding spirits. The exposure of the patients was at first something quite shocking to an American's sense of delicacy.

Upon another occasion at the end of a long ward I found a tall Japanese screen, behind which stood an operating table with a woman on it undergoing electric treatment for a fibroid tumor. Apostoli, to whom I had just been presented, was managing the operation himself, while the students pushed and crowded against each other, jammed their way in and out or stood tip-toe, craning their necks unmercifully to get a glimpse of what was in progress. My sympathy went out for the poor woman, for she was of enormous dimensions, and that with a goodly sized tumor thrown into the bargain must have made the journey of life for her a matter of no mean affair. And then to think after carrying all that flesh and blood along the rugged *via vitæ*, to fetch up at last upon an operating table at the end of a long and crowded hospital ward, with half a dozen men performing a private examination upon her and a dozen or more idle, curious French students (plus one American) looking on! Strange, indeed, are the destinies of some folks! For the happiness of her fleshly mortality I hope the tumor was reduced, but I have my doubts about it, never having yet seen so fortunate a termination in the electric treatment of fibromata. Apostoli, whom I afterward had the pleasure of meeting at a banquet and reunion of *Des Trente*, a non-professional society of congenial ladies and gentlemen, given by way of novelty upon the first stage of the Eiffel Tower, I found to be most enthusiastic, yet sufficiently conservative in regard to the possibilities of electricity. His ideas have been so extensively published that it is unnecessary for me to dwell upon them here.

Of the staff of the Hotel Dieu, the acquaintance of none afforded me more pleasure than that of the late Professor Germain-Sée and of the distinguished surgeon Tillaux. The first time I met the former, he was

seated at a small table surrounded by several students in one of the medical wards. He bore his years remarkably well and his kindly old face lighted up with a pleasant smile as he chatted about America and some of the good that was being accomplished by us. He was not a large man nor imposing in manner. His countenance was round and friendly, his head was bald and he wore close-cut side whiskers, leaving only the front and under part of the chin clean shaven. In accordance with the law of the hospital, Germain-Sée should have been retired many years, as he was past the age at which the government allows a man to hold a hospital position. So great, however, had been his services to medicine and so distinguished was his name, that an exception was made in his case and an extension of his time gladly granted. His didactic lectures were always well attended. In a small and poorly lighted room his class usually assembled, while he himself with one or two assistants would be seated behind a long, green baize-covered table. He always remained seated while lecturing, making use occasionally of brief notes. His style was ideal for a scientific discourse. It was decisive and clear-cut, and as the speaker leaned over the table toward his hearers and emphatically voiced his dogmatic opinions one could not help admiring the preciseness, the optimism and the fertility of resources evidently acquired by long years of valuable experience in contest with disease. At times sparks of gentle humor would flash out of the discourse. It was always a quiet, incisive sort of wit, rather than a broad rollicking humor. Instead of a peal of laughter, it would merely produce a lively titter among the students, which would subside as quickly as it had arisen.

In physique, disposition and manner, Tillaux is the very type of the old-time surgeon; large, portly, full of inspiring confidence, moving about with a heavy tread and always speaking in an assertive, commanding tone of voice. To "assist" (a word used by the ever-polite Frenchman for one who is merely a visitor) him in one of his morning visits to the wards of the hospital is good surgically and psychologically. I was more than once inclined to wish that some of our younger surgeons had somewhat of the old-time dignity and courtliness about them. It would not add one whit, of course, to their skill, but it certainly would lend a grace and pleasing manner to their noble art, and it would have somewhat of a beneficial effect upon the unstable, nervous condition of many of their patients. Appearances count for something sometimes. I would that I had space to relate more of what I saw at the famous Hotel Dieu, but I would then have to omit another great hospital, probably better known than the Hotel Dieu and that without doubt through the association of the world-renowned Charcot.

From his residence, a typical elegant French apartment on the Boulevard St. Germain, not far from the artistic Pont de Solferino, the late Professor Charcot was wont to drive in his handsome brougham and pair every morning between 9 and 10 o'clock to the Salpêtrière Hospital at the other end of the city. A pleasant way to reach the hospital, however, is to take one of the flying little propellors on the river and after a delightful sail past many ancient and modern landmarks, to land at the Pont d'Austerlitz. A few steps along the broad but not particularly elegant Boulevard de l'Hôpital will bring one in front of an old-fashioned building, over the doorway of which will be seen engraved the words, *Hospice de la Vieillesse. Femmes.* Not far away rises the vast Halle aux Vins, which would presumably charm into ecstasies our bibulous friends; near by are the famous Jardin des Plantes, especially interesting to medical men as having been founded by Richelieu at the suggestion and solicitation of Labrosse, physician to Louis XIII. How much more influential medical men have been and are to-day in the history and government of France than they are in America. Why?

The Salpêtrière, named after a large saltpetre manufactory that was once in the vicinity, is said to be the largest almshouse in the world. It consists of an irregular assemblage of buildings with surrounding gardens, courts and promenades, all covering an area of about seventy-four acres. A brick wall surrounds the whole. Altogether the various buildings comprise forty-five large blocks. These are lighted by more than five thousand five hundred windows. Louis XIII began building the institution as an arsenal, afterward using it to relieve Paris of the numerous beggars produced by his wars. It was also used as a kind of general hospital. Additional constructions were added to it at various times. Louis XIV conferred upon it a large grant of lands and under this monarch its main building was erected after the designs of Liberal Bruant, the architect of the "Invalides." The most interesting architectural feature is the church built in the form of a Greek cross in the center of the grounds, and containing a fine altar, dating from 1670, beneath the center of the large octagonal dome. Many of the main buildings are arranged in parallel lines with an archway beneath connecting the intervening courtyards. The first of these buildings that one comes to after entering the gateway is the *Bâtiment Mazarin* built by the cardinal of that name for the aged and infirm women, who during their youth were servants in the establishment. Their lodging was given to them gratuitously; they were allowed the same food they had been accustomed to as servants and which was better than that given to the paupers; but they were paid no wages. In one of the yards with graveled walks and shady trees stood about a dozen brick buildings with overhanging roofs after the style of the Swiss chalets. Each interior was a single apartment about fourteen feet square and was for the accommodation of a special *class* of insane. The Salpêtrière is devoted to the care of the aged infirm, the insane, the epileptics, the idiots and the defective children. The hospital proper was a detached building of three stories and an attic, and contained twenty-four "*salles des malades.*" The "*salle aux bains*" is arranged in the "*rotunde*" with sixteen baths, each being surrounded with a white curtain and abundantly heated. In 1850 a central workshop was organized for manufacturing and repairing, for destroying old linen and bedclothes and for preparing lint for dressings, etc. There are shops for carpenters, joiners and carriage makers. The wash-house built on an immense scale bleaches every year, it is said, 1,500,000 pieces of linen, not only for the hospital but also for the Hotel Dieu, the Charity and the Hôpital des Cliniques. All except the insane department is open daily for visitors. The inmates have special days upon which they may receive their friends. On Sundays and fête days they may wear whatever clothing their fancy dictates but on other days the costume of the hospital, blue in summer and gray in winter, must be donned. There

are entertainments, including music and dancing, arranged for the inmates. The cooking for the whole establishment is done in one immense kitchen. The insane of course eat in their own special dining room. The individual allowance consists of 10 decagrams of bread, 13 decagrams of meat, 45 centilitres of bouillon, a dish of vegetables, some dessert and 12 centilitres of wine. As for the insane department, the asylum is of course a very old one but its management is quite in accord with the most modern requirements. It will always be interesting on account of its association with the great reformer Pinel, a large and magnificent painting of whom striking off the chains of the grateful patients, hangs over the platform in the room in which Charcot held his public clinics.

In 1662 the institution contained nearly 10,000 people. During the Revolution the number of indigent females, the males being always sent to the companion institution the Bicêtre hospice out on the road toward Fontainebleau, was 7,000 or 8,000. Since that time the population has been steadily reduced and the management correspondingly improved. Statistics in regard to the number of inmates are obviously subject to much variation. In 1889 the total population consisted of about 6,311 souls; of these 590 were of unsound mind.

In passing it may be of interest to state that the Hospice de Bicêtre, named from John, Bishop of Winchester, Bichestre, Bicestre or Bicêtre, was founded by Richelieu in 1632 for retired soldiers. It is a most ungainly looking structure and resembles more an impregnable fortress than a hospital. It is for men what the Salpêtrière is for women, and with its rich clinic material Dejerine and others are doing some splendid work. The guillotine was first started in its deadly career here and within its walls Victor Hugo has placed the scene of his powerful story *Le Dernier Jour d' un Condamné.*

Much to my regret so much space has been already occupied that I can do but little more than mention the clinics of Professor Charcot. Having been the fortunate recipient of an autograph invitation to the home and public and private clinics of this great man, I had somewhat in my sketchbook that might have proved of interest. His uniform courtesy and kindliness, his warm feeling for America and Americans, his enthusiasm and sincerity, his immense learning and clearness in imparting knowledge, his marvelous tact, gentility and preciseness could have elicited only praise from anyone who happened to know him, let alone from one who was his warm admirer. It is no wonder that, when he was gone, his great scientific attainments and his charming personality made it difficult for the authorities to fill his place. The story of his life, which has been often told, is a standing encouragement to every ambitious young doctor of slender means. Work, hard conscientious work, seems to have been its guiding motto.

Professor Charcot held his public clinics in a special hall at the Salpêtrière every Tuesday and Friday morning from 9 to 12 o'clock. Occasionally he would be delayed until near 10 o'clock. The hall was a long narrow room, lighted by small, square old-fashioned windows, with a large platform at one end and an ascending row of benches for the students. Over the platform hung the large painting of Pinel. On the platform were a long table for the use of his private pupils and assistants, and a series of high back benches for invited guests and the patients to be presented to the class. Aside from a loud-ticking clock over one of the doors, the walls were devoid of every sort of ornament. From a small door leading out from an anteroom, we would follow the professor on to the platform, making a goodly sized procession of assistants, secretaries, students, guests, visitors and patients. The class upon the audience benches consisted of about one hundred and fifty men and women, intent, studious and ready with note books to take down the first words uttered by the lecturer. The professor always wore a small, tight-fitting scull-cap and remained sitting during the entire discourse. His style was smooth, regular and systematic, resembling a memorized sermon, and showing a calm, complete mastery of the subject in hand. Rarely, he would get up to make some examination himself upon a patient or indicate some point he was impressing upon a diagram. Usually his assistant, Gilles de la Tourette, would do that for him. He used very few gestures and generally would keep his gaze fixed upon the back of the room over the heads of the students, as though he were in a sort of reverie. He rarely attempted any humor, and when it did arise it usually had its origin in the patients or something apart from the speaker himself. Whenever he was lecturing upon any one special disease, he would line up a number of patients, as many as twelve or fifteen sometimes, upon the platform. If it were necessary he would insist upon their divesting themselves of every stitch of clothing, so that as some one said, they looked like a row of innocent Fiji Islanders. Rarely, if ever, did he put the women to this wholesome exposure. When the hour of noon arrived, a large gong would sound, the last sentence would be completed and in a quiet, methodic way the professor would suddenly rise and vanish through the side door.

In his daily private clinics, in a small room before half a dozen or more pupils, he would appear less methodic and showed more of his natural disposition toward friendship and personal intimacy. Here all kinds of cases would be examined, discussed and minutely studied. To observe him make a differential diagnosis, as for instance, between hysteria and syringomyelia in a man without a clear history, was a treat in close logic and correct inference. The French nation are reputed to be a neurotic people. At all events they present to the science of medicine a goodly amount of psychosis and neurosis for study. Happy was it that so calm, industrious, logical and dispassionate an observer as Charcot arose and studied amongst them. The debt which not only neurology but the whole of medicine owes to this master can never be repaid and will probably scarcely ever be equaled by another.

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THE EVIDENCE OF INSANITY; AN OUTLINE.

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GENERAL CONSIDERATIONS.

The whole question of insanity hinges on the *origin*, the *support* and the *display* of ideas. Its pathology has nothing distinctly characteristic, being merely a measure of functional incompetence whatever the coexistent facts. But as all motion is potential in ideas, ideation has its equivalent in molecular change and thus mental aberration has its physiologic concomitants.

No mortal can be said to be free from errors of fact or opinion of one kind or another, but comparatively few resist demonstration—logical, or objective refutation. An idea that does not fit with popular belief is not necessarily a delusion. Indeed, if it does not clash with any demonstrable principle or particular fact, it can not be regarded as a delusion, for we have no other means of proving it false than by such evidence. It may be an intuitive prophecy or the product of a genius. The grand steps of civilization were often due to conceptions which at their birth were commonly regarded as "off" or insane, and it is quite in keeping with the order of things that exceptionally profound minds should discover truths beyond the ken of contemporaneous comprehension. The common mind, the non-meditative, is so much a product of our political, educational and social machinery that comparatively few think deep enough to think much differently, and the machine-made creature or social puppet is regarded as quite sane though he may hold all the delusions agoing, which by and by are exploded by what he may call a "crank."

The higher walks of life are hardly freer from delusions than are the lower, to-wit: Only a few years ago, the so-called Darwinian theory of evolution became epidemic in certain learned circles although based on absolutely nothing but circumstantial evidence. Since then many of its votaries have so qualified the theory that it has lost its original peculiarity of something from nothing, and now it stands for little more than the progress of a plan as yet too feebly perceived to reveal much of origin and purpose, but disclosing the immutability of entities (characteristic or essential powers) by which chaos is precluded and progress assured. What is potential in plan must be specific and definite in form, and can never intrinsically be less or more in essential characteristics. One word more on this point: Laws of nature are said to be immutable; they must be, or chaos would result. But laws are not separable from things (entities), they are identical with their properties; therefore specific entities are immutable. Again, specific entities must be created, not evolved (form and activity are conditioned by environment and have reference to growth and chemic union). They can not lose their intrinsic (specific) qualities unless we say it is a law that laws are not necessarily immutable, which is a *reductio ad absurdum*. Evolution is extension not addition. I am not writing to prove the delusional nature of Darwin's hypothesis, which by some has been accepted as an established fact. But the logical results of a truth are not acts of insanity. Some twenty years ago when the theory was dominant, and while its sister delusion "spontaneous generation" also had a spurt, a young Englishman, while out of employment and discouraged, suicided by jumping from a river bridge. He left a note stating "man is but a monkey, so I didn't care to live." This was not an accurate statement of Darwin's idea, but it contained the popular notion having a fatalistic principle. What is the criterion for this suicide's act? Was the act that of insanity, or was it a logical result of prospects, both immediate and remote, in the light of the existing conditions?

But the history of civilization is full of popular delusions varying and vacillating, and sometimes violently active. They were originated as they also now are, by circumstantial evidence, a form of suggestion, and prevailing by virtue of a common fitness, a common degeneracy. The familiar biblical expression, "my sheep" implies both the idea of enfeeblement and the need of a leadership to overcome the prevailing delusions and conditions therefrom. It applies now as then, for just as water can not rise above its own level, so the individual mind can not transcend its own powers of comprehension without extrinsic aid. He needs the stimulus of a reinforcement, coördinate with cosmic plan. It is a curious fact that in spite of the self-evident truth of our absolute dependence, we almost totally ignore it, and by our acts imply that the world was made wrong. This is the root of criminality, which is the remote or immediate background of all insanities, and moral palsies—their last analysis.

Definition of Insanity.—A delusional state of mind fixed against reason. By this I mean that a delusion exists either manifest, subconscious or latent, just as any idea may be, and that neither the logic of facts nor objective evidence are effectual to dissolve. It applies equally to fleeting and fixed delusions. Reason is futile for dissolution, although it may sometimes have a subduing or eclipsing effect for a time more or less brief. This state is due to such a degree of brain inefficiency, that the energy production is inadequate for the attention required for a complete conception of the situation. By a manifest delusion I mean a delusion so dominant that most of the subject's conduct is regulated by it; by a subconscious delusion I mean a delusion which is not manifest unless elicited by inquiry; by a latent delusion I mean a delusion which practically does not exist in definite form, but has existed, and although inquiry may only elicit a denial, certain circumstances may evolve it and in a violent manner, as in some forms of epilepsy and recurrent mania. Such cases are both the most dangerous and most difficult to pass upon.

Character of Delusions.—A delusion is an idea which is incorrect in time or in place, or is non-existent in fact. It becomes an insane delusion by virtue of its fixity against reason—the futility of argument.

Origin.—Insane delusions have three origins: 1, delusions due to more or less remotely acquired errors of perception and with present mental incompetency—centric delusions; 2, delusions due to perceptive perversions of sensation arising within the nervous system, and with present mental incompetency—hallucinations; 3, delusions due to perceptive perversions of sensation arising at the periphery or end organs, and with present mental incompetency—illusions. All three forms involve perception, reason and will.

Support.—1. An insane delusion may be more or less plausible by virtue of circumstantial evidence, as when some of the factors are truths, as is sometimes the case in delusions of conspiracy to deprive of property or personal liberty. 2. An insane delusion may be monstrous, by containing a claim against all evidence or possibility, such as a claim to be the "mother of God" or a "horse." In my opinion many such delusions are not real, but sportive, as their subjects' conduct is commonly very inconsistent with the delusions.

Display.—1. An insane delusion may be; *a*, active or directly manifest and unreserved; *b*, subconscious or indirectly manifest and reserved; *c*, latent, as in lucid intervals, when it has no formal existence. 2. They may be: *a*, persistent, *b*, changeable, *c*, recurrent. 3. They may be of: *a*, grandeur, as of wealth, power,

rank, form, etc.; *b*, persecution, as of poisoning, torture, defamation, etc.; *c*, debasement, as of personal vileness or incompetence, etc.; 4. They may exist with: *a*, excitement, *b*, depression, *c*, composure.

The more centric physiologic concomitants of insanity are indicated by the degree of promptness, pertinence, distinctness, fluency and coherence of speech.

The other physiologic concomitants, which may or may not be present, are tremors, palsies, incoördinate muscular movements, sensory defects, nutritional changes and emunctory irregularities in addition to the purely psychic phenomena.

It may be stated as a rule that the less the physiologic concomitants are manifested the more obstinate the insanity, because the more insidious and subtle is the centric (cortical) defect. It also may be said that as a rule hallucinations with insanity indicate the worst prognosis owing to their being due to a more gross physiologic disturbance of centric areas than are purely centric delusions, and which when they do not speedily recover, generally result in a more serious and permanent damage to the brain. Illusions being due to peripheral perversions are as a rule the least serious indications.

Whatever of abnormal mind is not included in my definition of insanity will come under the headings of moral palsy and criminalty.

Definition of moral Paresis.—A defective power of inhibition (will) to such an extent that although the subject may know a particular act is wrong, he is unable to refrain from doing it under special exciting circumstances or provocation. It is due to a defective action of the brain which may be caused by cranial injury, shock, fever, poisoning, inherited fault, habits of dissipation of one kind or another, etc. It includes some cases of inebriety, neurasthenias (hysteria, hypochondria, etc.), fad manias (fanaticism), violent temper, vagrancies, prostitution, etc.

Definition of Criminality.—A disposition of conduct in which selfness is the ruling principle existing with the power of discernment and the power of choice. It is due to a denial or eclipse of first principles. The incentives are position, wealth and pleasure to be obtained at the expense of truth, justice and economy when in conflict with purpose. There is a total absence of fraternal love in the humanitarian sense.

In criminality there is a delusional origin in reference to First Principles, and is therefore constitutional. Education is the remedy. In insanity the delusional state is incidental to a pathologic cerebration, and can only be remedied by physiologic means. The remedy for moral palsy is chiefly discipline.

THE STATISTIC EVIDENCES OF THE VALUE OF VACCINATION TO THE HUMAN RACE, PAST, PRESENT AND FUTURE.

Read before the American Medical Association at the Jenner Centennial Celebration, held at Atlanta, Ga., May, 1896.

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(*Continued from page 677.*)

Proposition 5.

Notwithstanding a marked decrease has occurred in the total smallpox death rate, a still greater decrease has taken place in the smallpox death rate among children.

From the mass of statistics at hand to demonstrate this proposition I select the evidence relative to the value of vaccination as shown by the enforcement of the compulsory laws of Great Britain.

In reckoning the success or failure of compulsory vaccination in Great Britain, we must remember that the law was enacted to protect helpless children from the fatal consequences to themselves of obduracy or carelessness of the parent in failing to protect them from smallpox by having them vaccinated. Let us take this epidemic of 1870-73, which has afforded vaccinophobists such an arsenal of facts to prove the worthlessness of vaccination, and see if in enacting compulsory vaccination laws the State exercised a wise and prudential care of its infantile population. Prior to the enactment of compulsory vaccination laws, 70 to 80 per cent. of the annual smallpox mortality of Great Britain was among children under 5 years old. What has been the average annual mortality in this class since compulsory vaccination? Take England first. The law requires vaccination of children at three months of age. The compulsory vaccination law of 1853 was very defective in that the machinery provided for registration of births, and vaccinations thereafter, was not such as to enable the authorities to know and secure the vaccination of all the children falling within the provisions of the law. Defective as it was in this respect, it yet had a salutary effect, for the vaccinations among this class were more than doubled over the same period anterior to the enactment of the law. It must be admitted that this result was largely due to the knowledge of parents that if they failed to comply they laid themselves liable to a penalty for such neglect. In a few years we see the annual smallpox death rate reduced to 55 per cent. of the total mortality from this disease. Fifty-five per cent. remained the average annual mortality in this class until the laws of 1867 and 1871 were enacted. By the law of 1867 a full and proper system for registering compliances with the compulsory law was inaugurated. Boards of Guardians throughout the kingdom were authorized by law to compel such compliances, and were given full authority to appoint officers whose duty should be to rigidly inquire into all failures to comply with the law. When such persons were found, these officers should warn the delinquents to comply with the law within a specified time, and if such persons failed to heed the warning the officers were to institute legal proceedings to require compliance. By the act of 1871 Boards of Guardians were required to appoint such officers. The epidemic of smallpox commenced in the latter part of 1870, and we are told that "only a portion of the population in England under 5 years of age was within the operation of the act of 1867. During the continuance of the epidemic a larger proportion came under its provisions, and some came also under the provisions of the act of 1871. The result was manifested in a reduction of the proportionate smallpox mortality under 5 years of age from 55 per cent. of the entire mortality from that cause to 33.5 per cent. in 1871, and to 30 per cent. in 1872. The act of 1867, being in some of its most important requirements permissive only, had been carried out with various degrees of efficiency by different local authorities. In those places in which the action taken under it had been tardy and ineffective, the mortality in young children amounted to or approached its old proportions; in those places in which such action had been commenced immediately on the act coming into operation, and been steadily continued, a remarkable diminution in that proportion was observed." [24]

LONDON.

Anti-vaccinists gleefully ask: How about the smallpox death rate of London in 1870-73? Let us examine into the matter. For twenty years prior to 1871, when the authorities provided gratuitous vaccination, but when compulsion was really nominal, the smallpox death rate of children under 5 years of age was more than 50 per cent. of the total smallpox death rate. From 1851-60 it was 59.5 per cent., and from 1861-70 it was 54.3. In 1871 and 1872, notwithstanding the negligence of the authorities of some of the unions in relation to enforcing vaccination, the average annual smallpox death rate of children under 5 years of age to the total of smallpox mortality was 36.7. In the epidemic of 1881 children under 5 years of age contributed only 27.8 per cent. of the total smallpox mortality of London.[25] In 1872, in Great Britain, only 85 per cent. of the births were certified as successfully vaccinated. Deducting the percentage of children having died before being vaccinated, the percentage vaccinated to the total births living was 94 per cent. certified as successfully vaccinated.

SCOTLAND.

How about Scotland? Mr. P. A. Taylor makes himself happy

[24] Dr. Seaton's Report in Report of Medical Officer of Privy Council, 1874.

[25] Eleventh Annual Report of Medical Officer of the Local Government Board.

over the failures of compulsory vaccination in Scotland. Upon what is his opinion based? Let us see. Here is a fair test, for the compulsory vaccination law of Scotland was enacted Jan. 1, 1864, and from that date to Dec. 31, 1871, the report of the registrar general for Scotland states, that after a deduction had been made of all children who had died before they could be vaccinated, 96.5 per cent. of all children alive were certified as having been successfully vaccinated. One per cent. was certified as being in such health as to prevent vaccination, or having been repeatedly tried and found insusceptible, and 2.5 per cent. unaccounted for on the registers. From this it appears that the children in Scotland under 7 years of age were protected by vaccination to a remarkable degree. But, as has been well said, "it is equally obvious that the whole infantile population can not be universally vaccinated, nor constitute a class among whom if smallpox prevail in the country there could be any reasonable expectation of meeting with complete exemption from that disease, for it includes, 1. all who are under the age by which vaccination is enforceable, of whom, of course, a very large proportion would remain unvaccinated; 2, not a few somewhat above that age are still remaining unvaccinated from the carelessness of their parents in neglecting to have vaccination done till they had received legal notice of warning and risking it probably for some time after that; 3, children in whom there was postponement of vaccination on account of their state of health; and 4, many doubtless still unprotected among the cases which had appeared in each year's return as 'postponed,' 'insusceptible,' or 'unaccounted for.' Now, as there are nearly 120,000 children born in Scotland each year who until they are 6 months old do not come under the operation of the law; as there are about 1,000 of each year's births carried on as 'postponed' or 'insusceptible'; and as there are about 2,500 annually respecting whom nothing is known, it is quite certain that there must always at any given time be among the young population of Scotland, extremely well protected as it is on the whole, a considerable actual number of unvaccinated children."

Now for the results of this unprecedented vaccination in a community of civilians. From year to year, prior to compulsory vaccination, the average annual smallpox mortality in children under 5 years of age amounted to 74 per cent. of the total smallpox mortality in Scotland. To fairly test the prophylaxis afforded by compulsory vaccination, we must take the children under 7 years of age, the epidemic having begun in 1871. The returns of the registrar general are only divided as follows: Those under 5 years of age, 5 to 20, 20 to 60, and those above 60 years of age. We therefore take those under 5 years of age, they being only those which can be used to test the value of compulsory vaccination. From the enactments of the compulsory law in 1864, the mortality of this class steadily declined from 74 per cent. of the total smallpox mortality, until in the epidemic of 1871 it was for the whole of Scotland just 21.4 of the total smallpox mortality. The mortality for the whole of Scotland had not been ascertained when Dr. Seaton (from whose reports these data are extracted) rendered his report in 1874. But let us take the eight principal towns of Scotland, from which to derive further information on the subject.

SMALLPOX DEATHS IN THE PRINCIPAL TOWNS OF SCOTLAND.

Year.	At all ages.	Under 5 years of age.	Deaths under 5 years of age; per cent. of total deaths.
1871.	886	195	22.0
1872.	1,537	362	23.5
1873.	467	124	26.5
1874, to June inclusive.	302	69	22.8
Total, 3½ years . .	3,192	750	23.5

Well may the registrar general, in his report for 1872, say, in his comments on that year—"If the same relative mortality had taken place in children at that age (under 5 years) as occurred during the previous epidemics, when they were less efficiently protected by vaccination, instead of only 362 children under 5 years of age having died from smallpox in the eight towns during 1872, 3,370 would have died. The enforcement of the vaccination act, therefore, during the seven previous years, appears to have had the effect, in those eight towns alone, of saving the lives of upward of 3,000 children." So much for the direct proof from the history of Scotland as to the beneficent effect of compulsory vaccination. Now let us compare the relative mortality of children under 5 years of age in Scotland with other countries. A glance at the following table will show the superior effects of the law of Scotland:

SEATON'S REPORT, 1874.

Towns, or groups of towns, compared.	Actual smallpox deaths under 5 years of age during the whole period of the epidemic in each town, or group of towns.	Smallpox deaths under 5 years of age during the whole period of the epidemic for equivalent population of 1,000,000 of all ages.
Eight principal towns of Scotland (population 1,083,750), 1871-74. . . .	750	692
Berlin (population 882,569), 1871-72	2 837	3,448
Hamburg (population 338,974), 1871-72. . . .	1,938	5,717
Leipsic (population 106,925), 1871.	659	6,200
Eight prinelpal towns of Holland (population 693,080), 1870-72.	4,474.	6,445

Compare next the smallpox mortality under 5 years of age with the population living under that age, respectively, in the various towns or groups of towns.[26]

Towns, or groups of towns, compared.	Population living under 5 years of age.	Smallpox deaths under 5 years old during entire period of the epidemic in each place.	Smallpox deaths under 5 years of age during whole time of epidemic for equivalent of populations of 100,000 children under that age.
Chief towns of Scotland (3½ yrs.)	147,433	750	508
Berlin (2 years.). .	88,093	2,837	3.200
Leipsic (1 year.). .	8,515	65	7.712

These are the only towns in which the data for this last table were at hand for comparison when the table was formed in 1874. Assuredly there must be some patent reason for this variable death rate of infantile populations in the countries having compulsory vaccination laws. Let us try and find it. A brief review of the law, together with the manner of its enforcement in the respective places, will perhaps enable us to solve the problem.

1. *Scotland.*—We have just seen the wonderful utility of compulsory vaccination in Scotland in comparison with the other countries specified in the tables just given. The law is stringently enforced, and the machinery therefor is complete, as evidenced by a vaccinated population under 5 years of age of 96½ per cent.

2. *Berlin.*—In Berlin the law required that all children should be vaccinated at one year of age. No penalty, however, was attached to neglect to comply with the law, unless smallpox follows such neglect. The delinquents were rarely prosecuted, and a good proportion failed to have their children vaccinated until they attained school age. All children seeking admittance to the public schools had to present a certificate of successful vaccination before being received therein. Dr. Guttstadt, in 1873, attributed the high mortality in Berlin in the epidemic (1871-1872) to a large accumulated number of children, whose parents had failed to have them vaccinated at 1 year of age, as required by law.

3. *Hamburg.*—There was not at the time of the outbreak of the epidemic any compulsory law, and no means to prevent parents from neglecting to have their children vaccinated, except a law which required all children applying for places in the public schools to produce a certificate of successful vaccination. Therefore it was common to find children who had attained 2 years of age, and often 7 or 8 years, before vaccination was attempted. This large residuum of unvaccinated children is sufficient to account for the greater prevalence of smallpox in Hamburg than in those of Scotland.

4. *Leipsic.* } The same was substantially true of these as in
5. *Holland.* } Hamburg.

IRELAND.

What of compulsory vaccination in this country? triumphantly ask the anti-vaccinists. Let us test it first upon the children under 5 years of age, the class whom primarily the law was intended to protect. The compulsory vaccination act of Ireland came of force Jan. 1, 1864. The machinery for registration of compliances with the law, as well as the lack of officers to warn delinquent parents whose children remained unvaccinated beyond the prescribed age (six months), and to take the necessary steps to enforce compliance with the law, shows the act to be more defective than that of Scotland.

By the report of the public vaccinators to the local govern-

[26] Seaton's report 1884.

ment board of Ireland, compared with the register of births from 1865 to 1872 inclusive, it is shown that 81 per cent. of the births were vaccinated by the public vaccinators. (The public vaccinators do almost the entire vaccinations in Ireland, except in the large towns.) In Scotland the percentage of these vaccinations has been shown to be 96½ of every 100 births. We therefore see that in Ireland there is always a very large residuum of unvaccinated children, there being in 1872, 33,440 children who were not vaccinated until they had attained one year of age. In 1873 there were 19,258 such cases. Let us now compare the smallpox death rate of this class with the total smallpox mortality of the periods anterior and subsequent to the compulsory act. Seventy-nine per cent. of the total smallpox mortality of Ireland was in children under 5 years of age, as shown in the report of the epidemiological society in 1853. Under the medical charities act, and the act of 1858, the public vaccinators had been enabled to reduce this percentage to 75. By the operation of the compulsory vaccination act, in 1865 and 1866, the percentage of this class of deaths was reduced to 50. From 1866 to 1871 smallpox was almost wholly absent from Ireland. When the epidemic of smallpox began in 1871, it found the children under 7 years of old remarkably well vaccinated, and as a consequence we find the percentage of deaths in this class as follows: 1871, 20.5, and in 1872, 25 per cent. of the total smallpox mortality.

Now let us take Dublin, one of the cities especially pointed out by anti-vaccinists as an illustration of the utter failure of compulsory vaccination. In Dublin, in the two years in which the epidemic prevailed, there were 1,557 deaths from smallpox. Of this number 362, or 23 per cent., were in children under 5 years old. Dr. Seaton was unable to give the proportion which these 362 deaths bear to the total population living under 5 years of age. But he shows the comparative mortality to the whole population of Dublin, and contrasts these with the following places. The deaths under 5 years of age per million of living population in each place were as follows:

Dublin	1,150
Eight principal towns of Scotland	692
Dundee	1,534
Berlin	3,448
Hamburg	5,717
Leipsic	6,200
Chief towns of Holland	6,455

Let us see what has been the result of compulsory vaccination upon the whole population of Ireland. From the census taken in 1841 it was shown that for the previous ten years smallpox was the second most fatal disease in Ireland. The deaths in that period of time were 58,000. When the census was taken in 1851 it was found to be the third most fatal disease. For nineteen years previous to the act of 1863, the average annual mortality from smallpox was, as shown in the twenty-first annual report of the poor law commissioners for Ireland, 2,640. The compulsory vaccination act of 1863 came of force at the time of decline of a considerable epidemic. During the first year, which, it must be admitted, was too soon to be fairly claimed as wholly consequent upon the operation of the act, the deaths from smallpox were 854. From 1865 to 1870 inclusive, the smallpox mortality had fallen to such an extent as to be without precedent in the history of Ireland, being for the six years respectively 347, 180, 20, 19, 20 and 32. In the epidemic of 1871–1872, the deaths from smallpox were 665 in 1871, and 3,248 in 1872. Now let us compare the smallpox mortality of Ireland previous and subsequent to compulsory vaccination, and see what will be the result of the investigation. For nineteen years previous to the compulsory vaccination the average annual deaths from smallpox were 2,624; for ten years subsequent to compulsory vaccination the annual smallpox deaths were 583.[27] Therefore we see that under compulsory vaccination for the ten years of its operation, as compared with the nineteen years anterior to it, the deaths were not a fourth of those in the non-compulsory period.

PROPOSITON 6.

In every epidemic of smallpox, the unvaccinated portion of the population has, without a single exception, shown a vastly greater proportional attack rate as well as death rate from smallpox relative to their numbers than the vaccinated.

STATISTICS PROVING THIS PROPOSITION.

In a severe epidemic of smallpox which prevailed at Norwich im 1819, Mr. Cross minutely observed 112 families, in all of which there were cases of the disease; and the annexed table shows the result. Among 215 persons unprotected by vaccination there were 200 cases of smallpox, and of these forty-six proved fatal; while among ninety-one vaccinated persons the only effects of this terrible infection were: 1, that one girl, who had been vaccinated nine years, "had a mild disease, limited to twenty pocks, and lasted only six days before it began to decline," and 2, that another, who had been vaccinated five years, went through "the disease in half the time (of her unvaccinated sister) without danger or detriment, a few very minute pits upon the tip of the nose being the only permanent traces."

	Number.	Cases of Smallpox.	Deaths by Smallpox.
Total number of persons in the 112 infected households	603	202	46
1. Protected by previous smallpox[28]	297	. .	. .
2. Protected by vaccination	91	2	. .
3. Unprotected	215	200	46

By reference to the following table, it will be seen that, in a number of places observed, the death rate varies among the vaccinated from an inappreciably small mortality to 12½ per cent., that amongst the unprotected, it ranges from 14½ to 53.8 per cent.

Death rate per 100 cases.[29]

Places and times of observation.	Total No. of cases observed.	Among the unprotected.	Among the vaccinated.
France, 1816–41	16,307	13.12	1.
Quebec, 1819–20	. . . . .	27	1.66
Philadelphia, 1825	240	60	0.
Canton Vaud, 1825–29	5,838	24	2.16
Darkehmen (Durkheim's), 1828–9	134	18.8	0.
Verona, 1828–39	909	46.66	5.66
Milan, 1830–51	10,240	38.33	7.66
Breslau, 1830–55	220	53.8	2.11
Württemberg, 1831½–5½	1,442	27.12	7.1
Carniola, 1834–35	441	16.25	4.4
Vienna Hospital, 1834	360	51.25	12.5
Carinthia, 1834–35	1,626	14.5	0.5
Adriatic, 1835	1,102	15.33	2.8
Lower Austria, 1835	2,287	25·8	11.5
Bohemia, 1835–55	15,640	29.8	5.16
Galicia, 1836	1,059	23.5	5.14
Dalmatia, 1836	723	19.66	8.25
London Smallpox Hospital, 1836–56	9,000	35.	7.
Vienna Hospital, 1837–56	6,213	30.	5.
Kiel, 1852–53	218	32.	6.
Württemberg, no date	6,258	38.9	3.5
Malta, no date	7,570	21.07	4.2
Epidemiological Society return, no date	4,624	19.7	2.9

Compare the relative death rates from smallpox in London in the epidemic of smallpox for the year ending May 29, 1881, between the vaccinated and unvaccinated. Here is the table taken from the Eleventh Annual Report of the Local Government Board, 1881–82:

Death rate of people of subjoined ages.	Per 1,000,000 of each age of the vaccinated class.	Per 1,000,000 of each age of the unvaccinated class.
All ages	90	3,350
Under 20 years	61	4,520
Under 5 years	40.5	5,950

TABLE D.—Number of deaths, and vaccinational condition, of those being over 3 months and under 10 years of age who died from smallpox in England and Wales, 1881–87.

Vaccinational condition.	Deaths, 1881–87
Vaccinated	145
Unvaccinated	1,427
No statement	1,402
Total	2,974

NOTE.—The unvaccinated are 90.8 per cent. of those as to whose vaccinational condition there was information, and 48 per cent. of the whole.

[27] See Seaton's Report, 1874.

[28] Mr. Cross mentions that he met with several who were supposed to have had smallpox formerly, yet (p. 15) notwithstanding took it on this occasion; but he does not state whether such cases are included in the above summary. In this epidemic the vaccinated slept in the same rooms, and in some instances, in the same beds, with those having smallpox. So also (as quoted by Steinbrenner) in Copenhagen—of 659 vaccinated persons who suffered in the variolous epidemics, 1823–27, only 5 died, being at the rate of 1 in 132: while of 176 unvaccinated persons who contracted the disease, more than a fourth seems to have died, and of 153 others, who professed previously to have had smallpox, there died 31. And similarly in the epidemic of 1828–30, and part of that of 1832–37, it seems that out of 228 unprotected patients 63 had died; but of 1,373 cases of post-vaccinal smallpox only 14 were fatal.

[29] Brit. and For. Med. Chir. Rev., October, 1857.

TABLE E.—Proportion of deaths under and over 15 years of age, per 1,000 deaths from smallpox in vaccinated and unvaccinated persons respectively, 1881-87 (excluding deaths under 3 months).

Age.	Unvaccinated.	Vaccinated.
Three months and under 15 years	597	126
Fifteen years and upward	403	874
Total	1,000	1,000

TABLE E.—Statistics of the smallpox epidemic in Chemnitz in 1870-71. (See 24 Report Royal Vaccination Commission of Great Britain, 1890, page 236. Zeitschrift des Königl. Preuss. Stat. Bureau. Jahrgang 12, 1872, Art. "Die Pocken-Epidemie in Berlin, 1870-72." by D. Guttstadt.)

NOTE.—Dr. Max Schultz, writing of Flinzer's statistics, calls attention to the fact that they show there was 1 case of smallpox to every 255 households containing none but vaccinated persons, but 1 to every 26 households containing both vaccinated and unvaccinated persons. The figures prove the danger which unvaccinated persons are to the vaccinated, and thereby establish the value of compulsory vaccination. Vide Impfung Impfgeschaft, etc. Berlin, 1888.

Deaths.—Of 3,596 cases, 249 or 6.92 died. Among the deaths are those of 187 boys, 17 male adults, 111 girls and 11 female adults. All the children who died were unvaccinated, and of the adults, 3 males and 4 females were vaccinated, the remainder unvaccinated.

Of the 249 deaths, 242 were thus unvaccinated and only 7 of those vaccinated, the former category contributing 97.19 and the latter 2.81 per cent. of the deaths. Separating the cases of smallpox among the vaccinated from those among the unvaccinated persons, we find that of the former, only 0.73 per cent. died, but that of the latter class 9.16 per cent. died.

Of the 224 cases in the town hospital 184 had been vaccinated, 37 were unvaccinated, and 3 were doubtful. None of the vaccinated died, but 11 of the unvaccinated succumbed to the disease (15 cases of unvaccinated children under 10).

Hence the accuracy of the following table given by Lotz on p. 56 of his "Pocken und Vaccination."

Age.	Vaccinated.			Unvaccinated.		
	Cases.	Deaths.	Mortality. Per cent.	Cases.	Deaths.	Mortality. Per cent.
For the 1st year	8	. . .	. . .	373	102	27.3
For the 2d year	15	. . .	. . .	528	51	9.6
For the 3d year	30	. . .	. . .	444	26	5.9
For the 4th year	31	. . .	. . .	331	29	6.3
For the 5th year	43	. . .	. . .	222	9	4.0
For the 6th year	35	. . .	. . .	197	7	3.6
For the 7th year	46	. . .	. . .	105	1	0.9
For the 8th year	28	. . .	. . .	98	2	2.0
For the 9th year	18	. . .	. . .	71	1	1.4
For the 10th year	71	. . .	. . .	71	. . .	0.0
Total under 10 years of age	265	. . .	. . .	2,440	220	9.0

(To be continued.)

SOCIETY PROCEEDINGS.

The American Public Health Association.

[Special Correspondence of the JOURNAL.]

The Twenty-fourth Annual Meeting of the American Public Health Association held at Buffalo, N. Y., Sept. 15-18, 1896.

The Executive Committee, in which all the business, other than reports of committees and presentation of papers, is practically done, and which is composed of the five officers, six elected members and the thirteen surviving ex-presidents, nine of whom were actually in attendance, met at 10 A.M., September 14, and was in continuous session the greater part of the day, and during the intervals of the regular sessions throughout the week.

Ellicott Square, in which the meeting of the Association was held, is a marvel of modern construction, occupying the entire block of ground, the value of the site alone being rated at $1,000,000, and the cost of the building, complete in all its appointments, having amounted to $2,350,000 more. The dimensions of the edifice are 240 x 200 feet, with an interior court 110 x 70 feet in size, glass roofed and giving abundant light to the 600 offices, 16 large counting rooms and 40 stores, besides the quarters of the Ellicott Club, which occupies nearly the whole uppermost (tenth) floor, and the assembly rooms on the second, in which the Association held its meetings. The principal room was gracefully and appropriately draped with the national flags of the United States of America, Dominion of Canada and Republic of Mexico, which countries are represented in the membership, but the abominable acoustics of the hall, due to the numerous intervening columns, and the medley of noises from the streets, make it a trying ordeal for the speakers to reach their distant auditors. The extensive daily programe for morning, afternoon and evening sessions were carried out without failure, and the interest of the members in their work was shown by their persistent attention and regular attendance to the adjournment on Friday afternoon.

The appointed hour found about two hundred and fifty persons on the floor, the adjoining offices of the Treasurer and Local Committee being crowded with members awaiting their turns to register. The Mexican contingent numbered thirty-four persons and that from the neighboring Dominion almost as many more. A number of women were present, and as a daily paper later commented: "The language of some of the papers opened their eyes to the brusque directness with which scientific sanitarians deal with rather intimately personal problems."

The Association was called to order by the President, Dr. EDUARDO LICEAGA of the City of Mexico, promptly at 10 o'clock, and the session opened with prayer by the Rev. Dr. Thomas R. Slicer of Buffalo, after which the President called to the platform and introduced to the members the distinguished founder of the Association, Prof. STEPHEN SMITH of the city of New York, and its first President during the years 1872, 1873 and 1874, after which time he declined reëlection. Dr. Smith, after responding to the enthusiastic welcome which greeted him, disclaimed any special merit in the creation of the Association, which he declared to have been the logical outcome of the times, and paid generous tribute to his associates in the work, especially Dr. ELISHA HARRIS of New York, who with himself bore the entire expense of the early meetings. He also instanced Dr. Joseph M. Toner of Washington, D. C., Dr. Edwin M. Snow of Providence, R. I., Dr. John H. Rauch of Chicago, Ill., Dr. Ezra M. Hunt of Trenton, N. J., and Dr. Charles B. White of New Orleans, La., the latter the first of the Presidents to die, although all the others mentioned, who successively occupied the presidential office, and were his earnest co workers from the beginning, have subsequently died. He extolled the wisdom of the Association in having adhered to the practice of placing its mere working business in the hands of the Executive Committee, and thus removing disputations and time consuming contentions from the floor of the general meeting, to the interference with its legitimate and more important labors. While it has included some of the best men in the profession among its members, there were many others who were not medical, among them the Rev. Dr. Osgood, Dorman B. Eaton, Commissioner of Education, and others. This Association does not limit its influence to those in actual attendance at its meetings. The larger audience outside of the Association give it its distinctive character. He was especially gratified at the interesting feature of its development, which has made it eminently all-American, through the extension of its membership to Canada and Mexico, and hoped that Cuba and the Central American republics might also become part of it. This international association is all the more gratifying since experts in sanitary science are aware that no single country can protect itself, except so far as the English system obtains of making localities clean, instead of remaining apart and trying to fight epidemics. A clean country is primarily a healthy one. The Transactions of this Association, he was proud to say, have become an invaluable compendium of sanitary science, and Florence Nightingale wrote, years ago, that she could gather nowhere in Europe such information as was to be obtained in the reports and papers published by this body. Perhaps the grandest work accomplished by the Association has been in the development and extension of State boards of health all over this Union—and it is very gratifying to see by the programs the prominent part taken by officers and members of State and provincial and municipal boards of health in its work.

On the conclusion of ex-President Smith's remarks, the Chairman of the Local Committee of Arrangements, Dr. ERNEST WENDE of Buffalo, Commissioner of Health of that city, made the customary announcements of entertainments tendered the members and their families, which in accordance with the traditional practice of this Association, were only such as would not interfere with the purposes of its assembly. The Local Committee had prepared a very attractive, both in typography and contents, souvenir brochure, edited by Dr. WILLIAM WARREN POTTER, Chairman of the Committee on Printing, containing well executed portraits and biographic sketches of the officers, lists of committees and other necessary

information especially valuable for new members; and a novelty in the way of a membership badge, having a gilt buffalo surmounting and suspending by a tri-colored riband a gilt emblematic pendant. Each member was further supplied with a little book of detachable coupons, entitling those duly accredited to daily afternoon drives in tally-ho coaches, intended especially for wives and families during the attendance of their husbands and fathers at the sessions, and admitting to excursions and receptions—a most admirable provision against the intrusion, common to such occasions, of persons in no way interested in the Association as entertainers or participants.

The report of the Executive Committee was presented by the Secretary of the Association, Dr. IRVING A. WATSON, Secretary of the State Board of Health of New Hampshire, who performed this duty for the fourteenth successive annual occasion, making the usual announcement of the prospective business of the session, and reporting a communication from the Association of Master Plumbers of Canada, signed by their Secretary, J. C. Hughes, of Montreal, recommending the constitution of a committee on sanitation with special reference to drainage, plumbing and ventilation of public and private buildings, and such a special committee of five members was thereupon authorized. The Executive Committee further recommended the passage of a resolution, introduced by Dr. SAMUEL H. DURGIN, Health Officer of the city of Boston, reviving the committee on disinfectants and disinfection, whose former report has been so many years the standard authority on these subjects, but which in view of recent experimental research and discoveries ought to be given the opportunity of including this later knowledge. The Secretary then reported the names of fifty-three new members, recommended by the Executive Committee for election, which was accordingly done by vote of the Association.

The eminently practical and expeditious manner in which this Association dispatches its routine and administrative business through its Executive Committee, permitted the legitimate work of the session to begin promptly at 10:45 A. M., with the "Report of the Committee on Car Sanitation," by Dr. GRANVILLE P. CONN, President of the State Board of Health of New Hampshire, Chairman. This report attributed much of the opposition of railway corporations to their disinclination to submit to the interference with their business and the expenses which the necessary charges required for their improved sanitation would involve. It spoke of bad ventilation of passenger coaches as worse than their overheating, denounced the objectionable practice of closing windows and locking doors after a trip, instead of throwing them wide open for thorough airing, and advocated the abrogation of the existing system of urinals. It backed the American railway employe against the world for disregard of passengers' comfort, and for habitual insolence nothing could equal the negro porter. It commended the *train de luxe* from Paris to Marseilles as an instance of what can be done to promote the health and comfort of travelers and wondered that any one who has had the opportunity of contrasting this service with the American system could hesitate to give credit where it belonged.

Two papers on the same subject followed: "Observations on the Cleaning of Railroad Passenger Cars," by Dr. DOMINGO ORVANANOS, of the City of Mexico, Secretary of the Superior Board of Health of the Republic of Mexico; "Possibilities of Contagion of Venereal Diseases in Railway Cars," by Dr. TOMAS NORIEGA, delegate from the State of Chiapas, Mexico. The former advocated instead of the customary slipshod method of washing coaches, that they should be carefully gone over with sponges saturated with a solution of mercuric bichlorid, that the coverings of seats and backs should be frequently changed and washed at every terminal station. Dr. Noriega narrated instances in his experience of purulent ophthalmias, unmistakably one to infection in Pullman car lavatories, resulting in total loss of vision of one or both eyes. He said that reform was necessary especially in beds, lavatories and water-closets, and that in the latter, impermeable paper covers, to be removed after each visit, should replace the present permanent wooden seats. In the discussion which followed, Dr. Valentine of New York quoted the case of a bride, referred to him by another physician, who had contracted a specific ulcer on her lip by drinking from a public ice-water cup, and said that in Antwerp he had seen fresh wooden covers supplied to each new occupant of a water-closet. Dr. Kinyoun of the U. S. Marine Hospital Service, said that the hygiene laboratory of that service under his direction had been long engaged in investigating railway sanitation, and said that experiments were being made as to the proper disinfection of cars by subjecting all the several materials used in furnishing coaches to various processes. He suggested the inquiry as to the greater prevalence of cases of tuberculosis and diphtheria at the railway terminals and at the resorts for invalids affected with these diseases. He said the impure water supply in the railway service was responsible for many cases of diarrheal and enteric diseases, and declared that it was significant that the presidents and high officials of these companies do not drink the water they furnish to passengers.

The "Report of the Committee on Steamship and Steamboat Sanitation," by Dr. FREDERICK MONTIZAMBERT of Toronto, General Superintendent of Quarantines of the Dominion of Canada, Chairman, was then read. Dr. Montizambert said he had little to add to the reports made by the former Chairmen of the Committee, Dr. Durgin of Massachusetts, in 1891, and Dr. Gihon, U. S. Navy, in 1893, except to call attention to the proposed disinfection of ships by the electrolysis of sea water, a process actually in use by the French companies of the *Messageries Maritimes*. At the exhibition at Boulogne-sur-Mer, there was an automatic apparatus no larger than a coal scuttle, which could be connected with the ordinary electric plant by a couple of wires and was capable of producing three hundred liters of electrolyzed sea water per hour. The usual methods of disinfection, involving the employment of costly materials, were malodorous and left much to be desired.

Dr. HORLBECK of Charleston, S. C., declared that enough had not been said about the wretched sanitary condition of our coastwise passenger steamships, and Dr. GIHON, U. S. N., described his present knowledge of the deplorable condition of the saloons of these vessels during their late autumn passages when crowded with consumptive invalids on their way to health resorts in Florida.

AFTERNOON SESSION.

The afternoon session began 3 P.M. with a paper on "The Composition and Infectiousness of Milk," by Dr. JAMES F. KENNEDY of Des Moines, Iowa, Secretary of the State Board of Health of Iowa, and was an exhaustive inquiry into the relative mortality of breast-fed children and those fed on milk, the latter being greatly in excess. He attributed a large proportion of the deaths to inanition from dilution with water, which is not only a fraud against the buyer but a crime against the children, who are literally starved to death. He narrated epidemics due to infected milk, which was a greater source of danger than dilution, and described the many ways by which morbific germs are introduced into milk—by washing pails with impure water, by the settling in pails and cans of dried germs floating in the polluted air of stable-yards, by the unclean hands of milkers, and after reaching consumers by the filthy habits of occupants of insanitary houses. He declared the remedies to be inspection, cleanliness and sterilization.

The next paper on the program was "On Pure Milk," by Dr. GARDNER T. SWARTS of Providence, R. I., Secretary of the State Board of Health of Rhode Island, who deplored the neglect of milk inspectors and physicians in his own State to ascertain the actual condition of the milk supply. He said that most of the enteritis of children was certainly due to filthy milk. He urged the establishment everywhere of milk farms similar to those near Buffalo, where the modus operandi of milking and delivering milk is carried out under the most healthful conditions and the purity of the milk certified by reputable physicians. The price of such milk must necessarily be higher, and it is only by educating the public that they can be made to pay the difference and to secure immunity from disease, which is more surely done in this way than by sterilization. There are people to day who prefer dirty milk at four cents to good milk at eight.

The "Report of the Committee on Animal Diseases and Animal Food" was then read by Dr. D. E. SALMON, D.V.M. of Washington, D. C., Chief of the Bureau of Animal Industry, Department of Agriculture, Chairman, who, while describing how much had been done in the matter of animal diseases, said that the public still needed to be educated respecting them. Outbreaks of anthrax were undoubtedly becoming more frequent. While common in Europe, this disease had been rare here. The spores of the bacillus survive for years and are distributed through carelessness in the disposal of dead animals. The carcases should be saturated with coal oil and burned to ashes. Hides and wool are dangerous and even the hay from infected meadows used for packing crockery and glass. Tuberculosis is the subject of much attention on the part of the government, which, however, can only prevent the shipment of diseased cattle to other States, but has no control over its local sale. Tuberculous cows and swine are often found in the abattoirs, but there is necessity for coöperation between Federal and local inspectors. Some local firms insist on selling condemned carcases. The committee testifies to the amicable relations between the Bureau of Animal Industry and the

State Boards of Health, due largely to the influence of this Association. An interesting part of the report dealt with rabies, which declared that while there was no need of alarming people, it was a duty to inform the public that such a disease does exist and is a menace to health and safety. The Chairman had sometime ago to combat the theory that there was no such disease as Texas fever. Is it reasonable to believe that a disease that has been described for two thousand years is a myth because a few physicians have never seen a case. The committee has sufficient positive evidence to establish its existence and characteristics, and recommends the measures for reducing the number of worthless dogs be rigidly enforced, and that all others allowed to run at large be muzzled.

This group of papers attracted great attention and provoked a very lively discussion. Dr. Bailhache while approving of the thorough supervision and inspection of dairies and dairy products recommended by Dr. Gardner T. Swarts, doubted its practicability. Dr. Lee of Philadelphia took issue with Dr. Kennedy respecting the sterilization of milk, in which he did not believe we had arrived at a sanitary ultimatum. Since the practice two diseases have become prominent—infantile scurvy and rickets—which were not recognized when he studied medicine. Fresh pure milk is better than sterilized, but he agreed if we are to cook milk at all we had better do it thoroughly. Boiled milk is better than sterilized. Dr. Hibberd of Indiana, ex-President of the American Medical Association, questioned whether it had been established that any child had been diseased by milk from tuberculous cows, taken into its stomach. He had never had a positive, indisputable reply to the question: Can tubercle bacilli pass the digestive organs? He believed that sterilized milk starved children to death. Dr. Lyman of Massachusetts said as it was possible for a child to be exposed to cold and not take cold, it was equally possible for it to live in a family where tuberculosis and similar diseases exist and not contract them. He believed that the development of the general health by proper sanitary environments will be a better protection against disease than any special method of asepsis. Dr. Carter of Des Moines, Iowa, said it was a frightful fact that dairies are, as a rule, filthy, that the cows are filthy and kept in filthy places and milked by men who are both filthy and diseased. He had employed a man who had been previously employed for two years and when he saw that he did not wash his hands nor the cow's udder and remonstrated with him, he declared that he had never done so; and a second milker, who had also been working a year in a dairy, made the same admission. He was opposed to muzzling dogs and thought a shot-gun was a better protection against rabies. Dr. Holton of Brattleboro, Vt., agreed with Dr. Hibberd and said he had tried to find an undoubted case where tuberculosis had been communicated by the milk or flesh of the bovine race and had not found one. He believed heredity, etc., accounted for the development of certain diseases. He had for a year and a half, without knowing it, drank milk from a tuberculous cow, subsequently discovered to be the worst in the herd. He called attention to the danger from substituting patented food for milk.

Dr. Kinyoun and Dr. Salmon controverted the statements of Drs. Hibberd and Holton that the infection of human beings by diseased animals had not been established. When we consider that tuberculosis may be produced in animals by feeding them upon tuberculous tissues and find children die from tuberculous disease and know that the tubercle bacillus does penetrate the intestine, we are justified in inferring this as the source of their disease. As to making children strong rather than destroy disease germs, it is the fact that the robust often die and the sickly do not. Immunity does not depend on the strength of the individual. We do not know how frequent this infection was twenty-five years ago, and we would not know to-day but for the tests that have been established. How does Dr. Holton know that the milk he drank was infected?

The next paper, "Contributions to the Study of the Pathogeny, Etiology and Prophylaxis of Typhus," by Dr. Francisco de P. Bernaldez, delegate from the State of Oaxaca, Mexico, was a very able presentation of the subject based on personal observations in many epidemics, and Dr. Bernaldez's conclusions as to the limited contagiousness of this disease were accepted without discussion.

The "Report of the Committee on Nomenclature and Forms of Statistics," by Dr. Samuel W. Abbott of Wakefield, Mass., Secretary of the State Board of Health of Massachusetts, Chairman, was read by Dr. Walter Suiter of New York, particularized the latest changes in nomenclature by the College of Physicians of London, and was supplemented by a paper "On the Nomenclature of Diseases and Forms of Statistics," by Dr. Eduard Licéaga of the City of Mexico, President of the Association, and one "On Need of Uniformity in the Meaning of the term Stillborn," by Dr. Jesus E. Monjarás of the City of San Luis Potosi, Mexico, Director of Hygiene of the State of San Luis Potosi.

Dr. Lindsley of New Haven, Conn., expressed his appreciation of the great importance of this series of papers. There were a number of States which do not yet take sufficient interest in vital statistics, and as uniformity in nomenclature is the essential basis of an exact system of statistics, he hoped the Committee would be continued.

The paper "On Dengue," by Dr. Henry D. Horlbeck of Charleston, S. C., Health Officer of Charleston, was an interesting account of the great epidemic of that disease at Charleston.

A paper "On Municipal Responsibility for Healthy Schoolhouses," by Mrs. Ellen H. Richards, of the Institute of Technology, Boston, Mass., was read by Dr. Durgin, Health Officer of Boston, and one "On Woman in Preventive Medicine," by Mrs. Harietta M. Plunkett, President of House of Mercy Hospital, Pittsfield, Mass., was read by title.

EVENING SESSION.

The evening session, to which the public was especially invited, was promptly called to order at 8 P. M. by the First Vice-President, Lieutenant Colonel Alfred A. Woodhull, of the Medical Department of the United States Army, who most efficiently assisted President Liceaga throughout the entire meeting of the Association. The session was opened with an address by His Honor Edgar B. Jewett, Mayor of the city of Buffalo, who very gracefully welcomed the Association to Buffalo, and invited the members to inspect the administration of the city's affairs in their bearing upon the public health. Mayor Jewett was followed by the Reverend Dr. Thomas R. Slicer. He said in part: "I address you to-night simply as a citizen of the city of the lowest death rate in the United States, who is interested in conserving the public health of that city to a still greater extent. The word city is the watchword at once of your opportunity and your peril. You all have seen the dwellers in the country violating all of the rules of health and seemingly being themselves healthier than those who live in cities. In the grouping of so many together there is a sense of power that is not found in the country. It is because of this sense of power that lies in the binding of lives together that we at once should have a sense of insecurity and a hope of power. But, more than this, there is that civic consciousness which belongs to every city. Buffalo, as an example, has no civic consciousness. It has not the civic consciousness which marks Birmingham, Glasgow or even Chicago. It is, so far as we have gone, a group of contignous tribes. I do not now refer to their nationality, though that is also true, but to their diverse interests, to their alien training, to their want of common purposes in this city. Chicago would not be where it is to-day were it not for its civic consciousness, and if it had not had the opportunity of the Columbian Exposition. Until civic consciousness arrives in municipal life it is almost a continuous upgrade for the guardians of the public health. There is a constant warfare with ignorance and avarice. Some of us do not know enough to protect ourselves against contagion. Let me add in conclusion that the Health Department of any city has no business at that trough from which the politician feeds. How many of you have not come in contact with that parsimony that will deny $1,000 for a bacteriologist and spends $2,000 on a junketing trip for a Board of Aldermen?"

The program had provided for an address on the part of the members from the Dominion of Canada, by the Honorable Richard Harcourt, Provincial Treasurer of Ontario and Minister of Health, but having been unavoidably detained, Dr. Peter H. Bryce of Toronto, Secretary of the Provincial Board of Health of Ontario, acceptably supplied his place in a brief extemporaneous address.

This was followed by the annual address of the President of the American Public Health Association, Dr. Eduardo Liceaga, of the City of Mexico, President of the Superior Board of Health of the Republic of Mexico. The President's address from the standpoint of a sanitarian in a body of advanced and experienced sanitarians, was an able and forceful paper. It was written in English by the President, but was read at his request by his friend, Medical Director Albert L. Gihon, U. S. Navy, a former president of the Association. It related principally to the business of the Association and went into a history of the growth and development of the study of public hygiene in Mexico, which Dr. Licéaga said had been fostered and encouraged under the administration of President Diaz during the last twenty years. Some of the suggestions made by Dr. Licéaga were of great value and interest. He laid before the Association the proposition that it should devote special attention to the study of contagious diseases, with a

view not only to their cure and the prevention of epidemics, but to the means of preventing the development of individual cases. The several phases of the subject of epidemics were taken up separately and treated in an exhaustive manner. One proposition put forth by Dr. Licéaga was that isolation in infectious diseases is not so essential in some diseases as in others, and that the study of the extent to which it should be practiced would repay investigation. Another proposition was that more attention should be paid to the study of the technique of disinfection. These and many other phases of the broad subject of contagion could be studied by uniform methods over a vast extent of territory by the members of the Association, with great results. Another question which Dr. Licéaga thinks merits investigation is the ascertainment of the period within which any disease is contagious and the person affected dangerous to his neighbors. This is something in regard to which much uncertainty still exists, and definite knowledge in this regard would be of incalculable value. Dr. Licéaga recommends also that a special committee for the investigation of the subject of the prevention of disease, particularly by vaccination and inoculation, should be appointed, and made reference to the newly developed sero-therapy, which he declared was already falling into disrepute through the use of imperfect or contaminated serum. A committee to devise a means for the use and sale of only absolutely pure and perfect serum, should be appointed. In conclusion Dr. Licéaga said: "Gentlemen of the American Public Health Association, I beg to offer you my sincere congratulations on our coming again together in the twenty-fourth meeting of this Association, and on having selected for the place of our meeting this beautiful and interesting city, which is so splendidly placed at the Eastern end of this delicious lake, a lake that supplies the water for this powerful river that farther on precipitates itself into a grand cataract, a stupendous marvel of nature that thousands of pilgrims from all parts of the world come to contemplate and admire; in this city which offers to us its hospitality and affords us an opportunity of again meeting to render our homage to science and to work together for the physical well-being of our fellow-creatures."

(To be continued.)

Mississippi Valley Medical Association.

Twenty-second Annual Meeting, held at St. Paul, Minn., Sept. 15-18, 1896.

The meeting opened with a very satisfactory attendance, Dr. H. O. WALKER, of Detroit, presiding.

Dr. CHARLES A. WHEATON, of St. Paul, Chairman of the Committee of Arrangements, called the meeting to order, and introduced Archbishop IRELAND, who delivered the invocation.

Governor CLOUGH of Minnesota delivered the address of welcome on behalf of the State. He said he was obliged to admit that he was no orator, and that he had always been more or less timid in the presence of a physician, but of his hearty welcome to the State all members of the Mississippi Valley Medical Association might be assured.

Hon. F. B. DORAN, Mayor of St. Paul, delivered an eloquent address of welcome on behalf of the city. He referred to the reputation of St. Paul for hospitality won by the recent encampment of the G. A. R., and he said that upon that occasion the city had welcomed the men who had preserved the nation, while now she welcomed the men who preserved the bodies of the nation's defenders.

Dr. A. J. STONE delivered the address of welcome on the part of the profession. He paid a glowing tribute to the profession of St. Paul, the absence of professional jealousy, disagreement and ill-feeling, while he begged to assure the visiting profession that they were most heartily welcome. He also took occasion to speak of the great help the ladies of St. Paul had been to the committee in making the arrangements. In speaking of Minnesota as a health resort, he said it had proved a Mecca for consumptives, and notwithstanding the fact that many cases of tuberculosis came to St. Paul when in the last stage and when beyond all hope, die there, are included in the mortality, and notwithstanding this fact the mortality of this city is the lowest of any in the world.

Dr. H. O. WALKER took the chair and thanked the speakers for the welcome they had extended. In casting about for a subject upon which to deliver the annual address, he had decided to relate some experiences he had had rather than thresh over the various subjects which are dealt with at length in the various medical journals. He took for his title "Some Experience of Surgery of the Kidney." (To be published in full in the JOURNAL.)

The report of the Treasurer was not read, by reason of Dr. H. N. Moyer's absence on account of sickness.

The program opened in the afternoon session with a paper by Dr. TRUMAN W. BROPHY, of Chicago, who presented a

NEW OPERATION FOR CLEFT PALATE.

He took the ground that the operation should be performed much earlier than had been done heretofore by surgeons, and that the idea that the operation should be postponed until the child reached the age of three to seven years was an erroneous one for the reason that the changes in the voice would by that time have become permanent and the correction becomes almost an impossibility. The operation suggested by the author was the cutting of the edges of the cleft and then suturing them by wire sutures secured through a lead plate on each side of the palate, and made to conform to the same. In the hands of the author the operation had been uniformly successful.

Dr. W. H. DALY, Pittsburg, in discussion said: I think the essayist has made a marked advance in the operation for cleft palate, the most important point being its adaptability to very young children, as I think it does away with all former objections to operating on the young infant. The greatest disappointment I have had in these cases is the poor articulation which follows the operation, and which is always a source of great disappointment to the patient and family, who always expect to hear perfect speech immediately after an operation, and I think this result will be attained in Dr. Brophy's operation.

Dr. G. FÜTTERER, of Chicago, read a paper entitled

PLEURITIC EFFUSIONS AND THEIR TREATMENT.

The author took the ground that a bacteriologic examination should be made in all cases. The diathesis in cases of pleurisy should also be most carefully looked into, as cases of uric acid are frequently found in connection with pleurisy; these yield readily to the administration of salicylates, and but about 15 per cent. of the cases of pleurisy are believed to be pneumatic. The pleurisy of typhoid fever was also considered by the author, who did not believe it was a mixed infection, but that it was a distinct condition. As to the presence of tubercle bacilli in pleuritic effusions, Dr. Fütterer believed that they may enter through the alveolar septa and enter the pleura without producing serious effect in the lungs. The author has washed out the cavity in fourteen cases with an antiseptic solution, with success in twelve. The agar culture should be used to differentiate between tuberculosis and pleurisy. The advantages to be gained by this treatment is that many patients will submit to it when they will not submit to the excision of a rib.

Dr. GUSTAVUS M. BLECH of Detroit, read a paper on the

TREATMENT OF INFLAMMATORY DISEASE OF THE STOMACH.

The author criticised the old routine methods of treating acute inflammatory disease of the stomach with menthol, ice, cocain, opium, purgations, cathartics, pepsin, etc., for the reason that they did not cure the patient and the physician was too liable to delude himself into the belief that he had cured his patient because he did not return, which the author claimed was in nearly every instance due to the fact that the treatment did him no good. The reason that was given for the failure to cure the catarrhal condition of the stomach was that we are too prone to attempt to prescribe remedies for the relief of symptoms only and not sufficient attention being given to relieving the pathologic condition which prevent the digestive process from being normal. The use of strong antiseptics, which seem to be indicated, are more likely to do more harm than good by reason of the destructive action of strong antiseptics have on animal and vegetable cells. The treatment may be summarized into:

1, destroy the morbid element which is present in the stomach so as to thoroughly cleanse the mucous membrane; 2, heal the diseased surface after it has been made aseptic. For the cleansing the author has found hydrozone the most satisfactory. He uses a tumblerful of lukewarm water containing a 2 per cent. of hydrozone, half an hour before meals. The nascent oxygen which is set free in the stomach by the oxidizing agent destroys the morbid element and cleanses the mucous membrane. As a healing agent glycozone in one to two dram doses immediately after meals, is recommended. This treatment is strongly urged in gastric ulcer.

Dr. F. HUNT STUCKY, Louisville, Ky.—I desire to emphasize the value of perfect lavage in cases of gastritis. I would also urge the careful attention to dietetics as well as any intestinal disorder that may exist in connection with the gastritis. There must also be something in addition to the antisepsis; the nervous system should be built up and attention paid to any cir-

culatory disturbance. I believe massage would be valuable in many of these cases.

Dr. I. N. Love, St. Louis—I do not believe in limiting the treatment to any one agent, the entire tract must always be kept in mind and the application or administration is but one of many things to be done. We can not separate one set of secretory glands from another but must give attention to them all and in these cases I believe especial attention should be paid to diaphoresis; massage is also to be recommended in a certain proportion of cases. I believe there are many persons suffering to-day from an auto-toxemia due to a disordered stomach and that 90 per cent. of these cases can be laid at the door of constipation. Lavage of plain water as well as drinking large quantities of water just before eating I think a great help toward starting the current downward and outward. The habits of lavage has done much harm and I do not believe it should be intrusted to the patient to carry out.

Dr. W. H. Daly, Pittsburg—I have had anything but satisfactory results from lavage, the treatment suggested, and do not favor it. I heartily agree with the speaker regarding the toxemia for I heartily believe that a very large proportion of these stomachic diseases are due to toxemia and the most important thing to do is to consider every one of these cases as a rule unto itself and treat them individually. A good idea is to give a lavage of a gallon of water and then empty the stomach by irritating the throat with the finger when a cleansing result is desired.

Dr. C. H. Hughes, St. Louis—The most important factor in the handling of this class of cases is to treat your patient all over. Medical men of the present day in treating dyspepsia have been forced to the conclusion that the individual is possessed of a pneumo-gastric nerve and that it plays a most important part in this disease, which has so long been considered as a local one. You take for example a case of nasal catarrh which goes the round of treatment at the hands of the rhinologists, who apply the spray, cautery, remove spurs from the septum, etc., and what is the result? Are the cases cured? No; because the attendant is too prone to treat the disease as a purely local one and not through the nervous system as should be done.

Dr. F. F. Lawrence, Columbus—The frequent occurrence of dyspepsia in connection with gallstones has suggested the possibility of its being secondary to this condition. We have all known of cases when the patient has consulted the physician for the relief of the usual train of symptoms which would indicate gastro-intestinal disorders and without relief until an abdominal surgeon, looking for ovaries he may remove, opens the abdomen and finds gallstones, after the removal of which the gastro intestinal symptoms disappear.

Dr. J. M. Mathews, Louisville—I would like to suggest that the author of the paper did not attempt to treat nasal catarrh, hysteria, or some of the other diseases the gentlemen have referred to. The paper dealt with a certain class of gastric disease and the treatment is precisely what you would adopt should you have an ulcer or acute inflammation located in any other region and I think we should bear in mind that if we want to have successful results we must get at the local conditions in these cases.

Dr. H. T. Patrick, Chicago—I think there is some value in the suggestion of the essayist but I am opposed to the presentation of a cure for a condition as complex in its nature as gastritis without stating more specifically what form it is. I think the important thing to do first is to decide upon what particular form of the disease we have to deal with, then the cause and we can then apply our cleansing and antiseptic treatment.

Dr. I. A. Abt, St. Louis—We should not for a moment lose sight of the fact that we have a pathology for all these forms of gastritis, whether it be from alcohol, tobacco or any other cause. In making this differential diagnosis lavage will be of particular value. I am firmly of the belief that many of these cases are due to toxins.

Dr. J. A. Larrabee, Louisville—I am convinced that the portal circulation is more often at fault in these cases than is generally supposed and its correction too often neglected. Exercise is above all things the most important and should be insisted upon in order to direct the blood to other and healthier channels. While I do not propose to discard the use of antiseptics I will place more reliance on treating the portal circulation.

Dr. W. S. Caldwell, Freeport, Ohio—I use the stomach tube for diagnosis purposes principally and when I find that there is neither fluid or debris forming in the stomach I keep the tube out, although where I find much fluid accumulated in the stomach in the morning I wash it out with the tube.

Dr. Paul Paquin, of St. Louis, read a paper entitled:

THE TREATMENT OF EXPERIMENTAL TUBERCULOSIS IN ANIMALS BY THE USE OF BLOOD SERUM.

(It will be published in full in the Journal.)

Dr. H. Longstreet Taylor, St. Paul—I desire to say just one word on tuberclin and its modifications. Although the essayist says that it acts by producing an antitoxin, yet this has not and can not be proved. It may be the true explanation although the observed fact of an active leucocytosis in tubercular areas during its use is a more plausible explanation. Tuberculosis in its various manifestations presents such a complicated future and such a complex one that the very existence of an antitoxin is problematic and even if found it could not be a specific in the sense that the antitoxins of the acute diseases, as diphtheria, are specifics. Tuberculin is very much in disrepute here and everywhere, but it has a few constant friends yet, among whom I stand, and with good reason, for in careful hands undoubted results are obtained with it. I have, for instance, only recently seen the glands, in three cases of undoubted glandular tuberculosis, disappear under its use; what more convincing experiment could one desire?

In a long series of cases my results with tuberculin have been eminently satisfactory. With the St. Louis serum, however, I have not been able to obtain results. All the cases upon which I have used it grew worse. Still from a short series no results can properly be claimed, for more than in any other disease probably are statistics difficult of comparison in tuberculosis.

Dr. Jos. Muir, New York—My experience has been large and varied in the therapeusis of tuberculous disease and for years I have used tuberculin and all its modifications, especially those of Hunter, Maclean, Klebs, Kitasato; aside from these, modifications of my own consisting of different percentages of toxic albumoses, the logic being that the maximum of irritation was gradually reached within and around that impenetrable wall, which surrounds all anatomic tubercles. Dr. Paquin is scarcely satisfactory in his theories regarding the physiologic action of his serum in tuberculous areas but his paper is teeming with statistics; some one has said, Beaconsfield I believe, that statistics consist of three classes, lies, damn lies and statistics. The curability of consumption can not be judged by statistics. Its curability has been known from time immemorial since the days of the early Greeks. Milk was the great agent in the treatment and continues to be so to the present time—so from the fullness of statistics I may cite the case of Professor Emmerick in an article written by him somewhat over a year ago and in which he gave the history of ten cases of sarcoma and carcinoma cured by serum obtained of the erysipelas and prodigiosus toxins. It was afterward proven that one of the cases referred to had been dead two months prior to the reading of the report.

Dr. Barclay, Pittsburg, Pa., complimented Dr. Paquin and congratulated the profession on the earnest and honest investigations made. He felt that the absolute candor of the reports should command the attention of the profession.

Dr. H. W. Loeb, St. Louis, Mo.—I have known several cases of laryngeal tuberculosis treated with serum and knew of one case in which Paquin's serum had given remarkably good results. In others it had been less successful. I consider serotherapy more promising in the treatment of other forms of tuberculosis than that of the throat. I will report a case of a man who, six years ago was examined by six competent physicians who pronounced the case one of tuberculosis with a fatal prognosis. The serum was used and to-day the man feels perfectly well and all physical signs of the disease have disappeared except a slight thickening of the arytenoids. I have confidence in the treatments in laryngeal tuberculosis, and one fact I have noted is that when first administered the larynx improves wonderfully even though it again resume its downward course.

Dr. W. H. Daly, Pittsburg—There is one thing to be remembered in our enthusiasm over any new remedy for tuberculosis and that is a very frequent occurrence to have patients claim that they are much better whenever a new line of treatment is adopted. It was so with Koch, Bergeon and Edson. I have tried the latter for a period of three months only to abandon it and while using it among some 150 cases of complications I had developed four marked cases of acute insanity. I regret that I am forced to admit that I feel that medical science has done very little toward checking the downward career or in the diagnosis of this disease.

Dr. A. J. Green, St. Paul—The full ability of medicine is best demonstrated in the treatment of tuberculosis. The statistics of some of the newer remedies are very encouraging at first, but they are somewhat altered when we stop to consider how many cases of enlarged glands and tubercular laryngitis get well without any treatment. I am still inclined to the

belief that we must depend more upon climate and high altitude than any thing else.

Dr. JOSEPH MUIR, New York—The treatment of tuberculosis is a very vague thing. We should be somewhat guarded in pronouncing a cure for the reason that many cases for a time manifest a quiescent stage which simulates cure. As for the beneficial results of climate, I think more is due to the change of surroundings than to the climate.

Dr. CHAS. H. HUGHES, St. Louis, said that one should not depend on any one remedy in the treatment of consumption.

Dr. LOVE said he knew of the work and results of Dr. Paquin in his laboratory, and knew that his results in the treatment of tuberculosis were as stated.

Dr. PAQUIN, in his closing remarks, stated that serotherapy was founded on natural law. It was nature's own remedy he tried to produce when he prepared tubercle antitoxin. He believed that serotherapy in tubercle had passed the experimental stage, although by no means perfect. He said that in the earlier stages pulmonary tuberculosis could be arrested in at least 80 per cent. of the cases by the use of serum and proper adjunct treatments.

SECOND DAY.

Dr. HORACE H. GRANT, of Louisville, Ky., delivered the address on surgery:

THE RELATIONSHIP OF DIAGNOSIS TO THE FUTURE SURGICAL PROGRESS.

He said that we must find some common ground for the settlement of our differences; many of the recent operations are passing away, owing to the effect of our modern scrutinizing investigation. We forget there are men in the quiet of their laboratories doing a work which makes all our wonderful progress possible. We can not progress much further in technique of operative skill. Any great amount of paraphernalia suggests a lack of personal resource in the operator. Almost every part and organ of the human body has been removed recently with more or less good to the patient. If we would make earlier and more careful diagnosis many of the possible failures would be precluded. No surgeon dare say to the patient, "If I had known yesterday, or before, so and so, the result would have been different." Rarely will we fail to secure an operation if the operator be sure of his diagnosis and demands an operation. No term in all surgery is so often misapplied as conservatism. No aim is dearer to the surgeon than the ways and means of relieving his patient. We must not fall into the error of making one man great and another man insignificant. Experience is and should be one of the greatest aids in diagnosis. The skiagraph has lately come into importance in surgical work, and may be made a valuable adjunct in many instances. Its recent successes are noteworthy. It is yet, however, in its infancy, and is doubtless capable of still more development. No one doorway can open to success in surgery. The skillful and intelligent application of prompt relief added to a careful diagnosis will give us the most wonderful and satisfactory results. What each one finds to do let him do it with his might.

Dr. E. M. HOUGHTON demonstrated the action of the antitoxin on guinea pigs before the Association. He called attention to the conservative view the profession had taken of the antitoxins which would have a tendency to avoid the unfortunate experience the profession had had with tuberculin. The value of laboratory experiments in connection with clinic observation was emphasized by reason of our being thus enabled to obtain the exact dynamics of the flesh and blood of our patients and the advantage to be gained in varying our experiments at will. In the case of diphtheria antitoxin the physiologic effect can be foretold with almost the same certainty that we can predict the formation of hydrogen when platinized zinc and hydrochloric acid are brought together. The world's verdict in reference to the clinic value of the diphtheria antitoxin is expressed in the report of 615 physicians reporting to the American Pediatric Society on the use of the serum, of whom 600 are in favor of its use. A similar commission appointed by the German government, came to a like conclusion, while Behring claims that after a careful estimate he thinks that 20,000 lives were saved in Germany alone by the use of the heil-serum. In England the results are expressed in the report of the *Lancet* Special Commission, which report: That the influence exerted by the exhibition of antitoxin on diphtheria is at any rate quite as marked as that exerted by quinin in malaria. Our ignorance of the true action and power of the toxins and antitoxins was emphasized. The author claimed that the results obtained by Pfeiffer and his co-workers, in which he showed that if the serum obtained from the blood of an immune animal be injected into an animal infected with virulent cholera cultures the animal survives while the control animals die. This result is not due to the antitoxic action of the serum but to the bactericidal substances developed when the serum is brought in contact with the living cells of the animal body. If an animal be treated with large and increasing quantities of living cultures of the bacillus pyocyaneus for several months, the resulting serum will possess strong bactericidal properties but weak antitoxic properties. If on the other hand the toxin is used, the resulting antitoxin will have a strong germicidal and antitoxic action. This may explain why we get a more potent diphtheria antitoxin when the horse has been immunized with a diphtheria toxin than when he has been immunized.

Eight guinea pigs were inoculated before the Association with diphtheritic toxin, five were then inoculated with the antitoxin and the second day saw the five in excellent condition while the other three died.

The Committee on Nominations, consisting of Dr. J. M. Mathews, Louisville, Dr. I. N. Love, St. Louis, X. C. Scott, Cleveland, W. N. Wishard, Indianapolis, J. M. Coulter, Chicago, W. F. Barclay, Pittsburg, W. J. Mayo, Rochester, Minn., J. P. Collins, Hot Springs, G. Blech, Detroit, T. H. Manley, New York, and E. W. Lee, Omaha, reconsidered the nomination of secretary, and selected Dr. H. W. Loeb.

Dr. ROBERT H. BABCOCK, Chicago, read a paper on:

A REPORT ILLUSTRATING THE VALUE OF SECONDARY PHYSICAL SIGNS IN THE DIAGNOSIS OF CARDIAC DISEASE.

The author claimed that the murmurs are the least reliable signs of valvular disease and an accurate diagnosis can not be made unless the secondary signs are recognized. If the heart be too weak it may be that the murmur can not be detected, or a grave defect may not be noted. Secondary symptoms are a modified pulse rate, character and rhythm, leading to a congestion of the veins and internal organs. In some instances there is systolic venous pulsations of the liver. This is diagnostic of insufficiency even if the murmur is not audible.

Dr. JOSEPH MUIR, of New York, read a paper on

REINFECTION IN CONSUMPTION.

(It will be published in the JOURNAL.)

Dr. J. A. LARRABEE, Louisville—The paper of Dr. Muir is unusually attractive, and reflects to us our individual experience with consumption. The doctrine of re-infection affords the only reasonable explanation of the recurrence of arrested tuberculosis, with which every general practitioner must be familiar. The principle element in our failure to secure to the patient the advantage gained by our treatment in cases of pulmonary consumption consists in our inability to remove the patient from the surroundings in which his disease commenced. The air of workshops, the carpets and drapery of the apartments, together with the illy ventilated tenements of even the well-to-do working people, contain abundant seed for the now more congenial soil. I have always believed that if the consumptive could have in the inception of his disease the comforts and care which are drawn around him in the late stages recoveries would be far more frequent. In regard to climate, I do not think that altitude or latitude are of so much importance as a sterile atmosphere to the bacilli tuberculosis. Some of the saddest sights which I have witnessed in my travels both at home and abroad have been doctors' mistakes coming home in pine boxes. I believe that the best place for a consumptive in the second stage of his disease, when the lung tissue is beginning to break down, is at home, no matter what or where that home may be. It is a sad sight to see the suffering putting up with inconveniences and deprivations, which home alone can remove, for the questionable advantage of climate. To this must be added the mental depression consequent upon absent friends and the tender touch of a loving hand. Yesterday I had something to say upon lavage when the subject of gastritis was under discussion. To-day I simply want to change the "l" into a "g" and speak of gavage, by which I mean a systematic course of forced feeding with most nutritious food, or in a word, forced nutrition. It has been sufficiently demonstrated that nutrition may be successfully forced even where there is no inclination to eat. Every farmer who has stuffed turkeys in a dark cellar for thanksgiving market knows this. If you can make your consumptive patient gain steadily in weight he will as certainly improve in all other respects. I have sent very many consumptives to New Mexico with invariably good results, but I believe that if the United States government, as proposed, were to build a sanitarium at Las Animas or Santa Fe and fill it with consumptives, it would soon become a Lazar house of disease, notwithstanding the altitude and latitude. Among many of my cases sent to this place was a young man who was fast succumbing to consumption. He was a blythe and accomplished fellow, and the sole support of a widowed mother. He had night sweats and copi-

ous expectoration and plenty of bacilli. I sent him to Las Animas to "fence ride," herding on a ranch; he rapidly improved. His clerical abilities attracted the attention of his employer, who had built a hotel, and he assumed the duties of clerk. In three weeks his symptoms returned; he wrote me and I told him to get out and go "fence riding"; he is still well, but would have died had he remained indoors. No point is better established than that consumption is a disease of aggregation of individuals. It was unknown to the nomadic tribes, and no point is more important than segregation of tuberculous subjects. If I have spoken at greater length than the limit my apology is that such a paper as Dr. Muir has presented should not go unnoticed, and without the compliment which it deserves.

Dr. Hugh T. Patrick of Chicago, read a paper with elaborate illustrations on

TRUNK ANESTHESIA IN LOCOMOTOR ATAXIA.

In nearly all cases of tabes dorsalis there is a band of anesthesia about the trunk of about the level of the nipple. It is early in the disease very narrow or even incomplete, or may be represented by a zone in which the localization of touch is not normally accurate. The sensory blunting on the legs so frequent in tabes is generally an analgesia; the trunk anesthesia is ascending, tactile, and the pain sense may be quite normal. The band of anesthesia does not correspond to the cutaneous distribution of the intercostal nerves, but to the nerve fibers arising from adjoining segments of the spinal cord. In some cases there are two distinct zones of anesthesia indicating simultaneous involvement of spinal segments at some distance from each other. The borders are inconstant, ordinarily retract on continued testing, and vary in position with the method of examination. The same band of anesthesia may occur in syphilitic pseudo-tabes as shown by an illustrative case, as far as known the only one on record. The patient presented nearly all the principal symptoms of locomotor ataxia, including a wide band of trunk anesthesia, but a diagnosis of syphilis of the cord was made, and on active specific treatment he made an almost perfect recovery. A zone of anesthesia much narrower than this one still exists.

Dr. J. Frank of Chicago, presented a paper on "A New Method of Fastening the Round Ligament in Alexander's Operation."

Dr. J. A. Art of Chicago, read on "The Clinic Significance of the Child's Fontanelle."

Dr. W. J. Mayo of Rochester, Minn., read on "The Surgical Treatment of Pyloric Obstructions."

Dr. Thos. H. Manley of New York read a paper on

CONDITIONS WHICH MAY SIMULATE ORGANIC OBSTRUCTION OF THE RECTUM.

The obstructions in the large intestine are of two kinds, viz.: 1, the passive; 2, the chronic or incomplete. The former are the most rare and dangerous, with few exceptions depending on hernia, paresis, or occlusion by a new growth. The latter derange the general health though they seldom immediately imperil life. They are essentially dependent on habit, occupation or senile changes, or occur secondarily in consequence of extrinsic influences. They are more common in the female sex in consequence of difference in the anatomy and functions of neighboring organs; and may give rise to such symptoms as may lead the unwary into suspecting uterine disorders.

By a methodic systematic examination of cases of intestinal obstruction we may generally be enabled to determine whether the large or small intestine is the seat of stenosis or occlusion by certain well defined symptoms and when the large intestine is the seat of the trouble, we may determine not only the area involved but likewise whether such obstruction proceeds from causes of an intrinsic origin or from pressure conveyed through the other sources.

Dr. I. N. Love, St. Louis—The paper of the essayist is a most practical one on obstruction in the rectum, which is a most serious condition. It is serious if present in the male and doubly serious if present in a woman. There can be no question on the part of those who have been engaged in the practice of medicine for any length of time that 90 per cent. of the diseases of women are dependent on constipation. These patients suffer not only from general poisoning from accumulated ptomains and auto-infection, as it were, but in addition there are encroachments and misplacements of the bowels, on the pelvic organs depending upon the regular accumulation of the fecal matter which produces mechanical obstruction. The average woman, be she mother or daughter, has not been sufficiently impressed of the danger of constipation. We all know that the old saying, the standard of comparison as it were, regarding constipation which was explained in the words "as constipated as a school marm or an owl," was correct. We have all met with women young and old, moving in respectable society, whose bowels have not moved for ten days, two or even three weeks, yet these people are surprised if dangerous diseases overcome them. Fatal inflammation of the peritoneum and many other similar diseases in women are superinduced by constipation. We should impress women young and old that it is not only unesthetic and unartistic, but not healthful for their bowels not to move every day. Let us impress them of the fact that to overcome this condition cathartics and purgatives are objectionable; they will have removed the immediate disturbances but they produce weakness and are agents in the establishment of the constipation habit. Proper diet and eating of large quantities of fruit, together with an abundance of pure water, and especially exercise, will in nearly every case relieve the trouble. Let me emphasize the importance of the use of a great volume of water morning, noon and night; let us teach our patients not to drink water because they are thirsty, but for the purpose of washing out their alimentary system of sewerage. The fact that the essayist has cited a case where he with difficulty removed a fecal mass with the obstetric forceps from the rectum must be accepted by us. We have all had experience along that line calling for the scooping out of accumulated masses menacing the health of the individual. Women are very lax of exercise, an every day necessity: let us teach them that a proper open condition of the rectal canal is necessary to cleanliness, to the system, and cleanliness is next to godliness.

Dr. N. H. Pierce of Chicago, presented a new "Submucous Linear Cauterization; a New Method for the Reduction of Hypertrophies of the Conchæ."

Dr. Hugh T. Patrick of Chicago, read a paper on

ELECTRO-THERAPEUTICS AND ELECTRO-DIAGNOSIS SIMPLIFIED.

Electro-diagnosis is limited to the affirmation or denial of a lesion of the lowest neuron, that is, of a lesion of the motor cells in the spinal cord or of the nerve fibers, the peripheral nerves springing from these cells. A lesion of this neuron causes reaction of degeneration and this stripped of all unnecessary technicalities may be recognized by two variations from the normal, namely: A loss or very considerable diminution of faradic contraction and the slow worm-like contraction of the muscles to interruptions of the galvanic current. In the electro-therapeutics of organic disease of the nervous system applications of electricity to the brain may be entirely discarded as useless. Electricity through the spinal cord is little better. In diseases of the peripheral nerve it probably hastens recovery and that current is to be chosen which the better causes muscular contractions. In functional nervous disease electricity is of more practical value than in organic affections, but it is almost impossible to determine what proportion of this good effect is due to mental impression and suggestion. The galvanic current is to be chosen for facial and intercostal neuralgia, and sciatica; the faradic for lumbago, for hysteric and anesthesic paralysis and pain. The galvanic for exophthalmic goitre and sometimes for neurasthenic headache and backache. For facial spasm, tic douloureux, spasmodic torticollis, tremor and chorea, electricity is useless aside from the mental effect.

Dr. J. A. Larrabee, Louisville—I arise, Mr. President, to tender my personal thanks to Dr. Patrick for his plain, succinct and truthful elucidation of the application to bodies of which we know little, of a subtle fluid of which we know less. I thank him because he has made the subject of electro-diagnosis and therapeutics plain to my mind, which is a difficult task. Hitherto papers presented upon this subject have been chiefly interesting to their authors. Dr. Patrick has plainly shown us what lines are to be expected from electricity. It is not surprising that electro-therapeutics should afford a fruitful field for quackery and then it should be surrounded with all the mysteries of his ingenuity. I will say in conclusion that I have not found any benefit from electricity in chorea, nor should I expect that any benefit should accrue if the accepted pathology of that disease obtains.

Dr. A. J. Ochsner of Chicago, in a paper on

NERVE SUTURES AND OTHER OPERATIONS FOR INJURIES TO THE NERVES OF THE UPPER EXTREMITY.

It presented the following conclusions:

1. Suture every severed nerve. 2. The earlier the operation the better. 3. If neither sensation or motion is established within a year, the nerve should be again exposed, the cicatricial tissue removed and the ends again sutured. 4. The ends should be clean cut, should contain neither crushed tissue nor cicatricial tissue. 5. Tension must be avoided. 6. The wound must heal without suppuration to secure the best results. 7. Hemorrhage should be controlled perfectly to prevent intervening clot. 8. Carefully prepared catgut is the best suture material. 9. After suturing the ends either direct or "a distance" it is

well to stitch a fold of fascia over the united nerve-ends. 10. The extremity should be placed at rest. 11. The external incision should be ample.

Dr. H. P. Newman of Chicago read a paper on

WOMAN AND HER DISEASES VERSUS GYNECOLOGY.

The author emphasized the following points: 1. As specialists we must recognize and exercise the rising interest in a medical science which shall be preventive rather than curative. 2. Our affiliation should be with the general practitioner and obstetrician rather than with the specialist in surgery, who often lacks the special training necessary to an appreciation of the many disease manifestations in woman, their etiology and prophylaxis. 3. As we have long made a study of the pathology and etiology of woman's diseases and as we know that whatever may be acquired can be prevented, our specialists are best qualified to lead in the movement for the reform of all conditions detrimental to the health of modern women.

Dr. J. H. Coulter of Chicago read a paper on

TONSILLOTOMY BY CAUTERY.

He gave the following conclusions: 1. Do only a small amount at each heating of the electrode—work five seconds and allow the patient to rest twenty seconds. 2. Burn only where you can see what you are doing. 3. Use an electrode bent at right angles and having a fine point. 4. Do not attempt too much at one sitting. 5. A strong solution of silver nitrate is an excellent hemostatic in cases where there is slight hemorrhage. 6. Be sure the electrode is thoroughly heated when you attempt to burn. 7. Cut off the portion loosened at each séance; it prevents healing by its friction, and is often an annoyance to the patient. 8. Do not operate if the gland be acutely inflamed. 9. Always remember the normal shape of the tonsil, and that one must dissect much more deeply at its superior portion in order to get all of the pathologic tissue. 10. It is sometimes best to cut from below upward while taking out the inferior portion; in this convenience should be the guide. 11. By care the operation may be rendered almost if not entirely bloodless. 12. The indication in all cases is *eventual* total ablation. 13. Succeeding steps on the same tonsil should not be more than ten days apart. 14. When hemorrhage is met with, stop the bleeding at once with the heated electrode, and apply a solution of silver nitrate 90 grains to the ounce solution or stronger. 15. Try the method in suitable cases and I feel confident you will concur with me in the opinion that it possesses some advantages not found in any other.

Dr. G. Blech of Detroit read a paper on "Kola."

Dr. F. F. Lawrence of Columbus, Ohio, read a paper on

THE PATHOLOGY AND TREATMENT OF SUPPURATIVE SALPINGITIS.

He called particular attention to the following points: 1. The tubal mucosa is a true mucous membrane possessed of all the histologic elements of mucous membrane. 2. The fimbriæ are prolongations of the folds of mucous membrane with a few muscular fibers beyond the end of the tube proper. 3. The closure of the fimbriated extremity of the tube is effected by first, the unfolding of these plicæ and the elongation of the muscular fibers with coincident inflammatory exudate and not by adhesion of peritoneal surfaces. 4. The closure of the tubal ostium results in the formation of a circumscribed abscess. 5. The pathology of this circumscribed abscess is the same as that of suppuration with abscess formation in mucous membranes in other parts of the body except in the effect upon important contiguous tissues. 6. Occasionally the uterine end of the tube remains patent when we have the abscess of tube communicating with uterine cavity through which it may impart, discharge its contents. The treatment of the tube can not be fixed by any ironclad rule, each case must be treated as best it can by first, incision and drainage in rare cases; second, the vaginal section in a few carefully selected cases; third, abdominal section in a great majority of cases; hysterectomy in those cases where we find abscess of uterine wall, tubercular deposits, fibroids or malignant disease of fundus; as hysterectomy destroys the pelvic floor, it should never be performed except when there is some tangible lesion of the uterus.

Dr. F. B. Turck, Chicago—I wish to take objection to the manner in which the speaker handled the bacteriology and pathology, in his paper, of the uterus and tubes. In the first place microörganisms do not peptonize living cells. It is only necrosed tissues that undergo peptonization. The manner in which infection takes place is, first a soil is found upon the surface of the mucosa—the microörganisms may develop in a mucous bed of cellular lining upon the mucous wall. As the germs grow in this rich nutrient media toxins are found which are partly taken up by the underlying gland cells. A necrosis then occurs and the cells exfoliate and add to the nutrient media. It is then that peptonization of the necrosed cells may occur. The thinning of a tube is not due to the peptonization of its wall. When inflammation of the mucous membrane of the tube occurs, the membrane first may be thickened, then fluids are formed which distend the tube or tubes, and the pressure in this manner produces a thinning of the walls.

Dr. H. H. Grant, Louisville—While I believe the position taken by the essayist is practically the one we must accept, it is not the ideal one. We are often forced to accept what our judgment indicates to be a second choice. There are two arguments not mentioned which, while they are in the minds of the essayist and the surgeon, are not in the minds of the general practitioner and the family, and do not assist in securing consent to operate. These are: First, there exists always, practically, a septic condition and often a gangrenous foreign material of a highly dangerous character. Secondly, there is a large proportion of apparent recovery which are in fact but partial recovery. When we can so instruct the general practitioner that he will understand the patient who lies before him has within his abdomen a virulent foreign body or pus sac, he will not hesitate to consent to and advise operation. Beside this when there is impressed on the patient the danger of recurrence, even after apparent recovery, he will more likely accept the operation. With respect to septic peritonitis a serious question arises. Whether to operate or not is still unsettled. It is humiliating to decline and often hopeless to proceed.

Dr. I. N. Love, St. Louis, read a paper entitled "Water." (To be published in full in the Journal.)

Dr. T. H. Stucky, Louisville—I want to say a good word for hydrotherapy, but I would take issue with the essayist that a large quantity of water is always to be taken with meals, for example, in cases of dilated stomach I do not think it at all advisable; it also prevents thorough mastication when taken with food and thereby prevents complete salivation which would result in fermentation. I also think that too little attention is paid to the subject of water in our medical colleges.

Fifty-seven members of the Association left in a special train for Yellowstone Park Friday evening and arrived at the Park Sunday noon. They expect to return in a week.

Second International Congress of Gynecology and Obstetrics.

This Congress opened at Geneva September 1, with a notable gathering of specialists from every civilized country. The first address was made by Bouilly of Paris, with Kelly of Baltimore and Sänger of Leipsic as "co-rapporteurs," and discussion by Henrotin of Chicago, Péan, Hartmann, Richelot, Tait, Doyen, Delagenière, Laroyenne, Jacobs, Delettrez, Ronffert, Tournay, etc. Bouilly defined as follows the indications for simple incision with drainage, through the abdominal or vaginal wall:

1. An acute pelvic abscess of cellular origin, the point for the incision indicated by the projection of the collection in the abdominal wall or in the vagina. 2. Primary peritoneal collections consecutive to puerperal, abortion or gonorrheal lesions, acute or subacute, or to post-operative peritoneal infection. 3. Suppurated hematoceles. 4. Encysted pelvic abscess in the adnexa, unilateral, with not very thick walls, easily fluctuating, and located low down on the uterus so that it can be pushed down by pressure in the hypogastric region into contact with or near, the wall of the vagina. Simple incision is also especially indicated in acute suppurations of the ovaries or tubes accompanied by general serious conditions in which the extreme virulence of the pus contraindicates laparotomy or hysterectomy. This method of treating pelvic suppurations gives better results and ensures recovery in far more cases than is generally realized, while if a fistula persists or the suppuration returns, it does not preclude a later vaginal hysterectomy.

Laparotomy is indicated whenever there is any doubt as to the character of the lesion or whether it is uni- or bi-lateral. The latter consideration is less important in the case of suppurations, as it rarely happens that suppuration of one side is not followed by the same condition in the other. Laparotomy is also the better method for pockets located high up, when they are near the horns of the uterus and yet far enough away from it and from the vaginal cul-de-sac for the uterus to retain a certain independence and mobility; also when the pockets are rather abdominal than pelvic, not surrounded by thickened and indurated tissues, and when they have not produced repeated pelvi-peritoneal disturbances. The opening of such

a pocket in the course of a vaginal hysterectomy might produce an acute peritoneal infection by infecting the surrounding intestines unprotected by any old barriers of organized adherences. Aside from these two restrictions; uncertainty as to the nature of the lesion and an elevated location, vaginal hysterectomy accomplishes all that can be accomplished by laparotomy in the removal of suppurated tubes and ovaries or a small pyo-salpinx. It also reaches and cures lesions for which laparotomy is useless or too dangerous. It is the only method which reaches purulent collections enclosed in the appendages, circumscribed by adherences or merged in the neighboring parts, and separated from the great peritoneal cavity by solid and organized tracts, actual fibrous processes which render laparotomy useless and any attempt at enucleation dangerous. Hysterectomy is also the preferred method in cases of large, adherent pockets, impossible or difficult to enucleate, with or without fistulas. It is also the best method to cure chronic suppurations of the peri-uterine cellular tissue that have opened spontaneously and formed communications with neighboring organs. In these operations the purpose is simply to evacuate; the ablation of the uterus forming an ideal means of draining, through which the collections discharge and dry up. To extirpate the pocket itself under these circumstances deprives the operation of all the advantages of its simplicity and benignity, and shows a misapprehension of its chief advantages. In conclusion he stated that ablation of the uterus is a factor not to be neglected in the treatment of pelvic suppurations. Some of the laparotomists now remove the uterus along with the adnexa as this ensures perfect drainage of such marvelous efficiency that it is probably the cause of the superior results after vaginal hysterectomy. Ablation of the uterus also prevents future trouble from that organ. The immediate recovery is more rapid and the after effects are better, while the genital disturbance subsequent to suppression of the menstrual function seems to be less after ablation of the uterus with the appendages, than after ablation of the latter alone. Vaginal hysterectomy therefore, is the method *par excellence* for treating pelvic suppurations, and laparotomy only exists on its contra-indications.

Sänger, on the other hand, stated that the tendency in Germany is to favor laparotomy and ligatures, and a more conservative treatment. The Germans consider that it is far better to retain as much as possible of the genital organs than to extirpate them and resort later to the ingestion of ovarian tissue, etc., as a substitute for them. He rejects absolutely the idea of vaginal removal of a sound uterus as a preliminary to operating upon the adnexa, and states that the radical operation is not justifiable when the abdominal end of the tube is still open, nor in light cases of purulent salpingitis, abscesses of the ovaries, chronic, non-purulent affections of the adnexa, nor in simple, chronic inflammations of the uterus.

It is beter to have a menstruating uterus, even if it is slightly diseased, rather than none at all. On the other hand, the radical operation is completely justified in serious suppurations of the adnexa, pelvic peritoneum, or connective cellular tissue, when these affections coincide with a serious affection of the uterus, which alone would justify its removal, and also when the purulent affection of the adnexa has spread to the uterus; also in cases of tuberculous affections. Proximity to the menopause is an additional indication for radical treatment. The objections to vaginal operations are the necessity of commencing the operation at the uterus instead of at the diseased ovaries, also the impossibilty of arresting the operation; the incompleteness of the investigation of the field of operation as other purulent collections, appendicitis, etc., might exist and pass unobserved; the impossibility in certain cases of a truly radical operation, and the dangers of hemorrhages and of injury to the neighboring organs. In the case of elight suppuration of the appendages, when the pockets were not opened in the course of the operation, the peritoneal cavity can be closed without danger. The Germans prize highly the method of closing introduced by Kaltenbach and Olshausen, except in serious cases of radical vaginal operations. Whenever removal of the uterus is indicated, he considers celio-salpingo-oophoro-subvaginal-hysterectomy as the least dangerous radical operation. A part of the ovaries can even be retained with it. Drainage is indispensable in all cases of contamination of the hand of the operator or of an intact region with virulent pus; also when the hemostasis is not perfect or there is a discharge of virulent pus; also where there is a preëxisting fistula, or perforation of the intestine during the operation. He prefers Mikulicz's method of drainage, and adds that, thanks to this, the life of the patient can always be guaranteed, with complete recovery in time. Tamponing also relieves the anxiety of those who venture to close the abdomen. He classified some of the various methods in vogue as follows:

Vaginal methods: 1, anterior colpo-celiotomy (Dührssen, A. Martin, etc.); 2, posterior colpo-celiotomy (Steel, Hegar, Battey, Byford, Laroyenne, Landau, Mackenrodt, etc.); 3, anterior and posterior colpo-celiotomy (Bode, Von Erlach, Gottschalk), in combination with uni-lateral and bi-lateral salpingo-oöphorectomy; 4. colpo-hysterectomy (Péan's uterine castration); colpo-hystero salpingo-oöphorectomy or radical vaginal operation (Péan, Segond, Doyen, Landau). Abdominal methods: 1, celio-salpingectomy and uni- or bi-lateral celio-salpingo-oöphorectomy; 2, total celio-salpingo-oöphoro hysterectomy (Krug, Polk, Delagenière, Schauta, Bardenheuer, etc.); 3, bi-lateral celio salpingo-oöphorectomy combined with supra-vaginal hysterectomy (Zweifel, Kelly, Sänger). Mixed methods: Abdomino-vaginal hystero-salpingo oöphorectomy, commencing usually with the vagina and ending with the abdomen (Landau), and finally, in a group apart, sacral or parasacral celiotomy (Hegar, Von Hochenegg, Czerny, Schede, etc.), which has only been performed by a few surgeons and with strict limitations.

Kelly's able presentation of his methods was read by the Secretary-General. Henrotin (Chicago) insisted on the benefits of immediate vaginal incision with digital exploration, and if necessary a second opening in the anterior cul-de-sac.

Richelot (Paris) remarked that extirpation of the adnexa through the abdomen was not always followed by recovery; and the surgeon was sometimes baffled by encountering extremely virulent pus. In every second one of the laparotomies he has performed since 1894 for suppurated adnexa he has been compelled to finish with double castration. Laparotomy triumphs where there are organs to be respected, which is, he considers, its true indication. He added that the tubes and ovaries are not heard from after the removal of the uterus, as often as the uterus after the removal of the appendages; concluding with the statement that vaginal hysterectomy should be accepted as the preferred method of treating pelvic suppurations, principally because it avoids the two dangers of laparotomy: infection of the peritoneum and injury to the small intestine. Hartmann (Paris) urged more general resort to repose in bed and vaginal antisepsis as the first, and sometimes, the only treatment needed for pelvic suppurations. He has also derived great benefit at times from dilatation and curettement, which may prove useless, but in certain cases seem to be all that is necessary. Péan lauded total vaginal castration as applicable to all pelvic suppurations of genital origin and sure to produce better results than any other method of treatment. Recovery is more rapid the earlier the operation is performed, and the mortality, in skilled hands, is only from 1 to 4 per cent. He concluded by mentioning the beneficial results he has observed occur in from two months to three years after the operation: disappearance of hysteria in 6 patients, of nervousness in 2, insanity 5, melancholia 1, morphinomania 2, ileo-lumbar neuralgia 4, mammary and intracostal neuralgia 3, nausea and rebellious gastralgia 2, anemia from inanition 2, headaches and sweats 4, inability to walk 1, gravel and nephritic colic 1, rheumatic endocarditis 1, bronzed pigmentation 1, and albuminuria 2. Péan now has a record of 350 operations and repeats his previous announcement, that total vaginal castration requires a special set of instruments, such as he has been using since 1883.

The other subjects discussed at the Congress were: "Surgical Treatment of Retro-deviations of the Uterus," presented by Küstner, Polk and Pozzi, and the discussion led by Martin, Bouilly, Lawson Tait, Doyen, Jacobs, Edebohls (N. Y.), Gill Wylie, Delettrez, Stapfer and Petit; "Best Method of Closing the Abdomen," presented by Granville, Bantock and La Torre; discussion led by Martin, Tait, Richelot, Laroyenne, Doyen, Jacobs, Edebohls, Gill Wylie, Byford (Chicago) and Delettrez; and "Relative Frequency and Shape of Abnormally Small Pelvis in Different Countries," etc., which were represented by Fancourt Barnes, Dohrn, Fochier, Kufferath, Lusk, Rein, Pawlick, Pestalozzi, Treub and Barry Hart.

Fourth International Congress of Criminal Anthropology.

This interesting assemblage of the specialists who are fostering this infant science opened at Geneva August 24. Lombroso said in the course of his address, in regard to our prisons, that as at present conducted, the expenses have to be borne by the law-abiding citizens, and they fail to reform the criminal. The probation system, with work in mines, penal farms, etc., should take the place of our present prisons, and criminals from passion and political criminals should not be imprisoned at all, as exile alone is more than sufficient punishment. Confirmed criminals, epileptics, alcoholics, should receive special medical treatment, but the efforts of society should be espe-

cially directed to bringing up in a moral atmosphere the born "criminaloids" from the earliest months of their lives, with absolutely no intercourse with depraved associates and no opportunity for them to corrupt decent young people. With this should be combined every possible means to combat alcoholism, social, religious, with journals, pamphlets, etc., and constant medical supervision of the "criminaloids." Francotte spoke of a condition induced by alcohol which he calls alcoholic somnambulism. The individual acts in an apparently normal manner, but has no consciousness of his actions, or at least retains no remembrance of them. He considers it a legally irresponsible condition, except in cases of premeditated intoxication. Legrain's address was an appeal that the importance of alcoholism as an evil and peril to the nation should be inculcated in every way, taught in the schools and impressed upon legislators as their guiding principle. Habitual drunkards should be incarcerated, so that they could not propagate their kind, and compulsory cures legally enforced. Their children should be taken from them and societies formed for this purpose. Garofalo suggested that criminals should be classified as follows: 1, assassins; 2, violent; 3, dishonest; 4, cynics. Homicidal mania, pyromania and epilepsy would be included in the first category; hysteria and kleptomania in the third and sadism in the fourth. If penal science were relieved of some of the conventionalities which now encumber it, and the actual criminals separated from the mere revolts and disobediences, each type of criminal could then receive appropriate treatment and the science be established on a firm basis. Malarewski stated that the establishment of medico-pedagogic institutions and agricultural training colonies is the only means to reclaim children with a predisposition to degenerates, and that an international medico-pedagogic congress is the only means to accomplish the organization of such colonies. Other subjects presented were the influence of the press on criminality, anarchism from the point of view of criminal anthropology, or as Zakrewski prefers to call it, legal psychopathology, digital imprints and Bertillon's discussion of the gaps still to be filled in anthropometry. The members from Russia, Italy and Belgium were especially prominent in the Congress.—*Gaz. Méd. de Liège*, September 3.

SELECTIONS.

The Progress of Scientific Medicine and Pharmacy in China; A Conversation with the Physicians of Li Hung Chang.—With the great Chinese warrior and statesman who has just honored our country with a brief visit, there came two attachés of the Chinese Imperial Medical Service, Drs. Irwin and Mark, for the purpose of insuring his health and physical comfort during his journey around the world. It has been the pleasant privilege of the writer to call upon these custodians of the bodily welfare of the Viceroy, and to talk with them in regard to the recent progress of western medical methods in the Celestial Empire.

Dr. George Mark's manner is most cordial and in every way pleasing; his English is so thoroughly excellent, that only his physiognomy and dress betray his nationality. He is in the foremost rank of the Chinese students of scientific medicine.

Dr. Andrew Irwin, an examiner and director of the Imperial Hospital at Tien-Tsin, is a genial Briton, who has come to favor and position among scientific men who are struggling to supplant the barbarous myths and superstitious practices of the Chinese physicians by the more human and more scientific methods of our western civilization. He appreciates the need of a change of this sort and the value of the progress already made, and finds pleasure in making known the condition of his favorite science in the country that has become the scene of his life work.

When the first medical missionary arrived in China in 1834, he found the medical methods of the country in a most deplorable condition. There was a scanty medical literature, of which one of the most important works was the Materia Medica of Li Shi Chan, which is known as the Pun Ts'o Kong Muk. Its first edition of forty volumes appeared near the close of the sixteenth century; the last of the four reprints was issued in 1826. This materia medica was a most inclusive one and it necessarily included many useful substances, as is shown by the following quotation: 'Whatsoever things are produced in the world—birds, beasts, creeping things and fishes, which are generated and have blood and breath; likewise flowers and trees, which are generated, but are without blood and breath; and also inanimate objects, such as rocks and hard iron—all of these can be used as healing medicines." There had been a so-called Imperial Medical College in Pekin since the thirteenth century, but it imparted no regular courses of instruction, rarely conferred degrees, and the skill and learning of the members of its faculty were reserved for the requirements of the royal family and the members of the court.

The native practitioners were divided into three great classes: 1, the class of specialists, of which there was a subclass for nearly every division of the human body; 2, a class whose attention was given solely to diseases of the internal organs; 3, a class that treated only external diseases. A case is often cited to illustrate this condition of affairs of which it is related that a man wounded by an arrow was first visited by a physician for surface maladies. He broke off the shaft of the arrow at the surface of the body and told the patient that further treatment must be had at the hands of a physician skilled in the diseases of the internal organs.

Acupuncture and cautery by the moxa were much in vogue; counter irritation was practiced by vigorously pinching the skin with the fingers, or by harshly scraping it with a stick dipped in water or oil, and by use of various plasters. The Chinese were pioneers in the art of massage, a rude form of it forming a part of the regular operations of the native barber shops. Surgery was almost unknown and its advance has been very greatly hindered by the belief that for well-being in a future state, the body must be kept intact; hence, we hear of the pulverizing and swallowing of extracted teeth, of the eating of an excised part, or of its preservation for burial with the body after death. The medicines used were notoriously inert in many cases, and were often most disgusting in the method of their preparation or in their origin. The right to professional rank had been passed from father to son as property is inherited. In the case of a break in the line of succession, the professional privileges were sold along with the estate. Almost no study was necessary to inspire the patients with awe and faith, if the right to practice had been obtained by either purchase or inheritance from a family having a reputable ancestry of noted physicians. It has been said that "Were all of the native practitioners in the empire at once swept away, the Chinese people, so far as their prospects of health and longevity are concerned, would sustain no very serious loss."

During the last half century, the labors of the medical missionaries and other physicians from America and Europe, have done much to relieve the immediate sufferings of the people and have worked a very marked change in the practice of the native physicians in the more accessible parts of the empire. Between fifty and one hundred hospitals have been established by the efforts of various denominational organizations, and more than two hundred medical missionaries have taken part in the work, including more than a score of women. Many Chinese men and women have been trained for physicians and nurses in the hospitals, or in private study with the physicians. An association was formed in 1887, called the Medical Missionary Association of China, of which the official organ is the *China Medical Missionary Journal*, at present edited by S. R. Hodge, of Hankow, and published quarterly at Shanghai by the American Presbyterian Mission Press. Many medical works and treatises on the allied sciences have been translated into the Chinese language. Dr. John G. Kerr, an American medical missionary who went to Canton in 1851, has been especially active in this work, having issued more than twenty-five medical text-books in the Chinese language. Fryer has translated the chemic treatises of Bloxam and Roscoe, and also several books on physics, botany, materia medica, etc.

The late Dr. Osgood, an American medical missionary, issued a Chinese edition of Gray's "Anatomy"; Hunter has translated Squire's "Companion to the British Pharmacopeia." Martin, Smith, Allen and the Chinese physician Suvoong, are to be included among the names of those who have made contributions to the literature available for Chinese medical students who read only their native language.

More than one hundred American and European physicians not connected with the missions, have taken up their residence in China, and are engaged in private practice. A Hong-Kong Medical Society has been formed by the physicians of that city: a volume of their transactions was published in 1889. Dr. Irwin mentioned Drs. Manson and Cantlie, since retired, as among the most prominent of the founders of this society. Each of the ports open to foreign commerce has a "Surgeon to the Customs." In 1870 the Inspector General of Customs issued a request for a semi-annual report from these medical officers of the different ports in regard to the condition of the health of foreigners and citizens in their respective provinces, together with the results of studies of new diseases or of diseases rarely met outside of China. These reports are published annually under the title "China Imperial Maritime Customs; Medical Reports."

Dr. Irwin described the founding and success of the Imperial Medical College of Tien-Tsin, in connection with the Yang Ping Yuen (Imperial Hospital of the North), with great pride and feeling. The first class was examined for graduation in 1883. Of the eighteen candidates for diplomas, twelve passed. Dr. George Mark, of the Viceroy's party, was at the head of his class, of which another member is now in America for the completion of his medical education. The school was not reopened until November, 1893. There are now twenty-six students enrolled, eleven in the second year class and fifteen just beginning. The course of study requires four years for its completion. There is no separate school of pharmacy, but the students of the medical school are given instruction in the preparation of medicines. The school and hospital are both in charge of Dr. Houston, an European. There are four regular lecturers, one European and three Chinese. The medical officers of the Navy often lecture also, when their vessels are stationed conveniently. The hospital has sixty-five beds and is taxed to its utmost capacity. There is also a hospital for women, having thirty-one beds, which is in the charge of Mrs. Dr. Howard King, formerly of Philadelphia.

Dr. Kin Ta Chin, a member of the class of 1883 of the Imperial Medical College, has been decorated for his services as commander of the field corps of the Imperial Medical Service during the recent war with Japan, and is now in charge of the field hospital of the army of North China at Kin Chou.

Dr. Irwin spoke in most complimentary terms of the assistance rendered by the surgeons of our navy during the Japanese war. Especial mention was made of the work of Dr. Philip Leech at the Isabella Fisher Hospital, which is superintended by an American woman, Dr. Rachel Benn: and also, of the valuable services of Dr. Ames, who has been consulted by the Viceroy, and who ably assisted at Che Foo in caring for the wounded from Port Arthur and from the naval engagement of Yaloo.

"We place no reliance on the medicines of local manufacture," said the doctor in reply to a query, "but use only those imported from Europe and America. Many of the large manufacturers and dealers have branches or agencies in the Empire. The government contracts for drugs and medicines are a small matter in time of peace; five hundred gold dollars would cover the whole bill for one year."

There are drug stores kept by foreigners of different nationalities, and quinin and some other foreign drug staples are found on the shelves of the natives shopkeepers.

A number of American and English dentists have established offices in the larger cities, but very little advance has been made among the native workers. Chinese dentistry is crude and a fakir's art. Mercurial preparations are used for loosening the diseased tooth, when it is extracted by means of a string or rude forceps—often with a sleight-of-hand accompaniment to prove to the patient that the trouble in the aching tooth is due to a worm. A worm is smuggled into the patient's mouth during the operation, again removed and exultingly exhibited. Artificial teeth are made from bone and fastened in the mouth by attaching them to the sound teeth with a wire or a string.

Now that the government has evidenced its appreciation of modern scientific medical methods by establishing and maintaining a school in which they may be taught to the youth of the land, and men from all parts of the empire have had occasion to either experience or witness their success and benefits during the recent war, we may safely regard this as the era of the triumph of science in China—we may hope that the day is not far distant when plasters of powdered tiger's teeth have lost their repute as remedies for the healing of external injuries; when jelly prepared from bear's paws has lost its alterative power; when potions made from the horn of the hart are no longer used for the renewal of wasted vitality; when Chinese mothers can eat chickens, ducks or turtles without fear of destroying the hearing or eye-sight to their unborn babes, or can look upon a hare or rabbit with no qualm over a possible harelip for the unborn one.—E. E. Ewell in *Pharmaceutical Era*, September 10.

A Case of "Sadism," or Sexual Perversion with Violent Tendency.—Dr. Morton Prince, in *Boston Medical and Surgical Journal*, reports a case of this nature in a male aged 22 years. By "Sadism" is meant the association of cruelty or violence with lust, the name being derived from the notorious Marquis de Sade, whose obscene novels treated of lust and cruelty.

Dr. Prince's patient before coming under his observation had been regarded as being the subject of neurasthenia or hysteria. His relatives made a diagnosis of general laziness, while others described him as being not quite right. His mental state was unknown to others until, after great difficulty, Dr. Prince obtained a full confession. It was his custom to lie upon the bed in the daytime and fall into a sort of trance or day-dream state, in which he was apparently between waking and sleeping. He said he thought he was awake, because if anyone should knock on the door or come into the room he would know it. While in this state he used to imagine that he killed and mutilated women. It was not possible to learn from him the exact mode in which this habit began, or what was the original exciting occasion, but his imagination began in a moderate way and afterward extended. At first, it was only a single woman whom he imagined he thus mutilated, but afterward in each "séance" he destroyed great numbers. His imagination seems to have created actual hallucinations, for he said that at these times he actually saw his victims with great vividness as objective realities and had the sensations of actually killing them; for the time being his acts were absolutely real to him, and soon a belief in them persisted.

At first it was a single girl whom he mutilated; he killed her, tore her to pieces and ate her; later he imagined that he lived in towns where it was the custom for the men to destroy all the women in this way. Then, as the habit grew, the towns became cities and the cities countries. These countries were completely depopulated of the women by the men, all of whom together held these Sadistic feasts.

While indulging in these dreams or hallucinations, he had most intense sexual excitement with emissions. His habit was thus a form of masturbation, the peculiarity being the association of sexual feeling with hallucinations of cruelty. When in the waking state he seemed to be at times confused as to whether he actually committed these imaginary murders or

not; for while at one time he said he had not, at other times there was sufficient confusion in his mind to make him think that he had committed these unpardonable sins and to be in great misery in consequence; he would then be in a state of great penitence, which was not understood by his mother until this confession was obtained. He also admitted to me that at times he thought he had actually committed these acts. He had practiced this habit from the time he was 10 years old until about 20, that, is up to about two or three years ago. During the last two years this habit had largely died out, but there has been (September, 1895) a tendency to recurrence. It was apparent that such a person was dangerous to the community and that at any time there was a possibility, under favorable conditions, that he might put what had hitherto been pure imagination into actual practice; we therefore sent him to an asylum without delay. He denied that in mutilating the bodies of his victims that he selected any particular parts of the body, as is the case with many Sadists.

His general condition was one of neurasthenia. He had much depression and suffered from great anguish of mind from which he broke down and cried at times, saying that he "suffered intensely," but could not describe very definitely from what particular feeling; it seemed to be more an anguish of mind.

His heredity is bad, and throwe light upon the distinctively degenerate character of his mental condition. His mother was excessively neurasthenic. One maternal aunt was described as nervous, with abnormally fixed ideas on certain social subjects, and two maternal aunts suffered from hysteria. A maternal brother was delicate and always on the point of breaking down. His maternal grandfather was a very able and physically strong man, with decided elements of genius. He is well known to the public and recognized to be very brilliant mentally, but a man of very extreme opinions. Up to the age of 40 he had a tendency to melancholia. The maternal grandmother was neuralgic, ailing, neurasthenic. The patient's father was eccentric and a dipsomaniac. One paternal aunt was well; a second was described as having a bad temper and at one time as having had delirium (about this my notes are confused). A third had hysteria. Two cousins, sons of the second paternal aunt, both drank to excess. The first paternal aunt had four children; of these, one had a sort of puerperal insanity, from which she recovered. Two paternal uncles are said to have died of dissipation.

The early history of this patient is interesting, as showing the progressive physical descent (*facilis descensus averni*) of such a case. Since 2 years of age always more or less out of order; 5 years of age, attacks of nausea, vomiting and headache with fever, delirium alternating with coma; these attacks were followed by excessive weakness; slow recovery from weakness which persisted until the next attack, which occurred at the end of about one month; he lost flesh and his temper became irritable, so that he became violently excited and enraged over little things.

Several eminent physicians of New York were consulted. One said that he was unable to make a diagnosis. A second said it was brain disease, and a third said it was lithemia from the liver. Accordingly he was treated for this last with calomel, with the apparent results that after this he had no more attacks but only premonitory signs, which were always stopped by calomel.

This perversion of the sexual instinct is the exciting motive of many notorious murders. The Whitechapel murderer was undoubtedly the subject of Sadism. Similar instances are well known and may be found described in the literature. The subject is an important one from a medico-legal point of view, as well as of psychologic interest; and it is desirable that the motives leading to crimes of this kind should be thoroughly recognized. Lust murders, not murders for the purpose of concealing or committing rape, but violence and murder for the purpose of inducing sexual excitement in the murderer, are probably more common than is generally supposed. The sexually exciting element in such cases is the sight or smell of blood, or the cutting, tearing or mutilation of the victim's flesh. Verzeni found, as he confessed, unspeakable delight in strangling women, experiencing during the act erections and real sexual pleasure. Some find delight in actually eating the flesh or drinking the blood (Leger, Verzeni). Sometimes special pleasure is found in cutting or tearing out the uterus, ovaries and genitalia, which are carried away (Whitechapel murderer), but this is not always the case, and the victims are not mutilated in this respect.

A similar perversion is found in the excitement which some have in harmlessly cutting, beating or whipping women and boys. A case has been brought to my attention of a man who was in the habit of visiting a prostitute whom he used to strike over the nates with a shingle. No coitus was indulged in.

PRACTICAL NOTES.

Early Symptoms of Diabetes.—Unschuld calls attention to an early symptom of diabetes which is seldom mentioned by writers on the subject, but which is yet frequently found, and may assist in an early diagnosis of the affection. This symptom consists in cramps in the calves of the legs, and is found in about 26 per cent. of all cases. The pains occur with especial frequency in the morning upon waking, and occasionally also during the night. They are rarely troublesome in the daytime, unless after a nap or a bath. Cramps of this nature, occurring in a person in feeble health, should always suggest the necessity of an examination for sugar.—*Health*, September 11.

Changes in Urine from Medicine.—Oleoresins and balsams (copaiba, sandal oil, turpentine and its derivatives) taken as medicines often give a yellowish zone at the circle of contact between the nitric acid and the urine in the cold test for albumin. From a ring of albumin, however, this cloud can be easily distinguished by its solubility in alcohol. Concerning the test for glucose, many organic medicaments (chloral, chloroform, turpentine, glycerin, salicylic acid, etc.) give rise to urinary ingredients which reduce copper solutions to a less or greater degree on prolonged boiling. The phenylhydrazin hydrochlorate test will differentiate all these reagents from dextrose. Sulphur (or albumin which contains it) gives a black precipitate with Boettger's bismuth test for glucose, and hence must be excluded as a factor if this method be used.—*Ed. Denver Med. Times*, September.

Hemol Bromid.—The *Medical News*, August 29, quoting Dr. Kobert in the *Therapeutische Wochenschrift*, states that that observer has been seeking to obviate the unpleasant after-effects of the inorganic bromids and to that end has "been making trial of an organic bromid which has no injurious effect upon either the blood or digestion. It contains only 2.7 per cent. of bromin, as against 67 per cent. which bromid of potassium contains. But only a small portion of the bromin contained in the latter salt exerts any action in the body. Holst used bromid of hemol in fifty cases of nervous disease. If a rapid effect was looked for, two grams (thirty grains) were given three times a day. One-half or one-third of this dose was employed for a calming effect. In epilepsy and hysteria, he obtained no good results where the inorganic bromids have shown themselves efficacious. In insomnia, the results were equal to sodium bromid, without any unpleasant sequelæ. The conclusion is that bromid of hemol is not capable of replacing inorganic bromids where a rapid effect is desired. It is indicated, however, in cases where the sedative and long-continued action of bromin is sought for."

Diagnostic Value of Percussion of the Vertebral Column.—Bechterew calls attention to the importance of the results attained by percussion of the sacral region of the spinal cord. He has derived great benefit from it in obscure cases, and urges its general adoption. He describes one traumatic case with symptoms of compression of the cauda equina, plantar, genital and perineal anesthesia, spontaneous pains in the joints, pain on percussion of the sacral region, disturbances in the sphincters, etc., with fever. Percussion of the triangle, whose base corresponds to the upper part of the sacrum and the point to the coccyx, produces in normal conditions a slightly tympanitic resonance. In this case there was a distinctly limited dullness and an operation confirmed exactly the diagnosis as to the seat of the lesion. Caries was disclosed in the serum with a fungus mass compressing the cauda equina.—*Gaz. degli Osp. e delle Clin.*, August 4.

Mechanical Treatment of Sciatic Neuralgia.—Negro of Turin, has cured or materially improved 100 out of 113 severe cases of sciatic neuralgia that had resisted all other treatment, by compressing the nerve. The patient lies flat on his face, the lower limbs touching and stretching to their fullest extent, and the point is found by palpation where the sciatic nerve emerges from the ischiatic notch, which is usually the most painful spot. The right thumb is then pressed on the nerve, reinforced by the left thumb, and the strongest pressure possible exerted for fifteen to twenty seconds, turning the thumb so as to distribute the pressure laterally over as much surface as possible without removing the thumbs. This process is repeated after a minute's rest several times, the pain growing less each time. Five or six of these treatments on successive days produce good results.—*Memorabilien*, August 5.

Formic Aldehyde as a Disinfectant, and Method of Application.—At a meeting of the Maine State Board of Health, Professor Robinson reported that the tests of formic aldehyde which had been made had given very encouraging results. He exhibited to the board the workings of a lamp which he had constructed for its application. The lamp consists of a cylinder into which wood alcohol is continuously fed from a tank similar to that of a German student's lamp. In the top of the cylinder is fitted a diaphragm of copper gauze consisting of two layers, between which is a layer of especial material. Upon the application of gentle heat to the gauze the alcohol below begins to vaporize and change into formic aldehyde, a gas having the germicidal properties of sulphurous acid gas, but in a greater degree. The vaporization progresses as long as alcohol is supplied. Professor Robinson detailed experiments which had been made at the Bowdoin laboratories upon pure cultures of disease germs and upon infected bedding and clothing, by which the germs were quickly killed. Subsequent cultures made from infected articles were found, after exposure of the fabrics to the fumes from the lamp, to have been absolutely sterilized. About a pint of the alcohol, vaporized, would supplant the atmosphere in a room of 3,000 cubic feet.—*Sanitarian*, September.

The Hypnotic Potency of Trional.—In an article which appeared in the *Wiener Medicinische Presse* for April 1 and 8, 1896, and is summarized in the *Wiener Klinische Rundschau* for June 21, Dr. Richard Drews, of Hamburg, remarks upon the frequency with which the physician finds it his chief task to secure for the patient a few hours of quiet sleep, so that he may not only be freed from distress for the time being, but supplied with fresh endurance to battle with the disease. For this purpose a hypnotic is required that is easily taken, that promptly induces restful, dreamless, normal sleep, from which the patient awakes refreshed and strengthened, that is harmless and as free as possible from unpleasant collateral and remote effects, that does not beget a habit, and that can be taken for a long time.

Judging of trional from its action in thirty cases, Dr. Drews thinks it such an ideal hypnotic. Nineteen of the patients were adults and eleven were children. The causes of sleeplessness in the adults were neurasthenia once, hysteria twice, a phlegmon of the hand once, articular rheumatism twice, muscular rheumatism once, sciatica three times, prurigo once, trigeminal neuralgia once, a scald of the foot once, intercostal neuralgia twice, cancer of the uterus once, and pulmonary and laryngeal tuberculosis with severe paroxysms of coughing and profuse sweating at night three times. In the children there were otitis media three times, meningitis with convulsions once, chorea once, night terrors twice, epilepsy once, pneumonia with severe agitation once, and furuncle of the ear once. For the adults, the dose ranged from fifteen to twenty-two grains; for the children, from three to twelve grains, according to the age. It was administered in strict accordance with Goldmann's directions. The adults took it in bed in a cup of hot milk and then drank another cup of milk; the children took it in their evening broth or in a cup of hot tea. In cases accompanied by severe pain twenty-two grains were always given to the adults instead of fifteen grains. In twenty-eight of the cases the result was invariably a restful, calm, natural sleep, coming on in the course of fifteen or twenty minutes, and on the following morning the patients felt refreshed and as well as the nature of the disease admitted of. In two of the cases, that of phlegmon of the hand and that of cancer of the uterus, the hypnotic action was delayed for an hour or an hour and a half, and did not last for from six to eight hours, as in the others, but only for three or four hours. Both these patients were sleepy the next morning and complained of oppression in the head, of headache, and of weakness, and the one with uterine cancer suffered also with ringing in the ears and with nausea. These phenomena occurred for several days after each administration of trional, but strict questioning brought out the fact that it had not been taken in the precise manner prescribed.

Treatment of Ozena with the Antidiphtherial Serum.—Drs. Belfanti and Della Vedova are quoted in the *Medical Week*, May 1, as follows: Bacteriologic examinations made by the authors led to the conclusion that ozena is caused by a microörganism identical in form and cultural peculiarities with Löffler diphtheria bacillus, though differing from it in diminished virulence. The organism was not only found upon the surface but also in the depth of the nasal mucous membrane. According to the authors, it causes the chemic alterations of the secretion, the fetid odor, and the atrophy of the mucous membrane and of the bones. These results led them to undertake the treatment of ozena with diphtheria antitoxin. The results obtained were most remarkable, for of thirty-two patients sixteen were wholly cured, seven almost healed, five rapidly improved, and in only four was improvement slow. Ten c.c. of diphtheria antitoxin was injected every second day or, when possible, every day. The number of injections varied according to the age of the individual, the length of time the disease had existed, and the degree of local and general reaction. On an average 30 c.c. were required to effect a cure. At first the injections caused congestion of the nasal mucous membrane. Soon thereafter the fetid odor disappears, the secretions become liquid, and the formation of crusts ceases permanently. The accidents which compel suspension of the treatment are the same as those observed in the treatment of diphtheria and are without danger.

Report of the Employment of the Toxins of Erysipelas upon Malignant Tumors.—In the *Annals of Surgery* for July is given the minutes of a recent meeting of the New York Surgical Society, a part of which refers to the above subject. At that meeting Dr. L. A. Stimson, Dr. A. G. Gerster and Dr. B. F. Curtis submitted the following report upon the use of toxins in the treatment of malignant disease: "Both before and since our

appointment as a committee we have been able to observe, individually and together, a considerable number of cases treated by this means, and in no case have we found any amelioration which held out a prospect of ultimate cure. We have, on the contrary, observed in some cases that the rate of growth of the disease was much more rapid during the treatment. The treatment also imposes a very severe tax upon the strength of the patient, and apparently hastens the cachexia in most cases. We believe that in the instances of apparent cure or marked improvement the correctness of diagnosis is open to doubt. We therefore submit: 1. That the danger to the patient from this treatment is great. 2. Moreover, that the alleged successes are so few and doubtful in character that the most that can be fairly alleged for the present treatment by toxins is that it may offer a very slight chance of amelioration. 3. That valuable time has often been lost in operable cases by postponing operation for the sake of giving the method of treatment a trial. 4. Finally, and most important, that if the method is to be resorted to at all, it should be confined to the absolutely inoperable cases."

Echinococcus in the Liver Cured by Bacelli's Method.—The *Annali di Med. Navale*, No. 7, describes the case of a sailor brought to the hospital with severe pains in the right flank, fever, dyspnea, insomnia, greatly hypertrophied liver and evidences of a hepatic tumor. An exploratory puncture confirmed the diagnosis of echinococcus, as hooks were discovered in the limpid liquid withdrawn, which contained no albumin and very little glucose, but chlorid of sodium in abundance. The only question then was whether it was a unilocular or multilocular cyst. In the latter case the tumor is usually solid, painful on pressure and knobby, with hypertrophied spleen and a purulent or serous effusion in the peritoneal cavity, with pronounced icterus and intestinal hemorrhages. These symptoms were absent in this case and the diagnosis of a unilocular cyst was confirmed by the recovery of the patient. Thirty grams of Van Swieten's solution were injected with a Kurschmann syringe and 700 grams of liquid withdrawn. The fever ceased the fourth day after this injection. Two liters were afterward withdrawn with a Potain needle, which completely emptied the cyst. Appetite and sleep returned and the general health slowly improved, the liver subsided to its normal size and the heart and spleen returned to their normal position, but six months passed before the recovery could be considered complete.—*Gaz. d. O. e d. C.*, August 23.

Straightening the Spine by Wiring the Spinous Processes Together.—Chipault's new method of treating caries of the spine is described in the *Therap. Woch.*, No. 35. The spine is straightened and held in this position by wires that fasten the spinous processes together, so that the orthopedic appliances do not have to contend with the constant tendency to curvature. After chloroform the patient is placed on his belly, three-quarters pronation, the back turned to the operator. A longitudinal opening is then made along the spinous processes, two to three vertebræ above and below the limits of the curvature. Without touching the interspinous ligaments both sides of the processes are exposed, and the soft parts drawn aside, the assistant at each end then pulls the spine to straighten it as much as possible, and a silver wire is passed through the interspinous ligament above the highest process to be ligated at the bottom near the root. The wire is then cut, leaving on each side a piece twice as long as the wound. The ligating is done with these two ends, crossing them back and forth and passing them through each interspinous ligament from the highest process downward until the lowest is reached, when the two crossed ends are twisted together. The wires must be passed through the ligaments close to the lower edge of the process above to afford as firm a support as possible. Each crossing must be tested to see if it is strong and taut before proceeding to the next. The soft parts are then sutured without drainage, bandaged and the patient is placed in bed. The two difficulties, lateral curvature of the spine and anchylosis of adjoining processes, are met by boring a hole in the processes in the latter case, and in the former by extending the end of the wire on the convex side up to the loop at the top and stretching it tight, which straightens also the lateral curve. In cases of lumbar or dorsal caries, the bandage can be changed in five to six days and in cervical caries in ten, and the stitches removed from the soft parts. This ligature of the spinous processes is undoubtedly an advance in the treatment of Pott's disease, but it only applies to moderate curvatures of recent origin, that have commenced suddenly and developed rapidly and are capable of reduction in anesthesis, and to weak spines. It is not adapted to old curvatures or those involving too many of the vertebræ. The presence of an unopened cold abscess or of paralysis is no obstacle. Absolute immobilization should follow the operation.

Arsenic in Scarlet Fever.—A Russian physician, Speransky, announces that he treated a large family of children with arsenic as a preventive measure, when one was attacked with fatal scarlet fever and isolation was impossible. Although they slept with the sick one, none of the rest took the disease except the oldest, 18 years, to whom the arsenic had not been administered and the youngest, who had been neglected and had only received occasional doses, with none at all for several days before the disease appeared. The arsenic was administered in Fowler's solution, half a drop at each of the two principal meals (8 and 9 years) with half this amount at 3 years. When the 3-year-old child was taken with the disease he received half a drop three times a day, with powders of phenacetin and terpin hydrate; the 18-year-old four drops with the powders. The arsenic attenuated the disease in a remarkable manner after it had developed, with no fever after the first day and the child so well that it was impossible to keep it in bed. The other cases treated outside showed the same results, a striking improvement in the course of the disease after the first day, with complete recovery in a week. The preventive doses were continued for six weeks.—*Semaine Médicale*, August 26.

Hydatic Cysts of the Liver.—Bobroff injects salt solution into the cyst pocket after he has emptied it, to prevent the liquids from the neighboring organs finding their way into it and recommends this process to others. In a recent case, after removal of the hyatid and cleansing of the pocket with gauze, he excised a piece 12 centimeters long and injected 250 grams of the salt solution. The inverse edges of the pocket were then closed with a double row of sutures and the abdomen closed completely. The wounds healed by first intention with only a slight rise in the temperature one day, and the patient left the hospital entirely cured in a month.—*Union Méd.*, August 15.

Hot Water Vaginal Injections.—In the treatment of female pelvic diseases by hot water injections Dr. J. H. Burtenshaw gives the following rules for method of application: 1. Use a large-sized fountain syringe, preferably one holding four quarts, attached to a support three or four feet above the body. 2. Always lie upon the back with the hips slightly elevated and the shoulders depressed. 3. Use at least three gallons of water as hot as can be borne—at a temperature of from 110 to 115 degrees Fahrenheit. 4. Take the injection twice daily, morning and evening, except on the two days preceding and the two days following the menstrual flow. In cases of chronic leucorrheal discharge in which additional astringent elements, to the douche, are indicated, he adds a tablespoonful of the following mixture to the last quart of water: Pulv. alum, zinci sulphatis, sodii biboratis, ac. carbolici, aa ℥j; aquæ, ℥vj.—*N. Y. Polyclinic*, September.

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INFORMATION WANTED.

It would greatly facilitate the prompt delivery of the JOURNAL to those members of the ASSOCIATION living in large cities, if they would kindly furnish this office with their street address in those cases where it is omitted from the wrapper of their JOURNAL, as we have been notified by the postmasters of the larger cities that second-class mail matter not having street address, would be placed in the general delivery to await call.

SATURDAY, OCTOBER 3, 1896.

THE MURDER OF THE INNOCENTS.

The incidence of mortality in the first years of life is a well-known showing of all tables of vital statistics, but its preventable factors are not so clearly recognized, while far behind lags the resolution to make theoretic knowledge a realized fact. Talk as we may about the disadvantages of "grandmotherly government" and "socialistic legislation," no one can affirm that in matters of preventive medicine and hygiene there can be too much governmental oversight. The wisdom and morality of the few must become that of the many, and it can only become so by stringently penal legislation and executive control. Human nature is at least not yet sufficiently ethical to be allowed indiscriminate and unscrutinized control over the young life that comes to it.

Take the matter of child life-insurance as an example. Is it not evident that parents too poor to bury a child should be held too poor to pay premiums on the insurance of the child's life? And yet this is the excuse constantly made by parents, either sincerely or deceitfully, to justify the custom. What a clear temptation to murder.[1]

The English medical journals, especially the *Lancet*, have in late years been active in showing up the prevalence of this abuse in England, where it is undoubtedly of greater extent than with us. From an editorial in the *Lancet* in 1895 (i. p. 428) we learn that of 4,629 children recently subjected to cruel treatment, 1,237 were insured. Another editorial in the *Lancet* (1895, i, p. 166) on infant neglect, insurance and mortality, among other things says: An unfortunate infant, whose death was recently investigated by the coronor for the West Middlesex district, might have been saved by medical aid (which might have been had for a mere pittance), but the parents claimed they were unable to pay a physician anything, yet the insurance premium on the child had been promptly paid up to its death. Facts like these sicken the public conscience. The *Lancet* calls for drastic reforms, and says the insurance should only be for an amount of the bare cost of the funeral arrangements (which is very cheap in England compared to our funeral rates, we believe). The same editorial urges that evidence of criminal neglect or mismanagement should disqualify parents even for the small sum insured. This seems to us very clever, as it shifts the burden and expense of proof on the interested corporation, who would likely be more rigorous in their search for evidence exempting them from payment of the policy than the municipal authorities, ordinarily interested parties.

In May, 1895, Sir RICHARD WEBSTER read in the House of Commons a bill providing for the maintenance and encouragement of the mutual benefit principle in such insurance, limiting the sum insured to an average almost as low as that of the friendly societies, £2 ($10) up to 10 years of age. This bill also entails upon physicians the duty of inquiring as to the fact of insurance before granting a certificate of death, and a like service is required of the register. It allows a child to remain under the protection of this act until 16 years of age. The *Lancet* says: "We are aware of no present limitation except the inability to pay the premium, and the average of £1 ($20) and a maximum of more than twice this sum is not uncommon, while payment in some clubs may be made partly in spirits. It is significant also that wilful neglect of infants, according to a recent return, has been shown to be much more common under the non-mutual system" (that is, those clubs not organized by workmen for their mutual benefit). We know nothing relative to the ultimate disposition of this act, and are not aware of any legislation in Great Britain limiting infant insurance. According to the *British Medical Journal* (1895, i, p. 291), the reports of the Select Committees on Friendly Societies, 1875 and 1888, contain a large amount of information upon this subject.

FRANCIS VACHER (*Lancet*, 1895 i, p. 254) suggests that legislation should prohibit all private corporations or individuals from insuring infants' lives, and that the government be empowered to enter into an agreement to inter any child free of cost, on payment of a small

[1] In the *Lancet* of April 20, 1895, a member of the Massachusetts Society for the Prevention of Cruelty to Children said she found families in which children were deprived of the most ordinary necessities of life while money for the insurance of the dying child was put aside. Several other similar instances equally pitiful are given. The cost of infant burial is within the reach of thrifty people, and for the rest, in all countries the community is bound to bury when others can not.

premium at the nearest post office, thus reducing cost of insurance and bringing it directly under the law. Such a measure we do not think necessary or wise, and for us it is, of course, out of the question.

As to our own country, affairs are in a chaotic state. In 1895 a bill was reported to the Massachusetts legislature providing that no life insurance company shall issue a policy upon the life of any child under 10 years of age, living in that State. The penalty was fixed at $100 for each offence, the law to come into force September 1, 1895. Whether the law ever came to vote or not (probably not in these days of "politics") we do not know, nor whether other States have attempted similar regulation. Medical men in charge of the medical departments of life insurance companies should bestir themselves, both as officers and members of society, to bring about judicious and and needed legislative reform.

Another cause of infant mortality is overlying. It will doubtless surprise even physicians to learn that one thousand children are each year killed in London alone by this careless (or perhaps often intended and criminal) custom. Yet such is the estimate of a London coroner. From an editorial in the *British Medical Journal* (1895, i, 36), we excerpt:

> There are sad sides to a Merry Christmas, and not the least sad of these this year has been the sacrifice of infant life from overlying. On December 27, 1894, Mr. BRAXTON HICKS held five inquests on the bodies of children who had died while sleeping with their parents, the cause of death in the majority of cases being suffocation. The coroner said he could not persuade parents to get cots for their children, and that a thousand infants were overlain in London alone every year. The matter is extremely serious. Perfectly healthy children are sacrificed to the bad habit of making them sleep with their parents. It is perhaps difficult to draw the line and to separate thoughtlessness from carelessness so gross as to be criminal, but Liverpool statistics showing the enormous frequency of deaths from overlying on Saturday night points to the fact that the carelessness is gross, and that unless drink be accepted as a general excuse for crime, the action is in a large proportion of cases criminal. Mr. BRAXTON HICKS announced that he would make it a rule in all future inquests of this character to disallow the expenses of the parents, a course which he adopted in each of the five cases before him. The fight against preventable diseases is hard enough, but it seems harder still to prevent the effects of carelessness and folly.

Of infanticide, every physician is well aware that neither the ancients nor present-day savages have a monopoly of the practice. In every city there are men either with or without a medical degree who make a profitable business by murder, through abortion. There are many reasons why these criminals can not be brought within the reach of the law, the principal of course being the inability to secure evidence against them. Their "patients" will not tell, but the evidences of their work are well known to every gynecologist. One thing is, above all things, certain: There should be compulsory inspection and registration of all "stillborn" infants. BRAXTON HICKS (*British Medical Journal*, 1895, ii, p. 1540) relates an instance illustrative of the ease in which a child may be killed and falsely registered stillborn. The child, plainly a viable one, after being smothered was boldly thrown out into the middle of the road to rot. We would urge upon our general medical associations and societies the duty of promoting such badly needed legislation. They might also profitably institute investigation and control of the disgustingly much-advertised lying-in institutions where "for a consideration," infants after delivery are "supplied with homes."

Undoubtedly it is a difficult matter to educate the community in the care of children and in the value of child-life. The law and a sensitive conscience are agreed that murder of an unborn fetus is as much murder as of one born, and that infant murder is as much murder as is adult murder; but ordinarily the lower classes make an unconscious sliding-scale of criminality increasing in approximation to real murder of the adult, and beginning with conception, when and shortly after, "getting rid of it" is by no means sinful. Against such a tendency in the interest of civilization and ethics we must all protest with what power we may. But the efficacy of our protest will depend upon the numbers that speak, the publicity of the protest, and the effectualizing of it in legislative enactment.

CELEBRATION OF THE INTRODUCTION OF ANESTHETICS.

October 17, 1846, a venous tumor of the jaw was removed by Dr. WARREN without pain, the patient being placed under ether by WM. T. G. MORTON, a Boston dentist, and the next day a fatty tumor was removed, and in a few days, after the performance of some minor operations, Dr. HAYWARD, in the presence of Dr. H. J. BIGELOW and others, amputated the thigh of one ALICE MOHAN, MORTON, as before, administering the ether.[1] "From this date," says LYMAN, "the success of anesthesia was placed beyond all doubt. The great discovery was immediately heralded throughout the civilized world, and was everywhere adopted with the utmost enthusiasm."

To properly celebrate the semi-centennial of this great discovery, the Massachusetts General Hospital have issued an invitation to a limited number of guests to participate in the ceremonies. We print elsewhere a reduced fac-simile of the card of invitation. It will be noted that nothing in the invitation can be construed into an assertion of priority of use; for the medical public are now well aware that sulphuric ether had been used by inhalation for dentistry and minor surgery by W. E. CLARKE and CRAWFORD W. LONG, but it was reserved for the Massachusetts General Hospital to have the first capital operation, and to make the world hear. She can then with all propriety and conscious pride celebrate the semi-centennial of

[1] See Bigelow on "Discovery of Anæsthesia," in Century of American Medicine, Philadelphia, 1876; and Lyman on "Artificial Anæsthesia," New York, 1881.



COMMEMORATION

of the

Fiftieth Anniversary

of

The First Public Demonstration
of Surgical Anaesthesia
at the
Massachusetts General Hospital
Boston October 16th 1846.

The Honour of your Company is requested
October 16th 1896 at Ten o'clock

Wm Sturgis Bigelow
For the Trustees

J. Collins Warren
For the Staff



B.C.G. lith. - E.D.F. sc.

The Merrymount Press

an event that connects her name indissolubly with the greatest boon that has yet been vouchsafed to man.

The notable gathering that will be present October 16 in that now famous amphitheater, may be warm in their praises and oratory will no doubt be all that the occasion demands; but the larger amphitheater of the world, so far as inhabited by civilized man, will contain thousands of sympathizers with this movement whose sympathy, unwritten and unspoken though it be, will be as sincere and earnest as any. May prosperity continue to attend the Massachusetts General Hospital and its staff.

PROPOSED LEGISLATION IN REGARD TO EXPERT TESTIMONY.

The unsatisfactory conditions that exist in regard to medical expert testimony, have been the subject of a vast amount of earnest thought and their discussion has occupied no inconsiderable space in medical literature. but as yet the questions that have been raised seem very far from a satisfactory settlement. That they are living questions of the day is sufficiently demonstrated by the contents of the last issue of the JOURNAL, which contained three valuable communications by leading men in our profession together with the equally able discussion that they incited. The views there enunciated are certainly worthy of respect and careful consideration, but as the discussion shows, the solutions offered of the actual difficulties are not in all ways acceptable. Reform of abuses in medical expert testimony as they exist in our present methods of judicial inquiry is most desirable, but no one seems to have yet discovered the universally applicable cure for these evils.

The favorite remedy just now appears to be that embodied in the different legislative proposals that have been put before the law-makers of the three States of New York, Illinois and Minnesota, viz., the appointment of a commission of experts by the judge or judges, either in each particular case or for a given period for all cases. This would undoubtedly improve matters, but is open to some very obvious objections. One of these is stated by Dr. SUITER; the law could not deprive the defendant of his right to call in additional evidence outside of the appointed experts and, if he had accepted these, it might put him in the position of combatting his own witnesses. Besides this objection which would occur to a lawyer, there are others equally apparent to a layman or a physician. The mere fact stated above that the defendant, say in a criminal case, can not be bound to confine his expert witnesses to the list approved by the judges, leaves open the possibility of nearly or quite all the abuses now complained of. His witnesses may be qualified or not, they may be pretentious quacks or they may outweigh as experts all the official appointees. There is no assurance that judge-appointed experts will always be really such; judges are fallible, and, as regards medical matters, often ignorant men; they may be influenced by prejudice, friendship, or partisanship, and in the present state of medical practice with the numerous schools not discriminatingly estimated by the laity, the very desire to avoid partisanship might cause a non-medical man or a body of such, to make injudicious or improper selections. An official position also, involving public consideration and compensation will be sought after by the unworthy, and too often, it may be, with success.

Allowing, however, for these imperfections, such an enactment as that pending in New York State would still do away with many of the objectionable conditions that now exist, and might well be welcomed. It creates no real standard, however, for an expert, and in this is its failure. The importance of this defect may be variously estimated, but in some respects it is a vital one, and how to avoid it is still a problem for consideration. Some provision in the law that no one shall be considered an expert and have his testimony received as such unless he can show that he has had actual experience in and has devoted a certain number of years to the study of the subjects in which he claims to be specially skilled, would perhaps best meet the requirements, and this could be brought in as a part of a bill fixing the minimum compensation for expert testimony by the State. This last, in view of some recent judicial utterances, would be an eminently desirable measure as making the State recognize the difference between the giving of opinions which are the expert's stock in trade and ordinary testimony. With such a provision in the law, also, we would not have the scandal of specialists in one department testifying as experts in another, a practice which has been unfortunately, to say the least, sometimes indulged in by men of reputation and ability, and otherwise unexceptionable medical practices. A jury of laymen is not likely to make distinctions between one man of reputation and another, and the law should not allow them to be misled in this regard by a lawyer's trick, even if men can be found willing to be his instruments. At present experts are allowed to estimate themselves and the result is often disastrous to them and to the general standing of expert testimony.

Medical expert testimony has probably suffered more from the present defects in the court practice than any other kind, and it is full time for the profession to exert itself in behalf of reform if only for the sake of its own reputation, which continually suffers under the present order of things.

"The Atlanta Clinic"; Change of Management.—With the September issue of that journal, the editor, Dr. Edward C. Davis, and business manager, Dr. W. L. Champion, retire from control. This step has been taken on account of the increased professional business preventing the proper attention to the details of the journalistic work. They will be succeeded by Dr. Lucien Lofton as editor and Mr. Ephraim Smith business manager.

CORRESPONDENCE.

The Spanish Language and the P.-A.M. Congress.

NEW YORK, Sept. 23, 1896.

To the Editor:—Several physicians who think of attending the Second Pan-American Medical Congress, to be held in the city of Mexico, if they could secure the services of a well known Spanish speaking physician to act as their guide and general translator, have asked me whether I am willing to go with them in that capacity. I replied that I have no objections, but in order that the number of physicians composing the party be still larger will you be so kind as to say a few words about this matter in the JOURNAL?

There are, no doubt a large number of professional gentlemen who would willingly go to Mexico, taking advantage of the reduction of the price of the trip for that occasion, if they could find some confrère thoroughly qualified to act as their *cicerone*. I remain sincerely yours,

DR. A. M. FERNANDEZ-YBARRA.

235 Thompson Street.

Straw Charcoal with Boric Acid as an Antiseptic.

VALLEY CITY, N. D., Sept. 23, 1896.

To the Editor: It may interest some of the JOURNAL readers to know that a mixture composed of one part, by weight, of muslin-sifted straw charcoal to two parts of powdered boric acid will heal old ulcers or wounds very rapidly; fresh cut or torn surfaces are healed as if by magic. This may be old to many of the profession, but I never heard of it until I used it. But even if old it may do no harm to remind all that it is a very valuable combination. Fraternally

F. H. DEVAUX, M.D.

SOCIETY NEWS.

The Central Medical Society of New York.—This Society will meet at Rochester, N. Y., October 20. Sixteen central counties of the State are represented in the membership of this society, which meets annually, alternating between Buffalo, Syracuse and Rochester.

The American Academy of Railway Surgeons.—This society, after a very interesting and instructive meeting at Chicago, closed its third annual session September 25. Chicago was chosen as the meeting place for next year. The following officers were elected: President, L. E. Lemen, Denver; vice-presidents, M. C. M. Gardner of San Francisco, R. Ortega of Diaz, Mexico; secretary, D. C. Bryant, Omaha; treasurer, C. B. Kibler, Corry, Pa.; editor, R. Harvey Reed, Columbus, Ohio.

Canadian Medical Association.—This association has elected the following officers for 1896-97: President, V. H. Moore, Brockville, Ont.; vice-presidents: For Prince Edward Island, Peter Conroy, Charlottetown; Nova Scotia, J. F. Black, Halifax; New Brunswick, Thos. Walker, St. John; Quebec, J. M. Beausoleil, Montreal; Ontario, W. W. Dickson, Pembroke; Manitoba, R. S. Thornton, Deloraine; North-West Territory, E. H. C. Rouleau, Calgary; British Columbia, E. B. C. Hannington, Victoria; general secretary, F. N. G. Starr, Toronto; treasurer, H. B. Small, Ottawa. The place of meeting in 1897 will be Montreal, in conjunction with meeting of the British Medical Association.

The Autopsical Society of Paris.—This twenty-year old Society, known as La Société d'Autopsie Mutuelle, has grown so rapidly in membership that it now numbers about one hundred Fellows. They are nearly all, says the *Medico-Surgical Bulletin*, scientists of note, several of whom are women. It has for its purpose the placing of the brains of its members at the disposal of surviving members for examination and dissection. Fourteen brains, neatly catalogued, are now contained in a glass case at the end of the meeting room, and the fifteenth, which was during life the property of M. Abel Havelacque, rector of the Anthropologic Society, now rests immersed in alcohol on the table of the dissecting room, where the man's former associates will meet to weigh, probe, cut and discuss it.

Association of Erie Railway Surgeons.—The annual meeting was held at Lakewood, September 21. An accident occurred at the opening of the session which interfered with the pleasure of the gathering. Dr. John L. Eddy, of Olean, the president of the association, a well-known surgeon, stepped into an open elevator shaft and fell to the bottom, a distance of eight feet. He was at once removed to his room, where it was found that he had sustained a deep cut across the forehead, a badly sprained ankle and a severely bruised hip. On account of this accident to the president, the vice-president, Dr. Webb J. Kelly of Galion, Ohio, presided. Dr. S. Birdsall of Susquehanna, Pa., presented a paper on "Symes ankle-joint amputations;" Dr. F. W. Thomas of Marion, Ohio, "Injuries of the throat"; Dr. C. C. Kinnaman of Ashland, Ohio, "Symmetrical gangrene"; Dr. C. M. Daniels of Buffalo, chief surgeon of the Erie Railway, told about his relief and hospital organization scheme, as intended to be adopted by the company. Other papers were: "Traumatic spinal neurosis," by Dr. N. R. Harnden of Waverly, N. Y.; "Painful stumps after amputation," by Dr. C. B. Kibler of Corry, Pa.; "Railway shock," by Floyd S. Crego, of Buffalo; "Clinic review of cases the past year" by Dr. Thomas Manley of New York. The annual election of officers resulted as follows: President, Dr. Webb J. Kelly, Galion, Ohio; vice-president, Dr. F. W. Thomas, Marion, Ohio; secretary and treasurer, Dr. W. W. Appley of Cohocton, N. Y.

Tri-State Medical Society of Alabama, Georgia and Tennessee.—The eighth annual meeting will be held in Chattanooga, Oct. 13-15, 1896. The following partial list of papers indicates that the session will be of more than usual interest:

Convulsions in children treated with large doses of morphin. Y. L. Abernathy, Hill City, Tenn.

The therapy of antipyretics. P. L. Brouillette, Huntsville, Ala.

Cystitis; report of cases. D. S. Middleton, Rising Fawn, Ga.

A new splint for fractures below the surgical neck. G. A. Baxter, Chattanooga.

Humphrey's operation (amputation of the penis) with presentation of patient. Cooper Holtzclav, Chattanooga.

Diseases of the veru montanum (caput gallinaginis). W. Frank Glenn, Nashville.

Acute pelvic congestion. Valentine Taliaferro, Atlanta.

Operations for abscess of the liver. W. C. Townes, Chattanooga.

Treatment of pus in the pelvis. W. E. B. Davis, Birmingham.

Some remarks on syphilis. W. F. Westmoreland, Atlanta.

Observations on the treatment of specific and non-specific venereal ulcers. Wm. S. Goldsmith, Atlanta.

Bacteriologic data in the drainage of the peritoneal cavity. George S. Brown, Birmingham.

A statistical report of some of the more recent remedies used in the treatment of tuberculosis, and summary of recent preventive methods of value. R. H. Hayes, Union Springs, Ala.

The Turkish bath; its therapeutic indications. Louise Eleanor Smith, Chattanooga.

Microscopic and chemic aids to diagnosis. Katherine R. Collins, Atlanta.

Vaginal hysterectomy for bilateral suppurative processes of the uterine adnexa. W. D. Haggard, Jr., Nashville.

Some obstetric complications with report of cases. R. R. Kime, Atlanta.

Puerperal eclampsia. Searle Harris, Union Springs, Ala.

Puerperal eclampsia. J. E. George, Rockwood, Tenn.

Medicine; Hippocratic and operatic. John P. Stewart, Attalla, Ala.

Diseases and treatment of the accessory sinuses of the nose. B. F. Travis, Chattanooga.

Report of a case of bradycardia. W. C. Bilbro, Murfreesboro.

Paper on diseases of the eye. J. M. Crawford, Atlanta.

Paper on diseases of the eye. Alec Sterling, Atlanta.
The Woodbridge treatment of typhoid fever. J. W. Duncan, Atlanta.
Treatment of cancer of the skin. C. R. Achison, Nashville.
President's address; the Doctor of Medicine. J. B. Murfree, Murfreesboro, Tenn.

College of Physicians of Philadelphia—SECTION ON OPHTHALMOLOGY.—A meeting of the section was held March 17, 1896, Dr. Wm. F. Norris, chairman, presiding.

Dr. George C. Harlan exhibited a case of traumatic enophthalmia in a boy 5 years old, who five months previously was wounded by the horn of a bull. The right cheek and temple and the lower eyelid were lacerated, and the inferior margin of the orbit was chipped. There was complete ptosis. At the time of examination the tendo oculi was found to have been torn away and the lower lid was dragged downward and outward by the action of the orbicularis and the contraction of the cicatrix. The surgeon who attended the patient at the time of the accident reported that there was considerable orbital cellulitis with abundant discharge of pus from between the lids, but there never was exophthalmia. He thought that the cellulitis was confined to the lower part of the orbit. At present the eyeball is retracted and has the appearance of being very much smaller than its fellow. The cornea is situated five millimeters behind the plane of that of the other eye. There is scarcely more ptosis than would result from the depression and loss of support of the lid. When the patient looks directly forward the palpebral fissure is five or six millimeters wide. He insists that he sees well with the eye. Though the movements of the eyeball are much restricted no diplopia can be detected. There is complete inability to look upward beyond the horizontal line either directly or to the right or left. Horizontal movements are normal and the downward excursion is much exaggerated.

Dr. Charles A. Oliver gave the clinical history of a case of ciliary staphyloma and excavation of the optic disc following traumatic cataract in a boy 4 years old. The clinical picture of this case of complicated secondary glaucoma was complete. Unlike similar cases of sudden obstruction to proper lymph-stream circulation, there remained from the very first, as shown by the fields of vision, and as afterward proven ophthalmoscopically, an element that may possibly complicate many more cases of the traumatic type of this disease than is at present imagined, and that is retinal detachment. Again, the condition of the vitreous and its peculiarity of opacities, taken in connection with the history of the case, would tend to show that there was a hemorrhage into that humor which probably might have been recognized ophthalmoscopically had the patient been seen a week earlier. These, with a few certain evidences of a low grade iridocyclitis, made the case still more atypical. On the other hand, the progressive diminution of the field of vision; the gradual distension of the globe and the localized tissue-bulgings in the upper ciliary regions; the deep and characteristic cupping of the nerve-head; the reapproximation of the remaining areas of retinal detachment; and the late, fixedly increased intraocular tension all show the certainty of degeneration even in a young and yielding eyeball when such tissues are subjected to a persisting increased intraocular pressure. The case illustrates the results of two conflicting contemporaneous conditions produced by traumatism: localized inflammatory reaction and obstruction of lymph-stream circulation.

Dr. George E. de Schweinitz presented a "Further note on an unusual form of macular lesion following iritis." The patient, a woman 50 years old, recovered with a nearly normal sharpness of vision, but with some vitreous opacities from a violent attack of serous iritis. The eye remained comfortable for eight months, when she appeared with a positive scotoma and the ability to see to count fingers only when situated in the periphery of the visual field. In addition to the positive scotoma which the patient described as appearing "like a dinner plate with a green edge," there was a small absolute scotoma about the horizontal level. Ophthalmoscopic examination revealed an oval reddish area, giving the impression of a disintegrating hemorrhage and containing in the center several white dots situated exactly in the center of the macular region. Dr. de Schweinitz referred to the unusually distinct macular ring which seemed to indicate that there must be some thickening in the periphery of the hemorrhagic area.

Dr. Oliver exhibited a water-color sketch of a case of unusual submacular hemorrhage forming a part of some very curious lymph extravasations in the retina without any vitreous disturbances, found in the left eye of a healthy woman 65 years old, from whose eye he had successfully removed a black cataract by simple extraction about two months previously.

Dr. de Schweinitz gave the clinic history of a patient suffering from convergent strabismus of the left eye and a very high myopia 16 D. Ophthalmoscopically, the following lesions were presented. A small posterior polar cataract, numerous fine vitreous opacities, and a horizontally oval optic disc, of a greenish-gray color. The nerve-head was imbedded in the center of a huge mass of opaque fibers which followed the course of the principal vessels almost to the periphery of the eye-ground, in all directions, but less markedly downward and to the nasal side. A small patch in the macular region was not covered by the opaque fibers, but was disturbed by superficial choroidal changes. There was almost complete loss of nasal field, and of the entire center of the visual field, with exception of a small area to the nasal side of fixation, about 10 degrees in diameter, within which the white test object was dimly seen. Colors were correctly appreciated when held in the temporal field.

In the discussion, Dr. B. Alexander Randall showed a card-specimen of a case of retained nerve-sheaths in a case that had been sent to him for supposed intracranial disturbances. In this case there was an isolated patch situated in the macular region. Dr. Oliver exhibited the drawing of a case in which the medullation began at the edge of the disc and divided into two comet-like processes extending along the lines of the larger retinal vessels.

Dr. James Thorington, by invitation, exhibited an asbestos cover chimney with disc attachment for ophthalmoscopic purposes. The original form with the disc attachment he had made two years previously. The present arrangement showed that five changes could be made in the disc. 1. The one centimeter opening fulfilled all the purposes of the original chimney. 2. The two centimeter opening permitted greater freedom of movement on the part of the observer, without moving the light. 3. The three centimeter opening may be used as a source of light for the concave skiascope, or for the ophthalmoscope, otoscope, etc. 4. A round section of cobalt blue glass for the chromatic aberration test of ametropia had been added, as likewise: 5. The perforated disc with perforations and spaces each 1.45 millimeter to test for astigmatism at one meter's distance.

Dr. Thorington showed a new form of perimetric lenses which received its name from the fact that their optical center corresponds to the points of fixation in the fields of vision. The reasons given for the recommendation of the lens, were, that it gives to the eye that form of lens which is consistent with a normal form of the visual field; it removes the edge of the lens to a sufficient distance so that the edge can not be seen to any great degree while the eye is fixed straight ahead; and that bifocal segments can be made much larger. He stated that the increase in weight need rarely exceed the ordinary form, twenty-five to thirty grains; the large size does not attract much attention; and the cost will remain the same as in the ordinary styles used. Upon account of necessary greater weight and thickness, he believed that this form of lens can not be used

for cases of aphakia and high myopia, but showed that as this class of cases constitutes much less than one-half of all refraction cases (37 per cent.), the lens will be accepted in the majority of instances.

Dr. Oliver exhibited and demonstrated a series of microscopic specimens showing the various forms of eyes seen in fish, reptiles, birds, quadrupeds, and man. He showed the marked differences in the conditions of the dioptric media; the varying shapes of the eye-ball; the relative positions of the eye in the head of the animal; the adaptations for near- and for far-focusing: the arrangements for increase of the interior illumination; the positions and peculiarities of the nerve structure; and the relationship existing intra-cranially between the two organs, in the aquatic, the terrestrial and the aerial forms of animal life.

PUBLIC HEALTH.

California's Mortality Report for August.—Reports from fifty cities, towns, villages and sanitary districts, aggregating a population of 739,132, show a mortality of 865—a death rate of 1.17 per thousand for August, 1896, or 14.04 per 1,000 per annum.

Isolation of Lepers in Russia.—A "leprosorium" has just been completed at Wenden, and Virchow congratulating the Society for the Prevention of Leprosy during his recent visit to Russia, remarked that they had accomplished in this isolation of the lepers more than the most powerful of the popes had been able to effect in the days of their greatest supremacy.

Horse-meat Consumption in Paris.—There are at least two hundred horse butcher shops in Paris. The first one dates from July 1, 1866, since when the consumption has grown continuously. In 1872, 5,034 horses were eaten in Paris; in 1878, 10,000; in 1894, 21,227; in 1895, more than 30,000.

Mortality Report of Connecticut for August.—There were 1,644 deaths reported during the month of August. This was 33 more than in July, and 293 more than the average number of deaths in August for the five years preceding the present. The death rate was 23.6 for the large towns; for the small towns 21.6 and for the whole State 23.

Typhoid Fever in the Navy.—Surgeon C. A. Siegfried, of the battleship *Massachusetts*, reports that on August 31 he was compelled to transfer from the vessel to the Brooklyn Naval Hospital the fifth case of typhoid fever that had occurred aboard since she was commissioned at League Island in June last. The surgeon is reported as saying that he attributes the disease to the bad drainage of Philadelphia, and the condition of that part of the city nearest League Island.

Quarantine Station for Northern New Jersey.—Dr. A. H. Doty, Health Officer of the Port of New York, has applied, through Dr. H. C. Herold, the Health Officer of Newark, to Governor Griggs of New Jersey, for the establishment of a quarantine station at Perth Amboy. While all vessels that come to New York are obliged to stop at the boarding station of the quarantine office on Staten Island, they can land at Perth Amboy without interference, and there is therefore danger of contagious disease being spread from that point. Governor Griggs, it is reported, will recommend such a health station in his next annual message to the Legislature. In the meanwhile he has promised to use a $10,000 emergency fund which is at his disposal for the suppression of any outbreak of disease, should the occasion arise.

A Society for the Prevention of Noise.—The formation of such a society is suggested in the *North American Review* by Dr. J. H. Girdner. He contends that there is as rightful need for such a society as for the Society for the Prevention of Cruelty to Children. It is, indeed, for the prevention of cruelty to grown people. The continued concussion of noise on the auditory nerve is injurious to the whole nervous system, and is a great contributing element to the nervous prostration so common among city dwellers. It is a well-known fact that one coming from the country is almost stupefied by the multitude of sounds in a great city. The city man is used to it, but it is at the expense of vital force, and he undergoes, unconsciously, a strain that is great and wearing. Dr. Girdner's view is that a man has as much right to legal protection against an assault on his auditory nerves by useless noises as he has against an assault on his nerves of touch, by being whipped or beaten in any way.

Improvements at the New York Quarantine.—Dr. A. H. Doty, health officer of the port of New York, is commended by the *Medical News*, August 29, for the great degree of efficiency that has signalized his tenure of office. One of his innovations is the wearing of a uniform by himself and his deputies when they are "on duty." The uniform is a badge of authority especially impressive, normally so we might say upon the foreign element that visit these shores for the first time. New headquarters are in course of construction, a part of which will be devoted to a bacteriologic laboratory. This laboratory is already fully equipped and ready at a moment's notice to undertake the diagnostic confirmation of suspicious cases, so that a few hours of delay, while the investigation is being made, enables the health officer to determine on a scientific basis, whether a ship must be detained at quarantine or be allowed to proceed. "This fact is not usually appreciated by the general public, and the solution of this question of delay by the present health officer certainly reflects the greatest credit upon him. If a ship arrives after sundown, instead of being obliged to lie at anchor for the night in the lower bay, she is inspected at once and allowed, if in a suitable condition, to proceed to her berth. If there are immigrants or others requiring individual inspection, an electric search-light is set up upon the deck, and under its powerful beams the inspection is satisfactorily accomplished. If the passengers or cargo require disinfection, the boat, which the health officer has just had constructed, will accomplish it *tuto, cito et jucunde*. A row of bathrooms on either side of the boat will quickly disinfect eight persons by spray or vapor, or both. Clothing, bedding, etc., is all disinfected by steam, *in vacuo*, in a great car, such as is in use by the city Board of Health. The cargo itself is disinfected by sulphur gas, which is carried from the disinfecting boat in pipes under pressure, and distributed where needed, as water is distributed with hose. Thus, a ship, her cargo and her crew, coming from an infected port could, in a few hours, be sent into the harbor with a clean bill of health, the safety of the public being assured and the rights of the shipping-master protected as well. Surely this is a prodigious advance over old methods. Should a ship come to our shores, containing many cases of infectious disease—cholera, for example—there would be no long and vexatious detention of the well and clean, together with the sick. The former, after disinfection, would go on their way, and for the latter the health officer has provided large and commodious barges anchored near the quarantine islands, isolation being thus complete and the conditions as favorable as possible for recovery. It is to be hoped that this system may not require the severe test of experience, but if it should, we see no reason to doubt its efficiency. If successful, it would redound primarily to the great credit and praise of the present health officer; it would also be a demonstration to the public that its safety in sanitary matters depends largely upon the endorsement and support of the medical profession."

Typhoid Fever at Albany, N. Y.—The *Bulletin* of the North Carolina Board of Health, August, gives a résumé of some recent studies on the subject, "Does Good Water Pay?" The writer takes for an object lesson the state of affairs that exist at

Albany, N. Y., a city whose water supply is taken from the contaminated Hudson River. He quotes the statements of Professor Mason of the neighboring city, Troy, to show the economy that might be exercised by officials in curtailing the expense account inevitably incident by that water-borne zymotic disease, typhoid fever. What is the tax levied annually by that fever upon a city of 100,000, for instance Albany, N. Y. From statistics given in the five last annual reports of the State Board of Health, the deaths due to typhoid fever in Albany average 75 for the year. Rating the money value of each life at $2,000, this death rate would mean an annual pecuniary loss to the city of $150,000. Funeral expenses are variously estimated at from $20 to $30. Should we accept the intermediate value of $25, this item would cause $1,875 to be added to the above sum, thus raising the total direct loss through death to $151,875. But typhoid fever does not always kill, its mortality rate is commonly quoted at about 10 per cent. For the present purposes should we assume nine recoveries for each death from the disease, and place forty-three days as the period of convalescence (the average of 500 cases at the Pennsylvania Hospital), we should have a term of 29,025 days as representing the time lost, per year, by the 675 persons who have the fever and recover. Thus an annual loss of over seventy-nine years has to be borne by the city's capital of productive labor. This great amount of enforced idleness, when translated into money value, should very properly be added to the death loss above estimated. Fixing the rate of wages at $1 per individual per day, a very low figure, considering that the bulk of typhoid patients are in the very prime of life, there is a loss of $43 for wages for each recovery, or a total yearly loss for the city from this item of $29,025. The cost of nursing and doctors' bills equals at least $25 per case, which is a very low estimate, thus adding the further amount of $16,875 to the gross sum. Expressed in tabular form, this yearly tax imposed by typhoid fever in Albany is given, and, upon a most conservative estimate, it is practically $200,000, which is $2 a year for each man, woman and child in the city, or a yearly tax of $10 for every family of five persons: 75 deaths at $2,000 each, $150,000; 75 funerals at $25 each, $1,875; wages of 675 convalescents, during 43 days, at $1 per day, $29,025; nursing and doctors' bills for 675 convalescents, at $25 each case, $16,875; total tax levied annually by typhoid fever upon the city of Albany, $197,775. It can readily be seen that public works which could eliminate a reasonable fraction of this great tax would pay for themselves in the course of a few years, even though they were originally expensive. Finally, it is right to inquire what fraction of the present typhoid loss it would be reasonable to hope to save if pure water should be served in the city in place of its present polluted supply. To answer this question, recourse must be had to statistics obtained from other cities, covering periods before and after better water systems had been introduced. Such data have been already given for a number of cities and communities, and it only remains to anticipate what will be later said of Munich, and state that improved water and sewerage have reduced the annual typhoid mortality from an average of 25.4 per 100,000 to 2.7. Surely pure water pays in a city with such a record, and likewise it would pay in the newer but growing cities on this side of the Atlantic. Americans insist upon being supplied with much more water per capita than is usually furnished for Europe, but they are singularly indifferent as to its quality. It would be a reform of great moment if they could be induced to curtail the present enormous waste of public water, such as that of Buffalo, for instance, which is stated to be 70 per cent. of the entire pumpage, and to spend the money thus permitted to leak away in a vigorous effort to improve the quality of the water. No such lowering of the typhoid death rate as occurred in Munich, San Remo and sundry other places, could be looked for, perhaps, but a large percentage of the present rate could be cut off, and we think, from a consideration of the above figures, that such a reduction would pay. No weight should be attached to the argument, so often advanced by the individual householder, that he and his family have used the water without evil results for the past fifty years. A single family is too small a collection of units upon which to base any estimate touching the question at issue. Placing the typhoid death rate for Albany, as above, at 75 annually, it would call for one death in a family of five persons every 261 years, a period much beyond the limit of ordinary family record."

Vaccination in London Neglected; the Gloucester Epidemic Stamped Out.—From the parliamentary intelligence reported in the London *Lancet* of August 22, we learn that in Gloucester, during the thirty weeks ending July 25, there were notified 2,008 cases of smallpox. That journal further states that "Gloucester seems to have got rid of the disease and to be able to chronicle a clean sheet so far as smallpox is concerned, after suffering 2,000 attacks within a period of about ten months. The bitter lesson taught by this epidemic is not likely apparently to stem the tide of opposition to vaccination wherever antivaccinationists congregate. Proof of this has been seen quite recently in the parish of Islington, in the different attitude of the vestry, who, as a health body, are desirous of seeing the vaccination acts enforced, and of the so-called vaccination authority, to wit, the poor-law guardians, who are wilfully ignoring the voice of the vestry; not only so, but the guardians also decline to hear what the public sanitary officers of the parish have to say on the health side of the question. The only consolation to be derived is to suppose that the reign of the poor-law administrators is probably short-lived now, and the sooner the bodies charged with safeguarding the public health have a voice in the matter the better will it be for all concerned." In another paragraph the same journal makes the following reference to to the closing up of the epidemic at Gloucester, and to the expenses borne by its citizens on account of that epidemic: "The Gloucester sanitary committee have, it appears, discontinued the issue of weekly statements as to smallpox occurrences, the health of the city being deemed to approximate now to its normal condition. It would seem that the expenses connected with the recent epidemic, so far as the guardians are concerned, have been about $10,280, and that it has been decided to ask the local government board to sanction the raising of a loan to meet the case. It will be interesting to know what is the sum total to which the citizens will have to subscribe in respect of the epidemic in all its bearings. The expenses appearing on the books of the town council will, however, we imagine, go but a very little way toward the whole, as the amount of money which must of necessity have been expended in one way and another by the public in matters of a personal character but having direct relation with the prevalence of smallpox in the town, must have been excessive. We know that charitable contributions were made with a liberal hand."

A Less Stringent Quarantine for Diphtheria.—The *Archives of Pediatrics*, in an editorial paragraph, commends the considerate courage of the New York City Board of Health in adopting a change, not of the highest moment but of importance as indicating a spirit of concession. The regulations have been by some considered unduly harsh and arbitrary and as trenching upon the patient's personal liberty. It further says:

"There was a growing tendency to postpone the sending of cultures through the fear that patients who might suffer from very mild attacks of diphtheria might be made prisoners for days or weeks after every symptom of disease had disappeared. That experience is not a pleasant one to the family physician. It was questioned whether the board of health was warranted in depriving citizens of their liberty unless they were able to say that the bacilli discovered in the throat, weeks after an attack of diphtheria, were virulent. It seemed doubtful to

many men of large experience whether the scientific evidence yet available warranted such rigid measures. The present regulations will certainly commend themselves to the practitioner. They prohibit any person known to have Löffler bacilli on their mucous membranes from attending school or mingling in other public assemblies where innocent and unsuspecting persons may become infected. Provision is made for informing every family in which diphtheria occurs regarding the method of its propagation and the dangers which may follow from contact with those who are known to carry the germs in their throats. This knowledge having been furnished the patient and the attending physician are privileged, under certain limitations, to assume any responsibility and risk which may arise from the violation of quarantine. This action is unquestionably wise. It removes the chief objection which has been raised against sending cultures to the board of health. It will undoubtedly encourage the earlier sending of cultures, and hence the earlier and more accurate diagnosis of diphtheria, and would seem to sufficiently guard the public interest. The endeavor made during recent years by the Board of Health of New York to aid the physicians of the city in their battle against disease can not be too highly commended. The willingness also exhibited to correct errors and to render necessary regulations as little irksome as possible, is worthy of equal commendation."

Sanitary Rules for Schools in Indiana.—The Indiana State Board of Health has issued the following letter of explanation in relation to the opening of the public schools for the fall term:

"Simultaneously with the annual opening of the public school, diphtheria, measles, mumps, scarlet fever and many other diseases usually increase. This is caused by the congregating of the pupils. They mass together and contact spreads infection. Some few pupils may have just recovered from a communicable disease, or they may be from families that have been smitten and, being infected, they transmit disease to those who are susceptible. It is reasonable to assume that the suddenly imposed confinement in the school after a period of freedom frets the children for a few days, causing more or less nervousness and so resistance is temporarily lowered. In this way susceptibility may be increased, and sickness may more readily follow. To do all that is possible to prevent the usual school-opening increase in illness is the object of these rules.

"It is ordered in the rules that desk tops and banisters be washed with soap and water and afterward treated with a disinfectant. This is required because it is more probable that disease germs are planted upon exposed desk tops and banisters by infected persons, and being transferred by the children's hands to their mouths, disease results. The washing and disinfecting will do much to prevent infection from this source.

"Open water buckets and large tin cups are condemned because the dipping of water with cups, which are used by many, introduce spittle into the supply; and beside, open buckets catch dust and dirt. Diphtheria, diarrhea, sore mouth and other complaints have been transmitted in this way. This source of disease may be avoided to a considerable degree by supplying a covered tank with a large, free-flowing faucet and a small cup. The opening of a large faucet will furnish a strong stream, which will suddenly fill the cup and wash the saliva from the edge. Ample drainage must be provided for carrying away the waste water.

"Slates are condemned because of their uncleanliness. Writing and figures being obliterated, as they frequently are, with spittle, and as the damp slates readily collect dust, the danger of transmission of disease in this way is very great. Small children generally place pencils and pens in their mouths, and if these articles are promiscuously distributed without being sterilized, as the rules direct, infection may result. The collection of pencils seems necessary to always insure one to each pupil.

"Spitting is prohibited because it is a possible source of disease, is filthy and is unnecessary.

"These rules may seem trifling and unnecessary to those who have not given consideration to modern sanitation, but the teachers more than any other public officer may secure the physical well-being of the pupils as well as the intellectual advancement.

"It is hoped that all the school authorities of the State will promptly enforce these rules.

"Douglas C. Ramsey, M.D., President.
"J. N. Hurty, M.D., Secretary."

COPY OF RULES ISSUED.

Rule 1. All teachers of public, private and parochial schools, all county, city and town health officers and all school authorities shall refuse admittance to the schools under their jurisdiction of any person from any household where contagious disease exists, or any person affected with any evident or apparent communicable disease, or any person who may recently have been affected with diphtheria, membranous croup, scarlet fever, whooping cough, contagious skin disease, measles or other communicable disease, until first presenting a certificate signed by a reputable physician stating that danger of communicating such disease is past, and said certificate is approved and indorsed by the health officer in whose jurisdiction the person may reside.

Rule 2. All teachers of public, private or parochial schools shall refuse admittance to their schools of filthy or unclean persons.

Rule 3. All school commissioners, school trustees in cities and towns and township trustees shall have the school houses under their control put in sanitary condition before school is opened and kept so throughout the year. Floors shall be scrubbed, windows cleaned, desks and all woodwork washed with soap and water and treated with a disinfectant. Windows shall be in repair, so that ventilation may be made perfect. Heating apparatus shall be efficient and in good order and dirty walls and banisters made clean. Banisters and tops of desks shall be washed with soap and water and treated with a disinfectent once each week.

Note. The disinfectant for treating desk tops, banisters, etc., and for use in urinals and closets may be cheaply made by the following formula and kept on hand in any quantity desired. To make ten gallons: Chlorinated lime, 40 ounces; soft water, 10 gallons. Thoroughly stir together and let stand until clear. The undissolved lime will fall to the bottom and the clear supernatant liquid may be used on the desks, banisters, baseboards, etc. The fresh milky mixture, as well as the creamy sediment may be used in urinals, closets and sinks. This disinfectant is not poisonous or dangerous. Chlorid of lime of the best quality may be purchased in quantity for 5 cents per pound. The cost of the disinfectant is, therefore, less than 2 cents per gallon. The use of all patent or secret disinfectants is discouraged by the State board of health.

Rule 4. School commissioners, school trustees in cities and towns and township trustees shall provide small drinking cups not to hold over a gill. Buckets or pails to dip from are condemned, and reservoirs or tanks of ample size having large, easy acting, free flowing faucets shall be provided. When water is drawn direct from public water pipes or pumps, reservoirs or tanks are not required. Ample drainage facilities for waste water shall be provided and the pupils directed to allow the cups to flow over when water is drawn. Drinking cups shall be cleaned and sterilized daily.

Rule 5. Slates are condemned. Paper tablets or pads shall be used instead. Riveted metal boxes of tin or galvanized iron with hinged covers and of proper size shall be provided for each school room. These are to receive pens or pencils, which must be collected from the children each day, and shall not again be distributed until box and all have been sterilized by heating in an oven at or above boiling heat for one-half hour. School commissioners and school trustees in cities and towns and township trustees are directed to enforce this rule.

Rule 6. Heating and ventilating shall be looked after with great care. Every school room shall be provided with a thermometer and a temperature not exceeding 75 degrees Fahrenheit nor less than 65 degrees be maintained during school hours. School commissioners, school trustees in cities and towns and township trustees are directed to enforce this rule.

Rule 7. Janitors when sweeping shall use damp sawdust or slightly sprinkle in order to prevent dust. Dusting shall be done with damp cloths. School commissioners, school trustees in cities and towns and township trustees are directed to enforce this rule.

Rule 8. The water supply shall be pure and wholesome, and closet or privy facilities shall be unobjectionable. School commissioners, school trustees in cities and towns and township trustees are directed to enforce this rule.

Rule 9. Spitting on the floor of any school building is absolutely forbidden. Teachers and all school authorities are directed to enforce this rule.

Douglas C. Ramsey, M.D., President.
J. N. Hurty, M.D., Secretary.

NECROLOGY.

William Turner Wooton, M.D. (Department of Medicine, University of Pennsylvania, Philadelphia, 1846), at Frederick, Md., September 14, aged 74 years. He was a member of an

old and distinguished Maryland family, was born in Montgomery County, but had practiced medicine in Frederick nearly all his life. Dr. Wooton was a frequent contributor to leading medical journals.

JOHN LAWRENCE DAWSON, M.D., at Charleston, S. C., September 17. He was born at the celebrated Mitkin plantation, near Monck's Corner, in 1815. Was the son of Lawrence Monck Dawson and grandson of a daughter of Lord Proprietor Monck. He graduated from the Medical College of the State of South Carolina, Charleston, in 1836.

After leaving the Medical College Dr. Dawson went to Paris with Dr. Chazal and spent some time studying and visiting the hospitals. Returning to South Carolina he located in Summerville. After a year or two, however, Dr. Dawson returned to Charleston. For some years he was United States physician to the Arsenal garrison, city registrar and health officer, holding the offices simultaneously. It was during his occupancy of these positions, in about 1840, when with the late Dr. Henry W. DeSaussure, he brought out the census of Charleston, which has been used as a standard authority since. Dr. Dawson joined the State Medical Society in 1837 and was prominent in its deliberations. He was a member of the standing committee, and also treasurer of the Society for the relief of the Families of the Diseased and Disabled Indigent Members of the Medical Profession of the State of South Carolina, an organization of which he was one of the founders.

P. F. BEVERLY, M.D., at one time President of the Ohio State Medical Society, at Columbus, Ohio, September 18, from a stroke of paralysis, the third one in a year. Dr. Beverly was 69 years of age, and a graduate of Starling Medical College, Columbus, Ohio.

CHARLES BERNACKI, M.D., of New York City, at Schandau, a Saxon watering place, September 17, aged 84 years. He was born at Starascol, Galicia, studied medicine in the University of Vienna and, after some practice in military hospitals in Australian Poland, opened an office in Vienna. After the political disturbances of 1848 he fled to America. From 1846 he was medical director of the Germania Life Insurance Co.

J. C. SACKVILLE, M.D., of Washington, Pa., aged 82. He was struck by a Baltimore and Ohio train September 23, and instantly killed. Dr. Sackville was a cousin of Lord Sackville West, formerly English ambassador at Washington, D. C., and a brother-in-law of the English poet, Robert Carr Foster. He graduated from the Royal College of Surgeons, London, England, in 1838.

EDWARD BENKENDORFF, M.D. (Medical Department, Washington University, St. Louis, Mo., 1847.) He was a native of Prussia. A relative of the same name is lord chamberlain to the czar.

H. H. HUNT, M.D., at Independence, Iowa, September 25, aged 72 years. He was county coroner for thirty years and was also a surgeon in the late war.

WILLIAM H. PERKINS, M.D., Long Island College Hospital, Brooklyn, N. Y., at Hancock, Md., September 11.——P. S. McArthur, M.D., Geneva Medical College, Geneva, N. Y., 1847, at La Crosse, Wis., September 19, aged 74 years.

MISCELLANY.

Treasurer's Notice.—The Treasurer has received $5.00 in currency from Buffalo, N. Y., which he will properly credit if the remitter will send in his name with date of remittance.

Dartmouth Medical College.—William Thayer Smith, M.D., of Hanover, N. H., has been appointed dean of Dartmouth Medical College, to fill the place of the late Dr. Carleton P. Frost. Dr. Smith has been professor of physiology for a number of years. Prof. Gilman Frost has been appointed secretary and treasurer.

Professor Virchow's Birthday.—A cablegram states that great preparations are being made for the birthday of Professor Virchow, which occurs October 13. Scientists from all parts of the world, including the United States, will be present with gifts and congratulations.

Mutilation of Prisoners in Abyssinia.—The Italian government recently sent an artificial-limb maker to Africa to supply hands and feet to about two hundred and fifty native soldiers who had been captured by the Abyssinians and, after having each a foot and a hand cut off, were set free again, but the unfortunates who have been evirated can find no instrument maker to come to their relief. Evisration is a cruelty much practiced by the Abyssinians on their Italian prisoners.

International Scientific Language.—In letter a written before his death by Prof. Billroth to Dr. Jankau he remarks: I recommend the simplest of the Latin languages, Spanish, for an international scientific language; after this would come Italian and French, and among the Germanic tongues, English alone. English might even be preferable to all others, as it is one of the simplest. But as the Latin races have no aptitude for acquiring foreign tongues, it is necessary on account of their great talents in scientific matters, to make this concession to them, and select one of the Latin tongues for the international language.—*Gaz. Méd. de Paris*, August 29.

Toxicity of Gastric Juice in Epileptics.—Agostini has found that the gastric juice from an epileptic injected into the abdomen of a rabbit proves fatal with general toxic and clonic convulsions, especially if withdrawn immediately before or after an attack. Gastric juice from a normal person injected in the same way does not produce any evil effects. He considers these facts a valuable indication for the successful therapeutic treatment of epilepsy, with systematic rinsing of the stomach, disinfection of the intestines, etc. He found that the toxicity was diminished by the administration of bromids.—*Cbl. f. Phys.*, August 22.

An Ancient Russian Superstition.—A fatal case arising out of the widespread superstition that a candle made from human fat bestows invisibility upon its possessor, is reported from Ostrogozhsk. Two Russian thieves of the district were so firmly persuaded of the truth of this that they murdered a youth of their village in order to procure the candles in question. Having cut open the body, they removed the fat surrounding the kidneys, and, placing it in a tin box, took it home. There they proceeded to melt the fat over the fire. Unluckily for them an old woman, their housekeeper, became suspicious and informed the authorities. Her statement, coupled with the mysterious disappearance of the youth, who was a handsome and a popular young fellow of 18, led to the prompt arrest of the ruffians and their ultimate trial for the murder. The body was discovered, and the portions lacking therefrom lent further confirmation to the crime.

Can Commit to Insane Asylum.—The supreme court of Louisiana holds, in the case of State v. Uniake, decided June 30, 1896, that where a party has been indicted, and his counsel suggests his insanity, before trial, and a commission is appointed to inquire into his mental condition, and reports him to be insane, and the jury returns a verdict accordingly, and the judge of the criminal district court remands him to the parish prison, without a commitment to the insane asylum, the judge of the civil district court has authority, under section 1768, Revised Statutes, to inquire into the facts and circumstances of the case, and if, in his opinion, he is dangerous to the citizens and the peace of the State, to commit him to the insane asylum of the State.

Right to Have Examination made by Female Physician.—Under the provision of the New York Code that if a female plaintiff be subjected to a physical examination she shall have the right to have such examination made by a female physician, a decision

was called attention to in the JOURNAL of June 20, page 1245, to the effect that the fact that the order compels her to submit to an examination by a physician not of her own sex, is not a ground for the vacation of the order, she not having made any effort to have the order modified. But the appellate term of the supreme court of New York, first department, takes a different view of it, as its decision of July 27, 1896, in Lawrence v. Samuels, shows. It holds that the provision in question is for the protection of female suitors, and that the plaintiff in this case was entitled, as of right, to have inserted in the order the provision that a female physician make the examination, without making any special application for it as a favor or privilege, and that, in so far as the order appealed from a male physician named, it must be reversed, with liberty to the defendant to apply to the court below for the naming of such a physician as the Code authorizes.

Effect of the X Ray on the Skin.—We have seen it clearly demonstrated that the ray has an effect upon the skin, but only after frequent and long exposure to its influence. The appearance of the skin strongly resembles severe sunburn, with the accompanying pain, swelling, blistering and discoloration. The congestion in the hand is very marked, and the hand hanging in the usual dependent position occasions great pain. We have under observation at present a case in which the long exposure to the X ray has produced these symptoms, other exciting causes being positively excluded. The face showed the same series of changes as the hands.—*Canadian Pract.*, September.

Woman's Inferior Sensitiveness to Pain.—Ottolenghi reports in the *Cbl. f. Nerv. u. Psych.*, No. 7, that he has been testing with Edelmann's faradimeter the sensitiveness to pain and the endurance of pain in 682 women. He finds that women are less sensitive to pain than men, and that this sensitiveness is less in early life, increases to the twenty-fourth year, and decreases after that. The higher classes are most sensitive, and degenerates the least. He found the latter very obtuse to the sensation of pain. Endurance of pain varies between much broader limits in women than in men, reaching a maximum far beyond the masculine limit, possibly due to great "suggestibility" of the female sex. "General sensibility" reaches the highest point in the nineteenth year. He concludes from his investigations that sensitiveness to pain stands in close relation to the "psyche," while "general sensibility" depends upon the peripheral nerves. He consider woman's comparative insensibility to pain as a sign of her inferiority to man, as the uncivilized and degenerates are the least sensitive. He also attempts to prove a connection between this characteristic and her longevity.—*Cbl. f. Phys.*, August 8.

Might be Entitled to Accident Insurance.—A physician was insured "against bodily injuries sustained through external, violent and accidental means." While he was in his carriage on the highway, he attempted to administer to himself in his leg, for extreme exhaustion, medicine with a hypodermic needle. His carriage suddenly started, causing him to accidentally insert the needle deeply into his leg. This, he alleged and testified, produced blood poisoning and suppuration. The physician who attended him recognized it as a case of cellulitis, with which the morphia used had nothing whatever to do, and which resulted from the introduction of the needle, together with some condition of the skin or needle. Five judges of the appellate division of the supreme court of New York heard arguments on appeal from a judgment dismissing on the merits the complaint in an action against the company which issued the policy of accident insurance, with two of the five dissenting that judgment is reversed and a new trial ordered. The court holds, Bailey v. Interstate Casualty Company, decided July 7, 1896, that the question whether the injuries complained of were sustained through external, violent and accidental means, within the meaning of the policy should have been submitted to the jury. If, in the use of the needle, an agency that otherwise would not have been in force, and which was the efficient cause of the injuries, was accidentally set in motion, it says that it sees no good reason why it might not be found that the injuries were attributable to the accident as the sole and proximate cause. As to the contention that the diseased condition of the leg arose from the use of morphin, and therefore within one of the conditions of the policy that upon the evidence it also holds was a question of fact for the jury to determine.

Regents Control.—The supreme court of Michigan holds that the constitution of that State gives the control of the University of Michigan to the board of regents, and that the legislature has no control over the university or the board of regents. On this ground it holds unconstitutional Act No. 257, Laws 1895, wherein the legislature provided that the board of regents should establish a homeopathic medical college as a branch or department of the University at Detroit and should discontinue the homeopathic college now maintained at Ann Arbor as a branch of the university, and transfer the same to Detroit. In consequence, it denies a writ of mandamus, which was asked in Sterling v. Regents of the University of Michigan, decided July 28, 1896, to compel action on the part of the board in accordance with the legislative will. It also suggests that the attorney general is the proper party to move in such a case, and a private citizen does not possess the right, without permission of the court, to apply for this writ to compel a public board to perform an omitted duty.

The Use of Oxygen After Ether in Surgical Operations.—Dr. William A. Morrison, of East Boston, Mass., relates several cases in the *Boston Medical and Surgical Journal* in which inhalations of oxygen most effectually and rapidly remove the unpleasant after effects of ether. From these cases he concludes: 1. That some cases receive much more benefit from its use than others. 2. That in the most favorable cases astonishing results follow; the nausea is apparently relieved or prevented, consciousness is quickly recovered, the breath is entirely deprived of the odor of ether in a very short time, and the feeling of malaise, so frequently complained of, is absent. 3. That some cases are not benefited (or are positively harmed) by its use. In another case of his, a man with a gangrenous foot, convulsions appeared soon after inhaling the gas, and he was therefore obliged to discontinue its use. He is unable to state why the man did not tolerate it. 4. That the best method of administering oxygen after etherization is by the use of a soft-rubber catheter gently introduced into the nares until the eye of the catheter is approximately opposite the opening in the trachea. It seems to him desirable that all cases in which oxygen has been used after etherization should be reported, so that the profession should be assisted in determining what cases are likely to be benefited by the inhalation, and in what cases its use is contraindicated. This was recommended by Professor Jackson when ether was first administered.

Liability for Harshness in Examination.—In the personal injury case of Goodhart v. Pennsylvania Railway Company, which was decided by the supreme court of Pennsylvania, July 15, 1896, it says that the evidence in regard to the examination made by a physician on behalf of the defendant was not directed to the extent of the plaintiff's injuries, but to the severity of the examination. Its evident object was to persuade the jury that the character of the examination and the conduct of the physician in question and his assistants was unnecessarily harsh and annoying, and was a proper subject to be considered in assessing the plaintiff's damages. But the supreme court holds otherwise. It says that it must be borne in mind that a

claim was being made against the railroad company for damages based upon an alleged injury received in consequence of an accident on its line. In order to determine intelligently the extent of its liability, it was important for the defendant company to know the nature of the injury, and the extent to which the plaintiff was affected by it. This could only be known as the result of a medical examination made by competent and experienced physicians. The physician above referred to and his assistants were selected as proper persons to make the examination, and advise the company of their estimate of the plaintiff's condition, and its consequent liability. If, in the discharge of their professional duty to their employer, they went beyond what was reasonably necessary and employed methods and tests that were cruel, and such as the judgment of the medical profession does not approve, and thereby inflicted injury on the plaintiff, the supreme court holds that they were liable for their own trespass, whether committed with malice or through ignorance. But rudeness and incivility in the manner in which the examination was conducted, if rudeness or incivility can be affirmed of anything that was said or done in that connection, the court insists could throw no light on the extent of the injury actually suffered by the plaintiff, and the evidence referred to should have been rejected. Damages for a personal injury, it says, consist of three principal items: 1. The expenses to which the injured person is subjected by reason of the injury complained of. 2. The inconvenience and suffering naturally resulting from it. 3. The loss of earning power, if any, whether temporary or permanent, consequent upon the character of the injury—each of which elements it further discusses.

Specific Immunity Versus Transient Protection in Cholera and other Infection Processes.—Dr. Pfeiffer in a *Deutsche Medicinische Wochenschrift*, April 11, having been employed in an inquiry concerning the different kinds of immunity that can be effected in the laboratory, offers the following as a part of the results of his investigations upon the subject of immunity: The cholera poison is contained in the body substance of the cholera vibrio, so that dead, as well as living cholera bacilli show marked toxic properties. The cholera poison becomes capable of absorption by the disintegration of the cholera bacteria; analogous conditions have been established as regards typhoid fever, anthrax, chicken cholera, staphylococcus infection, and apparently influenza. Animals may be rendered immune to toxic doses of living cholera spirilla, and typhoid bacilli by previous treatment with various substances of bacterial and non-bacterial origin. This protection is transient, and does not depend upon specific changes in the fluids of the body, and is designated as resistance, in contradistinction to specific immunity. In the blood serum of human beings and animals that have been exposed to the action of the living or dead cholera spirilla or typhoid bacilli, there occur specific protective bodies, which are thus capable of rendering aid in differential diagnosis in cases in which ordinary methods have failed; and these substances may be made to accumulate in the blood in concentrated degree by properly conducted immunization. In their relation to chemic and physical agencies, they bear a close analogy with the antitoxins, from which, however, they are differentiated by their action. While the antitoxins occupy a specific relation to certain poisons, and are capable of destroying these in the animal body, the anti-bodies of cholera and typhoid fever are incapable of thus acting upon the poison of typhoid bacilli and cholera spirilla. Their activity consists in the destruction of the bacteria, but this property makes itself manifest, as a rule, only in the body, and is capable of demonstration outside the body only under special circumstances. These anti-bodies are also found, though in small quantities, in the normal blood of animals and human beings. They are neither bacterial products deprived of virulence, nor combinations of these with components of the immunized organism, but they are probably entirely new substances resulting from the specific reaction of the body to a specific irritant. The evidence points to the view that the anti-bodies are specific ferments. It is possible that the antitoxins also are specific enzymes. As fermentative activity plays an important part in the production of natural immunity, it is possible to relate natural and acquired immunity, antitoxic and bactericidal functions to a common general principle. This report as will be seen, fully sustains the position assumed by this JOURNAL in an editorial entitled the "Failure of the Antitoxins."

A Question of Implied Contract.—The defense to an action brought to recover for medical services rendered the daughter of the party sued was that the plaintiff was not in active practice at the time such services were rendered; that plaintiff was closely related to the family of the defendant by consanguinity and affinity, and the families were upon the most intimate terms; that for thirty or forty years plaintiff and defendant extended hospitalities, courtesies and favors to each other in the way of kindnesses and substantial benefits, without charges or any kind of legal obligation from one to the other, and that a greater part of the time defendant made plaintiff's home a general stopping place for rest, recreation and refreshments, and it was at these times and on these occasions and under these circumstances that the plaintiff, as the defendant then thought and believed, acting as much or more in the capacity of a friend than as a physician, examined and prescribed for the family of the defendant when indisposed. The evidence both showed that the services of the plaintiff were rendered as stated in his account and that the relations existing between the parties was as stated in the defendant's answer, and that their conduct and transactions with each other were the same as alleged. On the trial the court gave a charge to the jury to the effect that, if the plaintiff's demand was just and due he would be entitled to recover, and, further, that if they did not believe such account was just and due, and was contrary to law and equity, then they should find for the defendant. The plaintiff asked a special charge upon the question of implied contract, which the court refused to give. Under the circumstances the court of civil appeals of Texas holds, Bonner, v. Bradley, decided June 13, 1896, the trial judge failed to properly charge the jury, and reversed the judgment which was rendered in favor of the defendant. It says that when services are performed at the request of a party, the law will imply a promise to pay the reasonable value thereof, unless such request be made and acceded to as a gratuitous favor, and that if, at the time the services were performed by the plaintiff, it was not the intention of the parties that charges should be made for such services, then the defendant would not be liable therefor.

Twin Extra-uterine Pregnancy; One Fully Developed Fetus of Fifteen Years' Retention.—The *British Medical Journal* quotes Dr. Folet, in *Annales de Gynécologie et d'Obstetrique*, regarding a case of the above nature. The patient, a Flemish woman, aged 49 years, had an abdominal tumor, dull, uniformly hard, devoid of all tenderness, movable in its lower part and extending three inches above the umbilicus, which was diagnosed as a fibroma, partially calcified, and abdominal hysterectomy decided upon. As soon as the abdomen was opened an edge of bone (one parietal overriding another) was felt through a moderately thick sac of supple tissue, and the diagnosis at once amended to one of extra-uterine pregnancy. The sac did not appear to contain any fluid; it was partially adherent to the abdominal wall, from which it had to be detached with caution; it had many adhesions to the intestines, which were easily separated by the fingers. Only one ligature was required and the tumor was only retained by its base, when with a circular rent it burst, and five-sixths of the sac came away with the contents, leaving a funnel

formed by the remaining sixth attached by its outer surface to the pelvic organs. In the interest of the patient no endeavor was made to determine the exact relation of the sac to its surroundings; the edge of the funnel was fastened by eight silk sutures in the lower part of the abdominal wound, a large drain wrapped in iodoform gauze inserted in the peritoneum and the remainder of the incision closed. Recovery was perfect. The temperature never rose above 37.5 degrees C. and in six weeks the cavity of the cyst was obliterated and the healing complete. The structure of the cyst seemed to show it to be a tubal one. It contained two fetuses, one (female) 46 cm. in length, with well formed nails, had lived to term; it was not, properly speaking, a lithopedion; the tissues, though dense, were supple and nowhere calcified, and on sections of thigh and arm the skin and muscles were recognized by the naked eye and microscope. The other fetus had died about the third month; the thorax and head were much compressed, but could be made out and the members were distinct. The cords of both ended at the lower end of the sac in a single placenta, the degenerated tissue of which was represented by reddish-brown matter like touchwood, and broke into flakes on the slightest traction. Some days after the operation it was ascertained through an interpreter, that sixteen years previous the woman had become pregnant, having before that had four children at term. She duly quickened but at nine or ten months had a false labor: blood and membranes came away and she had hemorrhage for six weeks. As she ceased to feel the movements of the child and nothing further happened, she persuaded herself that she had been mistaken, and that she had not been pregnant, the more easily because her abdomen diminished a little in size and her catamenia returned and continued until she was 46. A doctor whom she consulted two or three years afterward, while giving no definite diagnosis, deprecated any treatment. She was led to apply to Folet on account of repeated attacks of pain during the last year, probably due to the peritonitis which caused the intestinal adhesions.

Medico-Literary Notes.—A book by E. Bonavia, M.D., has just been issued by the Longmans, on studies in the evolution of animals, taking into account the markings of animals as well as their coloration.

Cruden labored nineteen years on his "Concordance to the Bible," and immediately after its publication was sent to an asylum. He never entirely recovered from the mental disease induced by this gigantic undertaking.

Dr. Conan Doyle lately confessed to the London Authors' Club that he first began to write to get a little money to pay some bills. For nearly ten years most of his manuscript came back to him by return of post. His first profitable article was for a trade paper. Dr. Doyle says the choicest moment of his life was when Thackeray patted him, a boy of five, on the head and praised him. His last book, called "Rodney Stone," has a good deal in it about the fistic science, which was in its prime about a century ago.

Messrs. Thacker, Spink & Co., Calcutta, publish a new edition of "The Indigenous Drugs of India," which has been produced by the Rai Bahadur, Dr. Kanny Lall Dey, in association with Mr. William Mair. Fifty copies of the book have already been purchased by the government of India. The work is dedicated with permission to the Pharmaceutical Society of Great Britain, of which Dr. Dey is an honorary member, and extends to over 400 octavo pages. It will be published in London within the current month.

Among the various devices now being tried to relieve Guy's Hospital, London, of its financial difficulties, is that of raising a sufficient sum to permanently endow a bed in memory of the poet Keats, who served a short time there as a medical student.

In Huxley's "Autobiography" he stands up for truth as greater than facts, and life than information. He says, "Life seems terribly foreshortened as they look back, and the mountain they set themselves to climb in youth turns out to be a mere spur of immeasurably higher ranges, when, with failing breath, they reach the top. But if I might speak of the objects I have had more or less definitely in view since I began the ascent of my hillock, they are briefly these: To promote the increase of natural knowledge and to forward the application of scientific methods of investigation to all problems of life to the best of my ability, in the conviction, which has grown with my growth and strengthened with my strength, that there is no alleviation for the sufferings of mankind excepting veracity of thought and of action, and the resolute facing of the world as it is when the garment of make-believe by which pious hands have hidden its uglier features is stripped off."

The Medical Chronicle is the title of the medical journal conducted by the faculty of the Owens College, Manchester. This college will open its winter session on October 2, and Mr. Jonathan Hutchinson has consented to deliver the introductory address, in the physiological theater of the new medical buildings.

Mr. C. C. Bell, in *Chemist and Druggist*, writes of the medieval names of drug plants. He says many of the English names occur also in Lyte, Gerard, Parkinson and the other old herbalists, and a considerable number are still in use, but these are not now in every case applied to the same plants as formerly. Gerard gives others of them in his list of obsolete names, but when these are deducted a good many still remain which had gone out of use before he wrote. Among these are some of especial interest. Donnhoof (spelt "donnhove") is one. It is the same as coltsfoot, "donn" or "dun" being an old name for horse, whence comes "donkey" or little horse. "Wowel" and "feldhove" are names given to the same plant. "Cetewale," which the glossaries give as English for "zodoar" (zedoary, a species of tumeric), appears in Lyte and Gerard as "setwall" a name for valerian; Chaucer, in "The Millere's Tale," names it along with licorice. Wermode in these glossaries means "wormwood" and is the correct form. Skeat explains it as "waremood" (preserver of the mind); Mr. Mowat, with greater apparent likelihood, says it is "waremoth" (preservative against moths). This certainly accords with the French *garde robe*, and with our old rhyme:

> "Where chamber is sweeped, and wormwood is thrown,
> No flea for his life dare abide to be known,"

which, however, Mr. Mowat does not quote. Wilde keyn, again (which appears in the glossaries under vicus quercinus, and is evidently an echo of the French qui de Chene), is not in Gerard. Other names calling for particular mention, some of which appear in Gerard and some not, are "groundswile" (ground-swallower), an appropriate name for so prolific a weed as groundsel; "wymalve" (French guimauve), for mallow; "hepebrede" (hip-bread, for dog-rose; "horse heal," for elecampane; marygold is called "yellebotel," or yellow-bottle. Shepherd's needle, which Gerard calls "ladies' combe," is glossed less flatteringly as "pouclesnedele," which, on the authority of a quotation in Halliwell, may be taken as equal to devil's needle; dandelion (dens leonis) as "doleronue;" hollyhock as St. Cuthbertscole; bryony as "wildnep;" burdock has given to it the name filantropos, because its seeds stick to men's clothes; duckmeat appears in a particularly interesting form as "cibus anatis, ang. enedechede" (a clerical error for "enedmete, "ened" being an old name for duck). Similarly "paddocstol" recalls the old name for frog or toad. "Cold as paddocks though they be, Here I lift them up to Thee," says Herrick's child of her hands in her "Grace before meat." "Aleon" are distinguished as of three kinds, cycotrium, epaticum and caballinum. Opium appears as "opium Thebaicum" (indicative of its geographic source), glossed "succus papaveris albi" and "opium miconis, succus papaveris nigri."

The entry immediately followlng this is a sad muddle, being "Opium quirrinacium, lesera, quilleya, succus iusquiami, idem." This is in "Alphita." In the "Sinonoma" "opium quirrinacium" is glossed "assfoetida idem;" what "quilleya" is, it is impossible to say; "iusquiamus" is henbane. This is only one instance of many hopelessly confused glosses. White, black and red poppies appear under their respective Latin names, and of the second we are told that diacodion is made. Nothing more is said of their use. Cowslip appears under "paralisis herba" as "cousloppe," meaning cowdung, a not very poetical name; "endyve" is under lactuca. The glosses on dracunculus are interesting as specimens of the fancifulness of our forefathers: "Dracuncia, asclepias, viperina, pentaria, serpentilla, colubrina, basilica (basilisk), cocodrilla (cockatrice), idem gallice et anglice, dragaunce" ("in English, dragons," says Gerard, who gives an equally long, but different, set of synonyms from Epuleius Barbarus). "Mandragora" as described at length are of two kinds, male and female; no other name ie given to it. "Sene" (senna), again, has as yet no English form; and it is interesting to note that both these plants are mentioned by Shakespeare in the form here given. "Zinziber" also appears only in this form, and rhubarb only as reubarbarum.

Hospitals.

New Post Hospital for Fortress Monroe, Va.—The Government will build a new hospital to cost about $20,000. Plans for the hospital have been received, and the work will be let by contract after thirty days' advertisement.

Pennsylvania Hospital Annual Report.—The managers of the Pennsylvania Hospital have issued their annual report, showing that in the Pine Street Hospital the patients remaining in May, 1895, numbered 210. New patients received in the year to May, 1896, were 2,408; remaining at latter date, 186; beds occupied, 2,618. A large amount of work was done by the out-patient department, the visits aggregating 46,197. In the department for the insane the figures for the year were: Women, new cases, 88; discharged, 82; remaining, 233; men, new cases, 77; discharged, 91; remaining, 181; total treated, 587; remaining, 414.

A Cottage Hospital at Proctor, Vt.—A new hospital at Proctor, Vt., was formally opened on August 8. It is a modern building, a short distance from the center of the town, and arranged to accommodate ten patients. The first story has an accident and operating room thoroughly equipped with modern surgical furnishings. One of the wards is also on this floor. The domestic and executive arrangements are all in the second story. The hospital has been built and equipped by the Proctor Marble Company; and while primarily intended for such of the employes as may need its services, it is to be open to any person in the village. The management has been placed in the hands of a committee of townspeople. The district nursing in the town, which is already completely established, is now to be done from the hospital by its training school. The attending physicians thus far appointed are Drs. J. M. Hamilton of Proctor and H. H. Swift of Pittsford.—*Boston Medical and Surgical Journal.*

Philadelphia.

Dr. B. Meade Bolton, Director of the Bacteriological Laboratory, wishes it to be distinctly understood that he is not responsible for the recent establishment of the plant in the City Hall for the manufacture of disinfectant solution, known commercially as electrozone. The tests which have been alleged to have been made in the city laboratory he states were not made by him or under his direction and that he has not had anything to do with testing, reporting or publishing anything in regard to the matter, which is understood to be under the supervision of the City Board of Health or some of its officials.

The report of the unsanitary condition of the League Island Navy Yard, arising from the fact that cases of typhoid fever have occurred recently in several vessels which had been fitted out at this place, has led to an investigation which is now in progress by the authorities at Washington. The Board of Health has not been able to find any case of typhoid fever at the station or within several miles of it. The water supply is not derived from the city pipes, but from cisterns filled with rain water so that the infection is not due to the use of water from the Schuylkill, and there is no great prevalence of typhoid in the city at present.

THE PUBLIC SERVICES.

Army Changes. Official List of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from Sept. 19 to Sept. 25, 1896.

A board of officers is appointed to meet at the Headquarters Department of the Missouri, Chicago, Ill., on Monday, Oct. 5, 1896, at 10 o'clock, A.M., for the examination of such officers of the Medical Department as may be ordered before it to determine their fitness for promotion. Detail for the Board:

Lieutenant-Colonel Albert Hartsuff, Deputy Surgeon-General.
Major Henry Lippincott, Surgeon.
Captain Norton Strong, Assistant Surgeon.

The following named officers will report in person to the president of the examining board appointed to meet at Chicago, Ill., on Monday, Oct. 5, 1896, for examination for promotion:

First Lieutenant Henry C. Fisher, Assistant Surgeon.
First Lieutenant Henry A. Shaw, Assistant Surgeon.
First Lieutenant Charles F. Kieffer, Assistant Surgeon.

Major John V. Lauderdale, Surgeon, will upon the arrival of Major Egon A. Koerper, Surgeon, at Fort Crook, Neb., repair to his home and await retirement.

Major James P. Kimball, Surgeon, is relieved from duty at Fort Wingate, New Mexico, and ordered to Fort Columbus, N. Y., for duty, relieving Major John Van R. Hoff, Surgeon. Major Hoff, on being thus relieved, is ordered to Vancouver Barracks, Washington, for duty, relieving Captain Rudolph G. Ebert, Assistant Surgeon. Captain Ebert, on being thus relieved, is ordered to Philadelphia, Pa., for duty as attending surgeon and examiner of recruits, relieving Captain William W. Gray, Assistant Surgeon. Captain Gray, on being thus relieved, is ordered to Fort Apache, Ariz., for duty relieving First Lieutenant Irving W. Rand, Assistant Surgeon. Lieutenant Rand, on being thus relieved, is ordered to Fort Clark, Texas, for duty.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending Sept. 26, 1896.

September 23.—Passed Assistant Surgeon G. A. Lung, detached from the "Vermont" and ordered to the naval hospital, Chelsea, Mass.
Passed Assistant Surgeon H. D. Wilson, detached from the Chelsea, Mass., hospital and ordered to the "Bache."
Passed Assistant Surgeon G. H. Barber, ordered to the Naval Academy.
Assistant Surgeon M. K. Johnson, detached from the "Bache" and ordered to the "New York."
Assistant Surgeon F. C. Cook, ordered to the "Vermont."

Change of Address.

Butler, T. J., from Chicago to Lockport, Ill.
Case, C. E., from Tacoma to Everett, Wash.
Johnson, C. W., from 625 Locust St., to 2309 Locust St., St. Louis, Mo.
Todd, F. Walton, from Coronado to Camp Capitola, Santa Cruz, Cal.
Taylor, P. K., from Kingston, R. I., to 211 W. 139th St., New York, N. Y.
Walsh, T. G., from 330 Grove St. to 369 Greenbush St., Milwaukee, Wis.
Wiggin, F. H., from Littlefield, Conn., to 55 W. 36th St., New York, N. Y.

LETTERS RECEIVED.

Alta Pharmacal Co., St. Louis, Mo.; Allport, Frank, Minneapolis, Minn.; Adams, A. L., Jacksonville, Ill.
Bernd, Henry & Co., St. Louis, Mo.; Bourns, F. S., Atlanta, Ga.; Benjamin, D., Camden, N. J.; Bumstead, J. E., Dundee, Ill.
Dewey, Richard, Wawatosa, Wis.; Drevet M'f'g Co., The, New York, N. Y.; Douglas, Richard, Nashville, Tenn.; DeCourcy, J. O., St. Libory, Ill.
Epley, F. W., New Richmond, Wis.
Feiel, A., Columbus, Ohio.
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LECTURE.

MEDICAL EDUCATION.

Opening lecture delivered at Rush Medical College, Chicago. September 29, 1896.

BY EDWIN KLEBS, M.D.
PROFESSOR OF PATHOLOGY.

Ladies and Gentlemen: The wish expressed by my new colleagues that I open the lectures of this new year of medical instruction by some considerations of our work, laid upon me the somewhat difficult task of explaining my opinion, in a foreign language, on the organization of schools in this country, with which, also, I am not yet perfectly acquainted.

You must not think that this will be a confession of my ignorance of American history and institutions. On the contrary, I have always, from the time of my youth, inspired by the treatises of Ralph Waldo Emerson, loved this land. At the time of the great civil war I eagerly studied the work done by your fathers, who, destitute of everything necessary to carry on a successful war, decided to live or die for liberty and humanity.

I was astonished at this time to acknowledge the origin of a new war hygiene, later further developed in the great wars of the old country. Comparing the great losses in the Crimean war, which preceded the American civil war, with those of the Franco-German war of 1870, you will not fail to see the great progress in this new field, principally, as I think, effected by the distribution of the wounded and sick over vast areas, by means of the mighty streams.

It seems to me that the American people, impelled by urgent necessity, became more and more inventive, and learned more in a few years than it would have learned in centuries without that impulse.

The wonderful development in this land that you all know, from your own experience, now followed during the short period of twenty to thirty years. All facilities were enhanced by the confidence in the restored Union; enormous wealth and prosperity, such as were never known before in history, were arising from the soil of the new land.

Naturally, then came depression. In the restless strife for improvement many things, without which a people can not be happy, were not taken into account. I only mention the devastation of woods, threatening a change of clime, unless replanted systematically, an injury not otherwise to be remedied.

Political and financial influences have more and more increased the internal difficulties, so that now will come a time when the labor of the whole land will be required to sustain this prosperity.

But how will the people endure this change of conditions, the irreparable loss of so many facilities? I think that they will accept the new position, the harder strife for life, the conditions of life impaired and narrowed also by the competition of the whole world. This confidence is based in the first place, on historical facts. A people who have surmounted the hardships of a civil war will find a method also in this harder time, but in another way.

Not the pioneer and the digger, but the teacher and educator will be the leaders in the new course. Science will be the aim and purpose.

The educational question now moves the whole world. European civilization based wholly on the old classic traditions of Rome and Greece, has reached, especially in Germany, a standard in classic education which seems to be incompatible with the claims of modern life. Natural science will more and more supplant the ancient literature and the modern philologist finds that the modern languages have attained a higher certainty and clearness by which to express the modern thoughts than the dead languages now occupying nearly the whole time of the scholar.

The reform of higher school education now commencing in Germany, will save our conntry from imitating the so-called classic studies. Let us fill the mind of the child and the youth with a broad knowledge of earth and heaven, of living beings and dead material, of human life and thought, history and philosophy, so that they may understand the coming life and be able to distinguish the good and the evil, the just and the unjust; religion and morals must have a prominent part in this system of education. What I wish to say is this, that for the young man or woman willing to devote themselves to medical science, a non-classic education is quite sufficient. But the requirements of preliminary education necessary for admission to our colleges, seem to be totally insufficient. Unless certain literary colleges have been attended, an examination in writing, in the branches of a good English education, including algebra as far as equations of the second degree, the first book of geometry, English composition, elementary physics and the elements of the Latin language should be substituted; chemistry and physics will be taught in the freshman year.

I do not find in the program the descriptive natural sciences, the natural history of plants and animals, the geology and mineralogy, which contain the elements of so many parts of the medical science, not to speak of knowledge of human history, art and thought. I am quite sure that a great number of our pupils have completed their education in these directions, but I doubt if that is the case with everyone.

I do not pretend to propose reformations, but I do hope to find the young men better educated than the scanty requirements for admission to the leading medical colleges lead me to believe.

For comparison, I will give a short outline of the requirements in German universities, in natural history only. The young men entering the university have learned a great deal of natural history at the

gymnasiums, but before commencing the medical studies they must spend a whole year's course in natural sciences, such as botany, zoology, chemistry and physics, including practical work in microscopy and the chemic laboratory.

If we look at the schedule of Rush Medical College we will perceive that in the freshman year no more than 745 hours are devoted to study, in the following three years from 870 to 1,036. I think that one could very well dedicate 150 to 200 hours to the study of botany and zoology in the first year. But this, as other practical questions, must be considered at another time. Furthermore, I would wish for a certain knowledge of the German and French languages, already required by the Johns Hopkins University, also some ability in drawing. Without knowledge of these modern languages the medical student can only make use of the English literature and translations from the German and French, but as the greatest part of medical literature and the most valuable is published in periodicals, the student can not fully understand the medical literature of his time without this knowledge of modern languages. As the development of science is a very rapid one, scientific work is not possible without personal literary study.

But we have given enough detail on medical teaching. Let us now look at the American students and their qualifications for this science. As I have had many opportunities to teach Americans in European laboratories, I am prepared to speak upon that point with due reservation. First I will say something about the ladies studying medicine abroad. The greatest number I had in Zurich were Russian or other Slavs, German, Swiss and American. The best prepared for study were Swiss, American and German. In diligence they surpassed nearly every male student and as far as memory is concerned, it was very difficult for our male students to attain better marks than the female in the examinations. In the anatomic and microscopic work, over which I made personal observations, I found American ladies among my best workers; in the composition of publications there were some differences, however, depending more upon the personal character than upon mental faculties. One lady whom I highly esteemed for her assiduity and very clever work, labored somewhat under a too much developed pride, declining every help in the composition of her paper, which, based upon delicate microscopic researches, would have made more impression if the points and the deductions had been more thoroughly discussed. I do not know if that was a personal propriety, but I can understand that a woman prides herself on independent work; this pride can be a very good support in the hard work awaiting the doctress. I shall ever remember another American whom I had the pleasure to aid in her original work, as the best example of a medical student, fitted to do any scientific work. In this direction I must give the American ladies the first place and I hope to see here the same attainment in practical medicine.

As to the qualification of American men for scientific medical work, there can be no doubt. From my youth to the present time I have had many opportunities to come in contact with them as a teacher, and can openly express my opinion, that they would not, in any way, remain behind any other people, only being handicapped by their preliminary education and imperfect knowledge of foreign languages. But these slight defects were compensated for by a burning zeal for learning. My first experience dates back to the early sixties, when I was assistant of Professor Virchow. My first pupil, a man as old as I, was a Californian and showed, perhaps, more enthusiasm than your Eastern people, but I will never forget his open-hearted joy, when he understood a difficult matter, explained by the inexperienced teacher, in pretty bad English. And I have made the same observation, repeatedly, through a quarter of a century. All young Americans that came to me for study, were brave, joyful, enthusiastic people, but sometimes a little deficient in school education. They have all been my friends.

You, probably, all know the cause of these characteristics. The American life is a practical one, and the arts and sciences, here, come in second place. But I am sure this state of things will change before long. Deficiency in education is more and more improved and there are many men of the highest and most refined education in liberal arts and sciences. One of my friends in Germany, a learned man of high standing, a deep critic of Göthe, stated that he was astonished by American visitors, oftentimes finding that they had the most profound understanding of German literature and philosophy. That is a good indication of what can be done by your people in medical science also.

In medical practice we can certainly meet any competition, but not in medical science. The reason for this is to be found in the organization of our medical schools, which I have already touched upon. I understand very well that these organizations resulted from compromises and that under given circumstances, for the moment, higher attainments could not be demanded without driving a large number of students into the hands of so-called medical colleges, which one of my friends designated as "paper mills," a shameless scattering of diplomas for money.

Regarding these facts I can not find a better remedy than to place the higher education in the hands of the Federal Government. This would present many difficulties, as I know from my experience in Switzerland, and I would not like to interfere in practical questions. But we can take these matters out of the hands of the government and regulate them. By "we" I mean all good citizens who find that the prosperity of the country depends upon the education of the people. Very much is done in this direction. For our prominent scientific institutions are founded by private individuals, by donations, often rich men restoring a part of their earnings to the people, the well-conducted work of whom has procured these means. A political economist in Germany has named that the "inheritance of the people." "To give is more blessed than to receive," said Jesus, the greatest socialist. Yes, we will bless these rich men who will help in the education of the people and perhaps prevent the day of wrath. But not alone to the rich people should the appeal be made to assist in the educational question. Every physician, every patient is interested in this work and can afford to promote the higher medical education. I am sure the generous American people will favor progress in higher scientific education.

Here arises a very important question: Is the efficiency of such institutions for higher learning assured by money alone? Can money buy such institutions, as it can buy railroads or steamships?

The success in original scientific work depends more upon the worker than upon the external conditions of work. In my youth I have seen Helmholtz, the great physicist, work out his great discoveries in optics with the simplest means, and calculating with a child on his lap. The great mathematician, Gauss, when asked how he had found his new methods enormously enlarging mathematic conception, replied: "By repeated thought over the same matter." So we see that the personal conditions for scientific work are given everywhere, if there is a quiet place for thinking and men apt for this work. An exceptional mental faculty is not necessary for this, as not every learned man needs to be a genius. Continuous work is sufficient if the right way is laid open. Such indicators (Wegweiser) guiding the seekers after knowledge will arise in every country where learning is esteemed and supported.

I have experienced a striking example in my own life. I came to a university, in a land where science was not much developed, but proud of its great political power in a past time. This aristocratic people, with high self-consciousness, resented bitterly that so many strangers were called by an intelligent government to fill the chairs at the university. Some wished to injure the intruders, not personally, but by diminishing the number for instruction. A politician of high standing was induced to promote the attack, which would be adverse to the development of the university, when one of the professors opened the eyes of this political leader, showing the true aim of his associates, by saying: "You, as a liberal and reformer can not support an action against natural development. Give good seed to the soil and you will see good fruit ripen. Learned men can not be found everywhere. Take what you have and you will see, that in some generation, you will have enough support from your own countrymen." Thereupon the good man ceased to support his tempters and the chairs of the university are now, after nearly thirty years, occupied by a great number of native teachers, universally acknowledged to be of the highest rank.

What I wish to show by this experience is that higher study needs a thorough cultivation, continued for a long time. It is the same as with the cultivation of plants. If King Probus had not planted the grapes on the borders of the Rhine, the Rhine wine would not have won its world-wide celebrity. I tasted the California wines some forty years ago and I was not pleased with it, but now it is quite a different thing.

As we can not reform the whole system of higher education at once, we must commence slowly, warming and protecting the delicate plant sown in a soil in which, as yet, other plants, industry, farming, business of all kinds have grown so luxuriantly. If the soil commences to be exhausted by the one fruit, the good farmer will plant another. Science is a plant that has borne very good fruit in old Europe, why should it not develop here, when a young, fresh people, free from many prejudices of the old world, will strive to win the first rank in the great problems of the human mind?

But how shall we promote strong scientific work in our department, the medical science? In the first place you must change your opinion on the tendencies of the college or university. It does not suffice to have excellent instructors and well educated pupils, but we must have the will to give or receive more than medical instruction, sufficient for medical practice, or only for the examination. That would be the office of a high school or a university, in the sense of German universities. More than in other countries, you will find that these institutions are founded not only for education, but also for observation.

The difference between a school and a university is not always comprehended as it should be here, nor in Europe. As a young professor, I often spoke with business men about the difficult task of a university professor, but they did not understand me. "Oh," one said, "I think, in the first year, that it may be very difficult to lecture so much, but later one learns that." This is only too true, many professors learn to repeat the same lectures, and very amusing anecdotes are told in Germany about teachers accustomed to do this. One of these learned professors, reading his lecture absent-mindedly, also read the foot-note: "Here I like to make a joke." But I can assure you that this sort of professors died out, and from that time the acknowledged glory of German and other universities commenced to fill the world and attract people from every country. By these remarks I do not mean to say that German universities are perfect. As the devil always sows weeds among the wheat, so there the high position of professorship has attracted many inferior people who rely more upon protection than personal worth, and the egotism of many professors goes a little too far. Where there is much light there will also be shadow; but at all events we can look to German universities as the best examples of our scientific schools.

The first object of these schools is, and must be to educate the pupils to scientific and practical work. We must educate them to be independent observers, for a physician must have this quality, and without it he will not enjoy his task. He may fill his position very well, operate and prescribe, but if he does not look at his patient with the eyes of an observer he will fail to see many features of the highest importance. To the superficial physician not trained to careful observation, one case looks like another and he will be astonished if the expected effect of a certain remedy does not appear. It is, as with a savage people or a flock of cattle to the unexercised eye, they seem to be all alike; the observer, however, if he be an experienced traveler or a cattle grower, will see the differences. Certainly the good physician will learn, in the office and at the bedside, what he has not learned at school; but it would be better if he would go out into the world wholly instructed and experienced. Scientific work, done while a student, will aid the practitioner.

Hoping that you are convinced of the great importance of this truly dominant question, I will add some suggestions as to what should be done in this direction. First, every laboratory should be so arranged that a certain number of students and also of younger graduates could work, not in learning the elements, those must be understood, but for original scientific work. The smallest problem which we attempt to solve brings with it more elucidation than the reading and memorizing of a whole text-book. I fear that in our method of teaching learning, memory is too much relied upon, recitations prevail and not discussions. With young people, working on problems, there must be more discussion than recitation. I prefer a student who does not know so many facts, numbers or figures, but who understands the connection of facts

and how to make conclusions from the known to the unknown.

In the laboratory opened for the work of students, it is not necessary to give long lectures but to discuss the matters in a conversational manner.

Whoever is farther advanced in his work, will come and expound his results to the teacher and his colleagues. From the discussion new thoughts will arise not before given by the teacher. The scholars can learn without feeling that they are being instructed. I hear that such a system has been commenced here in private primary schools; if it is practicable with children, why should it not be with thinking men?

But in this matter another side is to be taken into consideration. If we have such laboratories who will work in them? The student is busy the whole day and the young physician must oftentimes attend to making his living. I do not think that people are poorer here than in Germany, where all this is done, but if so, the means for such work must be found and I do not doubt but it will be. In German universities we have so-called stipendia, which enable the poorer student to continue his studies, and beside that, we do not want to have medical proletarians (a very good word of Billroth). Whoever undertakes this noble study should first find the necessary means. The poor should not be excluded, but they must show the true qualifications.

For the young graduates, working to perfect their education, I would recommend the two appointments which, in my opinion, have made German universities great; first, the doctorate, obtained by scientific work; second, the private university teachers (Privat-Docenten).

The title of doctor, historically, means more than that of physician; it expresses a scientific qualification, shown by original scientific work. For that degree the publication of a dissertation is required, that is, a scientific treatise and theses, scientific questions which the applicant will defend in free debate against every one.

This venerable practice has been, as all human things, liable to deterioration, but it has influenced, in a very ostensible manner, the high standing of the profession. Innumerable students of medicine have been compelled, by this custom, to do original work, or treat clinic observations in a historic and critical way. Certainly the dissertations have awakened many literary talents which would have slumbered without this incitement.

Graduation or examination is necessary for the *Doctorat;* the latter is intended to show the qualification for scientific work and teaching. It is therefore indispensable for every physician teaching in a medical faculty.

The private lecturer, privat-docent, is a position quite unknown in English and American colleges; in France the professeur agrégé occupies nearly the same position. The title privat-docent is conferred by the faculty, on application, for a certain branch of science. He lectures in the same manner as the professors, mostly supplying gaps in the regular lectures or giving lectures on special parts of the science, elaborated by his own work. Many of the private lecturers are assistants, and are given the opportunity by their chief to deliver special courses. Without going into particulars, one will see that this institution is highly adapted to the education of professors.

I wish to submit this institution of private lectures to the earnest consideration of leading men in this country. Having so far only touched upon the student epoch of medical men, we can not make the whole importance of this discussion quite clear if we do not explain the standing of our profession and science in public and private life.

The profound change which our science has undergone in the last century will be made clear by some historic references. In the earliest times medicine was in the hands of the priests and based only upon occasional observations such as were made by the people. Hippocrates destroyed the secret and put these ideas into systematic order. The observation of facts became controlled and the work of physicians subjected to general rules, governed always by moral laws, highly appreciated at all times by the true physician. Since that time the work of the physician possesses a sacred feature. The patient needs to rely, with full confidence, on the knowledge and the truthfulness of his physician. He must know that he can not be deceived, although errors can not be entirely excluded. If the physician has any doubts consultation may be sought.

The medical profession must be so organized that it will be the best for the public. Quackery and evil conduct are more contemptible than in any other occupation. Where the government does not protect the medical profession it must protect itself, as is done here by the code of ethics, accepted by the AMERICAN MEDICAL ASSOCIATION.

This organization, securing the interests of the public as well as of the physicians, has sometimes roused distrust rather than confidence, but a thinking man will congratulate himself for having a medical profession caring for its honor. This position of the profession seems to be one of the principal features which attracts the young men to our lecture rooms. The practice is not so lucrative as in the old times, when one would say "*dat Galenus opes.*" The sense of humanity forms another attraction to the medical science; if the physician can help, he is loved as a god, and to the incurable he can always bring comfort and diminish their suffering.

In our time, in which the strife for gain seems to reign, the people have double interest that our profession preserve these feelings, and I hope that the public will support them. It will be to the interest of the patient that he follows obediently the prescriptions of his physician. I have seen so many patients ruined by their feeble, distrustful character, changing from one physician to another, thus losing the best time in which they could have been saved. But, on the whole, I have found the American to be an excellent patient, not excited, not nervous, but quietly doing and sustaining whatever was necessary. I have never elsewhere seen so much courage in enduring pain.

But the position of the physician in our time must be looked upon from another side. The change in the medical principles, effected in the last thirty years, is so enormous that weaker minds could not follow. On the whole, one can say that the younger generation has fully adopted the new theory of the bacterial causes of disease, though not always willing to make the necessary deductions.

How great this change was may be shown by an example. The two pathologic conditions, which alone nearly governed the old pathology, were "fever"

and "inflammation." The seething of bad humors or juices in humoral pathology, the struggle of the soul, the Archäus of Stahl, through many centuries formed personifications of disease, very apt to be attacked by the zealous physician, who mistook the signs or symptoms of the disease for the disease itself. Under this delusion such things as "essential fever," or fever in itself were spoken of. Later, under the auspices of a more developed physiology, one tried to explain these phenomena by the doctrine of irritation. Albrecht von Haller has shown that irritability is the general property of all living substance, a property consisting in the outbreak of the genuine activity of the organ, after an external influence has acted as an irritant. So the muscle will contract, if it is acted upon by mechanical, electric or chemic influences in the same manner as it does when irritated by its nerves through the action of the brain or by an electric current. The action producing the irritation can be of very different nature, the effect produced upon the body is always the same. You will understand this if you think of the works of a clock moving in the same manner, whether its spring or pendulum be put in action by the hand, by an earthquake, or by removing a hindrance.

This theory seems to best explain the two symptoms governing, or of disease itself. From Broussais to Virchow this explanation prevailed, giving very good indications for therapeutics. If the irritability of an organ or the whole body is increased, one has recourse to remedies of a soothing, mitigating action; if the irritability is deficient, one must irritate; if the two processes do not help, according to the doctrine there only remained the counter-irritation (contrastimulus). If, for example, an inflammation of a knee-joint was treated without good result first with cold later with warm poultices, there remained only a counter-irritant, the burning. The consequence was that old country women, shepherds, etc., sometimes had greater success than learned physicians.

This inadequate doctrine was destroyed by pathologic anatomy, which, from the end of the last century, was more and more developed in Europe, first in France and England then in Germany. After many great predecessors, Rudolph Virchow developed a new doctrine which seemed, at first, to cover every logical desire, namely, the cellular pathology.

This doctrine showed the composition of the body to consist of a great many living organisms, the so-called cells, bound together by the common action of vessels and nerves. This theory disclosed manifold processes in disease, in their minutest details; it enriched our knowledge, but it did not advance our therapeutics; to the action of cells was confined the regulation of irritation. So the cellular pathology was thought to have found in the action of the cells, the whole essence of disease, and the question, Why do the cells act in an abnormal manner? was asked no more.

For Virchow and for many of his pupils and followers, the question of cause did not exist. He declined to go farther, with the oracular answer of a sovereign, "We can not know all things."

I admire R. Virchow very much, having been for a long time his pupil and assistant, having learned from him the finer distinctions of pathologic processes. I acknowledge that he has enriched pathology more than any one else before him, but he did not have the right to command a stop to all other progress in our science. The word "why" must always be used, if the knowledge does not cover the whole truth and does not explain the cause of action.

Already a new dawn announced the bright day of our present knowledge. Medical historians and geographers remembering the spread of the great plagues, and enlightened thinkers, as Henle, had, contemporaneously with Virchow's cellular pathology, proclaimed the theory of the external origin of contagious diseases, from living matter, the germ theory hinted at in oldest popular medicine. The microcosmos were opposed by the macrocosmos in pathology.

In our time the investigations in this direction had commenced, first without regard to pathology. Pasteur had detected the origin of fermentation due to microbes, destroying the physical contact-theory of Justus von Liebig. But Pasteur declared, fearing to oppose the dominating school of pathology, that these discoveries had nothing to do with pathology. When later, in the seventies, he transferred the germ theory to pathologic questions, he had to suffer many persecutions, as I know from his own mouth.

Already, many years before Pasteur recognized his error, the parasite of anthrax was found by two German observers (Pollender and Brauell), but were, by all leading men, declared as inorganized, or if bacterial nature was conceded, as consequent to the disease or organisms developed in the dying animal.

A sort of madness seemed to have controlled the defenders of the old doctrine, so that even the excellent experiments of Davaine did not change the minds of stubborn *doctrinaires*. Davaine isolated these organisms and showed that a single one was sufficient to infect and kill an animal. The development being first local, at the place of implantation, and the general infection could be prevented by destroying or extirpating the infected part.

Lister developed the same idea, the external infection in wounds, and commenced a reform in surgery, which was more and more refined and perfected later.

At the same time I demonstrated the propagation of certain bacteria in the internal organs of the body after they had found entrance through natural openings or through wounds. The abundant material of the Franco-German war of 1870 gave me the opportunity to show that these organisms, while spreading in the organs, always precede the cellular derangements. Cultures and infection of animals in these and other cases of infectious diseases showed the causal nature of, probably, all contagious diseases. By separating the bacteria from fluids, in the cultures, by filtration, we could demonstrate that only the bacteria produced the disease. It was shown by Tiegel, my assistant, and later in Tokio, that the fluid had only toxic influences (1871 to 1873).

I also was very vigorously attacked from all points, especially from the medical side, whereas other learned people, such as Tyndall, were convinced of the importance of the new development in pathology. Certainly many imperfections, unavoidable in a new research, may have given some reason for criticism. The later researches of Robert Koch and others decided the battle on the fundamental principle in pathology. This can be pronounced in the following thesis: *Disease is the struggle of two organisms, the one invading the other.*

If I have explained my opinion clearly enough you will see what can be done for scientific medical education. By my lectures, which I will give in this

college, I will attempt to inspire the student to do original work, which is the only way to promote the scientific standard.

ORIGINAL ARTICLES.

A MEDICAL ASPECT OF CRIME.

Read in the Section on Neurology and Medical Jurisprudence, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5-8, 1896.

BY A. C. CORR, M.D.

CARLINVILLE, ILL.

Aside from the uncivilized barbarism that would induce a barbarous or half civilized person to commit outrages on the individuals of a neighboring tribe or state while practicing obedience to his own tribal laws, there are exceptions in which the individual is not true to his own tribal or state laws. These he continually violates, through some unknown impelling force that makes him act in utter disregard of the good, safety and comfort or all. This latter violation is usually called crime.

Now in all the mutations of the silent revolution that has wrought so wonderfully since the debut of an organized Christian civilization, we have room for so many different phases of a variation of progress that we have amid a high Christian civilization, great irregularities in which individuals are untrue to their assumed, acquired and inherited responsibilities and obligations, and tend frequently or constantly to violate those laws, written and unwritten, which are for the good of all, both living and unborn. Besides this variation as between civilization and barbarism as to the highest types of that which we may call tragic crimes as between nations, there is quite as much variation or want of consistency in our civilized Christian and free country between communities and states. What is a crime in one state or city is not necessarily such in another. What is a crime in one section is not in another, and some things that are a violation of law on one day in the year or week is not on another. Amid this almost inconceivable and inscrutable maze of varying conditions, individual and collective, local and general, we are called on in this ASSOCIATION, established for the well-being of society, to discuss the Medical Aspect of Crime.

As far as the discussion in this paper is concerned it shall be based on the fact, that the brain and the nervous system are the physiologic organ of the mind and intellectuality, and that every grouping of ideational activity, or well defined mental faculty has its origin in the functional activity of brain or nerve cells and fibers, either local as in areas, or disseminated throughout the nervous system, or both local and disseminated, and that *morality*, the ethical sense, the sense of moral uprightness, of justice, of right between men, people and things, has such an origin; that it is a faculty of the mind just the same as the will of the reason, and that as such it is subject to the same laws as the functional activities of other organs; that it is susceptible of being cultivated, of being repressed, of becoming increased by education and activity, of being diminished by neglect and occupation, of being perverted as in diseased conditions manifested in a class of criminals; that it is deficient in many persons to a greater or less degree. In other words there are children, youth, adults and mature persons who are moral imbeciles from congenital deficiency of the moral sense.

This faculty of moral sense or morality is the inhibitory faculty of the mind, the let or hindrance to the human expressions, activity and conduct, modified by the will, the reason, the judgment, the understanding and the impulses and intellectual delusions.

This faculty of morality is the latest and best results of man's long continued culture and its exercise is the highest function of his very complicated cerebral and nervous mechanism.

With this physiologic source and condition of crime before us its treatment is greatly simplified. When amid the mutations in progress of development from barbarism to civilization and advanced christianization, influenced by atavism and connation, the impulse to commit an act is felt that belongs to the criminal calendar, that is, to do that which is in disregard of the rights of others and is hurtful to the well-being of the civil social compact, and is in violation of law written or unwritten, the individual sense of justice and moral uprightness intervenes and inhibits or sanctions the act, just in proportion to the development of the moral faculty of the individual.

Now, would you have crime lessened? Then you should cultivate and develop the moral sense and repress the emotions. I can not give here a tithe of all the details this cultivation would embrace, but certain it is that some code approximately correct should be formulated and put in practice expressly for this purpose. Something that would teach children as definitely to exercise the moral and ethical faculties as there is to teach the exercise and development of the reasoning and intellectual or mathematical. Children should be taught as early as possible *that there is a principle of right and justice in the abstract*, irrespective of any mere religious sentiment or superstition. Each child ought to be impressed, if in no other way, by mere precept in a round of words, that he who has not an average moral perception is a moral idiot and is to be held in apprehension as one unsafe to trust. Lessons in morals ought to be formulated and a spirit of emulation engendered that would cause them to strive with each other to learn the most of them. These lessons should be elementary and advanced and graded in adaptation to the ability of each child to grasp and comprehend them. *And every school of whatever character*, should be required to rigidly teach them; *for the exercise of morality, to the extent of being just and upright in conduct and character, is the best and highest function of the human brain.* In this course each crime should be designated and its heinousness expatiated on and a thorough understanding of its turpitude required, and that its commission and practice would lead to still further immoral practices in the individual, propagate the same or similar practices by inheritance to others. *And over all this ought to be held* the *terror* of *lawful punishment.* For he who can not or will not learn, let him be deterred by fear of pain and penalty and let the seal of disapprobation be placed on every act that violates the least of the moral code.

This much should be done for the individual from childhood up, and should not be neglected, and whatever religious influence that may be deemed proper should be added. If anyone can be deterred from criminal or immoral practices through fear of impaired *future* happiness, by all means give him enough to answer the purpose. It is the practicing that cultivates more than the mere tendency inactive.

At present the public schools in our country, through which most of this grade of work in moral culture must be done, is incompetent for the task. There is among school teachers as well as among the laity in general, no definite idea as to the difference between morality and religion, between moral uprightness and the mere ritualistic processes of a beatific worship.

I once had occasion to investigate this subject among public school teachers in my own State, and I dare say they average with those in other States. Some said morals is a theological question, and if we attempted to teach it in schools it would give rise to religious sectarian wranglings that would impair the harmony and usefulness of the school, and if this or that teacher inculcated his or her moral ideas (religious views) it would create dissension and independence among the patrons of the school because of their varied religious beliefs. One who was in high esteem as principal of public schools said in substance "that the question of how to promote the morals of my pupils has given me a great deal of anxiety, and is a matter I never felt satisfied how to manage, owing to the varied religious views entertained by my teachers and pupils. I have in one school a class of six or seven studying natural sciences, two members of which are believers in the theory of evolution, and it gives me a great deal of annoyance and anxiety for fear they will ruin the morals of the remainder of the class and in fact infect the whole school." Other teachers replied to my queries that they would leave the question of morals or religion to the Sabbath schools, the churches, the sectarian schools and the colleges. There were still others who frankly admitted that the question of teaching morals was not well understood and criminally neglected.

Now, I do not think I misrepresent the great body of divines and religious instructors, including all denominations from pope, priest, bishop, theologic professor and clergyman to pastor, when I say that they are not more systematic and definite in their conception of in what moral uprightness consists and how crime is to be prevented.

Nor has the legal profession elucidated and proposed a better plan than the hurling of statutes and sentences of punishment. Now, what shall I say of the medical profession? Have we elucidated any better or well devised method of defining morals and cultivating the moral sense? In fact I doubt not that when this point is discussed that it will reveal quite as wide a range of different ideas as to the moral sense and faculty of the brain and mind as the classes to which I have referred.

But having to do with the brain as an anatomic organ and its physiologic phenomena, the mind in the abstract, it is our incumbent duty to determine whence the source of criminality in the individual as far as his mental composition is concerned and what additional plans shall be formulated for its prevention. The conclusions arrived at on this point shall constitute a basis for the consideration of the medical aspect of crime.

The moral defect with its criminal tendencies is always congenital, many times hereditary and always modified in a greater or less degree by *environment* and *synergistic influences*.

By *congenital* I mean the inborn tendency, which mental condition is a derivative complex, much like a double decomposition in chemistry, and by which a mental composition is transmitted congenitally that is unlike either parent in moral perception, yet like one or the other, or both in many other respects. This is *congenital* moral imbecility, while an *hereditary* moral imbecility must be like one or the other or both parents.

The congenital variety of mental complex is that in which criminal children are born of amiable parents, or amiable children of criminal parents. Many instances of both varieties I have observed.

Having established in a fairly plausible way that the tendency to crime is inborn and consists in a defective mental composition in which the moral perceptions are weak or deficient and that it may be cultivated like any other mental faculty, it may be well to consider some one or two conditions of environment or synergistic influences that coöperate with a slight or marked criminal tendency to make the criminal. To a large extent all men are creatures of association or environment. Many with only slight tendencies are schooled out of or away from crime. While many are schooled into it who but for such synergistic influences would have always remained guiltless.

Beyond these suggestions I would be recreant to my trust were I not to arraign the liquor traffic as being the greatest despoiler of human morals and well being. While we do in our associated capacity much to school children and youths out of and away from crime, yet we tolerate and perpetuate a traffic that unschools and dissipates much that our well designed efforts have wrought. The use of alcoholic beverages is always to degrade and debase the moral sense in the individual and disorganize society. It never elevates or cultivates a moral sense, but degrades and tends to make criminals just in proportion as it is used. It never sent a child to Sabbath school but has sent many to the penitentiary and the gallows. If a man uses a thousand barrels of it, it does not do him as much good, based on his necessities, as the eating of a teaspoonful of meal.

Its tendency to produce crime and make criminals can be proven by the history of any county in the United States where the sale and use of it has been prohibited for only one year, for just in proportion to the efficiency of the restricted sale and use of the beverage among the citizens will crime and criminality have been diminished.

I do not think that the destruction of the liquor traffic would by any means prove a panacea for all crime, but its synergistic influence amid a degree of moral imbecility is at the present time greater than all other influences combined.

Some eminent medical gentlemen have argued that some one or more organic instincts are responsible for most all the crime, and that a surgical procedure or operation would prevent crime and reform the criminals. The most remarkable contribution to the discussion of this character that I have seen is a paper by Dr. Robert Boal to the Illinois State Medical Association in 1894, entitled "Emasculation and Ovariotomy as a Penalty for Crime and the Reformation of Criminals."

The discussion was made under nine considerations which were practically these:

1. "We are taught by both physiology and psychology that all human beings are controlled in their conduct and actions, and appetencies are expressed

through their organic instincts. Of these, two are of paramount importance. They are love of life and sexual love. The first is the strongest and outlasts all others. Next is love of sex, which dominates human conduct and desires. Its bestowal was wise, but when uncontrolled it is potent for evil."

2. "The greater proportion of the crimes characteristic of the criminal and vicious classes may be traced directly and indirectly to the influence of this uncontrollable and dominating sexual love. The rapes, homicides, suicides, defalcations and embezzlements may be ascribed either directly to sexual love, or to influences associated with it. So well is this understood that when we hear of the cashier of a bank absconding with its funds, or a trusted clerk robbing his employer and betraying his confidence, almost the first comment heard is, 'Oh, there is a woman in the case.' With scarce an exception, there are few vices in the calendar of crime, licentiousness, prostitution, intemperance, gambling and others that are nameless, that are not designated, associated with and maintained by sexual love."

3. "The physical or structural characteristics of the criminal and defective classes are produced, reproduced and multiplied, and perpetuated by intermarriage or sexual commerce of persons of like defects, and we have accordingly the results of living activities of matter or what is called heredity."

4. "By the imposition of the penalty of emasculation and ovariotomy we destroy the capabilities of these defective criminal classes, to inflict injury upon society, thus depriving them of the power of reproduction."

5. "For the purpose of intimidating others from the commission of crime, while neither cruel nor vindictive it is more terrifying and repulsive, next to death, than any or all modes of punishment. The loss of sexuality as a mark of manhood is so utterly abhorrent to all men that it would be avoided if possible by all individuals not hopelessly insane."

6. Practically, "By unsexing all constitutionally depraved convicts we would curtail such production and aid nature in natural selection and the survival of the fittest."

Seventh and eighth considerations are conclusions based on the acceptance of the six preceding referring to the results and effects of emasculation and ovariotomy on the disposition of the individual, and that as a punishment would not excite revenge, etc.

Ninth consideration is a general statement as to range of application of the punishment, to the effect that it might be safely applied to insane persons, cranks and paranoiacs.

To this ninth consideration I have only to ask, Would emasculation and ovariotomy change the delusions of the insane and make them safe citizens at large in society? I have quoted these "Considerations" because they embody an idea that is held by many both in the medical and legal professions. I think the idea is untenable as a whole. I discussed them in a paper before the same society a year later, when I replied to the "Considerations" seriatim. In the discussion of this paper Dr. N. S. Davis of Chicago, said, "I have seen nothing in my observations in human society to make me believe that human depravity is greatly ruled by simply the sexual organs in either sex. That they are capable of exerting a predominating influence in individual cases, as much and probably a great deal more owing to bad training, bad education, bad surroundings than to any inherent vice in these organs, is undoubtedly true, but whether they have any more tendency to produce crime than a man's stomach I very much doubt. I think it has been shown that a well developed dyspeptic is about as likely to go wrong as almost any other class we might enumerate. It is not, in my estimation, the fault of the organs that we propose to *excise* as much as it is a fault in the brain that accompanies them, and if you want to get rid of the tendency to crime you will have to excise some of the cells of the brain, if you can find the proper ones, instead of the sexual organs."

THE PHYSICIAN AND THE CRIMINAL.

Read in the Section on Neurology and Medical Jurisprudence at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5–8, 1896.

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The axiom that the proper study of mankind is man has evidently not long been applied to criminal man, for careful search reveals a striking dearth of records in this regard. Until 1841 nothing worth recording had been done in the special observation of criminals, and the science of criminal anthropology, strictly speaking, was only begun in 1854, and not until Lombroso's work "The Criminal," was published in 1876 did criminal anthropology assert itself as an independent science.

There are several instances where observations have been published as to the characteristics of criminals, but no connected and definite work was done. (Immediately after the publication of "The Criminal," however, numerous works on criminal anthropology were published, especially in Italy.) All the valuable work done in this line is of recent date; good literature in this field is therefore limited, and carries with it the conclusion that the whole subject has been surprisingly neglected, and he who would enter this field of work must find himself somewhat lonely. On every hand, however, there are evidences of an arising interest in this feature of social life. In France, Germany, England and Italy more especially, criminology is fast assuming the dignity that rightly belongs to this important and essential science. In our own country, however, no such concentrated results have obtained, and the study of criminal man is a slighted one and the subject little understood. More striking is this when we consider that such study is not without necessity, for a glance at the census figures of the United States will show a proportionate increase of incarcerated criminals of nearly five times from 1850 to 1890 inclusive.

Year.	Prisoners.	Ratio of population.
1850	6,737	1 in 3,442
1860	19,086	1 in 1,647
1870	32,901	1 in 1,171
1880	58,609	1 in 855
1890	82,329	1 in 757

The number of homicides in 1889 were 3,567 in the United States, in 1895, 10,500. This, too, in the face of the fact that society and the courts and general public sentiment has constantly grown more lenient, and the number of unpunished criminals has largely increased; as for instance, according to Andrew D. White, if the whole number of murderers for the six years last past were in prison there would be 40,000; as a matter of fact there are only 7,300. Neither is

it because we are unaware of the existence of crime, for it is everywhere present; the newspapers of the day flaunt it in our faces, and our own observations make known to us the existence of a large criminal class, which is surely and rapidly invading every department and function of our social and political life. It is not necessary to enlarge upon this unpleasant feature; it is apparent to every one. The condition confronts us; it remains to determine the causes and apply the remedy, and that without delay. These causes are many and various, but it will only be within my province to speak of those which relate to us as a profession more particularly, and seek to determine just what our responsibilities are in this whole field of scientific and sociologic work.

It would seem that a common interest in the study of man in a biologic sense would have elicited the very best efforts of the medical profession, inasmuch as man has always been the humble recipient of all the experimental work of an aggressive profession since its conception, but that such has not been the case is apparent by the very few medical men who have been engaged in this important branch of science. It may be assumed that this was chiefly due to the fact that in the early history of medicine, the profession of that day were so intent upon the problem of cure, a—to them—much more important consideration than man himself. In a less remote period medical men were engaged in the elucidation of theories, and still more recently earnestly in pursuit of man's common enemy, the microbe; not that this work has not been necessary, and of inestimable value to a common progress, but it does seem paradoxic that its prosecution should have so completely obscured its object, man!

Only occasionally had the physician devoted himself to this work up to the time of Sampson, Lombroso, Forbes Winslow, Camper and Lallemant. It is, however, in our own country that the least attention has been paid to this subject, excepting in isolated cases where men like Drs. Arthur McDonald, Jacobi and Flint, and physicians connected with penal institutions have urged the necessity of criminal anthropology as a branch of medical work. This has been, however, so fragmentary and unclassified that it has not assumed at any time an organized effort in this direction, and therefore has elicited little interest and accomplished less; but the rapid advance in this work recently made in Italy, France, England and Germany, and the alarming ascendency of crime, so diametrically opposed to the progress of our time, the inability of our present administration of the law, and of the penal system to cope with the necessities and conditions of the hour, have forced into consideration of society and government a problem which should have had its solution, or at least intelligent recognition, as paramount to their safety and well being long ago. As it is in the closing years of the nineteenth century with all its marvelous achievements, with all its progress in culture and refinement, society finds itself confronted by a condition which threatens its very existence. Society is finding out that it has nursed or tolerated within its own bosom the upas which may poison it to death. Aroused to a recognition of the fact that such a condition exists, it finds itself in possession of only the crude elements of an embryo science, which to be adequate to these demands must be rapidly developed into one, comprehensive and efficient. Crime and the criminal must receive more weighty consideration by all concerned, or the integrity and strength of our social and political institutions will be subjected (they are already threatened) with serious disaster therefrom. Society has heretofore been content to relegate this whole feature to the courts and the penal code.

It needs no demonstration to show that the modern trial, sentence and punishment of the criminal, so largely based upon assumption and in ignorance of the criminal himself, has measurably failed to protect society from the rising tide of crime. In spite of the exercise of their powers crime has continually and markedly increased. This is in the largest sense due to the fact that the procedures of the courts and administration of law, have based their action upon the theory that its function was first to detect crime, and then to punish it, losing sight of the fact that all men are not alike, and that punitive measures could only be efficient when they take into consideration the individual characteristics and apply the treatment to the criminal's special needs. Intelligent trial and sentence can only be secured when we have a scientific knowledge of the criminal, the nature of his crimes and the natural and social phenomena connected therewith. Such an administration of criminal law can only be obtained by the thorough classification of the criminal into distinct and characteristic types. In the words of Flint: "Before a disease can be treated intelligently it must be diagnosed."

More especially is this true when those types represent physical and psychic anomalies.

I think, in the light which recent investigation has shed upon this subject, that it may be indisputably asserted that crime is often the natural outcome of disease, and that into such causation enter many forms of deviation from the normal standard in both the physical and mental organization represented by arrests of growth, deformities, asymmetries, intercurrent diseases, as well as psychic aberrations and disorders.

This whole subject is at present in a state of chaos, and it is impossible to draw definite conclusions from the data at our disposal; naturally enough as the possibilities of this field have opened up to view, there has dawned upon the consciousness of some the idea that there is such a thing as a natural criminal, and that the commission of crime is not always the result of a long process of evil doing, instituted by telling the first white lie, which precedes the going through of the story book stages of moral decline which go to make up the average romantic criminal. This conception leads them to come hastily to conclusions based upon a few meagre details and incidents, and with many learned phrases rush into print seeking to establish the theory that society has made an awful mistake, and assert that crime is and always has been a disease. A great deal is said upon the subject which clearly shows an utter lack of knowledge and a misconception of the whole subject.

All this grandiloquent flourishing of pamphlets and inclination to rush in where wise men fear to tread might well be expected with reference to a science of less than half a century's growth; neither is this limited to the over-enthusiastic, for even our most careful students and painstaking observers in the enthusiasm of first discovery have made many erroneous statements and drawn conclusions altogether too arbitrary; but when all this cyclonic agitation of high sounding terms has ceased to confuse our senses,

we shall see that these conditions are but the natural accompaniment of the birth of a new science, and that soon from out all this incoherent mass of nebulistic data will be crystallized constructive elements, which when assembled by the skillful and competent men of our time, will constitute a perfected science of criminal anthropology, applicable to the needs of society, and protective of the general welfare. In the study of the criminal there has been a tendency to base all conclusions upon anthropologic data; even Benedict and Lombroso have gone so far as to assert the existence of a criminal brain as a distinct type, which I think is unwarranted by what has been derived from still later investigation. To these extreme views I certainly do not assent, for in the words of Jacobi, "The criminal can not be considered an entity, but as a being possessed of characteristics as various as those of other types of men;" neither would I go so far as Rondeau when he states that "all assassins are patients as are all other criminals." I do not believe that all criminals are diseased in the common acceptation of the term, nor is all crime the result of such disease.

Many criminals are diseased and present anomalies of structure as the cause of crime; there are however criminals who are so from environment, and from the inhumanity heaped upon them by men. There are also criminals of circumstance or accident. Neither do I believe that the rogue can be told from the honest man by the shape of his head alone, or by his physiognomy, or the deformity of his jaws, ears, nose, or lips. or by any other one of the numerous anomalies we find in all types of mankind, and especially in the types representing the lower strata of society, neither have we as yet the data representing the normal type of man, with which to compare the abnormal.[1] When we have we can make more positive statements. It is only by the sum total that an exact estimate can be made that is by a careful consideration of all the anomalous conditions which are grouped in and about the criminal, physically, psychically and socially, and a balance struck between abnormal tendency and inhibitory power that a correct conclusion can be reached. It is the preponderance of tendency which must determine the character of the individual. There is however abundant evidence and well established data to show that crime is largely the natural outcome of disease in the perpetrator, and that by comparison with other men, the criminal class shows a preponderance of anomalous conditions, as for instance, in one of Lombroso's tables of the measurements of the skull we find "that men with normal skulls were three times as numerous among soldiers as among criminals. Of men with a noteworthy number of anomalies occurring together, out of 711 soldiers there are only three or four, there were three times as many amongst criminals as amongst soldiers, and there was not one soldier of the 711 who showed an extraordinary number, say five or more," and the same is true of physiognomic, psychologic, and physiologic anomalies amongst criminals.

As a rule special anomalies do not necessarily indicate special tendencies to certain crimes, but as stated in my paper, "Shall Insane Criminals be Imprisoned or Put to Death?"[2] in the examination of several thousand criminals, I have been lead to believe that, as a rule, when in the inherent criminal the right side of the cranium, that is, indicating the right hemisphere of the brain in excessive development over the left, especially where there is a marked fulness over the paracentral lobe, the possessor's impulses lead toward homicide. I have repeatedly been able to place my hand upon this part of the head of criminals, and designate their crimes to be either assault or homicide without any previous knowledge of their history or themselves.

More recent observations have substantiated the above, especially the last criminal executed at Clinton Prison for an unusually unprovoked and brutal murder, the right side of the brain weighing more than the left.

"To the student of criminal anthropology, however, every characteristic in the criminal's natural history has an anthropologic, physiologic and psychologic value in itself, and must be a technical study," that he may arrive at a correct conclusion as a whole; therefore it is not altogether from apparent anomalous conditions alone that he would assume that the man presented a criminal type, or was criminally diseased, for crime is often due to intercurrent disease; especially to chronic diseases of the heart, meningitis, tuberculous disease, and syphilis; criminals are especially prone to diseases of the heart. Out of 2,011 men examined by myself in a general way on admission into prison, 239 had gross heart lesions, and many more obscure and less important ones. I should estimate that 25 per cent. of all criminals would show disease of the heart or of the great blood vessels. When we consider the relation of the heart to the circulation of the blood in the brain, we shall understand how a diseased heart can produce brain disturbance. Meningitis is also a prolific cause of crime, especially those of assault and homicide; this is particularly noticeable in the latter. It is not necessary for me to refer to the maniacal tendency due to inflammation of the meninges. Any one who has conducted a patient through the several stages of a meningitis, knows well the effect of the disease upon the mental condition. The result of meningitis is often a thickened patch, a softened area, or a circumscribed adhesion, any one of which is capable of driving the unhappy possessor to the most fiendish acts of violence; as the spur to the horse, it urges on the diabolical impulse. In autopsies upon criminals who had committed assaults or homicides, it is very seldom, if ever, that some such thickened patch or atrophic area has not been discovered. In my last case the adhesions were extensive. M. Dally, from a twenty years' experience, says that "all criminals who have been subjected to autopsy after execution gave evidence of cerebral injury, often undiscovered prior to autopsy." From my own experience I believe this injury is usually the result of some form of meningeal inflammation. Syphilis is well known to cause grave neurosis, and among criminals a very large percentage are syphilitic. The effects of syphilis upon the brain, either in the deposit of gummatous tumors, or in the production of degeneracy of brain tissues, is a prolific cause for mental disorders, especially of a temporary nature. I have seen a number of criminals who were, no doubt so, from the effect of syphilis, or its injudicious treatment. Tuberculosis is also a prime factor in the problem of crime. Many a man is a criminal because of the presence of tubercular toxins circulating in his brain, or to the poverty which this inability to earn his livelihood brings him. Almost every

[1] It is encouraging to know that there is a decided movement in the endeavor to establish a normal structural gauge for men, by the use of instruments and technical observation.

[2] Referred to later on.

physician is familiar with what is called the insanity of phthisis. Several other diseases are distinct causes for crime, especially those connected with the genito-urinary organs.

A large amount of data might be offered which would go to establish the fact that a large proportion of crime is the direct and natural outcome of some form of disease. I shall not enter into detailed minutiæ or technicalities; neither shall I weary you with an array of craniometric figures and anthropologic data, for such information is best found in the works of Benedict, Lombroso, Lacassagne, Ferri, Ferrero, Garofalo and Dugdale, but simply attempt in a general way to institute a discussion of the relation of the physician to the criminal problem. I shall also purposely avoid the sociologic aspect only in so far as is necessary to define this relation.

If it be conceded that crime is the result of disease we shall have a conception of the criminal, which at once changes the whole application of the principle of treatment, revolutionizes sociology and annihilates many of the more primitive methods of the administration of so-called justice. Surely all efforts should be directed not toward inflicting upon an already unfortunate individual still greater misfortune, but in assisting him to overcome his infirmity. Now if this was true of all criminals, and if the question of degree did not enter so largely into the problem, the whole matter would be simplified; there are, however, questions of degree and questions as to what proportion of crime is due to disease, recognizable and estimatable. Herein lies the opportunity for the exercise of large common sense, and in the consideration and treatment of the whole subject, let us be guided by it.

Much confusion arises from false notions as to what the criminal is. Too often the criminal is considered an abstract quantity, as if belonging to a different order of beings: such is not the case however, they are men and women, creatures of hope, of longing, and of fear. Our ideas of the criminal should not lead us to think that the mere fact of putting a man behind the bars, and habilitating him in stripes, at once assigns him to a different species, for it will be found that the criminal is much like other men, amenable to treatment and improvement. The distinction which criminologists would make in the theory that the criminal is of degenerate type, does not apply to the incarcerated criminal alone, but also applies to millions who have never seen the inside of a court of justice, or felt the dampness of a prison cell. There is no distinction from a psychologic or physical standpoint between the incarcerated and the unpunished criminal, other than the results consequent upon his environment.

It is because the conditions which enter into the criminal make up that lead to the commission of crime are not better understood, and the naturally fallacious conception as to what the positive school of criminology advocates in the scientific treatment of crime, that efforts looking toward the improvement of our methods of treating the criminal are so fruitless. The positive school of criminology does not desire to divorce the criminal from his responsibility to the law, or mitigate the punishment of crime, which is its inevitable auxiliary; it proposes to punish crime, not, however, in a retaliatory or vengeful way, but, in so far as is possible, use its punishment as a means of restoring the offender to his former rectitude before society and the law, recognizing "that crime is not always of the free will, but rather a natural phenomenon which can only disappear when its natural factors are eliminated." It seeks rather to adapt measures to conditions rather than attempting to make conditions fit measures, and recommends a plan of treatment based upon the classification of the criminal resting upon scientific anthropologic data. Equally fallacious notions are entertained as to what is the part of criminal anthropology in the scientific treatment of the criminal. The modern criminologist does not seek to base conclusions upon anthropologic data alone, but as Ferri puts it: "All that he seeks of anthropology is this—Is the criminal, and in what respect, a normal or an abnormal man? And if he is abnormal, is it congenital or contracted, capable or incapable of rectification?" This is all, but sufficient to enable the criminologist to come to positive conclusions covering the measures that society can take to protect itself against crime. This then is the summing up of the whole matter: 1. A correct and efficient treatment must rest, as in all other departments of human affairs, upon the proper classification as a primary and essential step to proper observation. 2. That such classification to be of value must rest upon anthropologic data. 3. Inasmuch as anthropology is scientific and positively medical, the essential work of classification naturally falls within the physician's province, and can alone be performed by him.

Not only is the object of classification to admit of a more intelligent study of the criminal, but it is through such classification alone that proper treatment can be administered.

The classification of the criminal also predisposes the necessity of proper classification and grading of penal institutions, so that when the criminal has been assigned to his class by the courts, he can receive the treatment best suited to his individual requirements; the insane or weak minded criminal should be sentenced to a hospital for the care of the insane; the born or habitual to an institution specially calculated to care for confirmed and incorrigible criminals; criminals of passion and occasion, to short term institutions where they could receive treatment looking to their reform. To accomplish this, all of these institutions should be graded to facilitate their special study and treatment. The criminal having in him the possibilities of reform should have opportunity for such reform. The confirmed and hopeless criminal should be excluded from society permanently. This phase of the criminal's treatment is more explicitly treated of in my pamphlet published in November, 1895, "The State and the Criminal."

Having been properly graded, every institution devoted to the care of the criminal should be provided with a physician specially qualified not only for the proper care and treatment of the ordinary ills of the criminal, but abundantly able to conduct a proper study of the criminal based upon anthropologic data and criminologic factors. Not only will such efficiency ensure proper grading and intelligent treatment of the criminal, but it would furnish to the science of criminology valuable data upon which to base still further conclusions. The first step in the classification is the appointment to every criminal court of a competent physician to assist the court in determining expert questions relative to the criminal's physical and psychic condition at the time of trial.

The physician in this work of classification should

bring to his aid all instruments of precision necessary to the proper measuring and estimating of the criminal from this standpoint such as the sphygmograph and craniometer.[3] This would only apply to cases not having been previously examined and recorded.

First in the proper classification of the criminal is his division into two great classes, curable and incurable; in so far as results are concerned, this covers the whole ground, but that such a division can be correctly made, necessitates the classification of the criminal with reference to his type, especially in the application of treatment to that numerous class of curable criminals. I have therefore adopted as a most useful classification that of Ferri, which divided the criminal into five classes, to wit: 1. The insane criminal; 2. The born criminal; 3. The habitual criminal. 4. The occasional criminal; 5. The criminal of passion.

It will be found that this classification meets the largest requirements possible under our present knowledge, but unmixed types of criminals are unknown and criminals can not be precisely classed under certain categories, for they frequently exhibit mixed propensities, and merge from one type into another. And in one some of the characteristics of several types may be blended. This classification, however, is a practical one and based upon sound observation.

The Insane Criminal.—There can be no scientific distinction made between the criminally insane and the insane criminal. The distinction is only an associate one and refers to conviction. True criminal science knows no distinction between the incarcerated and the criminal at large. To him the abnormal condition which controls a criminal act, constitutes the criminal identity. The courts have shown their utter inability to differentiate between the insane criminal and the ordinary. If a man has within him a tendency sufficiently strong to cause him to commit offences against person or property, he is a criminal, and if such depends upon an abnormal mental condition, he is an insane criminal; the only distinction necessary to make is in a penologic sense, and that is the distinction between the insane convict and the insane criminal. The question turns upon the point of insanity related to responsibility under the law. To be able to distinguish between the born criminal with abnormalities of structure and psychic disturbances, and the insane criminal, is sometimes a difficult thing to do, and I can not agree with those who deem it an easy matter to decide, so intimately mixed are the inherent tendencies and anomalous conditions present in the two types; so frequently the same conditions are manifested in both that it is sometimes very difficult but not necessarily impossible.

Garofalo's distinction is a good one, and is applicable to a large number of cases. He makes the distinction, "with the insane criminals, that in the act itself lies the satisfaction, not the object, while with criminals the act is only a means to an end." To the former crime is a pleasure, to the latter a paying business necessitating, it may be, diagreeable acts.

Criminals of unsound mind can not all be classed in the same category if we are to study them intelligently; indeed, it is difficult to make a classification which is always distinctive.

For my own convenience I subdivide insane criminals into five classes:

1. The paranoiac, who are persons exhibiting self exaltation, systematized progressive delusions, writers of insane political documents, and with tendencies toward political homicides which are usually consistent with their delusions. Guiteau and Prendergast are good examples of this class.

2. The psychic epileptic. A class not numerous and who commit the unexplainable murders. This class of criminals commit outrageous murders during epileptic seizure, and which seems utterly inconsistent with the circumstances and the perpetrator, and can not be judged by the ordinary psychology of criminals. (Ferri.)

3. The phrenasthenic or psychopathic criminal, who is one of irresistible impulse, feebleness of will, and with morbid tendencies to private murder. This class of criminals commit atrocious crimes, apparently without motive and purely from the force of impulse, or from the satisfaction of the criminal act itself. Good examples of this class are Jack the Ripper and Mrs. Halliday.

4. The morally insane or reasoning phrenasthenic. The only difference between the morally insane or reasoning phrenasthenic is the absence of delusions, and their perversions are of the sentiments and affections. (Regis.) "They represent a small class and are the individuals who apparently with full reason and judgment commit themselves in an unconscious and frequently paroxysmal manner to indulge in errors of conduct and immoral acts which are really pathologic, and although apparently less insane they are more profoundly degenerate than the delusion cases, and have a more marked degree of mental infirmity and imbecility."

The fifth class of insane criminals "consists of a large body of persons tainted by a common and clinic form of mental alienation, all of whom are apt to become criminal. This class of insane criminal are sometimes identical, and sometimes opposed to the born and occasional criminal." (Ferri.) This class commit various crimes under insane impulses and are commonly degenerates. It is seldom that a criminal of this class commits an atrocious crime unless under an impulse of passion.

These classifications are more a matter of convenience and should not be arbitrary; practically, the whole importance of the determination of the criminal insanity or sanity devolves upon the question of responsibility, and classification is only useful in arriving at correct conclusions as to the individual's responsibility under the law.

The Born Criminal.—The born or instinctive criminal is one who most frequently presents anomalies of organization and psychic aberration; they are criminals the same as other men are mechanics or artizans, and look upon the penalties of crime as the natural risk incidental to the business; who do not regard a crime from its moral aspects, but simply from the risks attendant upon its execution. The born criminal as a rule is deficient in both moral and physical sensibility. This criminal insensibility is manifested in his perfect inability to see the evil side of a criminal act, and to forecast its effect upon himself as a moral entity; also in his indifference to consequences and to feelings of remorse. He plans and executes with the whole moral code left out, only as it is used to escape the penalty which may deprive him of the exercise of his craft.

The lack of physical sensibility is often marked.

[3] The time will no doubt shortly come when hypnotic suggestion and the use of special instruments for the measurement of brain impulses, as related to physical conditions, will be added to the physician's armamentarium.

My attention was first called to it particularly while doing operations upon this class of men, they exhibiting no evidence of pain even though the operation might be painful and to the normal person excruciating. One man attempted to castrate himself and when discovered had succeeded in exposing the testicle, having opened the scrotum throughout, and was about to cut the cord. This same man under a previous operation for ligation of the radial artery had shown almost perfect insensibility to pain. Another case was that of a man about 30 years of age, in good health, classed as an ordinary convict, quite inoffensive, but who was drawn into an altercation with a fellow workman in the repair shop, and who in a fit of rage walked deliberately across the shop to a small circular saw, threw on the belt, and without hesitancy placed his forearm upon the carriage and sawed it completely off just below the elbow joint. He seemed perfectly indifferent to the whole affair and to suffer no pain. He was discharged from prison, was again incarcerated, is now serving a second term and is still considered an ordinary convict. Numbers burn themselves in a most horrible manner to get rid of doing a moderate task, cut off their fingers and mutilate and injure themselves in different ways to carry a point, not because they could endure pain heroically, but simply because they had learned that these things did not hurt them overmuch. This insensibility to pain tends to rapid healing of their wounds. There is, however, one erotic type of born criminal who is over-sensitive to all sorts of pain and suffers exaggeratedly from the slightest injury. This moral and physical insensibility at once places the possessor in a low order of organization and one largely incapable of reformation or improvement. From this class will always come the major portion of incorrigibles.

The Occasional Criminal.—The occasional criminal presents rarely marked anomalies of structure such as characterize the born criminal. This type are more criminals from environment and circumstances, and do not present those anomalous conditions that bring them properly within the province of a medical study; they are therefore best left to the sociologist, only in so far as individual cases present psychic and physical diseases requiring medical treatment.

The Criminal of Passion.—The criminal of passion is one of irresistible impulses, who under the stress of uncontrollable passion commits crime of which there has been no premeditation, and for which he suffers the keenest remorse. "He is usually strong enough to resist ordinary temptations, but does not resist psychologic storms which are sometimes actually irresistible." They are of highly neurotic type, and their study is of interest and consequence to the physician in that they approximate criminals of unsound mind, and it is often a question to determine as to the sanity of their acts. They are not criminals in the true sense, but rather offenders, victims of their own impulses.

We come now to consider the physician's relation to the criminal as regards his treatment. The complete study and treatment of the criminal must ever be largely a sociologic one. As has been said by Lacassagne: "The criminal is a microbe inseparable from his culture broth, the social surrounding." And gradually but surely the purely anthropologic study of the criminal has given place to a plainly more sociologic one based upon it.

The treatment of acquired and intercurrent disease of the criminal falls almost entirely within the field of labor of the physician to penal institutions, and should embrace in its operations all of the medical, surgical, mechanical and therapeutic means at the disposal of the physician. In the treatment of heart lesions so numerous among criminals, both gymnastic exercise and proper medicaments should be used.

For syphilis, constant specific medicaments and operative procedures should be used, and the same in meningeal lesions. Tuberculosis: rigid isolation, with the destruction of the bacilli by every modern means, and climatic influence should be a part of the treatment. The various manifestations of psychic disorders and abnormalities should receive generous treatment by means of spray baths, surgical shock and electricity. At Clinton Prison, New York, all these therapeutic means are in active operation with beneficial and successful results. Aside from the treatment of the physical ills mentioned, it is with the insane, the born and weak-minded criminal that the physician will have the most to do in the treatment of psychic disorders and the development in him of the power to control brain impulses.

The treatment of the insane criminal falls entirely within the sphere of the State Hospital for the Insane. The chief office of the physician with reference to the insane criminal is his classification and isolation. This function as now exercised is chiefly directed toward the examination of the criminal when accused of crime, and is a medico-legal one, and one which is not to the credit of our profession, which I set forth in a paper read before the Medical Society of the State of New York in February, 1895: "Shall Insane Criminals be Imprisoned or Put to Death?"

I am pleased to be able to state that there is a good prospect of remedial legislation in my own State regarding the exhibition of medical expert testimony in all criminal trials.

It is not, however, so important to the protection of society that the insane criminal receive just and equitable treatment in courts of justice, as it is that he be apprehended before he is able to accomplish the execution of his delusional impulses. It is the apprehension and detention alone that can protect society from their depredations. Had Guiteau and Prendergast been apprehended, both Garfield and Mayor Harrison might still have been alive.

We should urge the passage of such laws as would tend to place some competent medical officer in every community as having the right of surveillance with reference to this type of mankind.

In the treatment of the born and habitual criminal, the first object should be to increase inhibitory power. The will may be said to be the gateway of the mind, and through its narrow portals pass impulses for good or evil, wise or foolish, and it is the exercise of this faculty that must control the tide of psychic impulses that seek to find passage to the outer world. Since inhibitory power is the essential factor, the cultivation and strengthening of this power should be one of the chief objects of treatment in the weak-minded and degenerate criminal, the exercise of certain brain functions over and over again constitute a habit of action which becomes routine and natural. If the will is to be strengthened and habit broken, new tracks of association fibers must be brought into play, dormant brain cells stimulated into activity and the whole current of thought and cerebration revolution-

ized. This can only be accomplished by some sudden shock, either physical or mental.

It is a well-known physiologic law that by severe mechanic shock we can suspend the function of cell groups, partially or entirely. It was to this principle of shock that were due many beneficent effects from the use of the more primitive forms of physical punishment in corrective institutions. It is a well-recognized fact by penologists that the shock attendant upon corporeal punishment has often resulted in the cure of certain psychoses. Many a man has been converted from an intractable crank on the border line of insanity into a tractable and useful one.

I find this view is substantiated by the figures relative to the commitment of insane convicts to the State Hospital for Insane convicts, which, prior to the abolition of corporeal punishment in the prisons of the State of New York showed .00874 per cent. and since its abolition up to the present year .01764 per cent., or more than double the former percentage. While these figures can not be relied on as alone affected by this change, they are sufficiently indicative of the relation existing between the two, since apparently the contributing circumstances would rather tend to lessen the number of commitments than to increase them. I am not using these figures for the advocacy of corporeal punishment, but simply to show the influence of shock in preventing mental disease. In the application of all the forms of shock the effects are produced by the pedagogic impression made upon the brain, which in the class of criminals under consideration is always weak and incompetent, and whose brain cells respond more readily to stimuli applied through physical sensation.

In a paper read before the Medical Society of the State of New York upon craniotomy in idiocy, in January, 1895, Dr. Charles L. Dana attributes the benefits derived from operations upon the skull for this condition as due chiefly to what he terms "Surgico-pedagogic influences." My own experience has substantiated this view with reference to weak-minded and degenerate criminals. My attention was first called to this in observing that in certain cases where criminals had been severely handled in fights, and where the shock was considerable, and especially when associated with extensive scalp wounds, that these men usually became more tractable afterward and evinced marked changes in many ways during the remainder of their incarceration.

In several of these cases there was an almost complete turn about in the disposition and psychic condition. This led me to investigate, and I found that by freely cutting through the scalp down to the bone, and raising the periosteum, still greater improvement followed. I have now begun a series of operations upon neurasthenics and weak-minded criminals. April 1, of this year I operated upon a young man, aged 22 years, serving a first term in State prison. Operation for relief of neurasthenia and excessive masturbation. Patient was extremely nervous, sleepless, despondent and apparently becoming demented. The hair was closely shaven, and under antiseptic precautions the operation was performed as follows: Two horse-shoe incisions were made five inches in length, one on the right and one on the left side of head, one and one-half inches from the median line at the apex of the cranial arch. The periosteum was cut cleanly through, and separated from the bone for a distance of about one inch all round the incision; grooves were then cut in the bone, but no bone removed; the wound was packed with iodoform gauze and dressed ordinarily. The wounds were then packed loosely until they healed by granulation. No sutures were put in. The effects of this operation were like magic, the young man improved in every particular, slept well; appetite improved; figure became erect, took on flesh rapidly; circulation improved, and his whole aspect was very much more vigorous. The habit of masturbation was entirely relieved. I show you photographs of the young man before, and fifteen days after the operation. Prior to this I had circumcised him, and used all other means at my disposal to effect the cure of his habit with negative results. (This operation is also beneficial in meningeal inflammations, and also with thickened and adherent scalp areas.) This principle has for a long time been recognized in isolated and incidental ways, but never to my knowledge has it been understood thoroughly or applied in any systematic manner.

Here is a wide field for study and experiment, and I believe that much can be accomplished in the treatment of this class of criminals by the application of some form of shock. I am contemplating the construction of an electrical apparatus, which will produce the maximum amount of shock and physical impression with a minimum risk of injury. Any means by which powerful influences can be brought to bear upon the subject will offer the best and most favorable opportunity for improving the patients.



Before operation. After operation.

J. R., AGED 22.

The treatment of the occasional criminal, and the criminal of passion does not require special enumeration.

The application of scientific principles of classification and treatment of the criminal consideredfrom a sociologic standpoint, is one fraught with difficulty and we need not flatter ourselves that apparent good results will come quickly or that the way is easy; the duty is plain however and we must walk therein. It has ceased to be a matter of choice and we must be equal to the responsibilities which this new field of action enforces. Already in the half century of its life, the science of criminal anthropology has recorded brilliant achieve-

ments in the accumulation of invaluable data and the elucidation of many valuable truths. These achievements have come largely through the labor of medical men: therefore the soundness and efficacy of this relation of physician to the scientific treatment of the criminal can not be doubted, nor that it falls properly within the medical province, for if we interpret aright the significance of the astonishing developments of our time and note correctly the movement of modern medical thought and action, we shall come quickly to the conclusion that the field of medical work and practice is rapidly widening and that its mission can no longer be so entirely restricted to the narrow limits of the treatment and cure of disease, but more to its diagnosis and prevention, and its future accomplishments must comprehend much more that appertains to the safety and welfare of the people. Through the gateway of laboratory work in our own profession, and the investigations of the correlative sciences, a great flood of light has come; old systems are breaking up, relations are changing, new adjustments are in order, the X rays alone is likely to revolutionize the whole rationale of diagnostic, prognostic and operative procedure. He who shapes his course by the experience of the past alone will soon find himself deprived of the needful appreciation of an enlightened public. The profession must take to itself larger spheres of action, must extend its powers, must put itself in harmony with new conditions; its relation to society and the community at large must be better understood. The physician is to become a mentor to the people, and his efforts like those of his time must look to the improvement of mankind, not in the concoction of monstrous formulas, or in the combination of nauseous decoctions, but in his knowledge of the causation and the exercise of his powers in the prevention of disease and the general guardianship of the home, the individual and the public. So far as this function has been exercised it has accomplished much good and has been of incalculable benefit to society at large; in the protection of our shores from pestilence, our municipalities from infectious diseases and the securing of abundant opportunities of healthful living the labors of our profession have been untiring, fruitful and reassuring.

The opening of this new field of criminal anthropology and sociology, embracing the type study of man, and the resolving of society into its respective classes offers equal opportunity for the exercise of high and noble powers.

It is only through the exercise of such a prerogative that the physician can sustain the position in which the evolutional processes of scientific progress have allotted to him, and he will only rise equal to the dignity of this requisition when he shall have assumed the rôle of a competent student of the bio-psychic principles and elements which enter into the different types of criminal man, and society be enabled to protect itself against crime; a protection too long and entirely entrusted to the offices of the penal code.

DISCUSSION ON PAPERS OF DRS. CORR AND RANSOM.

Dr. D. R. Brower—In Illinois, our State Society and our various local societies have, during the past two or three years, had this question before them on various occasions, and what is true of the State of Illinois is true of many of the other States. The question of crime is not a legal question; it was until twenty-five or thirty, or possibly forty years ago, a purely legal question, and to-day in its practical application it is a purely legal question; but in reality it is a medico-legal question; and, as a consequence of the utter failure of the law and the church to stay this criminal procession, we have the results, the vast, marvelous, overwhelming increase of crime. The only thing that can possibly stay this great increase is for the medical profession to step to the front and teach the intelligent laity that the care of the criminal is as much a medical as a legal question. There are some things that study of this question has satisfied me as being established: 1, the increase of crime; 2, we state as the cause of this increase of crime a vicious parentage, bad environment, alcoholism, a constant increase in the urban population and last, though not least, the unreasonable manner in which the laws are administered; 3, that the habitual criminal is an abnormal man, which is shown physically by asymmetry in cranial cerebral development and in physiognomy, as well as by anomalies, in physical sensibilities and in motor activites. One of these anomalies does not make a criminal man, but in the habitual criminal these abnormalities are present in a vastly greater amount than in any other person in the community. There are psychic abnormalities manifested by a moral sensibility. This is most manifest and almost universal; not limited to the moral criminals, but prevailing throughout the whole great class, leaving out the few who are classified under the occasional and passionate criminals. There is a lack of forethought with them; they live simply in to-day. And there is a low grade of intelligence, a prodigious amount of vanity, and an emotional instability. The practical part, upon which the laity must be intelligently educated, is what to do with them—how to treat them. The question is a medico-legal one, and the doctors must come to the assistance of the church and the law. The social and biologic condition of the person, and not the accident of crime, should determine the degree and kind of punishment. As our laws are adminstered to-day, if the theft is a trifling one, the punishment is but slight; if the amount taken is a large sum, the punishment is accordingly great. The reference is not to the criminal, but to his crime, whereas the crime is a mere incident, as the theft was $5 because there was not $5,000 to steal. The measures that are to counteract crime must be, not according to the crime itself, but to the condition of the criminal.

In my studies of this question in the institutions of my own State I found a woman who had been sentenced to our Bridewell thirty times. She should have been sentenced but once, and the county of Cook would have been saved the expense of twenty-nine arrests, trials and imprisonments, while the community round about her would have been saved a great deal of perplexity and considerable destruction of property. She had upon her, as plainly marked as any habitual criminal ever had, the physical and psychic stigmata of degeneration.

It is this unreasonable administration of our laws that has probably more to do than anything else with this marked increase in crime. I would like very much, if it is practicable, to have attached to every court some person who is skilled in criminal anthropology who can aid the court in determining what the sentence shall be. The rule that has been adopted in some of the courts of Illinois so far as the reformitory institutions are concerned, has been that of indeterminate sentences, and consider this is a much better plan. If the indeterminate sentence should be applied to all criminals, and the investigation of the anthropologic condition of the criminal made in the institution to which he is consigned, vastly more beneficial results would follow than by his investigation during the trial.

It is by indeterminate sentences that I think the matter can best be settled. The only trouble in the State of Illinois, so far as the reformatories are concerned, is that the maximum limit is not enough in every instance. In the next place a very serious interference with the suppression of crime is placing the pardoning power in the hands of the governor. It should rather be placed in the hands of a commission skilled in the subject of criminal anthropology.

The plan of disposing of these criminals just before and during the trial is a mistake. These supposed criminals are sent to a common jail and the associations of that jail are vile, and the man who has not yet been declared a criminal by the law is there thrown into contact with confirmed criminals. This is very wrong. There should be established in every community detention places where there can be a separation and isolation of these criminals awaiting trials; and then, when the sentence comes, there should be three classes of institutions to which these people are consigned: A reform school for the juveniles; reformatories for the curables, and penitentiaries for the incurables.

Some of our laity think that this medical disturbance in the matter of crime is for the purpose of relieving criminals of the penalties of crime. Such is not the case. First to protect the community; first to see to it that these criminals, once arrested, should be kept in custody until they are cured; that is the most important point.

It is only through such societies as this, through medical men and women, that the laity can be educated up to a proper appreciation of this great question. We are going through now precisely what was gone through at the beginning of the century, or a little before, in the matter of insanity, when that was divorced from the custody of the church and the law.

We are to-day pupils in this work of reformation, and very soon the same results will be accomplished with reference to the care, treatment and the cure of these criminals—probably not to the same extent, but similar results will follow as have been seen in the care and the cure of insanity.

DR. JOHN PUNTON—There is no doubt that there is a great lack on the part of both the medical and the legal professions in failing to handle these cases properly. These changes which are proposed, however, would mean an entire subversion of the constitution of many of the States of the Union; in other words, the present status of the legal adjustments of crime would be undermined and that is a very large matter for the medical profession to undertake to do. I am in the main in favor of the reforms outlined, and just in proportion as we agitate this matter we are aiding not only the legal profession but also the community in which we live.

DR. CAMPBELL—That law and the church have failed to repress crime is well known; it is now proposed that we of the medical profession shall take hold of it. The alarming increase in crime is known to us. But I do not entertain any sanguine anticipations of the doctors doing much more than the church and the law have done, if so much. This great increase of crime can not be attributed to the causes that have been assigned to it, so far as I have heard here to-night. We have always had bad education, syphilis, alcohol, bad inheritance and bad environment. In my opinion this great increase of the criminal class is owing to the advance of our civilization; the increase in the species; the growing stress that has been brought to bear upon the means of gaining a livelihood. These forces are irresistible. They will continue, and crime as the result of them will continue; and if all these admirable suggestions are carried out, I doubt if 5 per cent. of the crime will be stopped.

DR. POWELL—I think the commission of experienced men would be a very desirable thing to have.

DR. QUINBY—If we study the results of imprisonment, we see the victim, instead of being benefited by punishment, made worse by it. This is due to the method and management of our criminal jurisprudence. A young man who was well disposed, whose environments were correct, whose education was proper, whose bringing up was right, but who became involved through alcoholism, was thrown among the class of hardened criminals when arrested, and from that hour, he was kept there six months for some slight offense, he has become a degenerate man. He told me that his barbarous treatment during his confinement is what sent him downward. Now, could that man have been arrested and treated somewhere instead of being thrown into prison; if we could have institutions for treatment, not simply for imprisonment, the results would be different.

These are all abnormal cases. They are sick, and how do we treat them—as mentally and physically defective? No. Cruelly, inhumanely, putting them with criminals, into the charge oftentimes of men who are themselves brutes.

The criminal classes in this country are largely increasing, and something must be done to stop this increase. The church is not in a condition to do it, because these individuals are sick people, defective physically and mentally, the power of alcohol always having a tendency to destroy will power; hence, the physician is the proper man to give advice.

DR. BISHOP—We feel a little sensitive when the preacher and the public blame us about things, and we are in the same position exactly when we blame the church and the community. We are part of the church, or should be, we are part of the community, and as citizens we are responsible. There is a great deal of hypersensitiveness on the part of our good friends who believe that these criminals as a rule are defective. It seems to me that very often they are liars.

I think a slight change in the law would be of advantage; on the basis of sentencing to prison for a determinate period, and if at the end of that time they were not cured, and still unfit for freedom, to keep them in prison for an indefinite period until they showed that they were fit to be released.

It is an outrage to send men to prison and have them resort to all sort of crime that it is possible to do inside those walls, and then set them loose on the world at the end of the time for which they were sentenced. The mistake is that they are not made to feel that they can gain something by improving.

There is no question that men are morally deficient as they are mentally and physically lacking, and the proper place to treat them is in some school for development.

DR. CORR—The question is how to prevent crime, how to prevent the young person who starts out with a small degree of tendency from cultivating that tendency and from becoming a criminal. We must improve our society so that we do not have any of that class born. Dr. Ransom has classified crime very finely, but we want a classification which shall tell us how to prevent it. Now, if it be true that the conduct of people is guided and inhibited by the moral sense and that is a faculty of the human mind that is capable of cultivation, I ask you to formulate some plan by which this end can be accomplished.

THE PSYCHOLOGY OF NARCOTISM.

Read in the Section on Neurology and Medical Jurisprudence at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

BY W. XAVIER SUDDUTH, A.M., M.D.
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Nature intended that man should be a comfortable animal and enjoy to the full the fruits of his labor.

Man has ordered otherwise, and as a consequence in the receding days of the nineteenth century, when art and intellect have reached their highest development, we find man, born to be the favored creature of nature, laboring under self-imposed burdens of society, oftentimes heavier than he can bear. As a natural consequence of his pernicious environment he is frequently found seeking surcease from the pains of existence in self-immolation, temporary intoxication or suicide, the method adopted depending much upon his belief in a future state and his relation thereto.

What are some of the steps that have operated to bring about these deplorable conditions? They can not be laid to natural causes because there has

never been a time in the history of civilization when the actual needs of man were to be satisfied with as little expenditure of vital force as at present. The cause of the stress of the age must therefore be looked for, not in the physical, but in the psychic domain of man's nature, and it is to this phase of the question that I desire to call your attention to-day.

In that degree that man is able to perform the necessary duties of life by force of habit so does he lessen the labor of existence. The hardest work man has to do in this world is to think. Every psychosis has its neurosis. New experiences or acts are successfully mastered only by the expenditure of thought. The greater part of the absolutely necessary acts of existence are performed by rote rather than by thought. Thought labor requires nerve action, just as surely as locomotion incurs muscular activity; and while it is true that there is a marked physical difference between mental and muscular action, yet physiologically considered they both express a condition of catabolism that has to be met by metabolism. Ordinary cell wear is not necessarily painful. On the other hand, a certain degree of pleasurable exhileration accompanies most necessary bodily functional activity. When, however, exercise is carried beyond a certain point, so as to become forced, it soon becomes painful. When weariness ensues as a consequence of functional activity, pleasure ceases and pain begins. Pain is the absence of pleasure according to our major premise laid down in the opening sentences of this paper, and if this be true, then its abolishment does not consist in self-immolation, but in a readjustment of our relation to our environment or its more or less complete reconstruction.

Pain and pleasure are not distinct physical conditions, no matter how intimately they may appear to be related, but mental states, and therefore require careful consideration to differentiate them. Pleasure and pain are often so closely connected that it is with difficulty that they can be separated. Not only this but the terminology used to express the two conditions is inextricably confused. Many people are said to "cry for joy." In fact, so narrow is the division line between the two conditions that the scale turns upon the mental state of the individual at the time of experiencing any particular sensation, as to whether he suffer pain or feel pleasure. The close relationship between them is thus shown by a case in which the one merges into other. Continuous stimulation that at first gives pleasure, in time becomes painful. This leads to the conclusion that only a certain amount of pleasure is bearable by human nature, if furnished without intermission. The system may be surfeited by pleasure as well as borne down by pain. But what is it that suffers? Surely not the physical that alone experiences wear. No! Pleasure and pain are not conditions *per se*, but mental perceptions of sensations experienced at the time or revived from some previous experience, through thought images brought before the mind by association of ideas. Then again, not only does pleasure easily merge into pain but the very absence of pain, to him who has suffered, is a pleasure. The fullest appreciation of the pleasures of existence are to be had by comparison with painful experiences happily passed. While many of our joys and sorrows are the result of purely physical sensations, yet a considerable proportion of our pleasures and pains are intimately associated with our emotions and are distinctly dependent upon the peculiar physical condition in which the experience finds us. Many of the acutest pains of existence are those of restriction. Man longs to be free, to cast off the burdens of care, for even a short space of time, to secure a respite from the pains of existence—to lose himself; hence his resort to the use of narcotics. Sad delusion! The greatest slave of all is he who seeks his freedom in these deceptive agents. Nine out of ten narcomaniacs will tell you the some story, when asked as to how the habit was formed. "I took it to relieve pain," "to drive dull care away," "to get a little rest," and thus the chains of habit were forged.

Dr. Carpenter says, "that our nervous system grows to the modes in which it has been exercised." That is only another way of putting the fact that we develop along the lines of least resistence, according to the bent of our special inclinations, limited and modified by our peculiar environment. Habits are more easily formed in youth than later in life, by reason of the fact that the organism is in the formative stage and the inhibitive feature of the will is less developed than it is later on. If a young man or woman reaches the age of twenty without having acquired any vicious habits of thought, action or appetite, ten to one they will go through life free from contamination. Nevertheless, physical states of weakness later in life seem to unman the individual and reëstablish, to a greater or less extent, the conditions prevailing in adolescence. Drugs that may be given during the crisis of a disease with impunity, if continued during convalescence are apt to give rise to drug habits, hence the necessity of discontinuing the use of stimulants and narcotics during this stage of the disease and depending upon a nutritious diet and natural remedies to bridge over this critical period when the will is weakened and the moral faculties seem to be more or less clouded.

Narcomaniacs may, for convenience of study, be divided into three classes:

1. Those who have acquired the habit through hereditary tendencies, and who find in the use of narcotics a physical pleasure.

2. Those who, though physically strong, yet are led into the habit by social customs as the result of environment.

3. Those who turn to narcotics for relief of the pains of existence.

The psychologic bearing of the several classes is essentially different when laboring under the spell of the drug. Members of the first class have, in most instances, the warning example of degenerate ancestors; yet so great is the demand of the system for sedation that they brave the dangers and public opinion with a brazen effrontery that is many times astonishing. They have no desire to reform and their course is continuously, progressively downward. With them there is no shadow of turning. They are wholly given over to evil ways and the sooner they end their days the better for themselves and mankind at large.

The second class, considerably larger than the first, much larger in some countries than others, suffers mostly from the direct effect of the drug because removed from the moral stigma under which other classes labor. While its members are seriously handicapped in the battle of life, yet they manage to preserve a tolerable existence, unless the particular narcotic used happens to be hasheesh or opium, and even against the latter the natives of India seem to hold a more or less charmed existence.

It is to the third class, however, that I desire to call special attention, because they are those who dwell among us: Our fathers, mothers, brothers, sisters and friends. Brought to their condition of enslavement, many times by circumstances over which they have no control, held accountable by an highly intellectual and moral civilization, they suffer, not only from the direct effect of the drug used, but from the goadings of an outraged moral nature. The members of this class, oftentimes forge their chains through years of petty indulgence in the use of the milder sedatives and narcotics. Their case then is one of slow growth and needs to be studied from that standpoint. A diseased condition of the will is established, in which the individual finds himself unable to stand out against what he knows to be sin against the physical body. It was not always so; there were times when, in the early history of the case, had he had the right kind of treatment, he could have broken the bonds of the growing habit with comparative ease. These diseased conditions of the will form most interesting psychologic studies and promise to throw much light upon the rationale of treatment. In the main, an entirely erroneous idea of the function of the will prevails. Most persons consider it as a direct motor force only, confusing it with volition, which is the act of the will, and thus overlook entirely its inhibitive aspect. In one sense the will may be said to be dual; but in any event it represents a state of the mind, and is, according to James, "a memory of past acts." Its parents are desire and feeling and its offspring are represented in such mental states as "I wish," "I will" and "I will not," which latter is many times synonymous with "I can not."

In order that feeling and desire may become motor impulses, they must be accompanied by a knowledge of the attainability of the object desired, otherwise a futile or even no effort is made to attain the object desired. We thus observe the difference between "I wish" and "I will" and note that faith is one of the principal attributes of a strong will. The inhibitive aspect of the will which enables its possessor to say no is largely a matter of education. Uncivilized man knows no master, save want, and when opportunity for indulgence offers, gives full reign to his unhallowed passions. The tendency of civilization is to teach the control of the passions through the limitations of environment. Man thus learns to inhibit his desires and hold in check his feelings through the inhibitory action of his will. He is thereby enabled to contain himself within the bounds of decorum and decency. It is by will power that man is an abstemious animal and when given over to indulgence he is simply evidencing the atavistic principle which so often crops out during the evolutionary process. Civilization teaches man to "wish" and to "wait" for many things in this life, upheld by the hope of their fulfillment in some future existence, if not in this, and also that by restraining his passions and appetite he is serving his own best good.

Continued indulgence in the use of narcotics finally creates an appetite. Like a bad debtor, they promise much and pay little. The system continually cries out for relief that comes not. This irresistible craving is intensified by moral or physical restraint and the habitué is urged on by his vitiated appetite to greater and greater indulgence when opportunity offers. No feat is considered too dangerous to be attempted to secure the coveted dram; no human tie too sacred to prevent the fulfillment of his unhallowed desire, even hope of future salvation is freely given up for the cup that cheereth but to damn. The intensity of the passion for narcotics when once the habit has taken hold upon its victim, points only too plainly to something essentially different from a mere physical appetite. Hunger for food, even unto starvation, shows no comparison in its suffering to the agony of the alcoholic inebriate or the opium fiend when deprived of his wanted potion. Everything points to a diseased mental state beyond the power of any drug to reach it as an *antidote*. While drugs play an important role as alteratives and tonics in the treatment of inebriety yet there is not a "cure" in existence, that has any efficacy, that does not base its permanency upon the "suggestive" methods employed in effecting the cure. While it is true that some depend almost entirely upon "drug suggestion" yet the cures that promise most in permanency of results have incorporated in them a system of psycho-physics, using the term medically, that is successful in proportion as it is scientific and comprehensive.

Inebriety, in all its forms, is beyond question a neurosis and permanency of cure depends upon establishing an absolutely altered mental state, together with the maintenance of a healthy environment until such time as the individual has fully regained possession of his will, and developed sufficient moral stamina to withstand the temptations of the open saloon and social life.

100 State Street.

FEIGNED INSANITY; REPORT OF THREE CASES.

Read in the Section on Neurology and Medical Jurisprudence, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

BY WILLIAM FRANCIS DREWRY, M.D.

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The simulation of insanity is not an innovation peculiar to modern day schemers, though it is now frequently resorted to by designing criminals.

In the sacred writings is recorded that the Shepherd King of Israel "changed his behavior and feigned himself mad and scrabbled on the doors of the gate, and let his spittle fall down upon his beard," because he was "sore afraid of the king of Gath."

In order to escape the Trojan war, Ulysses feigned insanity by plowing the sea-shore and sowing salt instead of corn. And Lucius Junius Brutus, it is said, played the imbecile for a purpose.

To detect simulation and to establish the requisite proof of it, have at all times been matters of more or less difficulty. Casper met with many cases of the sort and appreciated the difficulties which they presented. Says Hammond: "No one, no matter how skillful an alienist he may be, is beyond the point of being imposed upon for a short time by persons assuming to have certain forms of mental derangement." Snell remarks that if a simulator preserves a complete passiveness and an obstinate silence, it is not impossible that insanity may be so perfectly simulated that detection may not be accomplished. Conolly Norman regards the question of simulation of insanity as "one of the most difficult with which alienists have to deal, one requiring much experience, acumen and sagacity, if a satisfactory decision is to be arrived at."

In his work on "Sanity and Insanity," Mercier says: "There is no form of insanity that may not be simulated by a case of drunkenness; and when it is not known, from other sources of information, that these manifestations are due to drink, no expert in the world, however skillful, could distinguish between the insanity that is due to alcoholic poisoning, and the insanity that is due to other causes."

Tardieu and others think, however, that nothing is more difficult to counterfeit than mental disease and that the attempt to deceive may be easily discovered by a careful observer. Conolly asserts that he can "hardly imagine a case which would be proof against an efficient system of observation."

When we remember that, besides the fact that scores of criminals resort to the insanity dodge to escape merited punishment, the truly insane sometimes simulate insanity, that simulation itself may be an indication of mental alienation, and that occasionally there is a tendency of feigned insanity after long duration to become real insanity, the question of accurate diagnosis may not always be unattended with uncertainty and embarrassment. To an experienced alienist there will of course seldom be any great difficulty in arriving at a correct conclusion, but to one with more or less limited knowledge of the various manifestations of mental diseases, a clever imposter, with the faculty of imitation well developed, would appear somewhat in the nature of a psychic problem.

At all events, before giving a positive answer to so delicate and important a question as whether one is insane and therefore entitled to all possible humane consideration, or sane, and consequently responsible for his illegal acts, a physician should study methodically and scientifically the suspected case, keeping his conscience pure and undefiled under all circumstances. "His opinion," says an eminent authority, "should be founded upon the conception of pure knowledge, based upon observation and induction."

The question of disease—that and nothing more—is the one for the physician to determine. Is the person whose legal or testamentary responsibility is in doubt, *insane*—is his mind affected by *disease?* That is the problem the solution of which devolves upon the physician. Says Bucknill: "The element of disease in abnormal conditions of mind is the touchstone of irresponsibility and the detection of its existence or non-existence is the peculiar and oftentimes the difficult task of the psychologist."

So, view the matter in any way you will, it can be only a question of diagnosis.

Case 1.—In February, 1895, Isaiah P. was indicted on the charge of house-breaking and larceny. While in jail awaiting his trial in the hustings court of a Virginia city, he suddenly began acting so strangely that doubt was entertained regarding his mental condition. Upon being arraigned in court his behavior was so utterly at variance with that of an ordinary sane man, he was remanded to jail and the trial of his case postponed, so that his mental condition might be investigated.

The writer was appointed by the judge to ascertain whether or not the prisoner was insane. Whereupon I visited him several times, dealt with him not in the rôle of a secret detective, but in that of an impartial physician, and as such proceeded systematically to inform myself as fully as possible of his history and symptoms.

History and heredity.—Isaiah was born in 1857, of negro parentage. There was nothing of special interest connected with his early life. From childhood he was a bad, indolent fellow. Only two of his family were ever afflicted with any form of neurosis or of psychosis. His mother, at 65, was sent to an asylum in a state of senile dementia. A younger sister died of phthisis pulmonalis, complicated with melancholia, while in a hospital.

During a spree some ten years ago (1886, I think), Isaiah received a blow on the right side of his head which produced a depressed fracture, but under careful surgical treatment he made a complete recovery, the only visible result remaining being a slight depression in the cranium. On more than one occasion he was suspected of larceny, and finally, in 1888, was convicted and sentenced to five years in the State penitentiary.

It was claimed by his family that he had had, since the blow on the head, several epileptic fits and been at times "curious in his ways." But in the absence of corroborative evidence these statements were accepted with a degree of reserve.

Appearance and symptoms.—A careful physical examination revealed nothing of special pathologic import. His bodily condition was about normal.

He came into my presence with an air of exaggerated excitement, moved about restlessly, took no notice of his surroundings, looked wild and uneasy, talked incessantly and foolishly. The almost exclusive subject of his foolish, incoherent gibberish was "locusts." He talked about locusts most of the time, but when questioned he gave answers foreign to the subject of his apparent or assumed delusion, saying he did not understand what I meant. All questions were answered very slowly and hesitatingly. When I told him my business his incoherence and restlessness became intensified. When unobserved he became quiet and composed.

Odd sensations in his head were frequently complained of. He would put his hand to his head and say something was "scrambling about in here."

Memory and intelligence, to all appearances, were absolutely lost. Apparently he recalled nothing that had ever happened, nor did he remember any person or place he had ever seen. He could not or would not distinguish one piece of money from another, nor tell a man from a woman.

To every question he gave a negative or an absurd reply. For instance:

Question. Where were you born? Ans. Caught ninety-nine locusts to-day.

Ques. How do you feel to-day? Ans. Eat locusts with butter.

Ques. Let me see your tongue. Ans. Holds up his foot.

Ques. Did you sleep well last night? Ans. Tell him all right. Here they come.

Ques. Tell me about the locusts. Ans. Had bread and shucks for dinner.

Ques. But what of the locusts? Ans. I don't understand you.

Ques. How long has your mind been affected this way? Ans. Some say 49 years; I say 100.

Ques. Have you heard from home lately? Ans. Fell in river last night. The locusts are rolling down the mountains. Let them roll.

He slept well several hours every night, and frequently in day time after he had become very tired from constant exertion and excitement.

I took occasion to remark in an undertone to the jailor, that if the patient were to sing, become noisy at night, destructive to clothing, filthy in his habits, devoid of the sense of pain, my belief in his insanity would be confirmed. A few days later Isaiah had become so noisy and filthy at night that he had to be isolated. He had tried to be wakeful, but, negro-like, he soon fell asleep. His clothes were torn, shoes thrown away, coat reversed, etc. I thrust a needle into his flesh at various points, without making any perceptible impression. Said he did not feel any pain at all. A few minutes later, when a needle was suddenly stuck into his back, he forgot to be insensible to pain and consequently jumped some distance.

My notes show many and various evidences of Isaiah's clumsy effort to "play crazy," but the above is quite sufficient to prove beyond any doubt, *simulation*. I had no trouble in detecting the fraud.

For two months, in fact, until the day he was taken to the penitentiary to serve out a twenty-three years' sentence, he continued his efforts to deceive. Finally, however, he acknowledged the attempted fraud.

In my statement to the court and jury I gave, in substance, the following as the grounds of my opinion:

1. There was no prodromal stage of indisposition, malaise or depression preceding the sudden outbreak. The "attack" occurred in the midst of normal health. He had few symptoms of any form of insanity that might begin somewhat suddenly, viz.: transitory mania, epileptic mania, confusional insanity, acute hallucinatory insanity, alcoholic mania, none of which it is possible to counterfeit. Then, the fixedness of the form of delusion he tried to imitate would exclude any of the above types of insanity.

2. Sudden development of a fixed delusion regarding one particular subject is not consistent with the clinical history of any known form of insanity; for paranoia, monomania or delusional insanity, is of slow and gradual development and unattended with any special excitement, loss of intelligence, etc.

3. If he were trying to appear a paranoiac or monomaniac, he overlooked many essential points; for instance, when questioned regarding his delusion, he invariably gave an answer entirely foreign to the subject; and the peculiarity of expression which so strongly marks that class of cases, was entirely wanting; and, furthermore, there was no excitement or irritability of temper when contradicted.

4. Loss of memory, reason and intelligence would occur in dementia, but the quickness with which he carried out my suggestions regarding the "lacking symptoms" of insanity, to say nothing about his appearance and general shrewdness, would preclude any suspicion of mental decay.

5. Contrary to what is observed in acure mania and other forms of insanity, there was no sign of insomnia. The more intense his restlessness, the more profound the sleep which followed.

6. The hesitancy, extravagance and silliness with which he replied to simple questions; the absurd, disordered ideas which flowed slowly and thoughtfully would not be exhibited in the really insane, whose ideas form and flow rapidly, disconnectedly and are not devoid of sense.

7. There were no physical symptoms upon which to base a diagnosis of either functional or organic disease of the brain. The injury to the head had left no perceptible ill result, motor, sensory or mental.

8. The insanity of his mother being a psychosis of old age, could have but little effect, if any, upon the offspring of her early life. But the fact that she was insane and that she had an insane and phthisical child might be considered, in connection with the possible effects of the blow on the head, sufficient grounds upon which a neurotic diathesis or nervous instability might be based. It is possible that in this case the head injury might have caused some moral deficiency.

9. The order of development and the assumed symptoms failed to conform to the complete clinical picture of any recognized type of mental disease.

10. The motive for feigning was not over-looked, though that was of secondary importance when compared with the history and symptoms of the case.

Case 2.—Another instance of a criminal trying to escape the stern edict of the law by pretending to be insane, has lately come under my personal observation. In this case, however, the ultimate purpose of the malingerer was accomplished.

Isaac H., a negro youth, had served a few months of an eighteen year sentence in the State prison, for murder. He assumed the rôle of a madman, and by taking advantage of the lax and crude method of adjudging one insane in Virginia, he succeeded in gaining admission to the insane asylum where no special arrangements are provided for the custody of insane criminals. Every possible precaution was exercised to prevent his escape; yet Isaac, after a short sojourn, very ingeniously gained his liberty and has never since been heard of. We had diagnosed the case correctly and were contemplating returning the prisoner to his legitimate abode. I have not time here to make an analysis of the case. Suffice it to say, he so far over-acted the part, and behaved so differently from any other case of acute mania—the form of insanity he was trying to counterfeit—the deception was too flagrant.

The history of the case, the clumsy, over-acted symptoms, the motive, were all carefully studied, and by a process of elimination no type of insanity was left to fit his case. In the words of the distinguished Dr. Chapin, of Philadelphia: "The method of arriving at a conclusion is, bring together all the features in the history and manifestations of the case and then decide whether the case corresponds to a type of insanity, which in all of its features could not be simulated except by a trained alienist. In this way a mistake will rarely be made."

Case 3.—Some years ago there was admitted into the Central Hospital a young colored girl, of intelligence above the average of her race, and with a physical formation well-nigh perfect. Her case had been diagnosed "epileptic insanity."

It was some time before I had an opportunity of seeing her "in a fit." From the post-epileptic condition I had serious doubt about the genuineness of the epilepsy. Eventually I saw her repeatedly in her "terrible attacks," as her family had designated the seizures.

She would cry out suddenly, then fall, snap her jaws together, make a noise like the bark of a dog, foam at the mouth and act most maniacally, etc. Then she would pass into a convulsive state, jerk violently, tear off all her clothes, assume the opisthotonos position, grind her teeth, strike and snap at everything in reach, and finally pass into a quiet sleep. These violent attacks would continue sometimes for an hour or two, after which the patient would become quiet and

composed, her only complaint being that she felt sore. Said she knew nothing of the attacks, when they came on or how they affected her, but expressed great mortification on account of her affliction.

I noticed that the fall was rather guarded, that she never bit her tongue or hurt herself in any way, that the sphincters were never relaxed, that the pupils were in every way normal, the iris not insensible to light. It was evident that sensory perception existed. She became bathed in hot perspiration, and seemed to be well nigh exhausted.

The assumed tonic and clonic convulsions were by no means like those seen in real epilepsy. The post-epileptic condition she made no attempt to imitate.

The girl was carefully nursed for some time, but after watching her curious maneuvers a few times, I told her that she was feigning and that the next attack she had I should put her in a room and pay no attention to her whatever. My threat was promptly carried into execution, and the effect was all that could have been desired.

She was soon sent home, got married, though has never had any children, and has ever since remained free from that "epileptic insanity" which she palmed off so successfully on some of her friends for the sole purpose, as far as I could discern, of arousing sympathy. There was, however, doubtless some hysteria in her case.

That there is no established rule or test by which feigned insanity may be detected, but that each case must be decided upon according to the history and symptoms presented, can not be well denied. Alienists everywhere, will bear me out in these assertions. The individual whose sanity or insanity is being questioned should constitute the chief object of the investigation.

Whenever there is doubt about the mental condition of one charged with crime, it would be well, for the court to select a committee of competent alienists to investigate the case and report in writing the result of their examinations and deliberations. This need not preclude a cross-examination.

In Russia and elsewhere methods similar to this prevail. In some of the countries there is, I believe, a regular court physician who decides all doubtful medical cases. It has been advocated in some quarters of this country that there be appointed State experts in insanity to act in all cases where an element of uncertainty exists.

But the best plan, probably, would be to transfer the suspect to an insane asylum and keep him there, under proper safe-guard, for a specified time, in order that the attending physicians may determine the question of real or counterfeited insanity.

For the reason that the position often taken by lawyers is so entirely at variance with the true conception of the disease—insanity—that medical witnesses, who have no special knowledge of insanity, are often called upon to give expert testimony, that physicians are sometimes utilized by shrewd counsel for partisan or for sinister purposes, that juries composed entirely of laymen are not competent to try a case which involves a question of mental alienation—brain disease—and finally, chiefly that the ends of justice and mercy are sometimes thwarted, our system of medical jurisprudence of insanity is in need of revision.

The increase in the membership during the month of September was very sarisfactory. Let the good work go on!

THE ACTION OF STRYCHNIN IN PULMONARY CONSUMPTION IN RELATION TO THE NEUROTIC ORIGIN OF THIS DISEASE.

Read in the Section on Neurology and Medical Jurisprudence, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5-8, 1896.

BY THOMAS J. MAYS, A.M., M.D.

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Freedom of thought is the foundation of all progress; and while this law develops a diversity of opinion in practical therapeutics so great as to give rise to the belief that no two physicians treat the same disease in the same way, it is nevertheless true that in the struggle to relieve and cure disease we consciously or unconsciously seek and follow methods which finally lead to adoption of the same prinicples if not of the same details of treatment. This unanimity in practice is sometimes reached through certain etiologic and pathologic convictions which we hold of disease; or, as is more often the case, we are driven to it by the power which comes from witnessing the successful effects of well directed medication either in the hands of others or our own, and in spite of any theory we may possess in regard to the origin or mechanism of disease.

For a number of years I have said and written much in favor of the neurotic origin of pulmonary consumption, and while this theory may not be perfect in all its details, I believe that it gives us a more rational explanation of the causes and nature of this disease than any other. Not only do I feel convinced of this, but my experience assures me that the therapeutic measures which are directly addressed to the nervous system are the most effective in the relief and cure of this disease. Led by these considerations I have employed a number of neurotic agents in the treatment of this disease; the principal one is strychnin, to which I shall now devote a few remarks.

Of all the drugs in the materia medica there is none that compares favorably with the action of strychnin in the treatment of pulmonary consumption. As is well known this agent has an elective affinity for the whole nervous system, but over and above this it possesses a special influence on the nerves which preside over the function of respiration. Its action is reputed to be wholly devoted to the motor nervous system, but there is reason for believing that it also affects the peripheral sensory nerves. In small doses it stimulates, in medium doses it tetanizes, and in large doses it paralyzes the nervous system. The dose is a relative or a movable quantity however, for that which produces tetanus or paralysis at one time may act as a stimulus at another.

How, then, does strychnin act in pulmonary consumption? It is taken for granted that the lung disease is merely a superficial manifestation of disorder of the pulmonary nerve supply. Therefore the strychnin primarily raises the tone of the nervous system as a whole, and of the respiratory nerves in particular. In this way it not only increases the resistance of the lung to disease, but it aids digestion, assimilation and blood-building. Let us say that the tone of the nervous system is depressed. By employing strychnin we can do this, but must be careful to avoid the danger point, yet at the same time this point must be approached as closely as is consistent with the safety of the patient. The best way to bring

about this object is to begin with a moderately small dose of the drug, 1-30 grain four times a day, give this for one week, then increase it to 1-24 grain for another week, during the next give 1-20 grain, the following week raise the dose to about 1-16 grain, and so on, making a slight increase every week until you observe nervousness, restlessness or twitching of the muscles—the signs of the beginning of strychnin intoxication. In most cases these symptoms do not develop until 1-12 or ⅛ grain or even a larger dose is reached. It must be understood that the drug is to be given in these doses four or even five times a day. The object is to impress the nervous system with the full stimulant effect of this drug. The sooner this end is attained the better will it be for the patient. For this reason you begin with small doses and work upward as rapidly as you can with safety. After the desired point has been reached the question arises whether it is better to continue the largest dose or to resume the original. I think it best not to vary from this line during the remainder of the treatment, for you do not wish to lose what has been accomplished. Keep the strychnin treatment up to the highest level of safety, but shun the point where its stimulus extends into the region of tetanus and of paralysis. It is best, however, to reduce the dose somewhat at this point. If, for example, it is found that ⅛ grain is a maximum dose reduce to 1-16 grain, gradually increase the dose again until ⅛ grain is reached, and then return to 1-16 or 1-12 grain. After you have increased and decreased the dose several times you will probably find that ⅛ grain no longer produces any dangerous symptoms, and that you now can give as much as 1-6 grain. When administered in this way the drug may be given for an indefinite period to the majority of phthisical patients.

The remedial effects of the drug show themselves in various ways. The nervousness, sleeplessness and pain in the chest will be ameliorated, and perhaps entirely disappear; the cough, expectoration and dyspnea will diminish; vomiting will abate; the appetite improves; the patient gains in flesh and color; the weak and rapid acting of the heart will become slower and stronger: the red corpuscles increase in number, and the patient becomes more hopeful and brighter.

Of all the drugs in our possession strychnin makes the most profound impression on the nervous system, and in my opinion yields a larger measure of benefit in the treatment of pulmonary consumption than can be derived from any other single agent. In connection with it I employ well regulated rest, good food, quinin, phenacetin, hypophosphites, electricity, cod liver oil, etc.

I will not weary you by relating any examples from my experience in confirmation of what I have said,[1] but will quote in part a "case of phthisis apparently cured" which was reported by Dr. William Pepper in the December (1895) number of *The University Medical Magazine:* Female, aged 21, with a decided phthisical family history, began to emaciate rapidly in March, 1893. In less than a month she was bedridden and weighed 100 pounds. She had high fever, night sweats, anorexia, vomiting, copious expectoration and all the physical signs of pulmonary disintegration. She received an egg albumin diet and the medicinal treatment consisted of 1-100 grain of strychnin nitrate with 1-1000 grain of atropin sulphate every two hours hypodermatically; and 1-50 grain of strychnin nitrate with 1-12 grain of the double chlorid of gold and sodium and ½ grain of a vegetable digestive every two hours by the mouth. After a few days the amount of gold and sodium was increased to ¼ grain every two hours. At first she showed signs of strychnin intoxication, and the amount was reduced, but she soon resumed the original dose, and after the first two weeks bore the drug well, although always just inside the border line of its toxic action. During April she improved decidedly, and during May the improvement was also very rapid. By the latter part of this month she weighed 125 pounds. The abnormal physical signs and the tubercle bacilli disappeared and in September she weighed 132 pounds, and was in perfect health. In August, 1895, she had a slight attack of pneumonia, after which all the symptoms she had two years previously, recurred, and her weight fell to 114 pounds. She was placed on her former treatment, and made a rapid recovery. On November 1 she again weighed 124 pounds, her cough and expectoration had almost disappeared. No tubercle bacilli have been found since the previous October.

Dr. Pepper, in summing up the case says, that among its noteworthy points are the absence from the treatment of all cough medication and antiseptics, and the large doses of strychnin and the double chlorid of gold and sodium with which the system was kept literally saturated.

There can be no doubt that this was an apparently hopeless case of phthisis from its very outset, and great credit attaches to the distinguished prescriber for guiding it to such a successful termination. The question arises as to which of the agents played the most prominent rôle in bringing about this issue. From my own experience with the drugs which were employed I believe that the strychnin is chiefly responsible for this, although in forming a correct estimate we must not lose sight of the value of the nutritious food and the physical rest.

When we take into consideration that insanity, idiocy, hysteria, chorea, epilepsy, asthma and all forms of nervous disorder are prone to develop into pulmonary phthisis; that the former diseases are frequently converted into the latter through heredity; that all poisons like those of alcohol, syphilis, lead, mercury, influenza, whooping cough, etc., have the power of engendering nervous disease and pulmonary consumption, and as a matter of fact the former are often followed by the latter disease; and that the markedly beneficial action of strychnin in this disease comes exclusively through the nervous system, it does not require a very great stretch of the imagination to perceive that the neurotic element plays a leading part in the etiology of pulmonary consumption.

[1] Also see "The Strychnin Treatment of Pulmonary Consumption."—*American Medico-Surgical Bulletin*, May 15, 1894.

Perchlorid of Iron in Treatment of Ingrowing Nail.—Reghi's method is being extensively quoted, as he has been very successful with it. After soaking the foot until the scab is loosened and the pus washed off, a piece of cotton dipped in a 50 per cent. solution of perchlorid of iron is inserted in the ungueo-phalangeal groove, and the toe lightly wrapped up. This is repeated twice a day, the blackish scab that forms removed each time. The patient remains in bed a couple of days, and the cure is complete in twenty, although a small piece of cotton should be worn between the nail and the flesh for some time.—*Bulletin Méd.*, No. 58.

FUNCTIONAL DYSPEPSIA OF CHILDREN WITH ILLUSTRATIVE CASES.

Read in the Section on Diseases of Children, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5-8, 1896.

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WAUKEGAN, ILL.

The term *dyspepsia* is so frequently used by writers as a synonym for indigestion that one needs to explain the meaning he attaches to the word. In this paper it is to be understood as referring to the condition which permits or encourages acute attacks of deranged digestion or unnatural distress in the stomach or bowels from the presence or absence of normal food or its products. The acute attacks of interference with digestion are here termed indigestion. Frequent attacks of indigestion may occur in the course of a case of dyspepsia.

Functional dyspepsia includes all cases which are not due to some organic lesion of the stomach. Many cases of gastritis in children are sequelæ of indigestion and must be carefully differentiated from functional dyspepsia. But cases resulting from undeveloped stomachs properly belong in this class. From these limitations and explanations it may be seen that we include under the term functional dyspepsia cases which result from some congenital imperfection in structure, from improper food whether of quantity or quality, from variations of temperature especially increased heat, from the presence of bacteria or their products, from reflexes caused by diseases in other parts of the body, and from weakness following or accompanying general illness.

Case 1.—I have lately had under my care a baby born before the termination of the eighth utero-gestation month. It was small and though perfect in limb and feature, had little vitality. Its digestive powers were so feeble that its mother's milk caused it great distress. The mother's milk ceased in a few days. A wet nurse was secured but was soon dismissed because relief was not obtained and because the baby seemed to dislike the milk. Cow's milk, diluted, raw or sterilized or condensed, was borne but a short time without distress. Malted milk food (Horlick's) agreed for a short time, and then a return was made to cow's milk. These experiments occupied ten weeks. The milk was then predigested, with worse results apparently than had been experienced before. The bowels alternated between constipation and diarrhea. Vomiting was occasional; usually the dejecta consisted of the food unchanged. Fermentation and gaseous eructations were frequent. The child continued to grow and gain flesh. There was no doubt in my mind that the cause of the disturbance in this case was imperfect or under development of the stomach.

Such cases may persist through childhood and even to adult life. When they do it is difficult to differentiate them from another class of cases, which result from cicatrices following ulcers of the stomach.

Case 2.—I was called to see a baby seven or eight months old, at the breast. It was emaciated, yet nursed feebly. Examination of the mother's milk showed it to be poor in quality but abundant in quantity. The baby suffered pain from gaseous distension of stomach and bowels. Vomiting was frequent, and occasionally diarrhea. Treatment made no special impression. Then the infant was given cow's milk, but with no beneficial result, rather an increase of the dyspeptic symptoms. Other changes were made without relief until condensed milk (Swiss brand) was given. Very soon after this change the digestive derangement subsided and the little patient began to gain flesh. The recovery was complete. This case was undoubtedly one due to dietetic disturbance.

Case 3.—The influence of heat is illustrated by the following case: I was called in July to see a baby which was suffering with diarrhea. The patient vomited occasionally, suffered some distress in the stomach and bowels, took its mother's milk ravenously; diarrhea lienteric, except when charcoal, lime water or pepsin were given, then the discharges were better for a time. The child was ten months old. The weather was very warm. At first directions were given to remove nearly all clothing, bathe the patient frequently and keep it cool. The treatment was followed by immediate improvement. The weather became warmer, the patient worse. The use of cold water and ice relieved the symptoms. The patient's temperature was not increased. There were no evidences of enteritis or colitis. On cool, cloudy days the case was better, on warm days worse. A change to cow's milk was followed by negative results, no increase or diminution in symptoms. The patient recovered when cool weather came.

Case 4.—That the presence of bacteria may cause dyspepsia in an infant is well illustrated by the following: Baby F. was a year old, a bottle baby. It had attacks of stomach derangement every few days or weeks, especially during the summer. At such times it had colicky pains, distension of stomach and bowels, vomiting of coagulated milk, with similar coagula passing from the bowels, causing diarrhea. No fever. When I was called the condition was such as just described, somewhat aggravated by the warm weather. Everything about the child was dirty, an innumerable host of flies trying to clean things up. The bottle nipple was not clean, having many specks of milk coagula and fermented flakes upon it. The bottle was in the same unhygienic condition. Similar specks were found in the baby's mouth. Although a microscopic examination was not made, I was satisfied that the case was one of functional dyspepsia due to the bacteria and their products engendered in what was evidently a favorable culture medium. The treatment, which consisted in cleaning up the field for operation and the use of antiseptics, confirmed the diagnosis by producing a cure.

Case 5.—Cases of functional dyspepsia due to some neurosis are rare in young children, but the following I think well illustrates a case due to reflex influence induced by disease in some other part of the body. I was called to see a boy 5 years old who had been suffering with poor appetite and deranged digestion for some months. Gaseous eructations were frequent, but the stomach was not permanently dilated nor very frequently distended by gas. Food of almost any variety and kind, whether nitrogenous or non-nitrogenous, caused more or less distress. Soon pyrosis and other symptoms made eating dreaded. A few weeks after the beginning he showed signs of failure of nutrition, began to be anemic, lose flesh and grow weak. The bowels were regular. No tenderness of the stomach was manifested and the temperature was not above normal. About two months from the first indications of disturbance I was called because constipation had become troublesome and a tumor was discovered in the lower part of the bowel. Examination revealed no organic disease of the stomach, but did reveal a sarcoma of considerable size in the pelvic cavity, chiefly to the right of the median line. The tumor, about 4 inches in diameter, pressed upon the rectum and interfered with the normal evacuations of the bowel. Perhaps eventually the fermentation and ptomains occurring in the bowels caused by retained feces were prominent factors of the gastric as well as intestinal disturbances. The case passed rapidly to a fatal termination without further gastric derangements than those due to reflex influences and the poisoning caused by fecal ptomains.

Case 6.—The last case I desire to mention was one who had been prostrated for several weeks with typhoid fever. He was 8 years old and had been greatly weakened by the long sickness. When the milk diet was no further insisted upon and a gradual change was made to other food, gastric disturbances in the way of eructations, distress, distension and heartburn were frequent. These continued for three weeks. They were due to the anemic and atonic condition of the stomach and should certainly be considered functional disturbances. Dietetic care and recovery of strength and health removed all dyspeptic symptoms, so that after three weeks and since there has been no evidence of gastric trouble.

Other cases of anemia and atonic conditions may be accompanied by functional dyspepsia, just as in adults.

This brief presentation of cases will help to impress the writer's views of etiology and treatment of functional dyspepsia. By far the greater number of cases are due to improper food, the improper administration of food or to reduced vitality. An extended experience with the use of hydrochloric acid and pepsin will convince one that the relative number of cases cured by these remedies is small; in fact, the number benefited will be disappointing. Still we can not rely exclusively upon dietetic and tonic treatment. An attempt to render the alimentary canal aseptic is

paramount. The following are the chief indications to be met in this condition: 1. Correct the food both as to quantity and quality. 2. Try to render the stomach and intestines aseptic. 3. Assist nature in her effort to restore the natural functions and tone up the system.

1. Too frequently the undeveloped state of the salivary glands in the first few months of infancy is forgotten and food, such as rice water and cereal preparations, is given which can not be digested in the stomach and in many cases at least is not completely digested in the intestines. A similar result may obtain if given in too large quantities later in life. Under such circumstances the undigested food becomes a nidus for the growth of bacteria, fermentations result, irritating gases and bacterial products may cause diarrhea and at times constipation. A too abundant proteid diet of eggs and meat may in a similar manner and for the same cause result in putrefactive decompositions and the gases formed likewise produce constipation or diarrhea, even in older children.

2. The rational treatment in these cases is, of course, antiseptics. An effort should be made to correct or remove the cause and give antiseptics. Antiseptics can not be given in sufficient amounts to overcome the condition unless an irritating diet be corrected, especially is this true in nursing and bottle babies. It is true also in older children. Salicylate of bismuth, salol, carbolic acid, charcoal and other antiseptics used in these conditions have given me excellent results. I have treated diarrheas due to indigestion in the same way with like results. In functional dyspepsia, however, a habit of indigestion may be established, as it were, and a tendency to certain bacterial growths may become persistent. Here it is necessary to persevere in an antiseptic course of treatment. I have lately treated bacterial diarrhea of a very aggravated type, in patients old enough to be using a mixed diet, by the administration of a milk diet and salol without other medication and with the most satisfactory results. Salol may be given in doses of one to two grains every two or three hours until improvement occurs. Infants under one year yield very readily to salicylate of bismuth. Where from idiosyncrasy or other cause the salicylate is not well borne, salol in one-half grain doses will frequently be all that is needed. In many cases minute doses of calomel act as an antiseptic and afford gratifying relief. Cases of summer complaint preceded or accompanied by functional dyspepsia frequently yield quickly to the antiseptic treatment. The same is true of those dyspeptic cases following prostrating fevers, neuroses and other forms of exhaustion in which there is fermentation or putrefaction of food due to delayed or weak digestion and the formation of irritating gases. The dilatation of the stomach which so frequently accompanies functional dyspepsia in children is nearly always due to gaseous distention and is temporary. The removal or diminution of the gas is a step toward a cure. Where much distention exists and antiseptic practice does not afford ready relief, the stomach-tube or a soft catheter may be introduced through the mouth or nose and the gas allowed to escape. The general douching of the stomach seems to me to be less valuable in children than in adults, but sometimes it is useful to remove offending matters. The douche is sometimes of value also in atonic cases where the gastric walls are relaxed by over distention or a weakened condition of the general system, anemia, etc.

3. Finally it is necessary in many instances to give hydrochloric acid, pepsin, lactopeptin, peptenzyme, papoid, diastase and similar preparations to help correct the deranged secretions and assist in digesting the food. In addition to the administration of these internal remedies which act chemically or by catalysis, stomachics, the aromatic sulphuric acid, nitric or the nitro-muriatic acid and other preparations to stimulate the secretions may be needed. An alcohol sponge bath twice a day followed by inunction with cocoanut or olive oil to which quinin may be added in suitable cases, frequently aids materially in restoring the patient to health and vigor. The use of malt preparations and other tonics is frequently demanded. The anemia, neurasthenic or other conditions of depressed vitality will guide in their administration.

THE TREATMENT OF CHRONIC INFLAMMATION OF THE BLADDER, WITH REPORTS OF TWO CASES OF CONGENITAL DIVERTICULA.

Read before the Colorado State Medical Society, June, 1896.

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Chronic inflammation of the bladder is practically always due to microörganisms, the one most often encountered being the bacillus coli communis, which exists normally in such abundance in the intestinal canal. The gonococcus, the tubercle bacillus, the typhoid bacillus, the various pyogenic bacteria, etc., are also frequently found. It should never be forgotten that it is not a calculus, an enlarged prostate, a tumor, or a quantity of residual urine which is the direct cause of an inflammation, but the bacteria which have in some manner gained entrance to the bladder in presence of these conditions. Even a cancer does not produce inflammatory symptoms until infection has taken place. I had recently under my care an old gentleman with vesical carcinoma, whose urine remained free from pus for a considerable time after the growth began. It is possible for germs to enter the bladder through the kidneys, the urethra, and even through the blood, but in most cases catheterization is responsible for simple infection. A vesical calculus may exist for years without a sign of cystitis, provided no instrument has been introduced into the bladder. I have seen a man with an enlarged prostate whose bladder had been dilated, almost to the umbilicus, with residual urine for over two years, and yet the urine when removed was as clear as spring water.

From a therapeutic standpoint, chronic inflammations may conveniently be grouped under three heads: 1, inflammation in connection with the presence of a foreign substance—calculus, tumor, piece of catheter, etc.; 2, inflammation in connection with the presence of residual urine; 3, inflammation due to specific infection, such as gonorrhea, tuberculosis, syphilis, etc. Under the last heading may be placed inflammations due to certain microörganisms other than those of the diseases mentioned.

The first two groups are closely allied. It is not so much because a foreign substance exists, or because

it injures the mucous membrane, that inflammation occurs; but because the bladder is unable to clear itself sufficiently of objectionable ingredients of the urine, which remain collected about the substance. In other words, it is to the residual urine that the trouble is due. Nevertheless, the divisions given above are retained for the sake of convenience.

1. Inflammation in connection with foreign substances.—It is self-evident that rational treatment indicates removal of the offending substance, be it stone, tumor or other material. Simple removal is usually sufficient, provided no obstacle to complete emptying of the bladder remain, such as atony, a diverticulum, etc. I have observed a case in which a stone had existed in the bladder for nearly fifteen years, where the marked inflammatory symptoms disappeared within a few days after lithotomy had been performed.

2. Inflammation in connection with residual urine.—This is found in enlarged prostate, stricture of the urethra, paralysis and paresis of the bladder, certain diverticula, etc. In case of stricture, the enlargement of the narrowed urethra is the essential feature of treatment. The management of other forms is not so simple, and often taxes the surgeon's resources to the utmost.

General treatment.—It should be appreciated by all that general treatment is of much less importance than is usually supposed. The various balsams, resins and other compounds, so often mentioned in books and so widely advertised, often do some good, but as curative agents they are sadly deficient. They are, nevertheless, prescribed on every hand, frequently to the exclusion of local measures. Local treatment in chronic cystitis is the only reliable treatment.

We do not speak at present of "soothing the mucous membrane" by internal remedies, but of "inhibiting bacterial growth by means of antiseptics." Good may be accomplished in this way, although much less than is often imagined. Perhaps the most satisfactory drug for the purpose is salol, given every few hours in 5 grain doses.

The patient's bowels should be kept open, not only because constipation leads to congestion of the vesical veins, but because there is no more efficient method of removing poisonous substances from the system than through the bowels. The necessity of proper foods, tonics, cleanliness of the skin, etc., will suggest itself. Plenty of milk at frequent intervals does excellent service, both as a food and as a diluent of the urine.

Local treatment.—The main indications are: 1, disposal of residual urine; 2, washing out the bladder.

Residual urine.—This must be removed, no matter how small the quantity. If the urethra will easily admit a catheter of sufficient size to thoroughly drain off not only all traces of urine, but stringy pus and clots of blood which may also be present, then the regular use of a catheter will often be sufficient. When the inflammation is obstinate or severe, a soft catheter may at times be tied in and continuous drainage instituted. This method, which is not extensively used in this country, gives excellent results, even in cases of enlarged prostate. But if only a very small or specially constructed instrument can be employed, or if the patient can not be entrusted to catheterize himself, or if the channel is irritable, or if there are other reasons why the use of a catheter is unsatisfactory, then more radical procedures become necessary. At the present day the operative measures most frequently adopted are castration, resection of the vasa defferentia and suprapubic cystotomy with retention of a permanent opening. A sufficient number of cases have been reported for us to say with considerable certainty that, in general, castration furnishes the surest and safest means of combating the evil effects of an hypertrophied prostate. Some cases of inflammation, however, are so severe, and the debilitated patient so much in need of immediate relief, that suprapubic cystostomy should be done at once, and thorough drainage of the bladder secured. In all other cases castration is applicable, provided the nature and consequences of the operation are fully appreciated by the patient. Among those within the age of sexual activity there will always be some who naturally object to the removal of the testicles, no matter how strongly the operation may be indicated. For these the older operation of prostatectomy is indicated, although it should not have the preference, on account of its uncertainty and danger. For patients who, while recognizing that their term of sexual activity is past, still object to castration for various reasons, resection of the vasa deferentia may be done, although it offers at present a less certain prospect of cure than removal of the testicles.

Washing out of the bladder.—Several points should be borne in mind in this connection:

1. The bladder must not be over-distended, as this may keep up a chronic inflammation which would otherwise tend to subside. There is also reason to suppose that septic material can in this way be forced into the mouths of the ureters, thus leading to kidney complications. No more than four or five ounces of fluid should be employed, and less than this is often preferable. A good-sized syringe of hard rubber, which can be easily used with one hand, is safer and better adapted to the purpose than a fountain syringe, although the latter is in general use.

2. The prostatic urethra should be irrigated as well as the bladder, especially in gonorrheal affections, as it is often the seat of inflammation which may reinfect the adjacent viscus. The catheter should be slowly inserted while the fluid is being injected until the fluid no longer appears anteriorly at the meatus, but passes through the deep urethra into the bladder, the eye of the catheter being just beyond the constrictor muscle. When practicable, it is well to leave considerable fluid in the bladder, which the patient is instructed to pass after the catheter is removed, thus irrigating the channel from behind forward. If the bladder, however, is insufficient, and the solution not a mild one, it is better to withdraw it entirely. In obstinate cases of posterior urethritis it answers an excellent purpose to occasionally inject a few drops of concentrated solution of nitrate of silver ($\frac{1}{2}$ to 5 per cent.) with an Ultzmann's capillary injector.

3. A single, not a double, catheter should always be used. The current from a double catheter selects a short, easy channel for itself, and passes directly from one eye of the instrument to the other without distending the folds of the mucosa and cleansing the bladder as it should.

4. When the organ is not too sensitive, the fluid should be injected with some force, so as to more effectively wash the mucosa.

5. The catheter should be soft rubber or linen, as large as can be used without undue discomfort, especially when thick pus and clots of blood are present,

and it should not be forgotten that a catheter is just as large as its eye and no larger.

6. Almost any antiseptic or astringent fluid will give good results if properly employed. Personally, I prefer the permanganate of potassium or the nitrate of silver. The former is both an antiseptic and an astringent, and its strength can be conveniently judged by the depth of color of the solution. The stains are quickly removed with oxalic acid. The nitrate of silver is less easily handled, but sometimes gives better results.

7. One daily irrigation is usually sufficient, although two may be required. Care should be taken not to carry the treatment too far and cause more harm than good by undue interference.

8. It is generally more satisfactory to irrigate an insufficient bladder with the patient standing, as the viscus is more easily cleansed in this position.

In this connection I desire briefly to mention two cases of congenital diverticula of the bladder. These malformations are very rare and present many puzzling features to the diagnostician. They are similar in appearance to the diverticula whch occur in inflamed bladders with hypertrophied trabeculæ and obstruction to the outflow of urine. In congenital diverticula, however, there is not necessarily any damming back of the urine with distension, and there is little or no tendency to progressive enlargement. At times practically a double bladder exists, with a ureter emptying into each division, but the results are clinically the same—the retention of residual urine, and a tendency to chronic inflammation and the formation of calculi.

One case came under my charge a number of years ago in the Cincinnati Hospital. He was a young man of good physique, who had experienced no marked urinary disturbance until he suffered an attack of gonorrheal cystitis. This proved to be extraordinarily obstinate, and yielded to none of the usual forms of treatment. There was little or no prostatic enlargement and no urethral obstruction. It seemed almost inexplicable to me at the time, that after the man had passed his urine, a catheter would draw off an additional quantity, and after some moving about of the instrument in the bladder, still more would be obtained. The patient shortly died with surgical kidney, and at the autopsy four or five diverticula were found each somewhat larger than a walnut. They diverged from the posterior and inferior walls of the bladder, were perfectly smooth within, and their openings were about the size of the little finger.

The second case is a young man of 29, who has recently been under my care. He is well built and active both physically and mentally. Up to the age of about 14 nothing abnormal was observed in connection with the urinary apparatus except that the urine appeared to be unusally strong in odor. About fifteen years ago it became necessary to pass a catheter, following an injury to the back with hematuria. Cystitis together with pyuria developed, which persisted for some years. After much and varied treatment, it was finally cured by irrigation. The patient's health remained good for several years, until, as a consequence of an injury to the back, retention of urine took place and a catheter was again passed. Cystitis once more supervened in an aggravated form, and continued for six or eight years, in spite of the most strenuous efforts toward its subjugation. During this period the gentleman was under the care of many of the world's most eminent surgeons, including Agnew and J. William White of Philadelphia, Sir Henry Thompson of London, Czerny of Heidelberg, and Guyon of Paris. The presence of a diverticulum was not suspected even after prolonged and careful examination with the cystoscope. I mention these names in order to show that the diagnosis of a congenital diverticulum of the bladder may be exceedingly difficult, not to say well nigh impossible. When the patient came under my charge he was in a pitiable condition. He was forced to urinate, with pain and strangury, about every twenty minutes, both night and day, and it was necessary to frequently irrigate the bladder in order to make life even tolerable. The urine was loaded with blood and pus, and was offensive in the extreme; there was, however, little fever. The passage of a Thompson's "searcher" in the effort to find a stone, stirred up a quantity of decomposed urine, which called my attention to the possibility of the existence of a diverticulum, but the idea was partially dismissed because of the amount of hemorrhage, which was more consistent with the presence of a tumor or of tuberculosis. A careful examination of the urine by Dr. E. R. Axtell and myself failed to reveal tubercle bacilli, so that the idea of tuberculosis was given up. A suprapubic cystotomy was made for purposes of drainage and exploration, especially as some form of tumor was strongly suspected. An opening large enough to admit the little finger was found in the trigonum, to the left of the median line, which communicated with a diverticulum the size of a Messina orange, passing upward and backward along the side of the sacrum to the left of the rectum. The interior was smooth and nearly spherical in shape. After the pouch had once been recognized it could easily be felt by a finger in the rectum. It being manifestly impossible to remove the diverticulum through a suprapubic incision, it was decided to drain the bladder until the cystitis had subsided and then attempt to close the opening without recurrence of inflammation. If this failed an attempt could be made to remove the pouch through the ischio-rectal fossa. The cystitis rapidly and completely subsided as soon as thorough drainage was instituted, the patient improving rapidly in weight and general condition. An attempt to close the artificial urethra was soon followed however by a reappearance of the inflammatory conditions, due probably to infection from the prostatic urethra. Drainage was again procured and the entire urethra and bladder subjected to frequent irrigation with permanganate of potassium and nitrate of silver. The next proceeding was to drain the bladder through a catheter tied in the urethra while permitting the fistulous opening to close. This also failed, as the posterior urethra proved to be too sensitive to permit the catheter to remain more than a few hours, despite all preparatory treatment. It was decided to institute continuous drainage of the bladder through the supra-pubic opening, for a time at least. This was accomplished by means of a soft catheter, held by a truss-like arrangement, and emptying into a rubber urinal secured to the thigh. The apparatus, which proved to be very effective, was constructed by cutting a small, hollow rubber ball in half, and passing the catheter through a slit in the bottom of one of the hemispheres. The section of the ball fit nicely into the large dimple surrounding the orifice of the artificial urethra, and served to hold the catheter securely in place. A hard-rubber plate

secured around the waist and under the perineum by rubber bands hold the ball in position. The patient has been wearing this apparatus in perfect comfort for about three months, and finds that he is inconvenienced scarcely at all by his condition, while his health and energy have been completely restored.

An examination of these two cases presents some interesting points: 1. Congenital diverticula can exist for many years without their possessors being aware of any abnormality. 2. Cystitis may not take place until infection is caused by catheterization, gonorrhea, etc. 3. Cystitis in the presence of diverticula may sometimes be cured without opening the bladder, and remain so indefinitely, provided reinfection is not brought about. 4. Hemorrhage from chronic cystitis may be so great as to strongly simulate hemorrhage from a tumor. 5. Residual urine, without stricture of the urethra, enlargement of the prostate, or paresis of the bladder, should be suggestive of a diverticulum. 6. Even in the best hands, the opening of a diverticulum may be overlooked with the cystoscope. Perhaps a reason for this is that the mucosa during life is so congested and folded about the opening as to conceal it. 7. In obscure vesical affections, with cystitis, it is rational to open the bladder for purposes of exploration and drainage, the preferable incision being the suprapubic, as offering the better opportunity for removal of foreign bodies, if such be present.

DANGERS OF BICYCLING; WITH REPORT OF A CASE OF ACUTE DILATATION OF THE HEART.

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Ever since the great popularity which has attended bicycling in this country, numerous articles have appeared in the medical and lay press pointing out real and imaginary dangers liable to beset those attracted to this sport. These dangers have attended both sexes, more particularly the female bicyclists, and consisted in disturbances affecting the pelvic viscera. No doubt over-indulgence in this pastime can and will produce congestions and irritations of these organs, perhaps displacements and even inflammations, but such cases are comparatively rare.

From the moral point of view another danger has been discovered by the Woman's Rescue League of Washington: That the bicycle is nothing more or less than the devil's advance agent, and through the opportunities which it offers is causing an alarming increase of immorality among women. The writer believes this to be true only in so far as it affects those women upon whom the devil already has a mortgage, and employs the wheel only as a subterfuge to foreclose the claim. The wheel has been a great aid to physicians in the treatment of neurasthenic, hysteric and hypochondriac women, and the good it has done to them and the pleasures derived from it by others will more than counterbalance the harm which those unable to ride think it has and may create. Pleasure and health can be derived from bicycling only so long as the laws of hygiene and common sense are heeded, and their violation will be followed by disagreeable consequences.

The male sex is predisposed to that ungainly and unhuman distortion, the "camel's back," as a result of faulty posture and ambition for speed, and perhaps fame. Not only is the spinal column strained and distorted, but the thoracic and abdominal viscera are subject to undue pressure, and hence to restricted movements and imperfect physiologic action. No sport is a healthy one which in its performance coerces the body into an unnatural position, and the great popularity attained by rowing and base ball is partly due to the comfort and pleasure which the normal position of the body insures.

Through long-continued pressure caused by long rides and faulty fitting saddles, the male genito-urinary tract is liable to damage, and this should therefore be carefully guarded against. The dangers which do, arise, however, from bicycling affect the beginners, and scorchers mostly, who have not learned the secret of the sport, namely, moderation.

After consent is obtained from the family physician to ride, a properly geared wheel should be selected, with an easy and comfortably fitting saddle, the handle bar raised so as to give the body an erect and graceful position, and this advice constantly borne in mind, that the sport should be discontinued at the first sign of fatigue. As the days go by this fatigue will grow less and less, and the rider able to take longer spins as the muscles become firmer and more accustomed to this form of exercise. The whole system undergoes a certain kind of training or physical education, the heart and respiratory muscles accustoming themselves to the necessary strain just as do the extensors of the thighs and the calf muscles. Just as over-indulgence results in tiredness and lameness of the leg muscles, so also are the heart and respiratory muscles affected. The heart through increased work put upon it by long, rapid spins is taxed to its utmost, and when persevered in, serious damage to the heart walls or heart valves may result. As Osler truthfully says: "Endurance in prolonged contests is measured by the capabilities of the heart and its essence consists in being able to meet the continuous tendency to overstep the limits of dilatation."

One form of heart trouble especially is attended upon over-exertion and over-fatigue, namely, the acute dilatation of the heart walls, due to over distension of the muscle fibers. The cause of this dilatation is an incomplete exhaustion of the ventricles, generally the right, during systole, and an excessive engorgement during diastole with possibly some defective nutritive change in the muscle fibers. The symptoms arising from this condition are subjective and objective and are well illustrated in a case which recently came under my observation.

James H. C., age 37 years; height 5 feet 6 inches; weight 138 pounds; married and has eight children. He had an attack of rheumatism when 12 years of age, and typhoid fever when 29. Has always been a hard-working man, employed on the railroad sometimes ten to fourteen hours daily. About May 1, 1896, he purchased a wheel and rode occasionally from his home to the railroad yards, perhaps a distance of half a mile. On May 8, 1896, he accompanied a few friends on a spin into the country and rode four miles in twenty-five minutes. On dismounting he noticed a severe pain over the left side of the chest extending to the neck, also that he was completely "winded," and the left side of the chest was throbbing violently. After only a few minutes rest, urged by his friends, he remounted the wheel and rode home, covering the distance in thirty minutes. On reaching home he could scarcely breathe, was in profuse perspiration, trembled all over and was obliged to go to bed. Vomited during the night; the following morning he found he was still in the same condition and was unable to go to work, and scarcely able to be on his feet. The least exertion caused his left side to "thump" vigorously, while the vessels in the neck throbbed so wildly as to make them perceptible. Patient also noticed a feeling of weakness all over the body and a

stiffness of the knee joints, accompanied always with great dyspnea.

After remaining idle for several weeks and not obtaining very much relief, he consulted me on July 20, 1896, for "weakness and trembling," thinking that he had some nervous disorder; he stated that his sickness began on May 8, 1896; that he worked the day previous and up to that day was in his usual good health.

Status Præsens.—Face has an anxious, apprehensive expression; eyes are glassy and facial muscles quivering. Pallor and emaciation are pronounced. There is a slight tremor to the head; is not painful on percussion and has never had headache.

The examination of the eyes was made by Dr. R. H. Satterlee, of Buffalo, N. Y. "Ophthalmoscope shows hyperopia, right eye 2 diopters, left eye 1 diopter. No astigmatism could be discovered. Both eyes have unsteady lateral movement. Left eye does not move as freely as right eye. Weakness of all eye muscles, particularly the interni. Accepts no glass at first; vision later after wearing R. + .50 D., L. + .25 D. for half an hour, 20-20. These prescribed to be worn two months constantly."

Strength of arms diminished; dynamometer test shows, right hand 60; left, 40; tremulous and with increased tendon and muscular reflex action. The legs likewise are weakened, also tremulous, and the reflexes are exaggerated. There is no anesthesia or hyperasthesia of the face, arms or legs.

The chest offers the most important symptoms, both objective and subjective. The precordial area is largely increased and reverberates with every heart beat. The apex point is diffused and impossible to locate. On palpation a tremulous and purring sensation is experienced which is communicated to nearly the whole side of the thorax. Percussion shows increased area of cardiac dullness extending to the right of the sternum, to the left of the mammillary line and below the nipple. Auscultation does not reveal any valvular murmurs, although the sounds are indistinct and diffused. The heart beats number 130 to 150 per minute.

Urine is increased in quantity, but does not contain albumin or sugar. Bowels are regular. Sleep is fair but is often awakened by the heart's action. During the day he is aware of much fluttering of the heart while napping.

On July 27, 1896, I again had occasion to see the patient and found his heart in practically the same condition, beating 130 times per minute, and as tumultuously as on the former examination.

The history of this case leaves little doubt as to the correctness of the diagnosis—acute dilatation, and the cause of such dilatation—over bicycling. The distance covered and the time would be insignificant to a trained wheelman, but to one not accustomed to long rides it was quite an undertaking and was fraught with serious consequences. In conversation with beginners in the sport one hears so often, "I rode eight or ten miles to-day in such a time," or "I rode a mile in such a time and have only been on the wheel a few days," and yet these riders may never have taken any kind of regular physical exercise. They certainly are imprudent and should be discouraged in their ambitious tendencies until they are in condition to endure the necessary strain. To the writer this seems one of the greatest dangers of bicycling and yet one of the easiest to avoid.

THE STATISTIC EVIDENCES OF THE VALUE OF VACCINATION TO THE HUMAN RACE, PAST, PRESENT AND FUTURE.

Read before the American Medical Association at the Jenner Centennial Celebration, held at Atlanta, Ga., May, 1896.

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(*Continued from page 753.*)

[30] Dr. Kinnis, formerly Superintendent of Vaccination at Colombo, in his "Report on Smallpox as it appeared at Ceylon in 1833-4," and in an appendix relating to observation made by Dr. Forbes in the epidemic of 1830, gives enumerations from which the annexed table is compiled. It will be observed that the gradation of death rates marked in the last column, though far less detailed than in Mr. Marson's statement, is to the same general effect. And in the cases noticed by Dr. Kinnis himself the difference is further developed; for he distinguished persons pretending to have been vaccinated into such as had no marks, and such as had unsatisfactory marks of vaccination, and found that the death rate of the latter was 26⅓, that of the former 32 1-7. Cases of chickenpox are not included in the annexed table, and Dr. Kinnis gives at length (pp. 10–14) his reasons for concluding "that the febrile eruptive disease known in Ceylon by the name of chickenpox arises from an infectious matter essentially different from that which produces smallpox and modified smallpox."—Op. cit. Colombo, Govt. Press, 1835.

Occurrences and fatality of smallpox.

	Number of cases	Number of deaths.	Percentage of deaths.
In persons decidedly not vaccinated. . . .	351	146	41.5
In persons having no marks or but unsatisfactory marks of vaccination	199	52	26.1
In persons having satisfactory marks of vaccination	187	3	1.6
In persons having marks of smallpox . . .	4	2	. . . . .

Comparison of the number of cases of smallpox which were treated in the General Hospital at Vienna during the 5 years, 1851-55 inclusive, as regards the ages of patients and the number of cases which terminated fatally.

Age of patients.	Vaccinated.		Not vaccinated.	
	Total number.	Number of deaths.	Total number.	Number of deaths.
To 10 years of age	55	8	34	15
From 11 to 20.	834	16	111	25
From 21 to 30.	892	43	83	23
From 31 to 40.	171	7	19	5
From 41 to 50.	35	1	3	3
From 51 to 60.	9	1	8	...
Total	1,995	76	244	71

The number of cases of variola in various forms was 2,239, namely:

Who had been vaccinated 1,995
Who had not been vaccinated 244

Vaccinated as well as non-vaccinated persons were seized with the smallpox; still, with this difference, that of the vaccinated cases 8⅓ per cent., but of the non-vaccinated 33.3 per cent. were cases of variola vera.

Of the 1,995 vaccinated cases 76, and of the 244 non-vaccinated cases 71, terminated fatally.

[31] "Interesting and instructive are, moreover, the following figures which throw light upon the relation existing between unvaccinated, vaccinated and revaccinated persons becoming sick or dying of smallpox. According to the memoranda of certain hospitals, among those who died of smallpox during the years 1870 and 1871 were:

	Unvaccinated. Per cent.	Vaccinated. Per cent.	Revaccinated. Per cent.
In Muenster . . .	80	13	0
In Posen.	70	12	2
In 4 hospitals of Berlin	51	13	0
	70	16	4
	66	15	4
	81	14	9

In Chemnitz in 1871, among 249 dead were only seven vaccinated persons.

According to Buchanan in 1881 in England, there was only one victim who had been vaccinated while there were 200 deaths among unvaccinated children from 1 to 2 years old.

In Bavaria in 1882, among the smallpox cases were counted 14.6 per cent. vaccinated, 5.8 per cent. revaccinated, 45.5 per cent. unvaccinated.

In the Imperial General Hospital of Prague during ten years, from 1847 to 1856, 872 persons were treated for smallpox; of these, 819 had been successfully vaccinated, and forty-three unsuccessfully or not at all. With ten the vaccination or its result, could not be ascertained in a manner to be relied upon. Here must be particularly remarked that in 1847, in the aforementioned institution, not one case of smallpox is recorded.

Out of the 872 patients, sixty-three died, and of this number

[30] See first report Royal Vaccination Commission, 1889, p. 75.

[31] U. S. Consul, Berlin, loc. cit.

forty-one were of those who were described as successfully vaccinated, twenty as vaccinated without success, and two as those concerning whose vaccination nothing certain was known.

Leaving out those concerning whose vaccination nothing could with certainty be said, it is here shown that of the successfully vaccinated the twentieth part died; of the unsuccessfully vaccinated the half, while the number of vaccinated patients was nineteen times greater than that of the non-vaccinated.

In the Hospital of the Brothers of Mercy at Prague, during the years 1847 to 1856 inclusive, 410 patients were treated for smallpox; of these, 370 were vaccinated, and only forty non-vaccinated. Of the vaccinated four died; of the non-vaccinated five died.

Of the vaccinated (the success or non-success of the vaccination not being taken into consideration) the ninety-second part died, of the non-vaccinated the eighth part died, while the number of the vaccinated was nine and one-fourth times greater than that of the non-vaccinated.

In the Elizabethan Hospital at Prague, during six years, from 1851 to 1856, 118 cases of smallpox were admitted; of these, 108 were vaccinated and ten non-vaccinated. Of the vaccinated two died, of the non-vaccinated one died; *i. e.*, one fifty-fourth of the vaccinated, and one-tenth of the non-vaccinated, the vaccinated patients being ten and four-fifths times the number of the non-vaccinated.

In order to arrive at an idea as to the frequency of attacks of smallpox during the different periods of life, and the amount of safety secured by vaccination, we subjoin the following tables, which show the rates of mortality among the vaccinated and non-vaccinated patients of the General Hospital, Vienna, during the period above mentioned:

Ramsey on smallpox, Transactions New York Medical Society.

Ages.	Total number of cases.	Vaccinated.		Non-vaccinated.	
		Cases.	Deaths.	Cases.	Deaths.
1 to 10 years	418	234	35	184	74
11 to 20 years	2,634	2,228	83	406	83
21 to 31 years	2,671	2,529	128	342	115
31 to 40 years	406	354	21	52	24
41 and upward	84	72	4	12	4

Deaths per 100 cases at each age, as follows:

	1–10	11–20	21–30	31–40	41 and upward.
Among 5,217 vaccinated	14.9	3.7	5.6	5.9	5.5
Among 996 non-vaccinated	40.	20.4	33.6	46.2	33.3

Report of the Faculty of Medicine at Prague, submitted to Minister of the Interior, November, 1856.
Vaccinated and unvaccinated cases of smallpox which terminated fatally, according to the official vaccination return (21 years).

Year.	Cases of vaccination.	Remaining non-vaccinated.[32]	Smallpox.			
			Cases.		Deaths.	
			Vaccinated.	Non-vaccinated.	Vaccinated.	Non-vaccinated.
1835	132,727	4,029	505	430	20	136
1836	130,194	3,319	374	215	26	64
1837	126,123	3,971	57	123	4	52
1838	133,527	3,967	101	96	15	32
1839	132,523	3,906	160	168	20	70
1840	140,898	3,585	1,138	966	80	351
1841	139,471	3,482	1,583	1,522	83	382
1842	142,970	3,180	681	703	39	208
1843	142,314	2,874	627	714	21	229
1844	126,647	6,109	61	148	7	43
1845	149,612	6,410	55	63	2	25
1846	146,467	5,475	6	50	..	7
1847	141,268	5,361	19	25	..	4
1848	132,320	5,718	227	169	17	49
1849	139,523	5,704	575	645	63	177
1850	156,561	6,314	568	374	14	131
1851	152,294	4,694	16	293	3	43
1852	161,364	3,689	252	231	12	65
1853	145,038	3,067	327	168	3	39
1854	161,313	2,927	457	203	7	61
1855	136,424	2,349	389	156	8	56
Total	3,005,578	90,130	8,178	7,462	423	2,224
Average	143,122 1/21	4,291 1/2 1/7	389 9/21	355 7/21	20 3/7	105 1/2 1/7

REMARKS.—One case of smallpox occurs among 367⅔ vaccinated; 12½ non vaccinated. One fatal case of smallpox occurs among 7,166⅔ vaccinated; 40²/₃ non-vaccinated. Among cases of smallpox died the nineteenth part of the vaccinated; the third part of the non-vaccinated.

"M. Bousquet,[33] in his detail of the epidemic which prevailed at Marseilles in 1825, states that the whole population was estimated at 40,000. Of these, 30,000 had been vaccinated, 2,000 had had smallpox, 8,000 had neither been vaccinated nor had smallpox. Of the 30,000 vaccinated 2,000 were seized with smallpox, twenty of whom, or one for every hundred affected, died. Of the 2,000 who had before had smallpox, either naturally or by inoculation, twenty were attacked, and of these four died, or one for every five who took the disease. Of the 8,000 who had not been vaccinated nor had smallpox, 4,000 contracted it and 1,000 died, or one in every four. By this it appears that one-half of the non-vaccinated, one-fifteenth of the vaccinated, and one-hundredth of the variolated took the disease. But such was the difference in the comparative mortality of the attack in the vaccinated and the variolated, that while the variolated part of the population were cut off in the proportion of one out of every 500, the vaccinated lost only one out of every 1,500; or, in other words, of an equal number of variolated and vaccinated cases, three of the variolated died from the second attack, for every one that died who had been previously vaccinated."

In Berlin in the year 1872,[34] the mortality of the disease was 243 per 100,000 population, and the year after it was 262. Thereupon vaccination during the first year of life and revaccination at the age of 12 years was made compulsory by law, and with the effect that in the year 1875 the death rate was lowered to 36 per 100,000 inhabitants; the next year it was lowered to 31, the next to 3 and so through later years with an average annual mortality of 1.7 per 100,000 people. During the year 1890 only fifty-eight cases occurred in the whole German Empire, or 1.18 cases to each 1,000,000 of population.

A village in Leicestershire, England, of 1,300 inhabitants was visited by the pestilence in 1872. All but two of the inhabitants were efficiently vaccinated and escaped the disease; whereas the two unvaccinated persons died of it.

The late Dr. J. H. Rauch, for many years Secretary of the State Board of Health, has shown that in the Illinois epidemic of 1881–83, the mortality rate of the vaccinated was approximately 6 per cent., and of the unvaccinated it was 49 per cent.

Corbally has demonstrated that in the Sheffield, England, epidemic of 1887–88, vaccinated children were, as compared with the unvaccinated, twenty times less liable to attack from smallpox, and twenty-four times less liable to die when attacked. That is to say, the vaccinated children had, as compared with the unvaccinated, four hundred and eighty fold security against death from smallpox.

In the Halifax, England, epidemic of 1892–93, the death rate from smallpox among vaccinated persons was 1.8 per cent., and among the unvaccinated it was nearly 41 per cent. No case occurred in a vaccinated child under 5 years of age, and in the Leicester epidemic of 1893 no case occurred in a vaccinated child under 10 years of age.

From the records of 5,000 cases treated in the Municipal Hospital of Philadelphia, according to W. M. Welch in the *New York Medical Journal*, March, 1894, it appears that the death rate in that institution in post-vaccinal cases, and all in which there had been an attempt at vaccination are included, was 16.26 per cent., and the death rate in non-vaccinal cases was 58.38 per cent.

Seventy-three per cent. of the cases in unvaccinated infants under 1 year of age ended in death, and no fatal case occurred among vaccinated infants of the same age. Between the ages of 1 and 7 years the mortality of post-vaccinal cases was 5.7 per cent., and of non-vaccinal cases it was 51.48 per cent.

In Chicago only seventeen cases of smallpox have occurred in the last fifteen years among the well vaccinated public school children of that city, whose average number exceeded 200,000.

Dr. Clendenin,[35] health officer of Cincinnati, Ohio, says that, in the epidemic of smallpox in that city (1868–69) 95 per cent. of those who died of smallpox were among the unvaccinated. He further says that no death occurred from smallpox in which there was unmistakable proof that the individual had been properly vaccinated.

Dr. Benj. Lee of Philadelphia, Pa., in his report to the Pennsylvania State Medical Society, 1873, shows that the mortality from smallpox in the epidemic then just ceased was 55.9 per cent. in the unvaccinated; in the vaccinated with one

[32] I presume that "ungeimpft verbliebene" in the third column is intended to denote (in comparison with the total births of the year) the number of infants who remain unvaccinated at the end of the legally specified time.—[J. S.

[33] Transactions American Med. Assn., 1865, p. 270.

[34] Vital Statistics, Indiana. 1894, p. 98–99.

[35] Dr. W. B. Davis, Transactions, Ohio Medical Society, 1870.

vaccinal scar it was 15.2 per cent., while the mortality among those having five or more scars was 5.5 per cent.

During 1875 the mortality among 1,866 vaccinated persons treated in the Riverside Hospital, New York City, was 375, while among the 405 patients who had never been vaccinated, 200 died.

Statistical tables demonstrating the unquestionable controlling power of vaccination over smallpox might be multiplied indefinitely, but I have already, I fear, entered too lengthily into this part of my subject. I will therefore close the statistical data under Proposition 6 by quoting the following:

1. Mortality from smallpox among the vaccinated, doubtfully vaccinated and unvaccinated.[36]

	Cases.			Deaths.			Mortality Per cent.		
	Vaccinated.	Doubtfully vaccinated.	Unvaccinated.	Vaccinated.	Doubtfully vaccinated.	Unvaccinated.	Vaccinated.	Doubtfully vaccinated.	Unvaccinated.
London Smallpox Hospital (1836–67)[37] . . .	10,308	263	2,920	790	106	1,013	7.59	40.3	34.9
Metropolitan Asylum Board Hospital[38] . . .	13,575	2,180	3,973	1,027	671	1,593	7.56	31.5	40.0

2. Mortality from smallpox among the vaccinated, doubtfully vaccinated and unvaccinated, under 10.

	Cases.			Deaths.			Mortality. Per cent.		
	Vaccinated.	Doubtfully vaccinated.	Unvaccinated.	Vaccinated.	Doubtfully vaccinated.	Unvaccinated.	Vaccinated.	Doubtfully vaccinated.	Unvaccinated.
Metroplitan Asylum Hospitals[39]..	1.291	359	1,512	56	102	745	4.33	28.4	49.2

Dr. Lyon Playfair in a speech in the British House of Commons, June, 1883, said: "On this point I would refer to the case of Leipsic, which for eighteen years prior to 1870, had zealously supported the anti-vaccination movement, and during that period there had been but twenty-nine deaths from smallpox, although vaccination had been greatly neglected in the town. When the pandemic reached Leipsic in 1871 the town had a population of 107,000, and smallpox attacked 1,027 of this number, or 9,600 per millon of the population, and out of 23,892 children under 15 years of age, 715 died, being 30,000 per million."

"The statistics of the London epidemic were prepared with great care, and the mortality among the vaccinated was 90 per million inhabitants, while among the unvaccinated it was 3,350 per million. In the hospitals 45 per cent. of the unvaccinated and 15 per cent of the vaccinated died."

Comparative mortality of smallpox after smallpox, and of smallpox after vacciuation.

Authorities.	Smallpox after smallpox.			Smallpox after vaccination.		
	No. of cases.	Deaths.	Ratio of deaths to 100 cases.	No. of cases.	Deaths.	Ratio of deaths to 100 cases.
Thompson, Edinburgh.	71	3	4.2	310	1	0.3
Chelsea Military Asylum	26	3	11.5	24	0	0.0
Heim, Württemberg	39	14	35.8	147	42	28.5
Bosquet, Marseilles	20	4	20.0	2,000	20	1.0
Gregory, London.	9	2	22.2	789	46	5.8
Total	165	26	15.7	3,270	109	3.3

[36] In the statistics of the metropolitan smallpox asylums, the "vaccinated" are those who present marks, however imperfect, of a primary vaccination; the "unvaccinated" those who precent no marks, and in whose case it is admitted by the patients themselves, or their guardians, that they have never undergone the operation; the "doubtfully vaccinated" those who present no evidence of vaccination but who profess to have undergone the operation or have no knowledge as to whether they have ever undergone the operation. It is evident that the "doubtfully vaccinated" are really "unvaccinated."

[37] Marson: Evidence before the Select Committee on Vaccination, 1871.

It thus appears that, while they who take smallpox a second time die in the proportion of 15.7 in the 100, they who take smallpox after vaccination die only in the proportion of 3.3 in the 100—a proportion absolutely lower than the mortality of the mildest disease.

Borough of Sheffield, England. In this Borough in an epidemic of smallpox during the years 1887 and 1888, Dr. F. W. Barry, inspector of the Local Government Board, after having a house to house inspection made throughout these two years, gives the following report as the result of his investigation:

VACCINATED.

In the borough of Sheffield there resided 268,397 persons who had been returned as vaccinated. Of these 4,131, or 1.55 per cent., had been attacked by smallpox, and 0.07 per cent. died of the disease.

Of the 68,230 vaccinated children under 10 years of age 353, or 0.5 per cent., contracted smallpox, and 6, or 0.009 per cent., died.

Of 196,905 vaccinated persons aged 10 years and upward 3,374, or 1.9, contracted smallpox and 194, or 0.10 per cent., died.

UNVACCINATED.

There were 5,715 citizens of all ages returned as unvaccinated. Of these, 552, or 9.7 per cent., had been attacked by smallpox, and 4.8 per cent. died.

Of 2,259 unvaccinated children under 10 years of age 228, or 10.1 per cent., contraeted smallpox and 100, or 4.4 cent., died.

Of 3,429 unvaccinated persons aged 10 years and upward 322, or 9.4 per cent., contracted smallpox and 174, or 5.1 per cent., died.

The proportions of unvaccinated and vaccinated who were attacked and who died of smallpox among the inmates of houses that were actually invaded by smallpox, that is where people were brought in actual contact with the disease, Borough of Sheffield, England, 1887–1888. Of course in the general population of the Borough a number of citizens were never brought into actual contact with infected persons or fomites.

In the whole Borough of Sheffield 18,756 persons of all ages were enumerated as living in houses invaded by smallpox and of these 4,703 or 25.1 per cent. contracted the disease, and 474 or 2.5 per cent. died.

The proportions of the population of the vaccinated and unvaccinated classes respectively, living in invaded houses in the entire Borough, who had been attacked by smallpox and who died of the disease, were as follows:

VACCINATED.

Of the 18,020 vaccinated persons of all ages enumerated as living in invaded houses 4,151, or 23 per cent., contracted smallpox and 200, or 1.1 per cent., died.

UNVACCINATED.

Of the 736 unvaccinated persons of all ages enumerated as living in invaded houses 552, or 75 per cent., contracted smallpox and 274, or 37.3 per cent., died.

CHILDREN UNDER 10 YEARS OF AGE.

VACCINATED.

Of 4,493 children under 10 years of age 353, or 7.8 per cent., contracted smallpox and 6, or 0.1 per cent., died.

Of 13,435 vaccinated persons, aged 10 or upward 3,374, or 28.1 per cent., died.

UNVACCINATED.

Of 263 unvaeeinated children under 10 years of age 228, or 86.9 per cent., had smallpox and 100, or 38.1 per cent., died.

Of 469 unvaccinated persons 10 years old and upward 322, or 68.6 per cent., contracted smallpox and 174, or 37.1 per cent., died.

On page 42 of Report of Royal Vaccination Commission the following facts are to be found giving the proportions of the population of the Borough of Sheffield of the vaccinated and unvaccinated classes respectively at these several age-periods who at the end of the census had contracted smallpox, and who had died of the disease.

IN THE TOTAL ENUMERATED POPULATION.

VACCINATED.

Of 33,393 vaccinated children under 5 years of age 121, or 0.36 per cent., had been attacked by smallpox and 1, or 0.003 per cent., had died.

Of 34,843 vaccinated children aged 5 but under 10 years 232, or 0.67 per cent., had been attacked and 5, or 0.14 per cent., had died.

Of 32,965 vaccinated persons aged 10 but under 15 years 629, or 1.9 per cent., had been attacked and 11, or 0.03 per cent., had died.

Of 27,111 vaccinated persons aged 15 but under 20 years 979, or 3.6 per cent., had been attaeked and 19, or 0.07 per cent., had died.

UNVACCINATED.

Of 1,981 unvaccinated children under 5 years of age 128, or 6.5 per cent., had been attacked by smallpox and 66 (exclusive of children under one month of age), or 3.3 per cent., had died.

Of 278 unvaccinated children aged 5 but under 10 years 100, or 36 per cent., had been attacked and 34, or 12.2 per cent., had died.

Of 235 unvaccinated persons aged 10 but under 15 years 91, or 38.7 per cent., had been attacked and 32, or 13.6 per cent., had died.

Of 282 unvaccinated persons aged 15 but under 20 years 84, or 29.8 per cent., had been attacked and 53, or 18.8 per cent., had died.

The above facts are extracted from the testimony of F. W. Barry, M.D., inspector of Local Government Board, Oct. 8, 1889, pages 39 to 42 inclusive, Second Report of Royal Vaccination Commission of England, submitted to Parliament, May 29, 1890.

[38] These include cases admitted into the following asylums: Deptford, 1878–81; Hampstead, 1876–78; Homerton. Smallpox Hospital, 1871–82; Homerton, Fever Hospital, 1876–77 and 1881–82; Stockwell, 1882. *Vide* annual reports of the several hospitals. For further figures consult report of board of health of the city of Philadelphia, 1872; papers on vaccination by Mr. Simon, etc.

[39] Homerton Smallpox Hospital, 1871–80; Deptford Hospital, 1878; Stockwell Smallpox Hospital, 1882.

VACCINATED.

Of 44,788 vaccinated persons aged 20 but under 30 years 1,267, or 2.8 per cent., had been attacked and 69, or 0.15 per cent., had died.

Of 92,041 vaccinated persons aged 30 and upward 899, or 0.97 per cent., had been attacked and 95, or 0.1 per cent., had died.

UNVACCINATED.

Of 884 unvaccinated persons aged 20 but under 30 years 98, or 10.6 per cent., had been attacked and 61, or 6.9 per cent., had died.

Of 2,028 unvaccinated persons aged 30 and upward 49, or 2.4 per cent., had been attacked and 28, or 1.4 per cent., had died.

On page 43 of the same report will be found the following tables as to the proportions of vaccinated and unvaccinated in the invaded houses by age-periods.

VACCINATED.

Of 2,154 vaccinated children under 5 years of age enumerated as living in invaded houses 121, or 5.6 per cent., had been attacked by smallpox and 1, or 0.05 per cent., had died.

Of 2,339 vaccinated children aged 5 but under 10 years 232, or 9.9 per cent., had been attacked and 5, or 0.21 per cent., had died.

Of 2,496 vaccinated persons aged 10 but under 15 years 629, or 25.2 per cent., had been attacked and 11, or 0.4 per cent., had died.

Of 2,370 vaccinated persons aged 15 but under 20 years 979, or 41.3 per cent., had been attacked and 19, or 0.8 per cent., had died.

Of 3,279 vaccinated persons aged 20 but under 30 years 1,267, or 38.7 per cent., had been attacked and 69, or 2.1 per cent., had died.

Of 5,290 vaccinated persons aged 30 years and upward 899, or 17.4 per cent., had been attacked and 95, or 1.8 per cent., had died.

UNVACCINATED.

Of 154 unvaccinated children under 5 years of age enumerated as living in invaded houses 128, or 83 per cent., had been attacked by smallpox and 66 (exclusive of children under one month old), or 42.9 per cent., had died.

Of 109 unvaccinated children aged 5 but under 10 years 100, or 91.8 per cent., had been attacked and 34, or 31.2 per cent., had died.

Of 93 unvaccinated persons aged 10 but under 15 years 91, or 98 per per cent., had been attacked and 32, or 34.4 per cent., had died.

Of 98 unvaccinated persons aged 15 but under 20 years 84, or 85.8 per cent., had been attacked and 53, or 54.1 per cent., had died.

Of 124 unvaccinated persons aged 20 but under 30 years 98, or 79.1 per cent., had been attacked and 61, or 49.2 per cent., had died.

Of 154 unvaccinated persons aged 30 years and upward 49, or 31.8 per cent., had been attacked and 28, or 18.2 per cent., had died.

NOTE.—"Those classified as vaccinated include all persons successfully at any period beyond thirteen days prior to the appearance on them of the eruption of smallpox. As a matter of fact I do not think there is a recorded case in which smallpox quickly followed vaccination or re-vaccination when the interval between the operation and the appearance of smallpox exceeded six or seven days. Those classified as unvaccinated include all persons who have either never been successfully vaccinated or whose vaccination was performed for the first time within thirteen days of the appearance on them of the eruption of smallpox. In the vaccination census if a person stated that he was vaccinated that was accepted as correct; if he stated that he was unvaccinated that again was accepted as correct. A certain number were reported as vaccinated who really were unvaccinated." Barry, loc. cit.

Question 1988. Dr. Barry continuing (see page 45) said: I propose to read in very much the same manner as I have read with regard to the census data, the relations of vaccination and smallpox as indicated by the health office data. I first of all take page 190. The total cases of smallpox reported to the health department to have occurred in the Borough of Sheffield during the period from the commencement of the epidemic to the 31st of March, 1888, were 6,088 in number. Of these it was stated that 5,035 were of the "vaccinated" as against 1,053 of the "unvaccinated" class. In 589 cases, or 9.7 per cent., of the total of all classes attacked the disease proved fatal. Of the 5,035 persons of the "vaccinated" class attacked, 246, or 4.9 per cent., died; whilst of the 1,053 persons of the "unvaccinated" class attacked 343, or 32.6 per cent., died. In the "vaccinated" class smallpox is reported to have attacked 97 persons under 5 years of age, of whom 1, or 1 per cent., died; 243 between 5 and 10 years of age, of whom 6, or 2.5 per cent., died; 2,034 between 10 and 20 years of age, of whom 38, or 1.9 per cent., died; 1,579 between 20 and 30 years of age, of whom 87, or 5.5 per cent., died; and 1,084, aged 30 years and upward, of whom 114, or 10.5 per cent., died. In the "unvaccinated" class, smallpox is reported to have attacked 242 persons under 5 years of age, of whom 113, or 46.7 per cent., died; 184 between 5 and 10 years of age, of whom 39, or 21.2 per cent., died; 380 between 10 and 20 years of age, of whom 92, or 24.2 per cent., died; 169 between 20 and 30 years of age, of whom 65, or 38.5 per cent., died; and 78 aged 30 years and upward, of whom 34, or 43.6 per cent., died.

Dr. Barry, page 51, Second Report of Royal Vaccination Commission gives a tabular statement showing the fatality per cent. of admissions in each hospital and all hospitals in Sheffield in 1887 and 1888, and says:

From an examination of that table it will be seen that there is a general correspondence between the fatality rates which obtained in the several hospitals at the different age periods. The figures with regard to the Lodge Moor and Ecclesall Bierlow Hospitals show the chief variations, but in the case of these hospitals the figures are very small. From the summary of the figures with regard to all the hospitals, it appears that the total of 1,798 cases of smallpox, 256, or 14.2 per cent., proved fatal. Of the total number of cases, 1,351 were of the "vaccinated" as against 447 of the "unvaccinated" class. Of the 1,351 persons of the "vaccinated" class admitted, 110, or 8.1 per cent., died; whilst of the 447 "unvaccinated" persons admitted, 146, or 32.7 per cent., died. Of the 1,351 persons of the "vaccinated" class admitted, 67 were under 10 years of age, and of these 1, or 1.5 per cent., died; 573 were aged 10 but under 20 years, and of these 13, or 2.3 per cent., died; 426 were aged 20 but under 30 years, and of these 42, or 9.9 per cent., died; and 285 were aged 30 years and upward, and of these 54, or 19 per cent., died. The whole of the persons of the "vaccinated" class who died had been vaccinated in infancy only, with one exception, and the figures show a greater liability to fatal termination with increasing years. Of 447 persons of the "unvaccinated" class admitted, 101 were under 10 years of age, and of these 34, or 33.7 per cent., died; 205 were aged 10 but under 20 years, and of these 56, or 27.3 per cent., died; 100 were aged 20 but under 30 years, and of these 41, or 41 per cent., died; and 41 were aged 30 years and upward, and of these 15, or 36.6 per cent., died. In the hospitals of course all the patients were under the same conditions; they were not being treated in different class houses, some in good ones and some in bad ones, but they were all being treated under the same nursing and with the same general surroundings, and, as I here note in the report, "except during the first few months of the epidemic, very few of the milder cases found their way to the hospitals, and consequently the proportions of severe and fatal cases were larger there than amongst the population as a whole." Then dealing in the same way with the fatality of the cases in hospital, taking all ages. Taking children aged 0-10: "For each individual vaccinated child 0-10 years of age suffering from a fatal attack of smallpox, 22.4 unvaccinated children died of that disease." Taking persons from 10 to 20 years of age: "For each individual vaccinated person, 10 to 20 years of age suffering from a fatal attack of smallpox, 12 unvaccinated persons of similar age died of that disease." Then as to persons from 20 to 30 years: "For each individual vaccinated person aged from 20 to 30 years of age suffering from a fatal attack of smallpox, 4.1 unvaccinated persons of similar age died of that disease."

(To be continued.)

SOCIETY PROCEEDINGS.

American Association of Obstetricians and Gynecologists.

Ninth Annual Meeting held in Richmond, Va., Sept. 22–24, 1896.

FIRST DAY—MORNING SESSION.

The Association was called to order at 10 A.M. by the President, Dr. JOSEPH PRICE of Philadelphia.

After the usual preliminary exercises, the reading of papers was proceeded with.

Dr. JOHN M. DUFF of Pittsburg, read a paper entitled

PELVIC DISEASES AND THEIR PRINCIPAL CAUSES; WHAT SHOULD THE LAITY BE TAUGHT CONCERNING THEM?

He said that notwithstanding the fact that some of the prominent members of the medical profession had, in talks to the galleries, held the gynecologists up for ridicule and criticised them severely, he did not think any apology was due either the profession or the public for the character, or results of pelvic surgeons. Those members of the profession who had been devoting themselves to the care of diseases peculiar to women, had in the face of revilings and professional and public prejudice worked patiently and persistently until they were now obtaining results of which they may well feel proud, results far beyond what the most sanguine expectations of the hardy pioneers of a quarter of a century ago led them to hope for. They were to-day charged with irrational radicalism, with an operative mania, which was gratified without a proper consideration of the ultimate benefit to the patient. Entreatingly they were urged to adopt more conservative measures, and thus stop the wholesale mutilation which was going on at present, which it is claimed is neither scientific nor humane. Sentiments such as these, endorsed by men of reputation, were eagerly taken up by the lay press as sensational news and advertised by pretenders as an endorsement of their methods of practice, and thus the laity, in the opinion of Dr. Duff, are taught false notions regarding the nature of pelvic diseases and their treatment. That there is a great amount of mutilation connected with pelvic surgery, he would not deny; but that regular pelvic surgeons were guilty of reckless despoliation was not, he thought, susceptible of proof. Pelvic surgeons could scarcely be held accountable for the work of general

practitioners; and for the work of ignorant egotists and pretenders, who with brazen effrontery undertake operations of which they are not qualified by character or education, the pelvic surgeons disclaim all responsibility.

During the period of the evolution and upbuilding of pelvic surgery no doubt much of the work was crude, and perhaps too much was done by over-zealous operators. That at this day, through mistaken diaguosis, operations are sometimes needlessly performed, no one would have the hardihood to deny; but that such cases are as frequent as some critics say they are, Dr. Duff could not believe. He said the true pelvic surgeon was governed by nobler purposes, by more elevated aims. Conservatism in its true sense, the saving of live, relief from pain and the curing of the patient, was his watchword. Dr. Duff then dwelt at length upon various pathologic conditions which demand the attention of the pelvic surgeon.

Dr. WALTER B. DORSETT of St. Louis, followed with a paper on

DECEPTIVE SIMILARITY OF SIGNS AND SYMPTOMS OF INTRA-ABDOMINAL DISEASE, WITH CASES.

In order to arrive at a conclusion and to formulate a diagnosis in a given case, be it medical or surgical, the practitioner must exercise care and judgment in the consideration of such signs and symptoms as are presented. Each should be weighed, and mental annotations taken as to their value individually and collectively.

Dr. Dorsett directed attention to the importance of the family and personal history of patients, to the pulse and temperature, the knoweldge to be gained by manual examination, the use of analgesics, etc.

Regarding the exploratory incision, it should not be regarded as an evidence of ignorance, but as a legitimate means of diagnosis, and the off-hand diagnostician, or the surgeon who never makes mistakes, should be looked upon with, at least, a grain of suspicion. To illustrate his statements, three interesting cases were reported, one of which we give in full:

Mrs. M., aged 28, married eight years, no pregnancies, was seen by Dr. Dorsett about a week after having recovered from an attack of malarial fever. Temperature 99, pulse 90, tongue slightly coated and a tendency toward diarrhea. Complained of general abdominal tenderness; palpation of abdomen revealed a slightly more tender spot at McBurney's point; no swelling or tumefaction could be felt. A vaginal examination revealed a retroversion with fixation, no tubal enlargement nor tenderness could be made out. No vaginal discharge. Diagnosis: Gastro-intestinal irritation with chronic inflammation of pelvic contents; diarrheal mixture was prescribed and patient was told that further attendance would probably not be necessary. Four days subsequently the temperature was 99.8 F., pulse 100, abdominal palpation revealed a distinctly tender spot with some swelling at McBurney's point. Patient stated that she had eaten heartily of Wienerwurst the day before, and had been awakened during the night by cramps at the navel. Bimanual examination was again resorted to with negative result. Appendicitis was diagnosticated at this visit, first stage. Dram doses of salts were prescribed, and the patient was urged to go to the hospital, but refused. The next day she was seen and found sitting in a rocking chair, and aside from slight tenderness over abdomen, was feeling quite comfortable. Salts acted freely. Bimanual examination again gave negative results; temperature 99, pulse 100. Patient was ordered to bed and advised to keep quiet. The case was regarded as better and thought to be out of danger. The following day the pain became more severe and the patient came to the hospital of her own accord. Upon examination the right iliac fossa was found to be exceedingly tender and fluctuating. Vaginal examination revealed nothing aside from what was found at the previous examination. Temperature 103, pulse 130. Diagnosis: Ruptured appendiceal abscess. She was anesthetized and placed upon the table and a section made in the median line. The large sac was found on the right side filled with blood and clots, and when washed out a rent of the posterior layer of the broad ligament was found which communicated with another rent in the Fallopian tube. Appendix perfectly healthy, and was not disturbed. A thorough washing out of the sac was done and ligation of the tube with a portion of the broad ligament, a glass drainage tube was introduced. Notwithstanding the utmost care, the temperature remained high, pulse became worse, the abdomen became distended, and the patient died on the third day.

Postoperative diagnosis: Ruptured tubal pregnancy without the usual symptoms. There was no history of shock; no cessation of menstruation, or nervous symptoms of pregnancy. No passage of decidua; no vaginal discharge of any kind, but in its stead a good history and train of signs and symptoms of inflammatory disease of the appendix.

Dr. RUFUS B. HALL of Cincinnati read a paper entitled,

THE MOST POTENT CAUSES OF PELVIC INFLAMMATION.

He claimed that septic infection following labor or abortion or gonorrheal infection, was the cause in almost every instance. He says there will always be some cases of septic infection following labor, which are in nowise due to infection from the attendant, injury to small pelvic tumors, etc. The retention of the products of conception in abortion is a very frequent cause. He advises completely emptying the uterus at once after abortion. The Doctor believes the most frequent cause to be gonorrheal infection conveyed to the woman from a latent gonorrhea of her husband. The more he sees of the ravages of gonorrhea, the more he is convinced of the fact that the profession is derelict in its duty to its patients in the dissemination of knowledge upon this subject. The teaching of a few years ago that gonorrhea in the male could be easily and speedily cured by a little balsam of copaiba, or oil of sandal wood, with mild astringent injections, and that the patient was well as soon as the purulent discharge ceased, is false doctrine and must be corrected. This must be done by the family physician. Dr. Hall does not stand alone when he says that he has on many occasions been compelled to remove suppurating tubes and ovaries from women who had contracted the disease from their husbands, who believed themselves well when married. He has no hesitation in saying that gonorrhea is more destructive to women than syphilis, and believes it is the duty of every physician to impress upon his male patient the fact that he is not well as soon as the urethral discharge disappears. He is a firm advocate of legislation upon this, believing that every man should have a certificate from the health officer of freedom from syphilis and gonorrhea before he is granted a marriage license.

Dr. HENRY CARSTENS of Detroit in discussing the three preceding papers, said that when prominent ministers of churches consulted physicians and asked them to produce abortion on their wives he became discouraged, and thought it was love's labor lost. Still the gynecologist should keep on preaching against the evils attending the production of abortion. Regarding Dr. Dorsett's paper, the difficulty attending diagnosis in some cases was exceedingly great. The gynecologist should exhaust his diagnostic resources before resorting to abdominal section. The too frequent opening of the abdomen stimulated incompetents to do likewise, and as a consequence results were disastrous, eventually reacting on gynecologists.

Dr. W. E. B. DAVIS of Birmingham, Ala., does not believe that gonorrhea plays so important a part in the production of pelvic inflammation as was heretofore taught. One's conception of cases of pelvic trouble depends largely upon the class of practice he has. The cases met with in dispensary practice are different from those encountered in private work. He believes that fully 50 per cent. of the cases of pelvic inflammation are due to puerperal infection, either at the time of delivery at full term or premature delivery. As to tubercular trouble, more importance is being attached to it as a cause of pelvic inflammation than it deserves. Those who did considerable operative work knew that only a small per cent. of cases have their origin in tuberculosis.

Dr. JAMES MCFADDEN GASTON of Atlanta (by invitation) called attention to the prophylactic management of cases of pregnancy prior to the period of confinement. Extreme hygienic precautions might warrant in some instances the use of antiseptic washes prior to labor, but as there was a great tendency on the part of some members of the profession to resort to measures which are regarded as precautionary in the way of preparing a woman for labor and using washes in advance of confinement, it struck him this was altogether out of place, inasmuch as there was a normal condition of things, and nature should be allowed to take its course unless there were ample reasons for interference.

Dr. ERNEST S. LEWIS of New Orleans cited a case in connection with errors that sometimes arise in the diagnosis of abdominal tumors. He operated on a patient last winter for what he supposed at the time was a small ovarian tumor, but after the abdomen was opened it turned out to be a retroverted gravid uterus.

Dr. F. D. THOMPSON of Fort Worth, Texas, would like the essayists to have gone more fully into the point as to when it was safe for men to marry and have intercourse with their wives, who had been the subjects of gonorrhea. Many cases of gonorrhea occurred in married men, and the gynecologist had before him all the ills and consequences incident to this disease. How long shall such men abstain from sexual intercourse? These points should be dealt with more fully and explicitly.

Dr. LEWIS S. MCMURTRY of Louisville considered the view enunciated by Dr. Hall as to gonorrhea and its relations to

marriage impracticable. Regarding the exploratory incision for diagnostic purposes, a small opening was not always sufficient. The incision should be sufficiently large to allow the surgeon to thoroughly explore the abdominal cavity to detect such pathologic conditions as might be present.

Dr. L. H. Dunning of Indianapolis cited cases of the impracticability of making a small incision for the detection of intra-abdominal pathologic conditions. He favors an exploratory opening sufficiently large to make a thorough search.

Dr. A. H. Cordier of Kansas City, Mo., said, regarding the possibility of making diagnoses in intra-abdominal pathologic conditions, that in 80 per cent. of the cases this could be done by painstaking efforts.

Dr. Edwin Ricketts of Cincinnati agreed with the previous speakers that it was exceedingly difficult to diagnosticate intra abdominal lesions previous to opening the abdomen, and sometimes the surgeon did not know the nature of the growth even after the abdomen was opened. Cases illustrating the great difficulty attending diagnosis of intra-abdominal growths were cited.

Dr. E. F. Fish of Milwaukee said that while he did not believe in promiscuous exploratory laparotomy, he could recall one case in particular in which the operation saved the patient's life.

Dr. Richard H. Gibbons of New York City thought many of the cases dealt with in the papers were due to puerperal contamination, or in some instances to laceration of the cervix, as had been pointed out by Emmet. He believes that Noeggerath gave us the keynote to the class of infection produced by gonorrhea. Relative to diagnosticating intra-abdominal diseases, there was no particular symptom that was pathognomonic. Dr. Gibbons pointed out the unreliability of McBurney's point, of which so much had been said and written, and called attention to an article written by him and published in the *New York Medical Journal*.

Dr. Howard W. Longyear of Detroit emphasized the importance of educating the laity in regard to gonorrhea. He believes the teachers of our public schools should be empowered to impart the necessary knowledge regarding the dangers of this disease and its consequences.

Dr. George Ben Johnston of Richmond presented the specimen of an ovarian tumor, the first removed under Listerism in the State of Virginia so far as he had been able to ascertain. The patient was an unmarried woman, 26 years of age. The tumor was removed March 19, 1879. The tumor with the sac and fluid contents weighed thirty-four pounds. The operation was performed under the spray and with the elaborate dressings recommended by Lister, etc. The patient died, however, from sepsis. In November of the same year he was consulted by Mrs. M., whom he presented to the Association for what turned out to be an enormous unilocular ovarian tumor. Her measurements were 6 feet, 4 inches around the abdomen at the umbilicus, and 3 feet, 2 inches from the ensiform cartilage to the pubes. The contents of the tumor and sac weighed ninety-six pounds. This operation was performed at the patient's house with the same care as that of the previous one.

TUBO-OVARIAN CYSTS WITH INTERESTING CASES.

Dr. Albert Goldspohn of Chicago read a paper on this subject. By tubo-ovarian cyst is meant a non-purulent sac whose walls are composed, in variable proportion, of the walls of the Fallopian tubes and those of some cystic ovarian or parovarian formation with the coalescence of two or more cavities, at least one from each, into one, by a free communication. The fluid contents of such a sac may be serous or hemorrhagic, or may partake in variable degree of the qualities and characteristics of the fluid contained in glandular ovarian cystomas. The fimbriæ of the abdominal ostium of the tube may be distinguished or not upon the inner or on the outer side of the ovarian portion of the sac, or they may have coalesced with other structures to form some portion of the walls of the united sac. The ovarian element in this formation can have originated from a hydropic Graafian follicle, a cystic corpus luteum, from the primordial glandular ducts of Pflueger in the ovary, or from the parovarium. In order to exclude a large number of ordinary tubo-ovarian conglomerates we need to recognize the following minimum requirements in distinguishing a tubo-ovarian cyst: 1, the participation of the tube, which is easy enough from its position and connections; 2, to prove the participation of the ovary by demonstrating some ovarian tissues in the wall of the sac; 3, that their cavities are united by some opening through which the mucous membrane of the tube is continuous with the lining of the ovarian cyst or follicle. Applying this standard the author has been compelled to exclude a number of cases that have been mentioned as such cysts, because the three points were not proven in each of the cases.

The first description of a tubo-ovarian cyst was given by Blasius in 1834, but the correct name was proposed by Richard in 1853, who spoke of "kysts tubo-ovariens" in demonstrating a number of postmortem specimens. The total number of authenticated cases that the author has been able to find in literature is thirty-eight by twenty-five different authors. Dr. Goldspohn reported three interesting cases, and called attention to some interesting features in connection with the anatomy as influencing intermittent profluent discharges and showing the inflammatory element in their causation. From a study of specimens, from the results of experience, and from the arguments of the best authors, the author deduces the following conclusions:

1. Tubo-ovarian cysts come to pass in consequence of a plastic inflammatory union between a Fallopian tube and the adjacent ovary, after either or both of these organs and the intervening peritoneum have experienced a non-purulent pathologic change of a cystic character. The septum intervening between the two lumina disappearing in consequence of pressure atrophy from the tension of liquid confined to one or both sides of it.

2. This union of a distended tube cavity may occur also with that of a parovarian cyst (v. Ott), or with that of a peritoneal pseudo cyst (Zedel).

3. In those rarer cases in which the fimbriæ are really found floating in the interior of the main cyst cavity, we must assume either the congenital anomaly of an "ovarian tube," as was seen by Schneidemahl in a mare, as a vitium primæ formationis, or that an ovarian cyst or follicle cyst ruptured, and the abdominal end of the tube dropped into the rent and was united to its edges by inflammatory action, thus making a joint cyst and tubal cavity.

Dr. Walter B. Chase, of Brooklyn, followed with a paper entitled

MIXED TUMORS OF THE OVARY.

Mixed tumors of the ovary have a peculiar interest, for the reason that, if small, they are often difficult of diagnosis. These tumors of the ovary may be made up of a variety of cysts, or may be a combination of cysts and solid growths. The etiology of tumors as a whole is a matter of great importance, both in the relation to diagnosis and treatment.

The question of what constitutes a tumor might be considered with profit. Senn, in his recent classical work on the "Pathology and Surgical Treatment of Tumors," defines a tumor as "a localized increase of tissue proliferation of embryonic cells of congenital or post-natal origin." An important fact concerning true tumors is that they never disappear except by removal or destruction. Benign tumors always remain local, while malignant ones are disseminated by migration or transportation of their peculiar cells, and they always originate as benign or malignant growths. If the tumor matrix is made up of embryonic cells of the lowest development, there is greater liability to malignant growth, than if from tissues susceptible to the highest physiologic type of development.

Retention cysts of the ovary are not tumors in a technical sense, and they never attain large size. Large ovarian cysts are most often cyst-adenomas and are not developed from Graafian follicles, but arise from the embryonic structure.

It would seem from what has been said that the genesis of simple and mixed tumors is divested of much that was misleading and contradictory and reduced to a rational basis. It also demonstrates with great clearness that tumors are not only of local origin, but at their inception are congenital.

The case reported, which was operated upon by the author at St. John's Hospital, Aug. 4, 1894, as reported by Dr. H. P. De Forest, pathologist to the Methodist Episcopal Hospital, was a mixed tumor of the left ovary, consisting of a large cyst-adenoma, containing about two gallons of clear straw-colored fluid, a dermoid intimately united with the cyst-adenoma, containing less than a quart of fluid, leaving true bony plates in its wall, and numerous encysted papillomas encrusted within the walls of both cysts.

Afternoon Session.

Dr. A. H. Cordier of Kansas City, Mo., read a paper on

MOVABLE KIDNEY; LOCAL AND REMOTE RESULTS

in which he drew the following deductions: 1. A movable kidney often produces a dilatation of the stomach with all the accompanying symptoms of a disease of that organ. 2. It is a fruitful source of gallstones, because of the pedicle producing a partial obstruction of the common duct. 3. The bending of the ureter often gives rise to a hydronephrosis. This, in turn, is sometimes converted into a pyonephrosis. 4. It may pro-

duce death by a complete strangulation by a torsion of the vessels and ureter. 5. By dragging on the abdominal aorta and kinking the vena cava, a condition simulating an aneurysm of these vessels may be produced. 6. Pain of a referred character to the region of distribution of the spinal nerves is often induced by a movable kidney's disturbance of the abdominal plexus. 7. A general nerve exhaustion (neurasthenia) is often induced by the interference of this condition with digestion, assimilation and elimination. 8. Nephrorrhaphy is a safe and effective surgical procedure. 9. All cases of movable kidney, if accompanied by symptoms pointing to the kidney as their source should be operated on. 10. In summing up the local and remote results of this now often recognized condition, the author thinks the correctness of the deductions has been frequently demonstrated by the disappearance of each and every symptom after a restoration and retention of the kidney in its normal position. 11. Symptoms are not to be relied upon in making a diagnosis of movable kidney. The physical examination is the only trustworthy guide.

THE LIMITS OF NEPHRORRHAPHY

was the subject of a paper by Dr. HUGH M. TAYLOR of Richmond, Va. He conceded the frequency of nephroptosis. Since he had been systematically looking for movable kidney, he has found it so frequent in its occurrence that he no longer regards the experience of Glenard, Linduer, Edebohl and Noble as unique. His opinion is equally fixed that only a small proportion of the cases met with give rise to symptoms or suffering, ill health or death, and consequently a majority of cases do not call for nephrorrhaphy. He favors the classification of nephroptosis under three clinic heads:

1. Patients who have displaced kidney do not know it and suffer no inconvenience whatever from it. This type he thinks represents by far the largest class.

2. Patients with displaced kidney, who may or may not know it, who suffer from gastro-enteric discomfort and perhaps a long train of vague neurotic disturbances. In this type he thinks we find the largest class calling for operative interference.

3. Patients with movable kidney, who are subjects of occasional or frequent mild or severe attacks of renal crises. This last mentioned is he thinks the least frequent type met with, but the urgency of the symptoms more frequently demands operative interference.

Nephrorrhaphy for the relief of gastro-enteric disorder is limited by our ability to tell to what extent the disorder is due to renal ptosis per se or to enteroptosis, or to some one of the many well-known etiologic factors of gastro-enteric disorder. Nephrorrhaphy for the relief of the condition of Deitl's or renal crises must be limited by one's success in differentiating between this condition and that of gall tract, appendicular and kidney colic due to nephrolithiasis. He accepted as logically sustained the conclusion that the Deitl's or renal crises is due to a kink or twist of the ureter with retained urine in the ureter and pelvis of the kidney. Apart from the violent paroxysms of pain (the renal crises) the tendency of ureteral twist and urinary obstruction to induce hydronephrosis and in exceptional instances pyonephrosis, rendered operative interference more imperative in this class of cases. His protest was not against nephrorrhaphy, but only its abuse. He conceded the value of operative interference in many selected cases but deprecated the tendency toward operative interference merely because the kidney is movable.

Dr. GEORGE BEN JOHNSTON of Richmond, Va., said that some years ago his attention was called to the subject by encountering several cases of movable kidney that had been unobserved either by him or the physician who preceded him in the treatment of these cases for obscure nervous and gastro-intestinal disturbances, and when he observed the similarity of symptoms in the first three cases which he saw, he was obliged to associate those symptoms with the presence of movable kidney. He prevailed on these women to be operated upon for movable kidney and in all three cases the results were most gratifying.

Dr. L. H. DUNNING of Indianapolis, was greatly interested in the subject, for the reason that in 1880 he resorted to operative procedures for the cure of floating kidney, and in connection with this work he sought to determine if possible some of the causes which led to movable kidney. He emphasized the importance of differentiating between floating and movable kidney, the former being always congenital, the latter acquired to a greater or less extent. He found by his investigations that the partially fixed condition of the kidney depends upon three or four causes, the two principal ones of which were its position behind the peritoneum, and second the fact that it had an envelope of cellulo-adipose tissue. A little further investigation showed that the perinephritic cellulo-adipose tissue was composed of two parts, one fixed, the other movable. The normal kidney had a range of motion of from one half to three-quarters of an inch in its fatty envelope.

Dr. THOS. B. EASTMAN of Indianapolis, reported the case of a woman, 25 years of age, who came to him with the symptoms of appendicitis. She also had considerable albumin in the urine. Operation showed that the appendix was firmly adherent to the kidney. It required considerable force to liberate it. As soon as liberated the kidney bounded back into place as though it were rubber. The appendix was removed, the albumin in the urine ceased, and the woman made an uneventful recovery.

Dr. JAMES MCFADDEN GASTON of Atlanta, directed attention to the possibility of movable kidney being mistaken for enlarged gall bladder. The gall bladder is capable of being pushed back into the lumbar region and carried around in front in just the same manner as a floating kidney. It behooved gynecologists to look into this phase of the matter.

Dr. W. E. B. DAVIS of Birmingham, had seen a number of cases of movable kidney, and said that at the Charleston meeting of the Southern Surgical and Gynecologic Association there was quite a difference of opinion as to the frequency of the condition. He believes that movable kidney is a condition which does not require in all cases operative interference. Of the number of cases he had seen he had only operated on a few.

Dr. I. S. STONE of Washington, D. C., related the case of a woman who, after the operation of nephrorrhaphy had been performed, gained twenty-five pounds in flesh. In many instances this procedure brought color back to the cheeks of patients and made them feel well. He had never seen such gratifying results from any other operation in surgery except perhaps from the removal of an ovarian tumor. The patients made rapid improvement after the operation.

Dr. JOSEPH PRICE of Philadelphia, said his experience was somewhat limited in operating for movable kidney. The improvement in the condition of patients so operated upon was rapid, but there was such a thing as operating too much upon cases of movable kidney.

Dr. J. HENRY CARSTENS of Detroit, said the line should be drawn between movable and floating kidney. The trouble which arose from floating kidney consisted of a twisting of the ureter and consequent obstruction.

Dr. RICHARD H. GIBBONS of New York, detailed an operation which had been devised and recommended by a foreigner for holding the kidney in place in its newly made position.

TREATMENT OF PERIUTERINE SEPTIC DISEASES.

Dr. W. E. B. DAVIS of Birmingham, Ala., read a paper on this subject. Only recently has the extremely radical procedure of hysterectomy been practiced in this country for septic diseases of the internal genitals. A wave which had its origin in Paris at the hands of Péan, aided by Richelot, Segond, Jacobs and others, reached our shores three years ago and has found a considerable following among our leading operators. The claim is made that there is no use in leaving the uterus behind after the removal of the appendages; in every operation for septic diseases of the female generative organs which demands the removal of the tubes and ovaries, hysterectomy should also be performed, unless there are plain contraindications forbidding it.

It should be the aim of the surgeon to preserve everything consistent with thorough surgical work, and not to sacrifice important organs because it can be done with only small mortality. We are told that the uterus has no function after the removal of the appendages, but this has not been demonstrated, and on the contrary we know that the sexual life of the woman is very much better preserved by leaving the uterus, and that the mental effect is also much better. A slow convalescence, or even a second operation is preferable to its removal unless very much diseased. It is a reflection on the correctness of the reports of complete recoveries of such a large per cent. of the cases by most excellent surgeons, when the uterus was not removed, to accept the argument now being made in favor of hysterectomy in all these cases. As stated by Dr. Davis at the last meeting of the AMERICAN MEDICAL ASSOCIATION, he could not agree with Dr. Sutton and others that pus in the tubes was due to gonorrhea in 75 per cent. of cases. He thought that puerperal infection was rarely the cause of more than 50 per cent. Tubercular infection was rarely the cause and was not so important as he claimed. However, the importance attached to gonorrhea was against the argument for the removal of the uterus, as the infection from this source was not deep and could be removed with the curette. Because some patients were not completely cured by the removal of the appendages was no argument for hysterectomy in every case where the bilateral operation was required; for nearly all these could be

relieved by a thorough curettage. Some large uteri would require in addition to this a high amputation of the cervix, and only a small number would need a hysterectomy.

Vaginal incision for the drainage of pus in the pelvis, not confined to the tubes, was a most valuable method of treatment in a well-recognized class of cases, and had been practiced for a long time with gratifying results. A large number of these cases require no further surgery. More recently large pus tubes and ovarian abscesses had been incised and drained through the vagina with permanent recoveries in a good proportion of cases. The uterus should always be curreted at the same time. These were the very cases where the vaginal operation and hysterectomy had been recommended so highly by the French surgeons. Yet a considerable per cent. of these cases could be relieved by vaginal incision and drainage. The object of the surgeon should be, not so much toward still further reducing the death rate from the operation, but to relieve the cases and preserve as far as possible organs which had so much to do with the woman's health and happiness.

Dr. L. H. Dunning of Indianapolis followed with a paper entitled

SHALL HYSTERECTOMY BE PERFORMED IN INFLAMMATORY DISEASES OF THE PELVIC ORGANS.

The author discussed only that form of inflammation of the pelvic organs and tissues denominated diffuse pelvic inflammation, and drew the following conclusions:

1. We recognize the utility of hysterectomy in a small percentage of bilateral suppuration of the tubes and ovaries in which the uterus is distinctly septic, and in cases of septic uteri which can not be cured by other means after bilateral salpingo-oophorectomy.

2. We oppose hysterectomy as a rule in inflammatory diseases of the pelvic tissues upon the following grounds, viz.: (*a*) The uterus is the central organ of the reproductive system and should not, except upon palpable and urgent cause be extirpated. (*b*) It is only in rare cases that the uterus is so far diseased as to resist the curative effects of appropriate treatment. (*c*) The removal of the uterus profoundly affects the nervous system and emotional nature of young women deprived of this organ. (*d*) We oppose the removal of the uterus from anatomic reasons, to wit: As a result the vagina is shortened, the anatomic relations of the bladder, sigmoid and rectum are changed, the elasticity of the pelvic diaphragm is greatly diminished or entirely removed, the elastic tissue being largely replaced by sensitive scar tissue. (*e*) In married women it often disturbs the sexual relations of husband and wife and is apt to induce mental depression. (*f*) Vaginal hysterectomy compels the use of drainage because of the necrosis of tissue and suppuration induced.

SHALL THE UTERUS BE LEFT IN SITU IN EXCISION OF THE ADNEXA?

This paper was read by Dr. E. F. Fish of Milwaukee, Wis. The paper was a general defense of the uterus and an argument in favor of leaving it in situ, if sound, after excision of the appendages. It takes up and considers the pathologic conditions requiring hysterectomy after salpingo-oophorectomy, as well as the conditions which do not require it. The author argues against all operations which leave a degenerate uterus, such as Hegar's, Tait's, Martin's and Robinson's, except under extreme conditions, and concludes thus: 1. That whenever it becomes necessary to excise the uterine adnexa, if the uterus is sound, leave it. 2. Whenever we excise the tubes and ovaries, and the uterus, though in a pathologic condition, in our judgment will yield to treatment, leave it. 3. Whenever it is necessary to do an abdominal hystero-salpingo-oophorectomy and the cervix is healthy, do a supravaginal amputation, as this leaves the vaginal vault intact. 4. Whenever it is necessary to do a supravaginal amputation, suspend the cervix to the stumps of the broad ligaments, or anchor it to the abdominal wall to prevent prolapsus vaginæ (Baldy). 5. Whenever it is necessary to do a general ablation, and the cervix uteri is unsound, take the entire organ because of the danger of carcinoma. 6. Whenever a subserous or interstitial myoma can be removed without too great damage to the uterus, do a myomectomy and leave the organ. 7. Whenever we excise the appendages and leave the uterus, ventral fixation is not an unsurgical operative conclusion.

The author's reasons for leaving the uterus were: 1. That it helps to maintain the woman's sexual integrity. 2. It relieves the patient of much mental strain and is a prophylactic measure to neurasthenia, melancholia and insanity. 3. It tends to maintain the family ties unstrained. 4. It obviates the possibility of vaginal hernia, cystocele and proctocele, and delays vaginal atrophy, and last of all, it holds up and prevents shortening of the vagina.

A spirited discussion followed the reading of the above there papers, and was participated in by Drs. L. S. McMurtry, John M. Duff, Joseph Price, J. Henry Carstens, Albert Goldspohn, George H. Rohé, James F. Baldwin, A. B. Miller, Walter P. Manton, J. W. Bovee, Rufus B. Hall, W. E. B. Davis, E. F. Fish; some favored the abdominal and some the vaginal route.

SECOND DAY—MORNING SESSION.

Dr. J. W. Long, of Richmond, Va., contributed a paper entitled

DYNAMIC ILEUS.

Intestinal obstruction had been variously classified, but Dr. Long regarded the classification adopted by Murphy as the simplest and the most rational: 1. Adynamic ileus, always the result of intestinal paralysis, due to varying causes, may be clearly illustrated by such cases as those following injury to the spinal cord and paralysis due to peritonitis. 2. Dynamic ileus. This variety formed the subject of the paper and was discussed in detail. 3. Mechanical ileus embraced such common lesions as strangulated hernia, intussusception, fecal impaction, etc.

We report one of Dr. Long's cases herewith. Mrs. C., was brought to him on May 27, 1896. She is 21 years old, married three years, but never pregnant. She is rather below the medium size and height. In temperament she is of the spoiled child type, not hysterical but rebellious. It was with great difficulty that she could be induced to have any local treatment or even take her medicines. After admission to hospital her obstreperous disposition required all the tact and firmness of a sagacious nurse. Early in April of this year the patient had malaria followed by delayed menstruation, pelveo-abdominal pain and obstinate constipation. The malaria and menstrual disturbance yielded promptly to treatment, but the abdominal pain continued and gradually the ileus symptoms became more and more pronounced. After exhausting every other measure to move the bowels the patient was given chloroform and by means of a Rickett's tube he succeeded in washing away a quantity of fecal matter. Notwithstanding there was no improvement, the nausea and vomiting recurred oftener and were more distressing, the pain and tenderness became worse and a marked degree of tympany supervened. When she was brought to the hospital there had been no movement of the bowels for four weeks excepting what was washed away with the colon tube while the patient was anesthetized. The history justified the diagnosis of intestinal obstruction, while the urgent symptoms demanded an immediate operation. The abdomen was opened by a median incision. No mechanical obstruction could be found, although a careful search was made along the whole length of the intestine. The bowel was moderately distended with gas and congested. A singular feature, however, was that at three points, two in the ileum and one in the sigmoid flexure, the canal was constricted sufficient to constitute obstruction. In the ileum one of the constrictions was about 15 inches from its lower end and 6 inches long, the other was nearer the jejunum and about 4 inches long. The lumen was not entirely closed at either point, but was greatly reduced, being less than half the normal size, while the diameter of the remaining portions of the bowel was increased on account of the distention with gas. No peristalsis was observed, but the contracted portions could be dilated by "milking," the intestinal contents along. In the sigmoid the limitations of the contracted portion were not so sharply defined, but the lesion was just as evident. The walls were thickened and the caliber much diminished. Incidentally a small ovarian cyst on the right side was discovered and removed. As the intestine had been handled a good deal the abdomen was flushed with normal salt solution. The incision was closed with two tiers of sutures, silk for the peritoneum, and interrupted silver wire for the remaining layers. The recovery was most satisfactory in every way. The bowels responded to the usual laxatives and enemas on the second day, and from the first to last there was not a hitch in her convalescence. The patient left the hospital in four weeks, and three weeks thereafter took a trip to Alabama. There could be discovered no evidence of lead, or ptomain poisoning.

SPONTANEOUS RUPTURE OF UTERUS DURING LABOR AT TERM, WITH SPECIMEN.

A paper on this subject was read by Dr. B. M. Hypes, of St. Louis.

Mrs. O., aged 31, of German parentage, general health good, previous to birth of first child. No history of any constitutional disease. About one year after marriage, aged 26 years, was delivered of a seven and one-half months child, which lived but a few minutes. This labor was easy, lasting about six hours. The midwife in attendance failed to get the after-birth,

which was removed by the family physician twenty hours after the birth of the child by means of his hand and the curette. The woman then suffered for six weeks with a severe case of metro-peritonitis. From this time her health remained impaired, and for the next few years she was a sufferer from general debility, impaired digestion, and a "sore spot" in the hypogastrium. Four years from the birth of her first child she again became pregnant. During gestation, her general health was much improved. She exhibited no functional disturbances; her only complaint was the sore spot over the fundus of the uterus and to the right of the median line. Labor pains began Sept. 16, 1895, at 10 P.M., at full term. The family physician was called; found labor in progress, vertex presentation, with normal condition of mother and child. The pains were slight and progress slow. At 2 A.M., September 17, he gave a dose of morphin and went home. At 9 A.M., upon his return he found the patient comfortable, with occasional slight labor pains. He left the house with injunction to call him when signs of labor became pronounced. Patient remained quiet during the day. Suddenly at 3 P.M., she was seized with violent vomiting, followed by the most excruciating pains in her abdomen associated with rolling and tossing in bed, gasping for breath, faint feelings, pallid face and rapid exhaustion; in short, the usual symptoms of abdominal shock. The family physician was at once sent for and upon his arrival, at 4 P.M. found her in complete collapse, with convulsive seizures. The symptoms, with vaginal and abdominal examination, revealed to him this dreadful condition: The presenting part receded, the womb empty, and the child plainly felt in abdominal cavity. The patient had suffered spontaneous rupture of the uterus. He at once dispatched for surgical aid, but by the time the surgeon, Dr. Meisenbach, arrived, the patient was moribund. Still with the hope of saving the child, laparotomy was hastily performed, and the child, which had escaped entirely into the abdominal cavity, was extracted from a mass of blood and amniotic fluid. It had ceased to live, and continued efforts at resuscitation failed to cause it to breathe. The child was fully developed, male, weighed six pounds, and was 18 inches long. The uterus, when removed from body, presented the following condition: A rupture through fundus superiorly, extending from half an inch from the entrance of one tube to an equal distance from the entrance of the other; the walls, at place of rupture, were comparatively thin. Placenta located at middle third of uterus, anteriorly and to the right, where the walls were much thickened. Vaginal portion of the cervix almost obliterated as at term, and dilated for the ready admission of two fingers. The lower zone of the uterus exhibited no thinning or formation of Bandl's contraction ring; no disease of tubes, ovaries, or placenta. A microscopic examination was made soon after rupture and revealed fatty degeneration of tissue at point of rupture. The points of unusual interest in the case are the cause of the rupture, and its location at the fundus uteri.

Dr. EDWIN RICKETTS of Cincinnati, Ohio, read a paper entitled

PORRO'S OPERATION AT OR NEAR THE FIFTH MONTH FOR SMALL FIBROID OF CERVIX, ACCOMPANIED BY HYDRAMNIOS AND TOTAL RETENTION OF URINE.

The author reported the following case and briefly commented on it:

Mrs. M., white, aged 26, of short stature, mother of two children of 6 and 3 years of age, with an abortion at 8 weeks early in 1895, no specific history, and a patient of Drs. J. B. and C. M. Warwick, of Lucasville, Ohio. Drs. Warwick first saw her on Jan. 10, 1896, finding that she menstruated last in the first week of November, 1895. They also found the uterus enlarged and firmly bound down in the pelvis, especially to the left, and extremely tender to pressure. There was uterine hemorrhage in March, 1896, and again in the following month lasting for twenty-four hours. Her labors and abortion were prolonged and severe and accompanied by great suffering, while dilatation in all instances was accomplished with difficulty. From Jan. 10, 1896, she had no desire to urinate, nor could she void a drop of urine without the aid of the catheter. Feb. 23, 1896, she had severe labor pains lasting thirty-six hours and accompanied by slight hemorrhage, the right portion of the cervix being soft and the left hard, which condition was also present at the time of operation. During April and until May 22, the date of operation, she was very tender over the lower part of the abdomen, and at times had a temperature above 100, with a pulse running from 90 to 100.

Dr. Ricketts saw her in consultation at her home April 8, 1896, when for the first time motion of the fetus was barely perceptible. May 22, Drs. Warwick, Kline, Sellards and Ricketts found her abdomen larger than it should be at full term, which was due to the hydramnios present. There was no difficulty in moving the fetus freely in the abdominal cavity, so thin was the uterine wall. It was considered unwise to delay surgical interference, and a Porro was therefore performed under as strict asepsis as the circumstances would permit.

After the abdomen was opened, Dr. Ricketts passed his hand down into the pelvis breaking up the pelvic adhesions. Upon the delivery of the fundus of the impregnated uterus through the abdominal incision, a rubber ligature was thrown around it low down and tight enough to control any hemorrhage which might occur. The fluid which escaped upon opening the uterus surpassed in amount any he had seen delivered per viam naturalem. After carefully sponging the parts, the wire was tightly adjusted below the rubber ligature by means of the Koeberle clamp, and the rubber ligature then removed. After the delivery of the placenta, the fundus was amputated, leaving the ovaries and tubes intact. The abdominal wound was closed with silk worm gut sutures, without stitching any tissue to the stump below the wire. No drainage tube was used. The extra-peritoneal part of the stump was dressed with gauze, moistened in glycerin and tincture of iron, the stump being held up by the double-hooded pin of Tait. The placenta and fetus were small for near five months gestation, and the cord was tied in almost a hard knot, harder than any he had seen. The fetus had marked cyanosis and gasped but once. Recovery of the mother was satisfactory.

TREATMENT OF PUERPERAL INFECTION.

Dr. H. W. LONGYEAR of Detroit, read a paper on this subject. He first spoke of the prophylaxis and under this head of the difficulty of securing reliable statistics regarding puerperal mortality of patients under the care of midwives in this country. The prophylaxis was divided into general and specific. He spoke of the treatment of infection from abortion and from childbirth at full term, and presented an instrument for use in removing the remains of secundines from the uterus, designed by him. He also exhibited a self-retaining drainage tube of his own invention and demonstrated its applicability. He reported two cases of puerperal infection treated successfully by the use of diphtheria antitoxin serum. He condemned the performing of hysterectomy for puerperal septicemia except in very exceptional cases.

(*To be continued.*)

The American Public Health Association.

[Special Correspondence of the JOURNAL.]

The Twenty-fourth Annual Meeting of the American Public Health Association held at Buffalo, N. Y., Sept. 15–18, 1896.

(*Continued from page 756.*)

WEDNESDAY—MORNING SESSION.

After the customary announcements by the chairman of the Local Committee of Arrangements, the daily report of the Executive Committee was made by the Secretary presenting the names of forty additional applicants recommended for membership, who were thereupon elected.

The roll of the Advisory Council, which consists of one member from each State, Territory, the District of Columbia, the Army, Navy and Marine-Hospital Service of the United States, the Dominion of Canada and each of the Provinces, and from each state, territory and the Federal District of the Republic of Mexico, eighty-one in all, was then called and vacancies filled by the President.

The scientific work of the day began with the reading of the Report of the Committee on Disposal of Garbage and Refuse by the chairman, RUDOLPH HERING, C. E. of the City of New York. The elaborate nature of this admirable exhaustive report precludes any epitome giving a correct idea of the subjects of inquiry. Cities were considered in three classes: 1, the large, those over 100,000 population; 2, the medium, those numbering between 40,000 and 100,000; and 3, the small, those under 40,000—and the various methods of disposing of garbarge in each, whether by cremation, by filling in and ploughing into the land, by dumping into the sea, lakes or rivers, or by being fed to animals, were considered with reference to cost and satisfactory results. The cost ranged from 75 cents to 2 cents per capita, according to population and the method of disposal. The reduction process in use in about ten cities varied from 15 to 67 cents per capita. Regarding cremation, the expense was, in large cities from 2 to 6 cents, medium cities 6 to 10, and in one small city 20 cents. During the past year, contracts have been made for the introduction of crematories and one reduction plant in New York City, at a cost of $90,000 or 6 cents per capita. The committee have been awaiting final

results from experiments in Berlin and Hamburg before arriving at definite conclusions, and, therefore, asks to be continued.

Papers followed on the "Disposal of the Garbage and Waste in the Household" by Colonel William F. Morse of the city of New York; another entitled "A Plea for the Domestic Disposal of Garbage," by Dr. N. E. Wordin of Bridgeport, Conn., member of the State Board of Health of Connecticut, and on "The Disposal of Household Garbage and Excrement," by Major William S. Tremaine, of the Medical Department of the U. S. Army (retired). They were all based on the drying, cleaning or combustion of waste by the kitchen range or attachments to the stovepipe. This group of papers elicited a very lively discussion, participants being limited rigidly to five minutes. Dr. Gihon, U. S. Navy, began by suggesting the proper way of disposing of at least one-half the garbage was to eat it instead of throwing it into the "swill pail," and instanced the custom in France and Switzerland of making palatable dishes of surplus food as a wiser and more economic course than throwing it away. Surgeon-General Sternberg, U. S. Army, spoke of the necessity for the prompt disposal of garbage, because of the danger of dissemination of putrescent matter by house flies. Many mysterious cases of diarrhea and typhoid fever are due to direct contamination of flies, and cases of cholera have been caused in the same way. Dr. Clark agreed with Dr. Gihon that the American people cooked more food than they can eat and consequently wasted it. Dr. Lee introduced Dr. Varian, President of the Health Board of Titusville, Penn., who described the method of burning garbage in that city, where natural gas is the only fuel. Dr. Carter of Detroit, said if the fluid part of garbage is poured off, all the rest can be burned in the ordinary fire box. Dr. Mitchell objected to the endorsement of Major Tremaine's proposal to cremate excrement, as this had been known to produce typhoid contamination. Dr. Durgin of Boston, said that of the two kinds of waste material, that collected out doors and that in the house, the latter must go through fire to be purified. He advocated plants situated at various sites in the city to have as short a haul as possible and he did not think the duty of removing household garbage should be imposed on the city. Dr. Howe of Buffalo, referred to flies as filth disseminators. He said that if people were required to pay for the removal of garbage as they do for their gas, they would not make so much. Dr. Daniel Lewis, President of the State Board of Health of New York, advocated curative stations every few blocks for the removal of garbage instead of casting it over the whole city. Dr. A. N. Bell of Brooklyn, insisted on the necessity of compelling citizens to dispose of their garbage in their own homes and at their own expense.

The report of the committee on "The Transportation and Disposal of the Dead" was read by the chairman, Dr. Charles O. Probst, Secretary of the State Board of Health of Ohio, and was following by a paper on the "Quick or the Dead" by Dr. Benjamin Lee, Secretary of the State Board of Health of Pennsylvania, in which the claims of living over the dead were set forth. Dr. Durgin of Massachusetts, recommended a steel casket for deceased bodies and Dr. Smart U. S. Army, spoke of the contamination of the soil of cemeteries from dead bodies.

AFTERNOON SESSION.

A paper on "Measures for the Prevention of Blindness," was read by Dr. Augustin Chacon, vice-president of the Ophthalmologic Society of Mexico, and delegate from the State of Aguascalientes, Mexico.

Dr. Lucien Howe of Buffalo, said that a large proportion of the diseases inducing blindness is preventable, but only preventable when attended to early, and they are not attended to early because the persons who have them in charge are apt to say that they amount to nothing and the cornea is ulcerated through before they become subjects of treatment. The law ought to require every case of infantile ophthalmia to be reported at once to some legally qualified practitioner. This is done in some States, but in others, as North Carolina, it was found it could not be passed because it affected midwives. He offered two resolutions on the subject which were referred to the executive committee. Dr. Valentine spoke on the same subject, advocating Credé's method of prophylaxis.

A paper on "Miasmatic Fevers in the State of Sonora," by Dr. Alberto G. Nonega, delegate from the State of Sonora, Mexico, and one entitled a "Summary of Sanitary Legislation in the State of Mexico," by Dr. Maximiliano Alvarez, delegate from that State, were read, and followed by the Report of the Chairman of the Committee on National Health Legislation, Dr. Henry P. Walcott, president of the State Board of Health of Massachusetts, which was read by Dr. Wingate of Milwaukee, a member of the committee.

The proceedings were at this point interrupted to permit the introduction and customary reference to the Executive Committee of resolutions offered by Dr. Coventry of Windsor, Ont., declaring as the sense of the Association that boards of health should be absolutely independent of political considerations influencing their appointment or conduct, and by Surgeon General George M. Sternberg, authorizing the secretary to receive subscriptions for a monument in the city of Paris to Pasteur, which brought Medical Director Albert L. Gihon, U. S. Navy, who is chairman of the Rush Monument Committee, to his feet, with an amendment substituting the City of Washington for Paris, and the name of Benjamin Rush for that of Pasteur.

Papers entitled "Obiter Dicta Concerning Sanitary Organization," by Dr. A. Walter Suiter of Herkimer, N. Y., "Some Thoughts Relative to National Health Legislation," by Dr. U. O. B. Wingate of Wisconsin, and "On the Sanitary Administration of Unincorporated Districts," by Dr. Henry Mitchell of Trenton, N. J., were then successively read by their authors. Dr. Mitchell proposed that the sanitary authority in each township should be exercised by one individual, that each local officer should hold office for five years, that examinations of candidates for appointment should be by State boards of health, and appointments only made from a list of persons recommended by the State boards, that removals should be made only for cause, and that the local health officer should be paid by the governing body for his services.

Dr. C. E. Holgate of New Haven, said, that laws covering these points had already been enacted in Connecticut, and Dr. Caverly of Vermont, added that State to the list of those having a county organization of health officers. Dr. Jones of Greenwich, Conn., recommended the establishment of a College of Preventive Medicine. Dr. Bryce of Toronto, spoke in behalf of the measures recommended by the committee. Dr. Lee of Philadelphia, explained the reasons for the delay in sanitary organizations in Pennsylvania. Dr. Carter of Des Moines, said that there were three thousand local health boards in Iowa with as many physicians as health officers. These are all subordinate to the State board of health and he believed that all State boards should be similarly subject to a National board of health. Dr. Daniel Lewis of New York, was of opinion that the committee should be one of investigation and not one to make recommendations and he doubted whether a resolution could be passed in this Association in favor of a controlling National board of health. Dr. Mitchell submitted a resolution on the subject of his paper, which went to the executive committee.

The report of the "International Committee on the Prevention of the Spread of Yellow Fever" was then read by the chairman, Dr. Felix Formento of New Orleans, followed by a paper entitled "Contribution to the Study of Yellow Fever from a Medico-geographic Point of View," by Dr. Eduardo Licéago, president of the Association; and a second "Contribution to the Study of Yellow Fever Epidemic in Cordoba," by Dr. Gregorio Mendizabal, delegate from the State of Vera Cruz. Dr. Formento's resolution recommending a memorial from the President of the United States to the Spanish American countries which are permanent foci of yellow fever, was referred to the executive committee.

It had been the intention to hold no evening session, but the desire to hear the paper "On Isolation Hospitals" by Dr. John L. Leal of Paterson, N. J., was so great that a recess was taken until 8 P.M., when it was read and discussed by Dr. Lindsley of New Haven, Dr. McShane of Baltimore, who exhibited plans of the new isolation hospital of that city, Dr. Barnes of Boston, Dr. Plunkett of Nashville, Dr. Wright of New Haven, Dr. Probst of Columbus, Ohio, Dr. Woodward of Washington, D. C., Dr. Hibberd of Richmond, Ind., Dr. Gihon of U. S. Navy, Dr. Durgin of Boston and Dr. Woodhull of U. S. Army, the Association adjourning at 10 P.M., to attend a reception by the Ellicott Club.

The Mexican delegates celebrated the eighty-sixth anniversary of the Declaration of Independence of the Republic of Mexico (Sept. 16, 1810) by a banquet at the Iroquois Hotel, and later joined their fellow American and Canadian members at the reception at the Ellicott Club.

THURSDAY—MORNING SESSION.

The meeting having been promptly called to order by the First Vice-President, Dr. Woodhull, the daily announcements of the Local Committee of Arrangements was made by Dr. Lucien Howe of Buffalo, and the Treasurer Dr. Henry D. Holten of Brattleboro, Vt., presented his annual report, which was referred to the Auditing Committee.

The funds on hand Sept. 23, 1895, amounted to	$ 574.08
Received from sale of Transactions	118.40
Received from membership dues	2,075.00
Received from advertisement in volume	118.00
	$2,885.48

Expenditures for reporting proceedings, publication of volume, expenses of Secretary and Treasurer's offices, expressage, postage and printing of early volumes of Transactions to complete sets, amounted to $1,522.96

Leaving a balance in the treasury of $1,362.92

The unexpended balance of the "index fund," for indexing the early volumes, is $493.48

The Secretary reported from the Executive Committee, with its recommendation of passage, the following resolutions, which had been referred to it:

1. That the Treasurer be authorized to appoint an assistant treasurer for Mexico.

2. The resolution of Dr. SMART, U. S. Army, to appoint a special committee of five members to consider and report upon some method by which international arrangements may be effected to prevent the transmission of infectious diseases from one country to another.

3. The resolution of Dr. COVENTRY of Canada, amended to read, that the Association views with pleasure the growing tendency of many States and Provinces not to manage and control the bureaus of public health by political partisans, and not to exclude from office sanitarians who may differ politically from the party temporarily in power. From a scientific standpoint, as well as in the best interests of public health, we welcome this tendency and take this opportunity to place ourselves on record by declaring that it is conducive of the best interests of public health to ignore political lines in the formation of State, Provincial and other boards of health, and that a copy of this resolution be sent to the Secretaries of State of all Federal, State and Provincial governments of the countries represented in this Association.

4. The resolution of Dr. WINGATE of Wisconsin, amended to read, that it is the sense of this Association that the Committee on National Health Legislation be continued and that efforts be continued to influence the Congress of the United States to establish a Department of Public Health at Washington, D. C.

5. The resolution of Dr. LICÉAGA of Mexico to constitute a special committee of five to study the periods during which each contagious disease is transmissible and the term during which any person, who has suffered from such disease, is dangerous to the community.

6. The resolution of Dr. HOWE of Buffalo—"WHEREAS, about one-fifth of all the inmates of schools and asylums for the blind are there because of having suffered from purulent ophthalmia in infancy; and whereas, the ravages of this disease can be controlled in almost every case if proper treatment is begun promptly; and whereas, most of this blindness is due to the wilful or ignorant neglect of nurses and midwives, thus causing unspeakable misery to the innocent victims and great yearly cost to the State treasury;

"*Resolved*, That this Association heartily approves of the laws already enacted in several States which compel midwives and nurses to report these cases, under heavy penalty immediately to legally qualified practitioners or to proper officers of local boards of health; and *Resolved*, That this Association recommends and urges the adoption of similar laws in other States of the Union or elsewhere wherever practicable."

All which were unanimously adopted.

The Secretary reported the names of twenty-five additional applicants for membership recommended for election and who were accordingly elected, after which the scientific work of the Association was begun and continued in the following order: Report of committee on "Pollution of Water Supplies," by Major CHARLES SMART, Washington, D. C., Chairman; report of committee on "River Conservancy Boards of Supervision," by Dr. PETER H. BRYCE of Toronto, Secretary of the Provincial Board of Ontario, Chairman; report of committee on "Protective Inoculations in Infectious Diseases," by Dr. CHARLES N. HEWITT of Red Wing, Minnesota, Secretary of the State Board of Health of Minnesota, Chairman.

At this point Vice-president Woodhull interrupted the proceedings to read a telegram just received from the medical attendants upon the Second Vice-president, Dr. Henry Sewall of Denver, Colorado, who was prevented from being present by a serious attack of typhoid fever. The telegram was in reply to one of sympathy sent by the Association on Tuesday upon motion of Dr. Montizambert of Canada, and informed the Association that his case was progressing favorably and thanking it for the interest expressed.

A paper on "The Serum Diagnosis Test for Typhoid Fever," by Dr. WYATT JOHNSTON of Montreal, presented a modification of the serum diagnosis test introduced by Vidal, which Dr. Johnston had found expeditious and satisfactory. A paper on the "Prophylaxis of Typhoid Fever," was read by Dr. J. ELIOT WOODBRIDGE of Cleveland, Ohio, who stated that the flow of the lake front of the city, which was originally clear white sand over a sub-stratum of clay, had in the course of recent years been covered by a progressively increasing layer of slime several feet thick. He declared that for every case of typhoid a city government is morally responsible, as all cases can be traced to bad sewerage or polluted water. The paper was discussed by Drs. Carmona y Valle of Mexico, Cerna of Texas, Kinyoun of U. S. M. H. S., Learned of Massachusetts, and Bailey of Kentucky.

Dr. DURGIN of Boston, offered a resolution deploring the passage by Congress of a law preventing experiments upon animals, which was referred to the executive committee.

The next series of papers excited the greatest interest and elicited discussions and inquiries propounded by members to the authors. "Practical use of Formic Aldehyde as a Disinfectant," by Prof. FRANKLIN C. ROBINSON of Maine; "A Convenient Lamp for Generating Formaldehyd Gas," by Dr. A. E. DESCHWEINITZ, Washington, D. C.; "Preliminary Note on the use of Formaldehyd for Room and Car Disinfection," by Surgeon J. J. KINYOUN of Washington, D. C.

AFTERNOON SESSION.

Report of committee on the "Cause and Prevention of Diphtheria" was presented by Dr. J. J. KINYOUN, of Washington, D. C. This was followed by papers on: "Diphtheria in Chihuahua," by Dr. MIGUEL MARQUEZ, of the State of Chihuahua, Mexico; "On Bacteriologic Diagnosis as governing the admission and discharge of patients in Diphtheria Hospitals," by Professor E. B. SHUTTLEWORTH, of Toronto: "On Prophylaxis of Paludism," by Dr. ALFONSO RUIZ ERDOZAIN of Hidalgo, Mexico; "Paludism in the State of Morelos and its prophylaxis by Sanitary Measures," by DR. ANGEL GAVINO, of the State of Morelos, Mexico; "Brief Notes on Public Hygiene in the State of Tamaulipas," by Dr. G. GARZA, of Laredo, Mexico; "On Public Health in Tabasco, Mexico," by Dr. JUAN MULDSON, of Tabasco, Mexico; "On Sanitation in Hospitals for the Insane," by DR. GEORGE H. ROHÉ of Maryland; "Should Measles be Quarantined? by Dr. HENRY M. BRACKEN, of Minnesota; report of committee on "Causes and Prevention of Infant Mortality," by Professor CHARLES N. HEWITT, of Minnesota; "On Mortality of Infants, the Causes and Means of Diminishing it," by Dr. SALVADOR GARCIADIEGO, of Jalisco, Mexico; "On Diarrhea of Children," by Dr. JOSE M. BENITEZ, of Guadalajara, Mexico.

EVENING SESSION.

Session began with the report of committee on the "Use of Alcoholic Drinks from a Sanitary Standpoint," by Dr. FELIX FORMENTO of Louisiana. The committee favored the moderate use of pure wines and beer, and advocated temperance and not prohibition. A sharp distinction was drawn between such use and alcoholism from the abuse of ardent spirits. "Spasmodic and inefficient Sunday laws" were decried and the palm for hard drinking awarded to Americans as a nation. Wine-producing and wine and beer drinking countries were cited as comparatively free from intoxication. Coffee-drinkers, according to the committee, are seldom addicted to the immoderate use of liquor.

The paper was discussed pro and con by Drs. Carter, Grosvenor, Bailey, Vice-president Woodhull and Nelson R. Hopkins.

A paper was read "On the Bicycle in its Sanitary Aspects," by Dr. ALBERT L. GIHON. The speaker announced that he had not set out to assail the bicycle and its ideal rider, but only the hideously distorted creature whose unnatural posture is affected by "expert" wheelmen. He adverted to the serious harm to women from improper saddles, quoting from medical wheelmen in support of his statements. As a mere matter of health incentive, he said, pedestrianism remains unrivaled, but for those who will not walk the bicycle under the restrictions and limitations indicated may become an useful alternative. If the bicycle is to merit praise, the ridiculous posture affected by professional male riders and their imitators must be discountenanced and denounced by wheelmen's periodicals, forbidden by wheelmen's clubs and discouraged by reputable makers and dealers. Girls under the age of puberty should be restricted by parents, guardians and teachers to short rides, and no woman of any age be mounted on any other than a wide elastic seat without anterior horn or central ridge. Lastly, the gate of the bicyclist should be such as can be maintained with the least personal exertion. The paper was briefly discussed by Dr. Carter and Dr. Mosher of Ann Arbor, Mich.

This was followed by a paper "On the Part that Public Instruction Should Have in the Way of Precaution Against Contagious Diseases, by Dr. CARLOS SANTA-MARIA of Durango, Mexico; "On Public Bathing Establishments, with a Description of the New Public Bath in Brookline, Mass.," by Dr. H. LINCOLN CHASE; "On Public Baths" (illustrated by stereopticon), by Dr. W. H. TOLMAN of the city of New York.

(*To be continued.*)

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INFORMATION WANTED.

It would greatly facilitate the prompt delivery of the JOURNAL to those members of the ASSOCIATION living in large cities, if they would kindly furnish this office with their street address in those cases where it is omitted from the wrapper of their JOURNAL, as we have been notified by the postmasters of the larger cities that second-class mail matter not having street address, would be placed in the general delivery to await call.

SATURDAY, OCTOBER 10, 1896.

THE AMERICAN PUBLIC HEALTH ASSOCIATION.

The mere enumeration of the reports of special committees and individual papers read at the recent meeting of the American Public Health Association at Buffalo, N. Y. (September 15-18), is sufficient evidence of the amount of scientific sanitary inquiry accomplished. Four addresses, sixteen reports of committees and fifty-three papers—seventy-three in all—constitute a formidable list, and when to these are added the discussions on these reports and papers, which are arranged in groups according to subjects, these discussions being a characteristic of this body, which it encourages and on which it justly prides itself, its reputation as a working body can not be questioned. The Association was actually in session eight hours on the first day, eight on the second, nine on the third and five on the fourth, a total of thirty, the general business occupying scarcely an hour each day. Giving thirty minutes to each report and limiting voluntary papers to twenty, of which only five were read by title, and restricting discussions to five minutes, it will be seen how well the time was filled, a result accomplished only by the admirable business methods of this excellent body. The unflagging interest of the old members was shown by the fact that nine of the thirteen surviving ex-presidents were in attendance and very actively engaged on duty as members of the Executive Committee. Prof. STEPHEN SMITH of New York City, the founder of the Association and its first President (1872, '73 and '74) in his address in acknowledgement of his enthusiastic welcome at Buffalo declared he was especially gratified at discovering that the Association still adhered to its early practice of doing its administrative business through an executive committee, thus taking the disputations and hysteric jangling, by which so much time is wasted in many large associations, off the floor and permitting the legitimate work for which the Association was organized to be performed. Every resolution offered is read and upon being seconded referred without debate to the Executive Committee, by which it is carefully considered, amended, if thought best, in substance or language, and referred back the following day to be put upon its passage, or quietly tabled in committee. The confidence in the conclusions of the committee is such that debate seldom occurs and dissent rarely. The composition of the committee justifies this confidence. The five officers, six elected members, of whom three are renewed annually, and the ex-presidents secure a judiciary of old and experienced members. Occasionally some disappointed proposer of a resolution, on finding his hobby not reported, jumps up with an amendment to the constitution changing the composition of the committee, usually by leaving out the ex-presidents, but a year of sober reflection before the retaliating amendment can be considered, has heretofore saved the Association the loss of what may be considered its balance wheel. The participation of the former presidents preserves a constant policy and preserves it from local influences, log-rolling and hasty, injudicious legislation.

The duty of the Executive Committee is no sinecure. It assembles early on the day preceding the annual meeting and is in session the greater part of that day and subsequently daily from 8 or 9 to 10 A.M., and usually at night after the adjournment of the evening general session, often when matters of importance have been referred to it continuing its work until two or three o'clock in the morning. The Executive Committee investigates every application for membership and determines whether to recommend the applicant for election. As stated, it considers every resolution introduced into the Association, amending it as it may believe proper, or changing its phraseology. It examines all papers and prepares the daily programs, and generally discharges all the working duties of the Association. An Advisory Council, consisting of one member from each State, Territory, the District of Columbia, the Army and Navy of the United States, the Marine-Hospital Service, the Dominion of Canada and each of the Provinces, and each State, Territory and the Federal District of the Republic of Mexico, besides acting as a nominating committee of officers and selecting the place of meeting for the ensuing year, also considers important questions of policy and makes such recommendations to the Association as shall best secure its objects. Through this council, which is virtually a senate of over eighty members,

the equal representation of all the constituent nationalities and States is obtained, and its recommendations in matters of vital importance have always been sustained. At the meeting just ended, however, its selection of the place of meeting for 1897 was reversed for reasons that had not been presented to it.

The Executive Committee, the Advisory Council and the Publication Committee (the last consisting of the Secretary and and two members residing conveniently near him), are the three standing committees, and practically do all the general business, and the splendid uniform series of volumes of its transactions for the twenty-four years of its existence are speaking testimony of the value of its sanitary work, constituting a hygienic library containing information which Florence Nightingale declared could not be found anywhere in Europe. To the Chairman of the Publication Committee, the Secretary of the Association, Dr. Irving A. Watson of Concord, N. H., Secretary of the State Board of Health of New Hampshire, now in his fifteenth year of office, is due the invariably neat and appropriate announcements, circulars, etc., which are characteristic of this body. Indeed, Dr. Watson's suggestion of a desire to resign the Secretaryship (which is a triennial office), on account of the proportions its duties have assumed, alarmed the members at the prospect of losing an officer so exceptionally qualified, faithful and efficient.

The American Public Health Association is characteristically *American*. In 1884 it extended its membership to Canada and in 1890 to Mexico, the membership of both these countries embracing their most distinguished sanitarians and health officers, who have been as regular in attendance, as interested in the work, and as enthusiastic and able contributors as those from the United States. Two annual meetings have been held in Canada, in 1886 and 1894, and that of 1892 in Mexico; and both Ottawa and Toronto contended for the meeting in 1897.

An especially commendable feature of this Association is that it is in no sense a junketing body. It goes where it hopes to do good and devotes itself to that end. It asks no courtesies and is prepared to assume all the expenses of its meetings. Nevertheless, civilities have been everywhere generously showered upon it and accepted conditional upon their non-interference with its legitimate work. At Buffalo the Local Committee arranged its excursions after the formal adjournment, only requesting that one night might be assigned for a reception at the Ellicott Club, but an interesting paper induced the members to meet before the reception and hold a session of a couple of hours before presenting themselves at their hosts.'

The system of special committees, covering almost the whole ground of public hygiene, secures a concert of inquiry. At Buffalo, sixteen of the seventeen special committees (now numbering twenty) actually presented reports, and an examination of the authorship of these reports and of the individual contributions, shows that all but five or six of the seventy-three writers hold or have held responsible representative positions as members of State and Provincial Boards of Health and of the Superior (National) Board of Health of Mexico, as health officers of cities, and as Government officials of the United States Army and Navy and the Department of Agriculture, thus directing their several lines of inquiry in common channels. Dr. Stephen Smith claims for the Association the credit of having developed the system of State and Provincial Boards of Health into its proportions. Originally the subject of a special committee, whose work grew so large that a whole session was devoted to it exclusively, becoming later a Conference of State Boards of Health, meeting at first coincidently with the Association and later independently, the new organization has never lost interest in the parent body, as shown by the numbers of presidents, secretaries and members of State and Provincial Boards of Health who participated in both the business and sanitary work of the late meeting as chairmen and reporters of special committees, authors of papers and disputants in the discussions. Perhaps the crowning glory of the American Public Health Association has been the establishment of a fraternal union of the United States, Canada and Mexico in one body, in which international distinctions are abolished, and the sanitary officials of the three countries harmonized in the interests of a common humanity in a mutual policy of protection against epidemic importations.

A SLANDER ON THE MEDICAL PROFESSION.

In a medico-legal congress a year or two ago it was asserted that it was the practice of reputable physicians to deliberately shorten life in cases of painful and incurable disease. A large portion of the public undoubtedly accepted this statement as gospel truth and possibly thought it nothing extraordinary. The superstition that the orthodox treatment of human rabies is of this character is held by many of the ignorant in the community, and even grosser errors of the same general nature may be occasionally met with among them.

The lawyer who made the statement referred to, defended and advocated the practice and his utterance was, without question, based on no knowledge but was offered as a part or support of the argument he was making before the congress. It is a pity his ideas of the ethics of another learned profession should have been so hazy, and also that he was not more scrupulous as to his facts. His ideas were noticed to some extent by the medical and secular press at the time; the public had at least a chance to be enlightened and it is probable that, on the whole, the utterances did little harm.

The notion, however, that incurable diseases should be cut short by an expeditious euthanasia is every little while advanced by some one-sided humanitarian. The latest comes from California, where a misguided clergyman offers an elaborate proposition of a law for the doing away with the victims of incurable disease. It provides that "a commission of eight persons of high character and unassailable reputation be appointed by the governor of the State, four to be physicians, and the others to be the district attorney, the chairman of the health board, and two public spirited citizens of pronounced humane tendencies. The sufferer should appeal to the commission with the consent of his family, then the case should be thoroughly investigated by the commission, and if the physicians are satisfied that every known remedy has been tried, and the case is absolutely incurable and the patient has suffered intolerable pain, and the relatives can show that they act from none but humane motives, and all these points have been settled to the satisfaction of the commission, it should be empowered gently and humanely to put an end to the misery of the affected person."

The above in its elaborate legal ordering of homicide is very reminiscent of an imaginative work of fiction by an English writer of note that appeared some ten or fifteen years back, and, like it, might be taken as a satire on certain extreme social and economic tendencies. The author of the present proposal, however, is accepted as in earnest, and is probably only one of a large number who in their ill-regulated philanthropy throw well known moral and social principles to the winds. It is easy to see to what consequences his line of reasoning would lead, if the idea of the sacredness of human life were abolished, as would be necessarily the case with the adoption of any such plan.

The medical profession owes to itself and to the public a duty in this matter. It is not that it is misunderstood and misrepresented; there are many respectable and even estimable people who are more or less demoralized by the publication of such propositions, and public sentiment, which ought to be on the highest plane, is degraded to a very material extent by them. Society needs all the safeguards it possesses and the belief in the absolute inviolability of human life is one of the most important of these. There is no need, of course, to say that regular physicians should not encourage any belief in popular impressions derived from such publications, but there may be a very positive utility in their actively denouncing them. At all events they should endeavor to correct any popular belief that our profession sanctions even the suggestion of the violation of human or moral laws. It ought to be unnecessary to say that this should be done, but if we grow familiar with such charges and consequently neglect or ignore them, we have no assurance that such neglect will not appear to the uninformed as a tacit acknowledgment of their truth. When clergymen make such propositions as the one here reported what wonder that a credulous public should think it possible that doctors might be ready to endorse them or carry them out. The commandment "Thou shall not kill," would seem to be binding even upon the clergy. The public knows little and misunderstands a great deal in regard to the ethics of our profession and it is not amiss therefore to occasionally correct a possible misapprehension that they are not in all respects strictly in accord with the highest ethical standards. There is little danger, judging from our past, that we will protest too much.

THE MANIA FOR PROPER NAMES.

Several of our foreign exchanges are protesting against the practice of rendering the study of anatomy more difficult by encumbering the text books with the names of parts of the body which neither describe nor locate them, but merely commemorate the name of some obscure anatomist. The boast of the student now is that he can quote more proper names than the rest; but they are of no benefit to him in locating the parts designated by them. How much better to call it the anterior sacro-dural ligament than Trolard's ligament, for instance? It is a longer name, but it means something, and enables the student to place it at once.

In surgery the abuse passes all proper limit. It is not only perplexing to enumerate the various operations, but in many cases a name has been hastily applied to an operation not devised by the person named. It is simply an impossible thing for the average surgeon to mention *seriatim* the various incisions that have had proper names tacked on to them, and then the question of priority is generally impossible to settle by any amount of research. One of our recent dictionaries has devoted much space to the definition of operations catalogued under proper names, and as for instruments, many of them have two or three claimants. The familiar example of a cranial saw first figured in the "Chyrurgeons Storehouse" of SCULTETUS, coming to us for a long time under the name of HEY'S saw, and by many still called by that name, affords ample evidence, if any more were needed, of the loose practice in this matter.

In medicine there has been a singular passion for naming diseases for some favorite, or somebody who is presumed to have been the first to give a description of the disease. In some cases we have conflicting claims of priority, but the number grows with too great rapidity, and in these days of almost total neglect of the history of medicine, serious and absurd errors are perpetuated. Now, let us keep close to

nature in our nomenclature, and have it as nearly descriptive of the thing itself as possible. Then we approach the true scientific ideal.

CORRESPONDENCE.

Medical Education.

MONTCLAIR, N. J., Sept. 26, 1896.

To the Editor:—The two editorials upon medical education in the last issue of the JOURNAL are exceedingly well considered and show a decided disposition to go to the root of things. What is particularly pleasing in your remarks is the strong demand for *thoroughness* in our medical schools, and the intimation that until better methods of teaching are adopted the mere lengthening of the curriculum will avail little. The medical schools seem disposed to indulge in much self congratulation because a number of them have extended the period of study required for a degree of doctor of medicine to four years, and most of them now seem to require more or less preliminary education. In the latter direction it hardly seems possible that they can go too far. But the rigid requirement of four years study of medicine is perhaps not so wise a measure. At all events it has always seemed to me that the object to be gained in going to a medical school is a knowledge of medicine sufficient to enable a man to enter upon the practice of it, and some men will easily acquire in three years what it will take others four to accomplish. No two minds are precisely alike in childhood and as individuals approach maturity these mental differences increase rather than diminish so that it may prove a hardship and an injustice to a man with an unusually brilliant and acquisitive mind to be forced to spend the same amount of time in studying for his degree as the more slow going individual. Your editorial speaks of bedside examinations of students. In like manner the candidate should be examined in the deadhouse as to his knowledge of gross pathology, should operate upon the cadaver (if living subjects are not available), should bandage the manikin, etc. He should compound prescriptions, and be required to detect and demonstrate incompatables and poisons and should give the antidotes to the latter; in short he should be put through an examination which would really reveal what he knows.

No written examination, no oral examination, no bedside examination, nor even the certificate of good moral character, alone is a sufficient test of a man's capacity to enter into practice. But a judicious combination of them all is, I submit, necessary and should be adopted in each case. Let the examinations last from three to six days. The examining board should sit constantly or nearly so and the candidate should be allowed to appear before it whenever he chooses. Let a fee sufficient to pay the board's expenses, say from $50 to $100, be charged each candidate. If he only desires to take part of the examinations, there seems to be no reason why he should not do so, paying only the fees of those examiners before whom he chooses to appear.

One student might qualify himself to pass all these examinations in two or three years. Another, who would perhaps make a sober and more reliable practitioner, would require four or five years. And—and this is the most satisfying part of the plan—a dullard, a superficial or lazy student, or one whose preliminary education had been quite defective could never pass at all. What a glorious day it would be for American medicine if such a plan could only be realized! How such a body of trained examiners would sift out the weak and badly prepared candidates! No amount of cramming would enable a weak or illy prepared man to pass a competent and trained examiner, who could take the applicant to the bedside, to the operating room, to the laboratory and to the dead house, who would require one or more carefully written papers upon his particular subject, and any number of answers both oral and written that he might think proper.

Such an examination as the one outlined used to be required and I presume still is by the Army Examining Board. When this board had finished five or six days' examination of a candidate, both the board and the candidate felt that the latter had told all he knew. It was the only fair and satisfactory medical examination which I ever passed. My examinations for my degree were trivial, almost foolish, and my examinations for the hospital were too short and were *greatly a matter of luck.*

It has been asserted over and over again that an examination does not show what a man knows; and this allegation is measurably true of such examinations as I have last spoken of, depending for their result as they do upon so many fortuitous circumstances, as, *e. g.*, the readiness and assurance of the candidate in case of oral examinations, and his capacity for cramming in case of written examinations. But an examination that takes plenty of time and which attacks the candidate's fund of knowledge in various ways as, for instance, setting the ready and superficial man to write answers which require thought, accuracy and careful study, and on the other hand, asking the slow, methodical man, whose written answers may be good, such questions orally as to reveal whether his work has covered sufficient ground, or taking the bookish man to the bedside or the laboratory and letting him show whether he can put his theories into practice, etc.

If the medical schools, the AMERICAN MEDICAL ASSOCIATION, the New York Academy of Medicine and every representative body of physicians and the profession at large will unite in insisting upon competent boards of examiners in medicine (whether they be State or National) we may sometime get such bodies of examiners and such examinations that the degree of doctor of medicine shall of itself confer distinguished honor. Our medical schools and our physicians would in that case no longer be looked down upon by our foreign confrères. The greatest good for the greatest number would be attained because the average physician would be a man of sound education and broadened views. This state of affairs would perhaps be rather near the millenium, but it is really not entirely beyond the range of possibility. Very respectfully yours,

RICHARD C. NEWTON, M.D.

Expert Medical Testimony.

PHILADELPHIA, Sept. 28, 1896.

To the Editor:—There have been many papers and articles written on the subject of expert testimony but none I think so clearly express what is needed in courts as that published in our JOURNAL of Sept. 26, by L. Harrison Mettler of Chicago, under the title of "Insanity in Court."

The Doctor's arguments are so convincing that criticism is well nigh disarmed. His demand for a separate medical trial to precede the civil where a plea of insanity is offered, carries great weight and would seem to be perfectly fair.

The commission, suggested by him, to be composed of learned and experienced experts appointed by the supreme court or in other constitutional way beyond the reach of politics is certainly to be desired.

It is only too true that "the present system does not carry out the abstract spirit of the law that every man shall be tried by his peers; but on the other hand works injustice in many cases of real insanity and favors the exercise on the part of criminals of feigned insanity." Such being the case, is it not time that the great AMERICAN MEDICAL ASSOCIATION should assert itself and formulate and pass resolutions in accordance with the progressive ideas on the subject of expert testimony.

Yours very truly, T. RIDGWAY BARKER, M.D.

PUBLIC HEALTH.

Smallpox at Marseilles.—Since 1872 there have only been eight years when the deaths from smallpox at Marseilles have been less than a hundred, and in 1886 they were over 2,000. There have already been 358 deaths in the first quarter of 1896, and the lax preventive measures render the city a menace to the rest of Europe. The disease is practically endemic in the Italian colonies there, which contain about 100,000 souls, with thirty or forty families crowded into buildings that would scarcely accommodate ten properly.

Oil in Urinals.—It has been found that if urinals are coated with heavy oil, the urine leaves no traces nor odor as it runs off. The 178 public urinals of Vienna are treated in this way, with satisfactory results, saving the city $30 a year for the water supply of each. Many other European cities have already adopted the use of oil for this purpose. The urinal is scrubbed with a broom and plenty of water once a week or fortnight. When it is quite dry it is painted with thick mineral oil, obtained by distilling petroleum. Another system has a permanent syphon supply of oil.—*Journal d' Hygiène*, September 30.

Successful Retrovaccination.—The New York Health Board, after a long series of experiments, has solved the problem of retrovaccination, the vaccination of calves with matter taken from vesicles on children. Early attempts in this direction gave imperfect results on account of the choice of improper kinds and methods of collection from the children. A report submitted by John H. Huddleston, Medical Inspector, shows that complete success has now been attained in the manufacture of vaccine virus. In all, fifty calves have been inoculated with the virus taken from children. In forty-seven of these the results of the clinical test of the virus thus produced are known. The test consists in vaccinating three places on each of five previously vaccinated children. With the virus obtained from the animals there have been vaccinated 123 children, with a total result of 367 vesicles obtained out of 369 possible. In over 300 cases vaccinated and inspected this month at the department, 95 per cent. were successful, and the 5 per cent. of failures were all revaccinations.

The Distribution of Sterilized Milk in New York and Brooklyn.—Statistics obtained at the health department show the good effects of the free distribution of sterilized milk in Brooklyn under the auspices of the Board of Health, a charitable work that was made possible through the philanthropy of Mr. Nathan Strauss. The death rate during the second week of the recent hot weather among children under five years of age was only 34.4 of the total number of deaths, which is quite a remarkable showing when it is considered that the general death rate was exceptionally high owing to the excessive heat. It is necessary to go back to the beginning of June to find a week when the death rate among children was as low as that. During the period when the heat was most intense Mr. Strauss sent over to Brooklyn about 1,500 bottles of sterilized milk a day. A large force of men was employed at the New York depots, getting the milk ready for distribution, and it was transported to Brooklyn at the expense of and with the wagons and horses of the donor.—*Boston Medical and Surgical Journal.*

Treasury Regulations Regarding Immigrants.—The *Boston Medical and Surgical Journal* states that the Treasury Department has issued an order designed to prevent the spreading of contagious disease by immigrants in other places than the port of entry. It provides that after arrival at a quarantine station of a vessel upon which there appears, or has appeared during the last voyage, a case of cholera, smallpox, typhus fever or plague, and after quarantine measures provided by regulations of the Treasury Department have been enforced and the vessel given free pratique, it is ordered that notification of the above-mentioned facts be transmitted by the quarantine officer to the commissioner of immigration at the port of arrival, whose duty it shall be to transmit by mail or telegraph to the State health authorities of the several States to which immigrants from said vessel are destined, the date of departure, route, number of immigrants and the point of destination in the respective States of the immigrants from said vessel, together with the statement that said immigrants are from a vessel which has been subject to quarantine by reason of infectious disease, naming the disease. This information is furnished to State health officers for the purpose of enabling them to maintain such surveillance over the arriving immigrants as they may deem necessary.

Toxicity of Alcohols.—Austria, Switzerland and Belgium are about to, or have already, established two grams per litre as the maximum of impurities allowed in alcohols, and the latter country forbids certain substances absolutely. Professor Riche in a vigorous address before the Acad. de Méd. protests against the impression produced upon the public by this and similar legislation, that it is only the adulterations that render alcohol injurious. The people should be educated that the alcohol itself, brandies, etc., are distinctly toxic; and he asserts that there should not be any government authority, tacit or official, for its use as a beverage. He adds his testimony that the spread of alcoholism in recent years is appalling, and describes the customs prevalent in Normandy, where the laboring classes, young and old, all take their coffee two or three times a day, and always with cognac. The mothers even take a bottle of this "coffee" to their little children in the crèches. At one small town the amount of pure alcohol consumed per capita is more than nineteen litres a year—*Bulletin*, September 8.

The Abolition of British Quarantine.—The *Lancet* says that under a "Public Health Act of 1896" we have this year, will be done away with the last vestige of quarantine in the United Kingdom. The principal section of the Act is the first one, in which power is granted to the local government board to make regulations, just as they have already done for the purposes of cholera, as to the hoisting of signals by vessels having any case of infectious disease on board; as to the questions to be answered by masters, pilots and others; as to the detention of vessels and persons infected; and as to the duties of certain individuals under the regulations. The term "epidemic, endemic, or infectious disease" naturally includes yellow fever and plague, the only two diseases as to which quarantine was carried out, and since all the quarantine acts mentioned in a schedule are repealed, the only method of dealing with these two quarantinable diseases will in the future be that which has now been adopted for many years as regards cholera. In Scotland and in Ireland the local government boards of those portions of the kingdom acquire similar powers, and it may be assumed that the regulations made in the three portions of the United Kingdom will be alike in all essential respects. The Act comes into operation on November 7 of this year, and by that time new regulations will doubtless have been issued to give effect to its provisions.

Dangers of Handling Skins.—At the request of the French authorities, Prof. Riche has been investigating the trade in skins to determine the dangers of handling them. He found arsenic in skins from China, Chicago, Buenos Ayres, Australia and Mexico, but he does not consider the danger from arsenic so serious as the possibility of infection from the anthrax microbes. He therefore recommends the following precaution which apply to both and have been promptly enforced in Paris, where over two million goat skins alone are handled annually in the tawing works and nearly a million in the morocco factories, the majority received from China. The bales should

be opened in the open air, or at least in an open shed, the ground kept wet with plenty of water or some antiseptic. The workmen should put on special garments closed at the neck and wrists, or at least a long buttoned blouse, with rubber gloves. The face, hands, arms and neck should be washed with an antiseptic immediately afterward, and the locality carefully swept and irrigated. The bales should never be carried in the arms or on the back, but always on carts or barrows, and they should be stacked in the store-rooms in low piles. The rooms should have openings on all sides and if there is no communication with the sewers, the refuse water should be collected in tight cisterns. He also called attention to the great danger of poisoning from the orpin used in tanning, which is a mixture of sulphid of arsenic and arsenious acid. This is applied with a mop, but the skins are then folded and carried by hand to the pile, which is a frequent cause of ulcerations. He suggests the substitution of sulphid of sodium, which produces the same effect and would put an end to the dangerous manufacture of orpin.—*Journal d' Hygiène*, September 17.

On the Prevention of Ophthalmia Neonatorum.—We have before us two pamphlets by Dr. Wm. George Sym of Edinburgh bearing upon the conditions that obtain in Scotland regarding blindness from ophthalmia neonatorum. The more recent of the papers is an address read before the Medico-Chirurgical Society of that city, in March, 1896. In it he has briefly sketched the various modes of treatment and prophylaxis, and emphasized the importance of cleansing the face of the child from any contamination acquired during its passage through the vagina before any lotion was applied or any bathing carried out. Statistics of blindness in the latest census returns showed that there were more than five thousand alive in England and Scotland who were blind from this entirely preventable disease. On comparing the statistics of blindness for England with those for Scotland it was found that in the former there were 809 blind persons per 1,000,000, in whom 1 in every 6 was "blind from birth," while in Scotland there were only 695 per 1,000,000 of the population, and of these only 1 in 7.7 was "blind from birth." Children who became blind during early infancy were classed in the census papers as "blind from birth." This marked difference in favor of Scotland the author attributed, in part at all events, to the very much larger proportion of births in England attended by midwives and not by regular practitioners. He urged the necessity of taking the greatest care to see that all women educated as midwives or midwifery nurses should be thoroughly instructed in this matter. In the event of the Midwives Bill passing and being extended to Scotland this would come to be of paramount importance. Dr. Sym gave an account of the legislation in force in certain countries with the view of stamping out the disease. In Austria, Switzerland, eleven States of the American Union, and other countries, midwives were liable to more or less severe punishment for failure to report cases that occurred in their "practice." The Ophthalmological Society's (1885) scheme for giving out to each person registering a birth a slip bearing a warning as to the danger of the disease fell through, but in Glasgow and certain other towns this had been done at the expense of the corporation, and Dr. Sym urged a similar proceeding in Edinburgh. Contrasting medical practice twenty or thirty years ago with that of to-day, the number of cases of ophthalmia in infants was vastly less at the present time, and the cases as a rule were not so virulent.

The Infectious Disease Hospitals of Berlin.—The *Sanitary Journal*, June, has a special report on the fever hospitals of Europe. The institutions at Berlin are reported as having the modern improvements and a talented staff:

"Berlin affords some of the best examples of isolation hospitals in Northern Europe. There the study of infectious disease is carried on with the patient assiduity and thoroughness characteristic of German modern science. In the Koch Institute, established by the famous professor whose name it bears, all kinds of febrile disease are studied in a series of highly-equipped laboratories by graduates and students, under the superintendence of highly qualified experts, presided over by the Professor himself. In the adjoining grounds, close by the Charité Hospital, there is an experimental hospital laid out by Dr. Koch upon his own principles, in which are treated all kinds of infectious disease, including tuberculosis and lupus. Here it may be observed that all over the continent I found Dr. Koch recognised as the leading medical modern exponent of the treatment of infectious disease and of bacteriologic science. His pupils are already among the most prominent teachers in many continental medical schools, and some of their discoveries—notably that of Löffler in diphtheria—have produced highly beneficial results. The principal hospitals in Berlin for the treatment of febrile diseases are the Moabit, capable of accommodating 900 patients, constructed upon the plan of single floored pavilions and for the most part of wood; the Friedrichshain Hospital, built in 1874, affording accommodation for general as well as fever patients and built in two, and in one or two cases, three-floored pavilions; the Urban Hospital, opened in 1890, with accommodation for 600 patients of all classes, showing the most that can be made of limited space where ground is dear within a large city, and also built in two or three-floored pavilions, and lastly, the Emperor and Empress Frederick Fever Hospital for Children, recently erected by the Berlin municipality, where the results of the most modern scientific research have been adopted in the general plan of the hospital, which is laid out in single-floored pavilions."

PRACTICAL NOTES.

For Infantile Eczema.—Dust with the following powder: Pulv. zinc oxid. gms. 15; pulv. amyli 32; pulv. camphor 2. For itching, paint on the skin: Tr. camphor, tr. benzoin co. āā c.c. 32.—Dr. C. E. Lockwood, in *Med. News*. September 26.

New Treatment of Warts.—Laubenburg has discovered that if a spot is touched with acidum nitr. fum. and then immediately afterward with acidum carbol. pur. liquef. there is strong chemic action, the effects of which penetrate deep into the tissues and completely and permanently cure warts, condyloma, angioma, etc.—*Cbl. f. Chir.*, August 8.

Permanganate of Iron in Eczema.—The *Monitor Médico*, August 1, quotes from an exchange that both dry and serous eczema are successfully cured by moistening them two or three times a day with a 1 to 2 per cent. solution of permanganate of iron applied on a cotton wad. It is also recommended for other skin affections accompanied by pruritus.

New Needle Lancet for Secondary Cataract.—Stilling of Strasburg, has been using very successfully in his practice the last year and a half, a needle lancet shaped like the half of an arrow, its two cutting edges doing away with the necessity of using the cataract knife. It is illustrated and described in detail in the *Revue Gen. d'Ophthalmologie*, August 31.

The Siesta and Digestion.—Some recent experiments are reported in the *Gaz. degli Osp. e delle Clin.*, of September 1, which demonstrate that a nap after eating weakens the muscular action of the stomach and increases the secretion of acid. Repose in a horizontal position, without sleeping, increases the muscular action without increasing the secretion of acid. The conclusions are therefore that it is advisable to lie down after a meal, but not to fall asleep, especially in case of dilatation of the stomach or hyperacidity.

Multiple Vesical Puncture.—Centra describes a case of retention of urine with serious symptoms due to asymmetric hypertrophied prostate. He withdrew the urine by vesical puncture and in four days the congestion and hypertrophy of the prostate were reduced to such an extent that the patient could urinate normally. The interesting feature of the case was the number of punctures necessary to effect a cure, three each day.

They were made at different points along a horizontal line commencing 1 cm. above the upper edge of the symphysis pubis, and produced no inconveniences.—*Gaz. degli Osp. e delle Clin.*, August 30.

Gangrenous Hernias.—Bogdanik suggests that better results will be obtained in gangrenous hernias if the pus and surrounding tissues are cleansed and disinfected before the peritoneum is touched. He describes a case thus treated in the *Cbl. f. Chir.*, August 15, proving the advantages of rendering the field of operation a clean wound before proceeding to the operation proper. He adds that the scissors, knife and a few clamp forceps are all that is needed if the suture of the intestine is made exact.

Celluloid Soles for Flat Foot.—Kirsch recommends the use of celluloid instead of metal, for insoles in the prothesis of flat foot, as they require no skill in making and are exceptionally cheap, light and easy to walk on. A sheet of celluloid 1.5 to 4 mm. thick according to the weight of the patient, is placed on a cast of the foot and kept in place by a handkerchief, held by the twisted ends as a handle. The whole is then dipped into boiling water for a minute or a half, which softens the celluloid. The ends of the handkerchief are then twisted tighter, and the celluloid molded to the cast as it hardens. It can be softened again as often as may be necessary. The edges are smoothed level, cut into the proper shape and sand-papered, and the under side made rough to prevent slipping in the shoe. If the celluloid is painted with soluble glass it becomes almost fireproof, which is an important improvement for the celluloid bandages described in the JOURNAL, August 22, page 437, but is scarcely necessary for an insole.—*Cbl. f. Chir.*, August 29.

Treatment of Sunstroke.—Desanti's article in the *Gaz. degli Osp. e delle Clin.* of August 30, commences with: Do not let it happen. In enlisting soldiers, for instance, it is much better to reject those who are liable to have sunstroke, men with weak hearts, anemia, or any chronic trouble, and alcoholics; in short, all those who have inherited or acquired a tendency to morbid conditions. When sunstroke occurs, after removing the patient to the shade and loosening his upper clothing, the action of the heart must be stimulated and kept up with energetic friction and slapping, and the inhalation of a few whiffs of ether or acetic acid, water applied to the head, etc., and as he recovers, some stimulant given him to drink. If the patient is exhausted from overwork, debility or malarial conditions, an intravenous injection of quinin should be made, or at least a hypodermic injection (4 grams each of hydrochlorate of quinin and antipyrin, in 6 grams of acq. dist. heated together. If the solution crystallizes in the bottle it can be dissolved by slightly heating it again). He recommends that this solution should be kept on hand at times when it is liable to be needed. Certainty as to malarial condition is only acquired by examining the blood, but as this would be impossible, and as quinin is comparatively innocuous, it is best to treat in this way all doubtful cases. In severer cases with asphyxia, traumatic shock or intoxication from infection, it is of the utmost importance to excite the cardiac contractions, and the loss of a minute may cost a life. Rotter advises an energetic revulsion on the cardiac region with a moxa, Mayor's hammer or blazing sealing wax, cauterizing or scarifying a large extent of surface and scattering salt upon it. Direct excitation of the cardiac contractions with the electric current has been found effectual, but an electric appliance of sufficient power to send a current through the chest is not always at hand. The best and most practical means to accomplish it is artificial respiration. This can be Sylvester's method of raising the arms, or Pancini's raising the shoulders, or Laborde's rhythmic traction of the tongue, any way to introduce oxygen into the lungs and drive the blood into the heart. There is no stimulant for the membranes of the heart that compares with the oxygen of the air, and Desanti has seen persons revive after they have given no indications of life for several hours. As a supplement to the above treatment, he mentions the hypodermic injection of sulphuric ether, which has a powerful effect in stimulating cardiac action. The surgeons of the German army are required to carry a Pravaz syringe on the march with a bottle of ether for this purpose, which practice, he adds, should be introduced into every army.

NECROLOGY.

SIR JOHN ERIC ERICHSEN, one of the foremost representatives of British surgery, died September 23. The distinguished surgeon was born in 1818, of noble Danish descent. He was surgeon-extraordinary to the Queen, ex-president of the Royal College of Surgeons of England, and president of University College of London. His contributions to scientific medical literature were extensive and important, especially the well known "Science and Art of Surgery." His "Concussion of the Spine" and the monograph "Railway Injuries of the Nervous System" showed his energy in another surgical division.

N. RUEDINGER, M.D., of Munich, "the last of the old school of anatomists." His works on anatomy, descriptive, topographic and systematic, form an important part of the foundation of our present knowledge. His folio atlases are in nearly every library, and the list of his contributions to science includes works on anthropology, embryology, histology of the organs of hearing, etc. It is to him we owe the use of carbolic injections for cadavers. He was one of the founders of the *Monatsschrift f. Ohrenheilkunde*, and of a special magazine devoted to the anthropology and early history of Bavaria.

G. LAGNEAU, M.D., Paris, noted for his profound anthropologic and hygienic studies which resulted in many practical measures of the highest benefit to his countrymen and to humanity. He was member of the Académie de Médecine for twenty years.

JULES ROCHARD, M.D., Paris, aged 76, retired Inspector General of the Service de Santé de la Marine, President of the Académie de Médecine in 1894, of the French Association for the Advancement of the Sciences, and of various other scientific societies, a brilliant and classic writer and orator, "whose entire life was an honor and an example to the medical profession." His numerous works on hygiene, education, epidemics, etc., were rounded off by his vast work recently completed, the Encyclopedia of Hygiene. Among his contributions to the *Revue des Deux Mondes* were articles on "Marine Hospitals," "The Rôle of Alcoholism in Modern Society," "Hygienic Education and Mental Overwork," etc. He was one of the few who seem to have everything to complete their happiness, international honors, devoted friends and family, and perfect health until 1883, when he was shot by an insane person. He apparently recovered from the wound, but the bullet remained in his breast, and recently produced the troubles which led to his death. He commenced his career as a third-class surgeon in the navy, and retained his love of the sea as a true Breton to the last. His son Eugène is editor-in-chief of the *Union Médicale*.

CHARLES MILNE, M.D. (University of the City of New York, Medical Department, 1873), at New York city, September 28, aged 56. He was a member of the Medico-Legal Society of New York.——Henry Hooper Mitchell, M.D. (Department of Medicine of the University of Pennsylvania, Philadelphia, 1842), at Elkton, Md., September 27, aged 76 years.——William C. Caldwell, M.D. (University of Wooster, Medical Department, Cleveland, Ohio, 1869), at Fremont, Ohio, of cancer of the stomach, September 29, aged 59 years. He was a member of the Ohio State Medical Society and a contributor to various medical journals.

MISCELLANY.

City Physician of Bath, Maine.—Eben J. Marston, M.D., has been appointed to this position, *vice* W. H. Tukey, M.D., resigned.

The Detroit Academy and Medical Association upon their first meeting, Monday, September 7, had pathologic specimens which were furnished by Drs. H. O. Walker, Carstens and Longyear.

To Drill Holes in Glass.—The *Bulletin d'Apiculture*, No. 119, states that holes can be easily drilled in glass with an ordinary trocar or drill, if the spot is first moistened with a drop of the following mixture: Dissolve 25 parts oxalic acid in 12 parts of essence of turpentine, and add a chopped clove of garlic. Set it aside for a week, stirring occasionally. Pour it into a bottle and keep tightly corked.

Training School for Insane Asylum Nurses.—In response to demands of outside physicians a training school for nurses and attendants of the Cook County (Ill.) asylum for the insane has been organized and a competent faculty, principally of medical men connected with the asylum, selected. The course of studies includes physiology, hygiene, therapeutics, massage and allied subjects.

The Pathological Society of Rochester, N. Y., has petitioned the city council for an ordinance to allow the Mayor authority to grant permits for physicians to ride on the sidewalks with their wheel between 10 o'clock P.M. and 6 o'clock A.M. The Rochester *Herald* has a strong editorial recommending the council to pass the ordinance requested.

Illness of Dr. Hamilton.—The editor of the JOURNAL has been confined to his room, most of the time to his bed, with an attack of acute bronchitis since September 25. He was present at the Macewen dinner in compliment to that distinguished surgeon and the host, Professor Senn, but was ill then and scarcely able to speak; since that time he has not been out of his room. His friends hope that he may be out in a few days. He was relieved from the Marine Hospital last week.

Retires From the Armenian Field.—Dr. Grace M. Kimball, who is appointed assistant physician for Vassar, obtained a reputation for her bravery and work in Van in behalf of the Armenians. Few laborers in that difficult field have remained so long and continuously without an interval of rest. Worn out by the prolonged anxiety and the arduous duties of her medical and missionary work, Dr. Kimball has decided to retire from the Armenian field, and after visiting the hospitals and schools in Europe, she will begin her college work in January.

Cause of Electric Death.—Experiments have been made by A. M. Bleile upon dogs in order to determine the cause of death in electric shock. The conclusion reached is that for a given animal in a normal condition as to health a definite amount of electric energy will produce fatal results. It is thought that the action of the electric discharge is to contract the arteries and increase the pressure of the blood, and that death is due to inability on the part of the heart to sustain the increased pressure of the blood so produced. Postmortem examinations seem to show that the passage of the current does not cause any anatomic disintegration.—*Popular Science*, September.

Entertainment to Professor Macewen.—Prof. Nicholas Senn, president of the AMERICAN MEDICAL ASSOCIATION, gave a dinner at the Chicago Athletic Club, September 28, in honor of Prof. William Macewen, of Glasgow, Scotland. There were present: Drs. W. T. Belfield, John E. Owens, Truman W. Miller, Edmund Andrews, Christian Fenger, A. H. Ferguson, Captain Pilcher, U. S. A., Major Hartsuff, U. S. A., J. H, Etheridge, E. J. Doering, D. A. K. Steele, Dr. Cole, of Montana, E. J. Senn, G. Wm. Reynolds. John B. Hamilton, Jas. A. Lydston. Speeches were made by most, if not all, of those present, eulogizing the honored guest, from which it can be inferred that the entertainment lasted into the "wee short hours ayant the twal," and was of a character well calculated to delight the genial Bobby Burns himself, had he been present at the affair. The editor of this JOURNAL regretted that illness compelled his early withdrawal.

A Sleep-producing Exercise Preferable to Hypnotics.—Dr. J. B Learned, Florence, Mass., writes to the *Boston Medical and Surgical Journal* that he has experienced "infinite advantage" from moderate and varied muscular exercise as a means of inviting sleep. On retiring put in use, by contraction, a certain group of muscles; change to another before exhaustion to another and thence to another, having a definite routine, and continue until a sense of fatigue has come. The brain meantime is asked to keep a record of the respirations and of the muscular engagements in their order until it, too, says "Enough!" A few minutes generally suffices. Will sufferers be willing to use any methods or agents foreign to the materia medica? Sleep immediately on retiring is restorative. The drug does not make it so, continuously used. Wine, tobacco, tea, coffee and late suppers, with social and emotional excitement often delay the hour of sleep. My own personal needs were at the foundation of this "discourse." Conditions of the heart, digestion and nervous system should not be ignored in any case of insomnia. The sufferers are abundant everywhere now.

University College of Medicine, Richmond, Va.—At a meeting of the faculty of this college Dr. F. S. Harker, who has so efficiently filled the position of adjunct to the professor of histology, pathology, bacteriology and urinology, was unanimously elected to fill the chair made vacant by the recent death of Dr. Charles H. Chalkley. Beside the special training which Dr. Harker has received which fits him for the new chair, he has shown himself gifted as a teacher.—*Va. Med. Semi-Mo.*, September.

Phosphorus Necrosis.—Mr. Edwin Gould, who owns a large match factory at Passaic, N. J., has recently promulgated an order that all employes who do not present, within a specified time, a dentist's certificate that their teeth are in a condition of perfect repair shall be discharged. The danger of necrosis of the jaw from the phosphorus used in the manufacture of matches is well known, and he is said to have been induced to take this step by the fact that not long since an employe of one of the Diamond Match factories in Ohio, who had been attacked with necrosis, sued the corporation for $10,000 damages.—*Boston Med. and Surg. Jour.*, September 24.

Anent Germs.—Dr. K. N. Bahadhurji of Bombay, in the *Indian Lancet*, July 1, 1896, concludes an exceedingly interesting critique upon "The Germ Fad," as so styled by himself, in the following presentation: "Bacteriologic therapeutics is but a system of modern alchemy, and rests and proceeds on incorrect assumptions and daring guesses as conveniently abandoned as confidently set up. . . . . Fortunately the germ scare is cooling down and germs will soon cease to be the objects of such anxious care and study, and will in time be consigned, in all probability, to the limbo of exploded myths which have had their day." The article is a long one and might advantageously be condensed for the pages of the JOURNAL, but what has been already quoted sufficiently displays its decided skepticism regarding the rôle of the bacillus, the wherefore of its being, the significance of its appearance, the explanation of its functions and the embarrassing schemes for its annihilation. For the present, at least, we must conclude that there is no uncommon law in the governmental system of the microörganism, and may we not add no unique personalities, with extraordinary powers. As has been said, we may multiply corroborations but add only a moiety to our real knowledge.

Calcified Fibroid from Cremated Corpse.—Dr. Yamagiwa of Tokio, in *Virchow's Archiv*, Vol. cxliv, part 1, 1896, describes a specimen of calcified fibroid found after cremation in the ashes of a woman in whom myoma of the uterus had been diagnosed during life. She died of paraplegia at the age of 70. When 28 she noticed for the first time a tumor in the hypogastrium; next year she married but never bore a child. The tumor grew slowly till she was 38; then it ceased to increase and became very hard. At 45 the patient lost her husband. When 50 she complained that the growth had become very heavy. In 1882 a doctor examined her, and noted that the tumor was of stony hardness and freely movable. Paralytic symptoms appeared and lasted for about three years; they reappeared seven months before death. Debility and emaciation then followed. Yamagiwa does not distinctly make out that the paraplegia was due to pressure of the tumor on nerves. The fibroid removed from the ashes looked like a petrified human brain. It weighed six pounds and ten ounces and measured from before backward nearly eight inches, transversely over five and one-half inches, and vertically a little less than five and one-half inches. On histologic examination uterine fibers were discovered. The mass was due to pure calcification and there was no ossification.

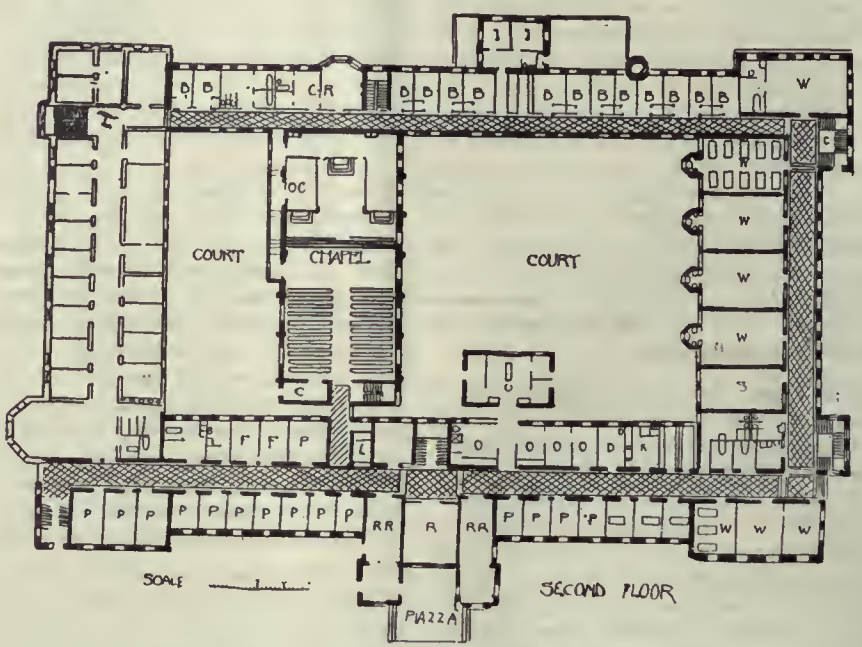
The Medicine Man of the Congo.—Among the Bakete, a tribe of the upper Congo river, the witch doctor rules supreme. The following is quoted from a recent lecture by a returned missionary: "The only attempt at religious rites is that practiced by the medicine man. In each town there are a certain number of medicine men, or witch doctors; but the medicine men of the town have no right to make medicine for their own town. Once in five years strong medicine is made. The doctors gather outside the town and hold a palaver as to the price to charge for making medicine, and after long haggling agree on a sum. They then enter the town and command that houses or open sheds be built for their accommodation and announce their intention of making medicine. The people are instructed that on the next day they must not leave their houses until noon, and the injunction is implicitly obeyed. Early in the morning the medicine men go into the woods and surrounding a tree that they know to be a medicine tree, speak to it thus: 'O tree, we want medicine from you. We want good strong medicine. After having partaken of this medicine anyone who shall steal commit murder, lie or do any wrong let him die.' The last word is repeated three times. The medicine men take the bark from the tree, grind it into powder and mixing with palm oil make it into balls the size of a chestnut. Returning to town they enter the huts prepared for them, summon the people and administer the medicine, repeating the words addressed to the tree regarding the penalty for wrong doing after having taken medicine. The natives thoroughly believe in the power of the medicine men."

Regulation of Practice of Veterinary Medicine in Virginia.—A law has been passed in Virginia, taking effect May 1, 1896, which permits only two classes of persons to practice veterinary medicine or surgery in that State: 1, all persons who were, prior to that date, practicing veterinary medicine or surgery in that State; provided that before Nov. 1, 1896, they shall apply in writing to the State board of veterinary examiners and furnish satisfactory proof that they have been in practice in the State prior to May 1, 1896; 2, all persons who shall hereafter receive certificates from such board, and shall in all other respects comply with the law. Any person shall be regarded as practicing medicine or surgery within the meaning of this act who shall profess publicly to be a veterinary surgeon and offer for practice as such, or who shall prescribe for sick domestic animals needing medical or surgical aid, and shall charge and receive therefor money or other compensation, directly or indirectly. But nothing in this act shall apply to residents of Virginia who confine their practice to the castration and spaying of live stock, nor shall it prevent any person from prescribing for live stock who does not claim to be a veterinarian or veterinary surgeon. The board of veterinary examiners mentioned is to consist of five members, learned in veterinary medicine and surgery, to be appointed by the governor, from a list of names recommended by the Virginia State Veterinary Medical Association. The board may prescribe rules, regulations and by-laws for its own proceedings and government, and for the examination by its members of candidates for the practice of veterinary medicine and surgery. In case any applicant shall fail to pass a satisfactory examination he shall not be permitted to stand any further examination within the next six months thereafter or until the next meeting of the board, nor shall he have again to pay the prescribed $5 fee; provided, however, no applicant shall be rejected upon his examination on account of his adherence to any particular school of medicine or system of practice, nor on account of his views as to the method of treatment and cure of disease; and provided, further, that when, in the opinion of the president of the board, any applicant has been prevented by good cause from appearing before the board, the president of the board shall appoint a committee of three members who shall examine such applicant, and who may, if they see fit, grant him a certificate. Any person who shall practice veterinary medicine or surgery in violation of this act, shall be fined not less than $50 nor more than $500 for each offense, and it shall not be lawful for him to recover by action, suit, motion or warrant any compensation for services which may be claimed to have been rendered by him as such practicioner of veterinary medicine or surgery.

The Life Insurance Examiner's Decalogue.—The medical Department of the Prudential Insurance Company of America has issued the following ten commandments to their examiners: 1. Carefully read the medical examiner's instruction book. 2. Examine promptly in a quiet place, preferably at the home of the applicant, and allow no one to be present during your examination. 3. Answer each question and each subdivision of a question. Be explicit in your answers. Avoid indefinite expressions, such as childbirth, shock, grief, accident, injury, change of life, don't know, etc. Use ink in writing. 4. Pay especial attention to the average quantity of spirits, wines and malt liquors used daily. Give an average of each. If there is a history of previous excess give full particulars. 5. Give a full description of any illness in the history of an applicant, number of attacks, when last, duration and severity. 6. Describe the duties of the applicant. Explain trade terms used to denote an occupation. State the line of business or work. Note if occupation is hazardous or injurious to health, and see that the true occupation is stated. 7. Give careful attention to the moral hazard of the risk. 8. Be sure the urine you examine was voided by the applicant. 9. Be sure you examine the right person, and that you get the exact age, date of birth and a full family history. 10. Personally examine and personally secure and witness the signature of the applicant.

Substantial Professional Advance in Therapeutics.—The editor of the *American Therapist*, September, refuses to admit the gloomy views of those who look upon therapeutics as a thing of the past. While it may be true that too many practitioners rely on the empiric use of ready-made pharmaceutics, and thus forget or never learn the rudiments of pharmacology and therapeutics, yet the proportion of scientifically and broadly educated physicians is increasing very rapidly in this country. The scientific study of therapeutics has never engaged more or better men than now. The proceedings of representative medical societies and current issues of legitimate and leading medical journals include a very satisfactory proportion of contributions on therapeutic subjects. These are the sources

from which this journal draws much of the practical and instructive matter presented monthly to its readers—besides inspiring and printing many original contributions. One of our exchanges recently printed a pleasantly satiric letter from a correspondent who informed the editor that in this period of specialism, and finding most specialties "done to death," he had decided to adopt the *specialty of general practice*. That is the peg on which our contemporary should hang his "pessimism." Therapeutics is neglected by the average aspirant for publicity because it seemingly affords no special prominence; it is too general. Any 'ology, properly wooed, brings reputation and distinction. The broadly educated general practitioner, without a specialty, is too commonplace for average ambition. But the study of therapeutics is nevertheless indispensable—even in all specialties. Progress in therapeutics is constant, and we may hope with undoubting optimism that the fashion to study and write on drugs and drug action will spread through all ranks.



GROUND PLAN OF THE ALEXIAN BROTHERS HOSPITAL.

When the first division reached the new building it marched on to St. Joshaphat's School, while the rest of the marchers broke ranks and joined the gathering crowds waiting for the laying of the stone. In anticipation of the ceremony a raised platform was built in front of the main entrance to the building. This platform was decorated with the national colors in flags and bunting. Over the platform was placed a canopy. In front of this waved the papal colors, surrounded by the national flag and those of a number of European nations. The platform was carpeted, and chairs were reserved for the invited guests behind the speakers' platform. At the west end of the platform was the stone, which was ready to take its permanent place in the structure after the ceremony. At 4 o'clock the platform was filled with guests and members of the Alexian Brotherhood, waiting for the arrival of the Archbishop and the procession. One of the earlier arrivals was Mayor Swift." We are indebted to the *Inter-Ocean* for the accompanying illustrations.



THE NEW HOSPITAL BUILDING.

The Alexian Brothers New Hospital in Chicago.—With imposing ceremonies the corner stone of the new hospital of the Alexian Brothers was laid Sunday, October 4. About 25,000 people were present to witness the laying of the stone by the most Reverend Archbishop Patrick Feehan. There was also a great parade by various Catholic societies, in which about 15,000 persons took part. The gay uniforms and ecclesiastic regalia gave an altogether old world appearance to the pageant. The *Inter-Ocean* says:

"Along the route the procession was greeted with much enthusiasm, most of the streets being lined with spectators. A number of houses were decorated with flags and bunting.

Antitoxin Collective Investigation (Second) American Pediatric Society.—*To the Profession:*—The American Pediatric Society are encouraged to ask the co-operation of the profession in a further collective investigation. Laryngeal diphtheria is believed to furnish a crucial test for antitoxin; the present aim is to ascertain, 1, what percentage of cases of laryngeal diphtheria recover without operation, under antitoxin treatment; 2, what percentage of operated cases recover. The Society asks for records of cases of *diphtheria involving the larynx, whether operated or not, occurring in private practice in the United States and Canada, treated with antitoxin.* It is expected that cases occurring this year will be treated with

reliable preparations of the serum, will be treated early, and will be given efficient doses. The second report is designed to be a study of cases occurring between the closing of the first report, May 1, 1896, and the closing of the present collective investigation, April 1, 1897. In order to secure data which shall make the tables complete, circulars containing blanks for ten cases have been printed and are now ready for distribution. It is desired that physicians shall fill out circulars (blanks) as cases occur, not trusting to memory, and shall urge their friends having similar cases to do the same. Circulars can be had by applying to the committee (address below). Several groups of cases in the first investigation arrived too late and were lost to the report. It is desired that circulars as soon as filled (ten cases) be returned to the committee. The collection of cases must close at the end of March, 1897. For extra circulars (blanks), for returning circulars (filled), and for further information, address the chairman of the committee: W. P. Northrup, M.D., 57 East 79th Street, New York, N. Y.

THE ACTION OF THE SOCIETY UPON THE (FIRST) REPORT.

1. Dosage: For a child over 2 years old, the dosage of antitoxin should be in all laryngeal cases with stenosis, and in all other severe cases, 1,500 to 2,000 units for the first injection, to be repeated in from eighteen to twenty-four hours if there is no improvement; a third dose after a similar interval if necessary. For severe cases in children under 2 years, and for mild cases over that age, the initial dose should be 1,000 units, to be repeated as above if necessary; a second dose is not usually required. The dosage should always be estimated in antitoxin units and not of the amount of serum. 2. Quality of antitoxin: The most concentrated strength of an absolutely reliable preparation. 3. Time of administration: Antitoxin should be administered as early as possible on a clinic diagnosis, not waiting for a bacteriologic culture. However late the first observation is made, an injection should be given unless the progress of the case is favorable and satisfactory.

Phosphorus-Workers in Relation to Life Insurance.—The *Medical Examiner* regards the manufacture of matches as an occupation that debars its workers from insurance examination.

Around about Frutligan, in the Bernese Oberland district of Switzerland, a large proportion of the inhabitants are idiotic, due to the phosphorus used in matches. In every house matches are manufactured, and in every house is a misshapen, grinning idiot. This condition of things is due to an accumulation of hereditary influence, as the parents and grandparents for generations have been engaged in this industry. The Swiss, as well as scientific and philanthropic people generally, deplore this state of things, and are endeavoring to devise means by which matches may be manufactured without sulphur or phosphorus. Chemists are endeavoring to discover some substance for this purpose.

The same thing occurs in France where matches are made. In France matches are manufactured by the goverment. The compensation is very small—something like one sou a hundred. Matches are made of imported wood. The government endeavored to substitute native wood, but the people objected, because with native wood they were not able to turn out as many matches, and consequently could not make as high wages, which amounted to about from two to two and a half francs a day. They wanted to be paid by the day instead of by the piece. As a compromise the old soft wood was allowed them on the condition that they should work by the piece.

Another source of discontent was the danger attending the manufacturing of matches. It is so detrimental to health that they wished government to grant those who do this work a pension, which was denied. While yet young—say at 25—the operator will lose his teeth, they frequently become paralyzed and idiotic, as before mentioned, and in nearly every instance there is experienced some form of ill health. We remember while a student at Bellevue that the late Prof. James R. Wood used to hold up before his class a specimen of the lower jaw which he had taken from a patient who had introduced phosphorus into it by picking a decayed tooth with matches. The consequence was a necrosed jaw. The Professor used this instance not only to illustrate the danger of the above practice, but to show that bone would grow again if the periosteum was preserved. In this case the jaw had been reproduced. So far as insurance is concerned, those who make matches or work in phosphorus are not acceptable risks. They should not be examined if their occupation is known to be of this character.

Pan-American Medical Congress.—(*Telegram to the Journal.*)—Cincinnati, Ohio, Oct. 6, 1896. *To the Editor:*—The official train for the Pan-American Congress, Mexico City, leaves Chicago and Cincinnati November 10, A.M., and St. Louis, P.M., same date, with sleeping and dining cars on special schedule for entire trip. H. L. E. JOHNSON, M.D.

Detroit.

At the meeting of the Detroit Academy of Medicine, September 22, Dr. David Inglis presented a report of "Three Postmortems."

The first case was a man 64 years of age, who had a history of previous injury. Four days before the doctor saw him he had severe headache, but no vomiting. There was some incoordination in using the legs and he found it difficult to climb stairs. He yawned frequently. These symptoms were progressive at the time he presented himself. He had consulted a specialist who reported no affection of his ears, although there was a history of an attack of inflammation of the middle ear, ending in suppuration and accompanied by much tenderness over the mastoid cells.

The doctor's diagnosis was impending apoplexy, but opposed to this was the fact, that there was no arcus senilis, arterial rigidity, or increased arterial tension. The pulse was soft, 72. Motor symptoms were bilateral.

Transverse myelitis was then suggested, in favor of which was the limitation of the motor defect to the lower extremities. Systemic sepsis was excluded, there being no albumin found in the urine. There was no evidence of poison from gout or malaria. The old abscess of the middle ear was considered. The motor defect in the legs increased, the headaches gave place to mental dullness and stupor, which ended in coma.

The postmortem revealed no lesion of the brain substance. The right half was compressed so that there was a space of half an inch between it and the skull which was filled with fluid. The ventricles were empty, and there had been a large amount of subdural sero-sanguineous effusion.

Dr. Inglis said: "The postmortem is instructive in the following particulars: First, it establishes clearly that congestion of the brain is a reality. Authors, of late, have been inclined to ridicule the belief in congestion of the brain. 'Gray,' in particular, discredits and resorts to the unscientific method of showing that no single one of the symptoms of cerebral congestions is pathognomonic, and that the prominent symptoms are frequently met with, individually, in various conditions."

The diagnosis of impending apoplexy was correct and based on the signs of severe cerebral congestion. The case was first a serous effusion, not a hemorrhage; as first there was compression of the brain, and second, the blood formed a soft and thin layer everywhere over the cortex, and not a clot as found from a spreading hemorrhage, nor was it over both halves of the cerebrum.

The doctor brought out the fact that a diffused lesion sometimes causes very limited local manifestations. In this case although the entire cortex was involved, sensation was perfect and the motor defect was confined to the lower extremity. Had the case been minus stupor and headache, the diagnosis would have been some lesion low down in the spinal cord. In uremic poisoning the same principle applies, the poison pervading all parts of the brain, yet a part only may be selected for its paralyzing effect.

Another point in the case is that the coma disappeared and the patient regained consciousness just before death, which

shows that unconsciousness does not always depend upon limited pressure, but upon increasing pressure, and with decreasing pressure consciousness may return while the pathologic conditions remain.

The doctor called his next postmortem a riddle. A boy aged 14, with a history of traumatism of head and back, developed choreic movements, which were bilateral. He was dull, abstracted and answered questions slowly. The choreic movements were such that it was impossible to listen to the heart sounds properly, heart's action was rapid and tumultuous, speech quite unintelligible.

Six weeks after he was brought to Harper Hospital, where he was again examined. He recognized Dr. Inglis, but could not speak. His left arm was powerless, but could use the fingers slightly, and raised the forearm like a flail. The right arm trembled on voluntary motion. Appetite ravenous. Paralysis of left arm occurred some days before death. Drs. Emerson and Hitchcock thought the case was one of multiple sclerosis. Dr. Inglis a cerebellar tumor.

A postmortem showed no nodules of any kind, but a large quantity of serum in the brain. The liver was the seat of innumerable uniform, thickly disseminated nodules of some neoplasm. The mesentery contained small nodules, but the glands of this organ were normal.

This case was presented to illustrate the fact that it is sometimes as well to confess ignorance as to know many things that are not so. The heart was normal and an operation over an arm center would have shown sound brain tissue.

The third case was a man aged 25. While blowing water from a hose he felt a sharp pain in the back of his head. This occurred in October, 1895. About the end of that year patient complained of pains over occiput, down the neck and across the shoulders. No history of head injury. The attending physician diagnosed rheumatism and treated him for a couple of weeks. Then eye trouble manifested itself, and he was sent to Dr. L. E. Maire, who diagnosed optic neuritis. There gradually developed furious paroxysms of head pains, with vomiting, and sometimes bilateral convulsions and absolute loss of sight.

When Dr. Ingils first saw him, the pains were of such a nature that the patient would cry out. Patellar reflex was entirely lost, ataxia marked, and when attempting to walk he tangled his feet and fell or leaned to his right. Was slow in responding to questions, answering in a loud voice. Was fretful and ate inordinately. Diagnosis, cerebellar tumor, and in consultation an exploratory operation was advised. He was trephined over the right lobe of the cerebellum, but no tumor could be found. The postmortem in the temporal region revealed minute elevations of thin plates of bone covering points where it was almost perforated. Twenty or thirty of these were found and were not confined merely to the region of the pacchionian bodies, though most numerous at the median line of the temporal bone. The dura mater was found altered in structure and the pacchionian bodies enlarged. The skull was found thinned at many places, especially at the parietal eminences, where, over an area as large as a silver dollar, on each side, the bone was as thin as card paper and could be easily broken with the fingers.

Upon removing the brain a pint or more of sero-sanguineous fluid escaped, which evidently came from the ventricles. Upon incising into the brain substance, the trouble was found to be located in the cerebellum, both lobes degenerate, the left slightly more than the right. It could only be called a degeneration, the substance being broken down into a semi fluid, resembling pus, though having no purulent odor. The tentorium cerebelli was absorbed at the immediate site, and adjacent portions of the cerebrum seemed slightly affected. There were found in parts of the ventricles, small adherent masses which appeared like granulation tissue.

The diagnosis was confirmed to the extent that there was a cerebellar lesion, but not tumor of both halves.

In closing his paper Dr. Inglis said the postmortem was instructive in showing the remarkable thinness of the skull. Had the patient received a blow upon the parietal eminence, it might easily have broken in the thin plate of bone. Dr. Inglis also said that the medico-legal aspect of such a condition deserved notice.

Dr. J. Flintermann read a paper entitled "Senile Dementia."

The Superintendents of the Poor for Wayne County (Detroit) have difficulty in finding room for the poor of the county in their new "county house," and for the insane at the asylum. In the county house there are 807 inmates and in the county asylum 368. Dr. E. O. Bennett, since being installed medical superintendent, May, 1881, has wrought many improvements. The asylum farm of 160 acres is taken care of almost entirely by the insane.

The buildings include the "county house," asylum hospital with chaplain's office attached, Wayne County Asylum, the new asylum erected in 1894, and double residence for the medical superintendent and book-keeper, the gas-lighting and heating plant, electric-light plant and outbuildings.

For the last three years no acute febrile diseases have occurred in the asylum or county house, with exception of three cases of typhoid that developed in the latter.

THE PUBLIC SERVICES.

Army Changes. Official List of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from Sept. 26 to Oct. 2, 1896.

Captain Norton Strong, Assistant Surgeon, relieved from duty at Fort Sheridan, Illinois, and ordered to Chicago, Ill., for duty, as attending surgeon and examiner of recruits in that city. First Lieutenant John S. Kulp, Assistant Surgeon, is relieved from duty at Fort Walla Walla, Washington, and ordered to Vancouver Barracks, Washington. Captain William Stephenson, Assistant Surgeon, is relieved from duty at Vancouver Barracks, Wash., and ordered to Fort Sheridan, Ill.

First Lieutenant Powell C. Fauntleroy, Assistant Surgeon, is relieved from duty at Fort Grant, Arizona, and ordered to Fort Niobrara, Nebraska, for duty. Captain George McCreery, Assistant Surgeon, is relived from duty at Fort Niobrara, Nebraska, and ordered to Boston, Mass., for duty as attending surgeon and examiner of recruits.

Captain William B. Davis, Assistant Surgeon, granted leave of absence for twenty-five days.

Change of Address.

Bennett, Alice, from Norristown, Pa., to Wrentham, Mass.

Grote, H. W., from New Orleans, La., to Room 20, Oakland Music Hall, Chicago, Ill.

Harding, George W., from Twelve Mile to North Manchester, Ind.

Kronsgrill, D., from Wadesville to 605 S. 4th St., Terre Haute, Ind.

Kilbride, M. Frank, from Spring Lake Beach, N. J., to 2212 Green St., Philadelphia, Pa.

Lebensohn, M. H., from 63d and Morgan Sts., to 692 Sangamon St., Chicago, Ill.

Motter, Murray Galt, from Head of 30th St., N. W., to 1017 14th St., N. W., Washington, D. C.

Russell, E. S., from Tuscarawas, Ohio, to Room 424, Bissell Block, Pittsburg, Pa.

Sutton, E. M., from Masonic Temple to 328-329 Woolner Building, Peoria, Ill.

Von Koerher, Paul E., from Loup City, Neb., to Casa de Correos, City of Mexico, Mexico.

Wright, John, from Clinton, Ill., to 297 Reed St., San Jose, Cal.

LETTERS RECEIVED.

Bernd, Henry & Co., St. Louis, Mo.; Bell, Clark, New York, N. Y.; Bache, Emmet, New York, N. Y.; Brophy, Truman W., Chicago, Ill.; Bates-Whitman Co., The, New York, N. Y.; Bartholow, P., Philadelphia, Pa.; Bausch & Lomb Optical Co., Rochester, N. Y.; Boardman, E. O., Overton, Neb.

Charteon, M. R., Montreal, Can.; Chadwick Co., The, Chadwicks, N. Y.; Cutler, H. G., Chicago, Ill.; Caldwell, W. S., Freeport, Ill.

Dibrell, Jr., J. A., Little Rock, Ark.; Douglas, Richard, Nashville, Tenn.; Dower, T. J., Livermore, Iowa.

Fisher, John, Chicago, Ill.; Ferguson & Goodnow, Chicago, Ill.; Foote, A. E., Philadelphia, Pa.; Ferguson, E. D., Troy, N. Y.

Gibbs, M. D., Hartford, Mo.; Hummel, A. L., Advertising Agency (2) New York, N. Y.; Haldenstein, J., New York, N. Y.; Hoadley, A. E., Chicago, Ill.; Hall, Jr., J. Underwood, San Jose, Cal.; Halleck, W. E., Washington, D. C.; Hall, Cromwell, Cromwell, Conn.; Hagler, E. E., Springfield, Ill.; Hammond, Wm. A., Washington, D. C.; Higgins, F. W., Cortland, N. Y.

Johnson, F. M., Boston, Mass.; Jelka, Jas. T., Hot Springs, Ark.

Kellogg, E. B., Boston, Mass.; Kellogg, W. H., Palo Alto, Cal.; Kreas & Owen Co., New York, N. Y.

Lee, Frederick D., Milwaukee, Wis.; Learned, J. B., Florence, Mass.; Little, C. H., Saginaw, Mich.; Luckey, J. E., Chicago, Ill.; Londonderry Lithia Spring Water Co., Nashua, N. H.; Lea Bros. & Co., Philadelphia, Pa.

Merrick, M. B. (2) Passaic, N. J.; Manley, Thos. H., New York, N. Y.; Mills, H. R., Port Huron, Mich.

O'Toole, T. J., Eagle Grove, Iowa.

Pope Mfg. Co., Hartford, Conn.; Pressey, A. J., Grand Rapids, Mich.; Penton, A. B., Mackinaw City, Neb.; Parke, Davis & Co., Detroit, Mich.

Rumbald, F. M., St. Louis, Mo.; Reynolds, Arthur R., Chicago, Ill.

Stirling, A. W., Atlanta, Ga.; Sternberg, Geo. M., Washington, D. C.

Warfield, Clarence, Galveston, Tex.

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ORIGINAL ARTICLES.

DIAGNOSIS IN DISEASES OF INFANTS AND CHILDREN.

Read in the Section on Diseases of Children, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5-8, 1896.

BY C. G. SLAGLE, M.D.

MINNEAPOLIS, MINN.

Candor compels me to admit that upon more extensive investigation than I have hitherto made, I found that much more had been done and said, and better done and said, upon this subject than I was previously aware of, but found the subject matter widely scattered throughout voluminous medical literature.

Inasmuch as we are compelled to study and practice every department of medicine before we can become at all skillful in pediatrics, it would be most unsatisfactory to attempt to discuss diagnosis in this special department without first reviewing the subject of diagnosis in general, as it applies more or less to all ages and conditions of life. For we must and do endeavor to instruct our students, that pediatrics can never become "a specialty," as that term can only and properly be applied to the *study* and *treatment* of diseases of special organs or parts of the body, while pediatrics deals with the entire system; though only with "little men and women." And as the true "specialist" will be successful in his "specialty" just in proportion as he has mastered all departments of medicine, so the pediatrist will be proficient in his "limited practice" precisely to the extent that he has learned all other branches of our art.

Some one has well said that the pediatrist must be a good all-round physician and something more; and we are here to-day to discuss that *something more* in our line; I shall only attempt to consider it more especially from the standpoint of the college instructor, and in its relation to our students and young practitioners. The proper discussion of this subject would seem to suggest inquiries something like these: 1. What is the import and scope of diagnosis? Wherein its intricacies, and what relation does it sustain to other branches of medicine? 2. What special features does it possess in its relations to diseases of early life? 3. What is the present status of this department of our art as compared with the past? 4. Can it be in any way rendered more accessible and comprehensible to our students and young practitioners? 5. Is there a demand for a treatise on the "Diagnosis of the Diseases of Infancy and Childhood, general and special, medical and surgical?"

I can not presume to be able to answer all of them satisfactorily, except in a general way, but have endeavored to present in as concise form as seemed possible some suggestions along this line of thought for further elaboration in the discussion which it may elicit from you.

If I may be pardoned for an attempt at definition of my subject, "Diagnosis," before this learned body of medical men, it would be "the faculty of recognizing diseases so as to locate and name them with facility by the correct interpretation of their pathologic and clinical symptoms, and thus to be able to differentiate each one from all others."

Of the many difficult problems in medicine which confront our students on leaving our college halls to enter upon the general practice of medicine, diagnosis is the most difficult and puzzling. So it probably was with most of us, and so it doubtless will be to them for years to come, despite our best efforts to assist and prepare them for it.

We will not wonder that proficiency in the art of diagnosing is difficult to attain when we fully appreciate the fact that it is the practical application of all we really know of medicine. It is the apex of the grand pyramid of medical science and art, whose base has been founded upon the enduring principles of anatomy, physiology and pathology. It is, therefore, the real practical test of every physician's medical education and skill, and just in proportion as he possesses faculties and facilities for correct observation and analytic reasoning will he become proficient in correctly interpreting the various phases and symptoms of disease, and we all appreciate the fact that it demands even more skill and native tact to rightly interpret the various peculiar phases of morbid action in infants and young children, where we are deprived of the aid of speech, and who are often unapproachable, than it does in adults where we can better secure from themselves the history of the case, the location of the pain and the important subjective symptoms which they are experiencing.

Diagnosis to the skilled physician is much like an intricate case at law being tried before a competent judge, who renders his decision only after all the conflicting evidence "is in" and carefully weighed and sifted. And as anatomy, physiology and pathology are the "A B C" of medicine, so etiology and symptomatology (illuminated by ample clinical and laboratory investigations) are the "cathode rays" which illuminate the deeper hidden mysteries of disease and render them accessible to our comprehension.

Dr. Dorning has well said that: "The only enduring foundation for the superstructure of diagnostic proficiency is in systematic and exhaustive study at the bedside, combined with diligent and conscientious research in the laboratory."

It is a lamentable fact that many men in our profession never make good diagnosticians even after enjoying ample opportunities. And it has been demonstrated to me many times during my long professional life that many otherwise fairly good practitioners have betrayed the fact that they were more defective in diagnostic capability than in any other faculty.

There seems to be with some men something like "a natural tact" in this matter, which only a comparatively few possess in any eminent degree. But if all can not be Da Costas in this faculty, we probably have a right to expect that our students can and ought to be taught to recognize at least typical forms of disease as they meet them on entering general practice.

The faculty of correct and systematic examination of the patient seems difficult for many men to learn. They seem to proceed in a rambling and desultory manner, as if they had no specific aim, to accomplish either by questions asked or in their estimation of the value of essential symptoms. And this, too, notwithstanding our best endeavors to teach them system; and emphasizing the fact that they are often required to ascertain what the disease is *not*, in order to determine what it *is:* "Diagnosis by *exclusion, negation* or *elimination*" so exceptionally well illustrated by Da Costa.

After a thorough familiarity with all the departments of medicine, and an ability for systematic examination of the patient, our diagnosis will be predicated for the most part: 1, upon the "physical signs" as they appeal to our trained special senses; 2, the symptoms as they indicate deviation of function; 3. the history of the case as we elicit it from the patient or friends.

Diagnosis being a science and art, which teaches us to distinguish one disease from another by tracing symptoms to the causes from which they originate, must be valuable not only for purposes of *treatment*, but enables us also to form a correct opinion as to the *result* of the disease (*i. e.*, prognosis), for without correct *diagnosis* there can be no correct *prognosis* nor treatment.

We have all seen physicians, with more ingenuity than skill, excuse their inability to render an exact diagnosis by assuring the interested parties that an exact diagnosis is no longer demanded in most cases; as we do not now treat the *name* of a disease; but have learned to search out the *indications* of treatment and meet them *pro re nata* with our therapeutic agents. All of which might sound satisfactory to the unskilled, but would hardly satisfy a diagnostician, for he will understand that, as a rule with few exceptions, we can only learn the "indications of treatment" by recognizing the disease; that we must know what the disease is, its true nature and location before we can expect to remedy it.

Doubtless many young physicians fail at first in diagnosis from the fact that they have not yet sufficiently acquainted themselves with normal conditions and processes of the human system, notwithstanding we are emphasizing the facts before our students as much as seems possible that they *must* become well acquainted with *normal* appearances before they can appreciate the departures or deviations; that they must know what symptoms mean in individual cases before they can combat them successfully, and often in order to illustrate and emphasize our teaching, remind them of the impossibility of treating successfully such symtomatic conditions as we meet in eclampsia, dropsy, jaundice, dyspepsia, constipation, headache or even *pain*, fever and many like morbid phenomena, which we all know are only external exponents of various internal processes, without *knowing* the *nature* of the proximate *cause*.

All that has thus far been said and all that can be said of the intricacies and learning and skill requisite to meet the complexities of diagnosis in general, obtains in accentuated form in the diagnosis of the diseases of infant and children, for we soon recognize the fact that exact and even early diagnosis in the various ailments of young children is more important often than it would be in adults; partly, it may be, on account of the demand for early prophylactic measures being enforced, if it should prove to be an infectious disease to which young children are peculiarly liable; as also from the well-known fact that many acute ailments run a more rapid and violent course in early life. So intricate, indeed, is this matter that few of us, perhaps, will ever become so gray, experienced and skillful that we may not sometimes make mistakes in diagnosis. I yet remember when Professor Yandell of the University of Louisville, Kentucky, apologized to the class for his inability to render a diagnosis in a case which proved upon postmortem to have been gangrene of lungs, by assuring us that he had followed the great Louis through the wards of the hospitals of Paris and saw him write over some of the beds for several days together, "No diagnosis."

Many ailments of young children simulate each other in clinic features so closely that it is impossible for a while to render a positive differential diagnosis. Not long since I saw an attack of what proved to be typhoid fever in a child diagnosed for several days as "meningitis," without much suspicion of its incorrectness, on account of the peculiar cerebral and neurotic symptoms present, and this, too, by several of our most skillful and experienced physicians.

Who of us have not, at some time, been perplexed for a while in rendering a differential diagnosis between such similar appearing affections as "non-specific pseudo-membranous laryngitis" and true "diphtheritic laryngitis," or between convulsions (centric or eccentric) and epilepsy, or between pertussis in its first stages and catarrhal bronchitis in young children?

Professor Jacobi has truly said "that there is scarcely a tissue or organ which behaves exactly alike in the different periods of life," and the same distinguished author reminds us (Cyclopedia of Diseases of Children) that pneumonia, tuberculosis, typhoid fever, rheumatism, epilepsy, diabetes and many other affections of the young differ considerably from the same affections in the adult in their clinic symptoms, and even sometimes in their anatomic aspect. But of all the manifold ailments of early life perhaps none are more generally difficult to diagnose correctly and promptly than the various protean, nervous and cutaneous affections, to determine whether they are simple or complex, idiopathic, symptomatic or sympathetic; whether organic or merely local or functional in their nature.

One of the most unsatisfactory features of diagnosis in young children has often been the impossibility of eliciting or of correctly interpreting the "physical signs" in affections of the heart, lungs, pleura, etc., this partly from the deviations of the sound elicited upon percussion and auscultation, and partly it is often from our inability to approach or control the child in a satisfactory manner. I doubt, indeed, whether physical sounds in the chest afford us the assistance in diagnosis in young children that they do in adults. We are constantly reminded also that not only do diseases more frequently hybridize in early life, but also that many of the causes, symptoms and even diseases themselves are peculiar to that period of existence.

It is a recognized fact that diagnosis can sometimes be either confirmed or corrected by noting the peculiar behavior of our therapeutic agents in special cases, notably, opiates, antipyretics, digitalis, belladonna, etc., more especially liable to be manifested in cerebral, cardiac and certain pulmonary affections, typhoid fever and other diseases in the young. All of these peculiarities and perplexities in the diagnosis of children's affections are being emphasized and elucidated in many ways by those who are authority in these matters, and the advances in pediatrics and helps in methods of diagnosis within a few decades have been most gratifying, especially to some of us older members of the profession. When I entered the medical profession in 1859, pediatrics was in its infancy in this country. I know of but one text-book at that time exclusively upon "Diseases of Children," by an American author, and that was by D. F. Condie of Philadelphia, and almost without tables and illustrations, which constitute such an admirable feature of all our recent text-books on pediatrics, which are now numbered by the dozens.

At that time pediatrics had little recognition in any of our schools. I remember, however, that a great impetus in the evolution of this department was inaugurated very soon thereafter (about 1860) principally through the efforts of Professor Jacobi of New York, who, as you all know, has by his talent, energy, zeal and enterprise contributed as much as any other man in America toward the advancement and present elevation of pediatrics in this country. He it was, who, nearly forty years ago, took the initiative in placing this important department of medicine upon the high plane which it justly merited in medical science. While his laudable endeavors have been nobly seconded and supplemented by a host of younger co-workers of equal talent, energy and zeal, and hence the names of Jacobi, Condie, Smith, Meigs, Keating, Pepper, Holt, Starr, Rotch, Chapin, Northrup, O'Dwyer, Koplik, Osler, Gibney, Love, Edwards and a host of others too numerous to mention here, but of equal ability, have become known and honored throughout the world of medicine, more especially by their efficient labors in this department. And it is pleasing to know that among these distinguished names are the authors of our most popular text-books on pediatrics. Truly, "by their fruits we shall know them." America has done well; may their good work go on.

It is very satisfactory to find that they have done about all that seems possible to be accomplished in text-books to facilitate diagnosis for instructors, students and young practitioners, by so thoroughly illustrating the phases of disease in early life by introducing numerous colored plates, photographs, tables of contrasted symptoms in similar diseases, temperature and other charts, analytic tables of blood, foods, urine, etc., together with details of clinic cases, etc., all of which prove very helpful to both teacher and student, and are in pleasing contrast to our text-books of only a few years ago.

As to the exact assistance which the new science of bacteriology and the late advance in photography are yet destined to aid us in this field, can hardly be fully estimated; but the possibilities seem very great, and what they have already accomplished seems wonderful, for from the well recognized intimate connection existing between pathology, etiology, symptomatology and diagnosis, whatever contributes essentially to the better understanding of the causes, nature and symptoms of disease must afford greater facilities in rendering exact diagnosis, and it is thus the fever thermometer, camera and microscope have served as our most valuable agents as "instruments of precision" in this matter. Nor can we ignore what applied chemistry has achieved along this line in the investigation of foods, the blood of infants, ptomains, leucomains, urinary analysis, etc., all of which are fully demonstrated in our late text-books.

Since I began the preparation of this paper at least two new works on general diagnosis have been announced as "in press." One on "Clinic Diagnosis," by Charles E. Simon of Johns Hopkins Hospital, being "Diagnosis by Microscopic and Clinic Methods," says the author, and the other, "Herrick's Handbook of Diagnosis," by James B. Herrick of Rush Medical College. As to how far they will meet the demands in this especial department will soon be apparent. Prof. J. L. Smith's publishers have also announced a new and carefully revised edition of his popular text-book on "Diseases of Children," rewritten and profusely illustrated, which will be cordially received by students and faculty. Professor Rotch has also announced a revised edition of his admirable lectures on pediatrics. His style of treating the subject and method of illustration of the text to facilitate diagnosis could hardly be surpassed. Nor must we fail to accord to the "American Text-book on Pediatrics" its full share of merited commendation for its painstaking thoroughness to meet the requirements of our students.

While the "Cyclopedia of Diseases of Children" marks a new era to pediatrics as a monument of talent and enterprise not even confined to this continent, but cosmopolitan in its research and I shall venture to assert as bearing directly upon this subject, that the chapter there on the general diagnosis of diseases of children by Professor Finlayson of Glasgow could hardly be excelled in its comprehensive and systematic details of the great general principles of diagnosis in diseases of children. I have never seen anything on the subject so comprehensive and practical.

But after all the good work that has been done and is being done to facilitate diagnosis for our young men just entering the medical profession, it remains a lamentable fact that a great many of them are very deficient in the faculty of diagnosis when put to the test on examinations for graduation, and on going before the State medical boards of examiners for certificates to practice medicine. At least I am sure this is true of our classes in Minnesota and through the West and Northwest. This results from several causes, which we are endeavoring to remedy as fast as practicable, as, 1, insufficient literary education on entering our medical schools; 2, too short course of instruction in most of our schools; 3, lack of ample facilities for clinic observation in our smaller cities; 4, text-book instruction in this particular line too voluminous for the generally limited time and means of our students.

This, then, can only be remedied by: 1, higher literary requirements in some of our schools upon entrance examinations; 2, longer and more terms of study and instruction in the same (at least four or five years of eight or nine months each); 3, as far as possible a more earnest endeavor on the part of our faculties to afford the students more ample facilities

for clinic study and observation in hospitals, dispensaries, laboratories, etc.; 4, possibly, by some good, concise text-books illustrated by copious plates, tables, etc., on the diagnosis of diseases of infants and children, where much of the best literature on the subject might be carefully revised and compiled and presented in the best possible form for the study and limited time and means of our students, only to supplement the good work which has already been done by our popular authors of text-books on pediatrics.

We, in the Northwest, are realizing more fully every year the necessity of raising our literary requirements on entrance to our medical colleges, and are doing so as fast as is practicable; both medical schools in Minneapolis having now raised their entrance requirements to a certificate of graduation from one of our best high schools, or its equivalent of other high-grade schools, and have also lengthened their curriculum from three years of six months to four years of eight months each, and hope to be able soon to go beyond this; thus emulating as fast as possible in the West the best medical schools in the East. Applauding as we do most heartily the great advances being made in such high-grade schools as Harvard, McGill and some others in the Northeast.

The advance has been gradual but continuous, from two years of four months each, and almost no recognition of pediatrics, as in the University of Louisville and many others when I began the study of medicine in 1859, to four years of eight or nine months each, as in most schools at present, and a thorough recognition of the importance of diseases of children in all, is truly gratifying; and the preliminary requirements for entrance to most of our medical schools have been advanced in like manner.

I believe much of the late advance has been stimulated by the rigid exactions of legislation in creating and regulating our State boards of medical examiners for license to practice medicine, especially in our great Northwest.

What then is the conclusion of the whole matter? I think it can readily be summarized about as follows:

The principal factors in acquiring both general and special diagnostic proficiency are: 1, time; 2, opportunity; 3, application; and inasmuch as authors and schools are coöperating to encourage as fast as possible longer terms of study, more ample opportunities, and, in every available manner, stimulating the students to more diligent application, and with ever increasing help in all directions, there does not seem to be much fallow ground to cultivate in this field. It would indeed appear that about all is being done to elevate medicine and facilitate diagnosis that can be suggested, and in conclusion will only say, that while I have thus in a desultory way endeavored to emphasize some of the features which my subject suggests, I entertain a painful apprehension that my effort has been disappointing to some of you on account of the *importance* of my theme. But if it only succeeds in provoking a discussion, here, along the lines indicated, I shall have accomplished to some extent, at least, my purpose in presenting it to you, insisting, as I beg to do, that its design has been more *retrospective* and *reminiscent* than otherwise, for it would be difficult indeed to say much new or original on a subject which has been so well developed by the greater minds of the medical profession.

In what proportion of cases in young children, *i.e.*, under 2 years, does the average physician render a correct diagnosis on first examination? Answer: Only about one-half, and in older children possibly three-quarters, while an expert may correctly diagnose four-fifths even in young children, *i.e.*, infants, on first examination and in older children nine-tenths.

DISCUSSION.

Dr. J. A. LARRABEE, Louisville, Ky.—The vital point in pediatrics turns on the diagnosis. In fact, it might be said this is to the general practitioner an opprobrium medicatoris. We all know it is in this department the greatest perplexity arises and the greatest skill and judgment is required; and even then we frequently fail to make a correct diagnosis. Too much education can not be given. And while I have all esteem for one who is accredited a peculiar genius of making instantaneous diagnoses, I believe such men very often make very grievous failures. While we differ from each other in that capacity as in others, I believe it was Michael Angelo who said, genius is only another name for hard work. I do not believe we will arrive at immediate diagnoses unless we do hard work. It is along this line great stress may be laid on educating medical men. The essayist has spoken of diagnosis, but in my mind has omitted a very important part, that is the aids to diagnosis in diatheses. It seems to me the diagnosis is greatly enhanced by the study of diathesis. There is in every one of us a weak spot by inheritance. That which would affect one would not affect another. Hence, in diagnosis we should avail ourselves of all the knowledge we can obtain. We do know, families travel on family lines, and disease is more prone to come along these lines. And by seeking along these lines we will be more likely to arrive at the diagnosis than by rambling. I invariably insist, upon the first visit, no matter what the disease may be, on the complete, careful, thorough examination of the nude body. In his advice to his students, Hippocrates said: "View the body outstretched," and that applied to adults as well as children. If we attempt a diagnosis without this, when we have not seen the patient before, we will fall into very palpable errors. How many gentlemen here have had their attention called to a rachitic condition or a case of catarrhal pneumonia, in which the child is dying not so much from the pneumonia as from the general condition? A single pustule may point the way to the disease better than anything else. Thus we are to watch closely, for every little point is a big point. The strain is such we must call in all our senses; and even then we have not quite senses enough. In closing I wish to refer to physiognomy in disease. We must study the countenance of the child and interrogate that.

DR. SAMUEL E. WOODY, Louisville, Ky.—The diagnosis in children does offer a great many difficulties not encountered in the adult. The absence of the power of speech at that tender age, the excitability of the nervous system, the perversion of the spoiled child, the fear and agitation of the nervous child, offer difficulties to be overcome only by the greatest amount of tact and patience, just the qualities in which the doctors, perhaps, are oftenest failing. And then, again, diseases run a very exaggerated course. The progress of the disease is so rapid, unless we are careful and visit the patient early, we are not apt to detect the symptoms. The history is rapid. As to the physical diagnosis being more difficult in the child than in the adult, I have not found it so. Pain sets its mark most of all upon the child. Look at the face and you can tell the sick child at a glance. I believe inspection gives you more assistance in children than in grown people. The examination of the chest offers greater assistance in the child than in the adult, especially when the child is asleep. Not only can we hear through the chest walls better, but the walls are thinner and we can palpate better. And here lately, since the employment of the Roentgen photography, we find the thinness and translucency of the tissues of the child is very important. Only

lately a photograph of a child has been published, in which the outline gave also an idea of the density of the tissues. In my clinic we got good results in the examination of rickets. The bones made scarcely a shadow, giving ocular demonstration of the diagnosis already made of rickets. I don't think, Mr. President, there is any field in the practice of medicine in which the diagnosis can be, if the proper amount of patience is used, so easy, so thorough and so satisfactory.

SEPSIS OF THE NEWBORN.

Read in the Section on Diseases of Children at the Forty-seventh Annual Meeting of the American Medical Association at Atlanta, Georgia, May 5-8, 1896.

BY HENRY E. TULEY, A.B., M.D.

Member of the Kentucky State Medical Society; Clinical Assistant to the Chair of Practice and Instructor in Physical Diagnosis in the Kentucky School of Medicine, Louisville; Visiting Physician to the Masonic Widows' and Orphans' Home; Associate Editor and Manager Mathews' Medical Quarterly, etc.

LOUISVILLE, KY.

The history of the following case is reported as the text for a few remarks upon sepsis in the newborn, not only because of its rarity, but because of the interest attached to the case in connection with its etiology.

Baby T. was born on February 1, 1896, of a healthy primiparous mother after a normal though rather tedious labor which had to be terminated by forceps. The child was a male weighing about seven pounds, cried well and was quite vigorous.

The mother had no vaginal discharge before labor, but a vaginal douche of 1-2,000 bichlorid of mercury was given her upon the advent of the first pain, none were given afterward. Her puerperium was perfectly normal and afebrile.

As soon as the head was born the eyes were wiped and the face was washed, the first bath being given some hours later. The cord was tied with a piece of silk from a skein which had been used the day before in an ovariotomy and some of the same was used the next day in an abdominal operation without further preparation. After the first bath the cord was dressed with talcum powder and wrapped in absorbent cotton.

During the first three days nothing abnormal was noted with the child, it had a normal temperature, nursed well though apparently not satisfied, slept well and had normal movements. On the fourth day a temperature was reported of 101.4 degrees in the morning at 6 o'clock, and it had risen to 104 degrees by noon. I was asked to see the case at this time by the attending physician, Dr. L. S. McMurtry, by whose courtesy I report it now. It was decided that the temperature was a starvation one and that artificial feeding was indicated; it was accordingly put upon cow's milk, well diluted, to supplement each nursing, temporarily, as the breasts were at this time beginning to secrete. This reduced the temperature in five hours to 100.6 degrees, and the next day the temperature was normal and the child seemed as well as usual. The cord dropped the next day, the fifth, leaving a moist base, which was treated aseptically and dressed with talcum powder. The next day the temperature rose to 102.4 degrees and the child was reported as listless and slow about nursing. I was asked to see the child again, at this time and on close examination found a retracted umbilicus which, on depressing the edges, was found to contain about twenty drops of pus, this when wiped away showed the base or stump of the cord to be fungous in character. The child did not stand manipulation of the parts well, pain being caused when they were cleansed, and there was noted slight distention of the abdomen. After thorough cleansing of the navel with a bichlorid of mercury solution, the fungous navel was touched with a twenty grain to the ounce solution of nitrate of silver and a powdered boracic acid dressing applied. This dressing was renewed twice daily and the silver solution used as before.

The progress of the patient from this time to its death, three days later, is of no particular interest save that the temperature rose continuously and steadily from an initial one of 102.4 to 107 degrees a few hours before its death. Baths would reduce this a degree or so, but it would rise again in a few hours. It refused to nurse and was with difficulty fed breast milk, which had been pressed out for feeding with a medicine dropper. The day before its death it had passed very little urine and had several movements, which were composed almost entirely of mucus. The bowels were irrigated with plain water which regulated this condition to a degree and also increased the amount of urine voided. On the day it died the skin was very hot and dry and it was put in a hot air bath, but this caused so much prostration that it was removed and stimulation kept up to the time of its death. A few hours before this occurred its hands and feet were noticed to become a purplish color, perfectly cold and this condition had extended to the wrists and nearly to the knees before death. The abdomen was much distended and tender, the navel moist and the granulation tissue covered with pus, though none could be forced from the vessels by pressure upon the abdominal wall.

This case is of particular interest because of the following facts: The child was born of a healthy mother who had been in the hospital under the daily observation of the physician and nurses for nearly one month before her confinement; the labor occurred under the most carefully prepared aseptic surroundings, in a hospital where a great deal of abdominal surgery is done and no deaths had occurred in more than a year, and that one in another part of the building; it was the first case of obstetrics which had ever been at the hospital; the mother had a perfectly normal and uneventful convalescene and had no vaginal discharge before labor; the patient had an experienced trained nurse, on special duty, in charge and more than the usual care was taken with the dressing of the cord, careful bathing and talcum powder being used. The question has arisen "Where did the infection come from which caused this child's death?" That it occurred through the navel there can be no doubt.

The literature of sepsis of the newborn is very meagre but a number of cases have been reported. The following routes for infection have been mentioned. The umbilical cord and its stump are the most frequent points of infection; among others mentioned by Brothers are the following: Accidental injuries or operations with unclean instruments; mammary abscess; tongue tie or circumcision; abrasions of the buccal mucous membrane, or slight injuries to the genitals or anus; septicemia of the mother during intra-uterine life; premature rupture of the membranes, putrefaction of the liquor amnii and aspiration of this by the child, causing a septic pneumonia; a violent vaginitis of the mother acquired during the last weeks of pregnancy with premature rupture of the membranes, and septic poisons trans-

mitted from the mother, by means of her milk, when she has septicemia following labor.

Jacobi mentions the gastro-intestinal tract as a frequent site for infection, but in his writings, decidedly more prominence is given the umbilicus and its care as a means of prevention of sepsis. The pus of an ophthalmo-blennorrhea or the decomposing lochial discharge, he also mentions as causes.

In the case reported all of these sources of infection can be eliminated save the umbilicus. There were no operations done upon the child, the buccal mucous membrane was normal, the mother at no time had symptoms of sepsis, a vaginitis, or decomposing lochial discharge, and frequent examination of the lungs of the child failed to reveal any lesion.

The time of infection in the case can not be decided, but that it did not occur at the time of tying the cord and its first dressing is certain. There was no septic condition existing in the cord before it separated, as it mummified rapidly and was perfectly dry throughout after the separation. It most likely occurred after it became detached, through the fungous navel left, though extra precautions were taken in its care. A possible cause, perhaps, was by septic matter being carried through a wet napkin by capillarity, from the alvine evacuations. It is a common complaint of nurses that boy babies are with much more difficulty kept dry, on account of the napkins being wet high up, thus soiling the bands and cord dressings.

It does seem queer, however, that sepsis should



have existed in this case, in which every attention was paid to the details of asepsis and antisepsis in the lying-in-room, especially so when we think how common it is for no dressing to be applied to the cords of children of the poorer classes, or if one is applied it consists of a greased cloth, after which gangrene is the more apt to occur, or simply a rag with a hole burned in it, with ashes or soot as the drying powder.

However, the occurrence of sepsis in one case, where every care has been taken to prevent it, should not encourage us to relax our vigilence in preventive treatment. The treatment is still mainly preventive, and in the majority of cases, sepsis can be prevented. In a series of 222 cases at the Sloane Maternity Hospital, New York, personally seen by the writer, no case of sepsis in the newborn occurred and no trouble with the navel. The possibility of its occurrence, however, should always be kept before us, careful sterilization of ligatures and instruments used in severing the cord should be had, as well as of the hands before this is done. The ideal ligature is the rubber one, and the difficulty has always been in obtaining a method of applying, but in the ingenious instrument devised by Dr. A. C. Kellogg, which I take pleasure in exhibiting, with which a small rubber ring is applied to the cord, all danger of sepsis from the primary ligature is obviated because of its ready sterilization, and hemorrhage simply can not occur.

The after-care of the cord is important, there should be a separate bed for mother and child, careful cleansing of the hands before bathing the child, which should always be done before the mother is attended to, the avoidance of fatty applications to the cord and the use of drying powders to facilitate the mummification, a very good formula being salicylic acid and pulverized starch, one part to eight.

The care of the cord is of less importance than the care of the stump; every detail in the treatment of any surgical wound should be observed here. Should there develop an omphalitis, gangrene of the umbilicus, an arteritis or phlebitis, the most active stimulation is indicated with prompt attention to the proper cleansing and antiseptic treatment of the stump, the only precaution being the avoidance of carbolic acid as an application. The symptoms of them all are more or less similar, local appearance of the inflammation at the umbilicus, it being generally bathed in pus; peritonitis is always present to a greater or less degree, also pain and tenderness especially during the bath, and a septic temperature.

However, there may be no symptoms, the condition being recognized only at the autopsy table.

111 West Kentucky Street.

DISCUSSION.

Dr. J. A. WORK, Elkhart, Ind.—What substance do you use on the cord as dressing? Answer: Cotton.

Dr. W. B. PARKS, Atlanta—I would like to ask the Doctor if it would not be well, in the large cords, to make a little massage and lessen the size of the cord before severing it. That can be done without any injury, I think, if you dress the cord near the child and manipulate outward. By a little compression in this way, you can lessen the edematous condition. I have done that myself quite successfully in a few cases. I never like to tie these large cords for fear of there being too much to be absorbed.

Dr. A. C. COTTON, Chairman—The advantage claimed for the rubber is its constant elasticity gradually displacing the Wharton's jelly.

Dr. HATCH—I have never lost a child under those conditions in my entire practice. It has been my practice during the last ten years, not to sever the cord until the placenta is born, and since I have adopted this method have had better success with the children and they get along better. I do that uniformly and so far as having sepsis is concerned I have for a great number of years used thoroughly sterilized silk in tying the cord. I can see the advantage of this band. Last spring I tied one of those large cords and thought I had tied it thoroughly, and imagine my surprise when a few hours afterward I was sent for and it was said the baby was bleeding to death. I can readily see the constant pressure of the elastic band would have adapted itself to the cord as the edema diminished. The hemorrhage in this case was due to the edema leaving the cord, allowing the ligature to slip off.

Dr. GRAY—I have been in the habit of doubling a small rubber band three or four times and slipping it over the cord. I have done that several times when there was considerable jelly of Wharton, with good results.

Dr. J. H. Ross—In the country where I practice, I think it is the custom to use almost any substance at hand for ligature. I prescribe flax or cotton thread. But I invariably ligate the cord before I cut it off, and it occurs to me now that perhaps the chances of infection would be lessened by the ligation being made before the cutting is done. We have not been using, in country districts, antisepsis about the cord and I do not remember a single adverse occurrence in the history of many hundreds of cases.

Dr. A. C. COTTON, Chicago—Well, we have tied the cord with almost everything. I have tied it with shoestring and with a hair string from the head of the woman a good many

years ago, and no ill results ever followed it. The only case I have ever had of infection from the navel was long after I had been connected with a hospital and had been taught surgical asepsis and practiced it. In my experience and observation sepsis from the navel is a rare thing in our city, and midwives take no aseptic precaution at all in many instances. That it should follow in the practice of men who observe aseptic precautions religiously and not occur in the practice of people who do not know the meaning of the word "asepsis" is a mystery to me. The discharges ascending the napkin by capillary attraction, is an argument that has been used by myself, as those will remember who heard me at Baltimore and the Illinois State Medical Society last year. I have substituted an absorptive pad, making the diaper simply a key bandage to hold the pad in place, the pad being made of such material as to absorb readily, so the outer retention band is not wet at all.

Dr. HENRY TULEY, Louisville, Ky.—In the case I have just related the enlarged cord extended fully five inches directly from the navel of the child and it would have been impossible to strip this so as to get a good place to tie the ligature. That case was used as an argument for the rubber ring. In the series of 272 cases there were some twenty or thirty cords which bled secondarily, after the tying of the ligature. In some very fat cords hemorrhage would occur. I think this case stands as a unique one and one which I can not fully explain as to the cause of infection. Every precaution possible was taken with the case, because it was a patient recommended to Dr. McMurtry by a friend in Glasgow, and under that recommendation it was with the greatest care the case was watched. Without any further preparation the Doctor used the ligatures the next day in an abdominal operation. But still that possible cause of infection should not be forgotten. I think it does sometimes occur in that way. I was approached last year by a prominent professor in one of our colleges in Louisville and he said: "What are you going to say about the umbilical cord?" I detailed to him the case I suggested. He said: "That is all a mistake. Just recommend it be left alone entirely; just turn it loose and it will take care of itself." To my personal knowledge this professor has had several deaths in the newborn, and I think if he would examine them carefully, get an autopsy, he would find the cause to be sepsis. We know sepsis occurs most frequently from the navel.

CHOREA.

Read in the Section on Diseases of Children, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5–8, 1896.

BY HENRY HATCH, M.D.

QUINCY, ILL.

In discussing the subject of chorea I am well aware that it may, at first thought, seem a dry subject to you. But in bringing up this subject it is that I may awaken new life, and bring forth new ideas, and thereby get a more tangible and satisfactory understanding of the etiology and pathology of this very troublesome disease. Troublesome, not alone to the patient and friends, but troublesome as well to the physician, on account of the tenacity with which it holds to its victim. No disease causes more anxiety than this disease, chorea, for it is often hard to convince an anxious mother, when her child is never still on account of the violent nervous movements and excessive agitations, that it is not very ill, and that you do not expect a serious outcome.

To launch out in a new channel may cause you to exclaim, mentally, "Another needless exploring expedition setting out on the pathless sea of chorea," with no definite port in view, and with an uncertainty regarding the existence of such a haven.

Chorea has been and is one of the pathologic dumping grounds of the medical world; and many a man has spent tireless hours in medical research, to find a remedy which will relieve this troublesome disorder. In this space the theorist throws his theory; the pathologist his odds and ends; the moralist adds a few of his trite sayings; and as a result there is a stupendous wilderness of unknown depth and uncertain quantity. No one has penetrated successfully this wilderness; many have tried, and if no other good has been done, the ground has been almost covered with their failures: so that before long we will be able to traverse the entire field by passing from one failure to another. Each man can go a little farther than his predecessor, by using as stepping stones the perished efforts of those who have gone before.

The term chorea, coming from the Greek word, chorea, meaning a dance, has been handed down from the middle ages. About the fifteenth century England was overrun with dancing, or shaking fanatics; many of whom were sent to prison, as having the devil within them. People of seemingly deep religious desires and tendencies were afflicted, for they looked upon it as an affliction and a direct visitation for sins, with an unaccountable dancing, jerking, shaking, or muscle tremor of some sort; this was purely psychic. During the fifteenth century the city of Strasburg had so much of the trouble that the magistrates ordered the afflicted ones to the chapel of Saint Vitus, to do penance, and to pray for relief. Here is where the term "St. Vitus dance" probably originated. It may be of interest to us that St. Vitus was a Sicilian, and a pupil of St. Modestus; both suffering martyrdom as Christians under the persecutions of Diocletian, in the year three hundred, thus gaining their canonization. St. Vitus, however, does not hold the undisputed claim to the name of the disease, for in other parts of Europe it is known as "St. Modestus' dance," "St. John's dance" and "St. Anthony's dance." Each saint was supposed to have curative measures in his keeping. Many other terms have, at various times, been applied to it. One old author speaks of it as melancholia saltans, saltare meaning "to dance." Another as paralysis vacillans. Another as ballismus, from the word signifying "to leap." Again it is known as epilepsia saltatoria; as orchestromania, or the dancing madness. These terms all relate to the psychic disturbances of hysteric character.

Chorea proper, or Sydenham's chorea, is the disease as we recognize it to-day; while the Germans make two classes of it—chorea minor (our chorea) and chorea magna, hysteric manifestations, some of which simulate true chorea.

The disease is preëminently one of early life. Dr. Stephen Mackenzie has a record of 439 cases, with the following percentages: Thirty-four per cent. developed between the ages of 5 and 10 years; forty-three per cent. between 10 and 15; sixteen per cent. between 15 and 20 years; with the largest general percentage for the thirteenth year. Sée reports 513 cases, and 453 of them between the ages of 6 and 15. Sinkler 282 cases, with 217 of them between 6 and 15 years of age. There is on record one case in a patient 78 years old. My own experience gives me a record of forty-six cases, the oldest of which was 40 years, and a man. Most of my cases have been before the period of the seventeenth year; and almost all of them have been females. The records of the same authors show that chorea, while a disease of early life, is most frequently a disease of early female life, as my own experience has shown. It follows closely, or closely precedes the puberal epoch in the girl. Gower, who has made a deep study of the subject and who has a record of more than one thousand cases, gives but 365 cases found in the male. Sachs, with his list of seventy cases, found twenty-one males. It may be the more

finely balanced nervous organization of the girl, brought up as she is, more of a hot-house plant than her brother, leading a sedentary life and under very artificial surroundings, forced to exert a growing and naturally irritable nervous system by close application to books and music, this, I say, may account for the preponderance of the statistics for the female.

Chorea is one link of the chain of hereditary troubles. It is the experience of many authors, and has been the result of my own observation, that alcoholism is a very prominent factor in the production of chorea. Especially so when a woman becomes impregnated by her husband when in a drunken debauch. Morphinism and pulmonary tuberculosis, by transmitting vitiated constitutions, are also prime factors in the production of this disease. Epilepsy or migraine is frequently found in the parent of a choreic child. We can not say, properly speaking, that chorea is inherited; but we can say that either its vitiated constitution is inherited from a parentage which is not healthy or that it has a choreic tendency. These are hereditary land-marks: The diminished vigor, the inactive cell structure, the nucleus and nucleolus burdened with inanition are tissues prematurely old. And how often have we seen children born that are young in years, but carrying the prematurely old constitution! It is a disease that believes the old adage that "Blood is thicker than water." Arising perhaps from one ancestor, say a maternal grandmother, who may have had a clear history so far as ascertained, it manifests itself in one or more members of the family, usually choosing the one whose nervous organization most closely resembles that of the ancestor, a lasting heritage from generation to generation.

It is not necessarily a racial affection. While some writers claim exemption for the American Indian, their claims are not substantiated; and we must admit that chorea is like the rain from heaven, falling upon the Jew and the Gentile, the just and the unjust, the rich and the poor. Weir Mitchell claims relative immunity for the Negro race, and so far as my personal experience goes, having come in contact more or less with the Negro race, both in hospital and private practice, I have never seen a Negro afflicted with this disease, or anything which had a semblance to it; but Sinkler reports several cases among the colored people. While both the Negro and the Indian have been subject to a tremendous strain for generations, it has been a physical rather than a nervous or mental strain. And it is usually people of the higher and more sensitive nervous organizations that have this disease among them. What is not conducive to the production of this disease is the fact that the Indian and the Negro live a rugged, out-door life. Climate and climatic influences can not be said to give much light upon the subject. Season of the year is also an obscure factor, if a factor at all. Rainy, oppressive days are more favorable to the development of the disease than bright, sunshiny ones, if there is already a predisposition toward the disease. It has been my experience that most of my cases have come to me in the latter part of the winter. Most of them have been school children, and I could often understand why they were afflicted with the disease. They were the offspring of parents of a highly nervous organization, who were anxious that their children should appear well in public, and many of them had instilled into the minds of their children the idea that they must be at the head of their classes. Take into consideration our modern system of forced education among children; the child must go to dancing school, take music, have five or six studies, and then they all have their little parties, keeping them out late at night. Is it any wonder that many of these poor children succumb under the burdens their parents press upon them? Even children are subject to blues, and disgreeable days are bad for that ailment. I have not forgotten my own many despondent and blue days when I was a child, when things did not go right. All are too prone to forget that we were once children ourselves, and are therefore not apt to give children enough sympathy in their little troubles.

According to authorities which I have looked over, March gives the highest monthly percentage of cases: and this corroborates my own observation. The greatest number of cases in a given locality will arise at the season in which the greatest mental or nervous strain is put upon the children, and in our present system of civilization the spring months, when the child is anticipating its final examination, is usually the period when it has the greatest strain.

Concerning the true etiology of this disease there are many theories. The ancients believed that the afflicted person had a devil, and efforts were put forth to exorcise the malignant spirit. They made vows, did penance, went on pilgrimages, and were doubtless benefited in so much as may arise from a fashionable method of treatment, of to-day, known as suggestion. These pilgrimages also were beneficial in themselves, from the fact that the people who made them got more out-door exercise; consequently more fresh air and less nervous tension.

The definition given of this disease by Sydenham in 1686 is very interesting: "St. Vitus dance is a sort of convulsion which takes boys and girls from the tenth year until they have done growing. At first it shows itself in a shaking or unsteady movement of one of the legs, which the patient drags. Then it is seen in the hand of the same side, which the patient can not keep a moment in its place, when it lies upon its breast or any part of his body. If any vessel filled with drink be put in his hand, before it reaches his mouth he will exhibit a thousand gesticulations like a mountebank, and on this account, if he is associated with other children, he becomes the mark of derision, which is always detrimental to his condition. He may hold the cup out straight, as if to move it to his mouth, but has his hand carried elsewhere by sudden jerks. Then perhaps he contrives to bring it to his mouth. If so, he will drink the liquor off at a gulp, just as if he were trying to amuse the spectators by his antics, or was afraid he would not get the water, or fluid, if he did not drink it hastily. Now this affliction arises from some humor, falling on the nerves, and such irritation causes the spasm."

Not an entirely lucid definition, but with all the wealth of medical knowledge gathered from then until now, we are forced to confess it is about as good as the one of to-day. It was said in the history of the disease that many causes were assigned for chorea. Age, sex, race, seasons, contagion by imitation, no doubt have each some effect on the origin of the affliction. Sinkler reports a case in which a trauma seemed to be the cause. Others attribute the development of the disease to some reflex-irritation, phymosis, intestinal parasites, pharyngitis, eczema, urti-

caria, eye-strain, menstrual changes, etc. While it can not be definitely said that any one of these is the cause of chorea, it is self-evident that any one of them may place the little patient in a more favorable condition for its development. Many authorities attribute the eye symptoms to chorea, and not chorea to the eye-strain. There is, however, a disease with which chorea goes hand in hand—arthritis. One might say that the excessive motions which we find in chorea could be the cause of this condition. One author says that in five cases of arthritis you will find one case of chorea. It has either been my fortune or misfortune not to have this complication to any great extent. The same author says in five cases of chorea you will see three of rheumatism. One cause of the rheumatic disorder is the fact that it is difficult to keep choreic patients in suitable surroundings, on account of their nervous agitation. Copeland, an English writer, says, too, that the rheumatism when associated with chorea, has a marked tendency to leave the joints and extremities and to attack fibroserous membranes, as the pericardium and cerebrospinal envelopes. Another author (Rogers) goes so far as to declare that it is his belief that articular rheumatism, endocarditis and chorea are simply three phases of one and the same disease, while Osler states emphatically that there is no known disease in which endocarditis is found so constantly, postmortem, as chorea.

I do not think it is fair, when we make a postmortem of a patient and find endocarditis, pericarditis, or any other "itis" in a patient who has had chorea to say that death was the result of the latter disease. Is it not better to say that on account of deficient vitality or a vitiated constitution, the child became a victim of chorea, which so debilitated the constitution that it became an easy prey to the more severe disease, endocarditis or pericarditis, etc., and that death, instead of being the result of chorea, was produced by a disease,.or diseases that follow in its train, as the indirect result of the deficient vitality or vitiated constitution. On the other hand, it is usually acknowledged that where both arthritis and chorea are present the arthritic symptoms appear first. Hirst says there is a common toxic product, which if it affects the cortex, produces chorea. How Hirst has been able to ascertain this I do not know, because it is seldom, and I believe never, the case where a postmortem has been made, that the patient has died from plain, uncomplicated chorea. Hirst further says if it turn its attention to the joint surfaces, there is a rheumatism. This theory presupposes a locus minoris resistentiæ. Sachs believes that in 33 per cent. of cases either endocarditis or myocarditis precedes the chorea, and in about the same proportion of cases is found an organic lesion, usually a mitral systolic, while in a great proportion of the cases is heard an anemic murmur, which usually disappears with the chorea.

Among the causes assigned for chorea is pregnancy of the early months, and a pregnant woman who has had a previous attack is especially liable to a recurrence at this period. On the other hand, I have seen women who had attacks of chorea very much benefited by pregnancy and the resultant childbirth. Among other cases may be mentioned the exanthemata and anemia. Anemia is found in all cases of chorea, which clearly shows mal-nutrition. But it is rational to think that the anemia is merely a step in the causal relation, and not an original factor. Anemia may be called a reasonable factor in many cases, for if a child is well nourished with good, healthy, rich blood, I believe it is impossible for it to have chorea. Chorea has also been observed to follow the toxic use of many medicinal preparations; notably the poisoning which some times follows the use of iodoform. This is brought about by the fact that drugs of this character have to bear on the red corpuscular element of the blood.

Chorea has been observed as an intercurrent with nearly all the more common diseases.

Even more intricate and diappointing than the etiology of the disease, is the pathology. One unfortunate circumstance in the state of the pathology of this disease is the fact that it is very doubtful and improbable that any case of simple, uncomplicated chorea ever died, and so-called cases of choreic death have not been produced by the chorea proper, but by some complication.

Chorea, like hysteria (to which I believe it is closly related), in the first stages is assigned to want of nervous equilibrium due to diminished nutrition, which results in nervous congestion, brought on by overwork or excitability. And if we could always have the cases in this first stage, I believe all could be guarded against complications, and be cured.

The varied pathologic conditions reported as found in choreic patients, and given as causes for chorea, or results of chorea, form a public confession of our ignorance regarding the subject. Its microbe has been earnestly sought for, but the search has produced nothing but disappointment. Pianese and Dana each declares that he has discovered the bacillus, which when cultivated gives ptomains, and the injection of this substances causes chorea. Pianese substantiates his claim to some extent, but his microbe is not yet accepted. The staphylococcus pyogenes aureus is frequently found in the endocarditic vegetations of the choreic patient, and in one instance has been found in the blood. That there is a microbe scarcely admits a doubt, as the endocarditis, pericarditis, arthritis, and sometimes septic thrombi, peritonitis, pleurisy, pneumonia and other afflictions, diseases due to direct microbic infection, or to the absorption of ptomains, clearly prove, for these diseases are the comites of chorea. Postmortem pathology in chorea shows that this chorea microbe, or microbes (for there may be two or more varieties working in harmony, as may be seen in combined scarlet fever and diphtheria, and in this way account for the frequency of the intercurrent afflictions) gives its attention to the structures of the nervous system, and here the pathologic conditions are so varied and so numerous, that it is difficult to select the one for which the chorea is responsible, and find the one due to some intercurrent disease. Hence there have been found hemorrhagic infracts in the lenticular nucleus, cerebral hyperemia and edema, and the same condition in the cord; vacuolization of the nerve cells and nerve trunks as in syringomyelia and hydromyelia; hyalin degeneration of cells in cortex and basal ganglia, the motor cells; hyperplasia of neuroglia, the expected result in chronic chorea, and a condition which remains after recovery from the disease. Starr thinks that where mental symptoms predominate, the cortex is the seat of the degenerative process, and that when the symptoms are chiefly muscular that the lesion is cerebral. There has also been found an evident prolifera-

tion of cellular elements of the cord into the adventitia of the blood vessels supplying that structure, or pathologic karyokinesis. It is of interest to note that the favorite seat of the pathologic lesion is in the corpora striata.

In comparison with the definition of Sydenham let me give a modern one; that of Dickenson. "An unnatural hyperemia of the nerve centers, not due to any mechanical exertions, but produced by causes, mainly of two kinds: One, a morbid influence which may affect the nerve centers, as it affects their organs and tissues. The other condition is usually mental, but sometimes what is called reflex, which especially belongs to, and disturbs the nervous system, and affects persons differently, according to the inherited morbidity of their natures."

Having discussed the natural history, etiology and pathology of chorea in a rather hasty manner, we now come to the treatment; and in my opinion every case of pure chorea should be cured; and especially so if we can have fairly good surroundings, with fairly sensible people to take care of the patient. It does not require wealth nor any great ability for the nursing of this class of patients, but it does require a good physician, who thoroughly understands the special constitutional condition of his patient, and understands the results and the action that he may obtain from the drugs which he will use. First the patient with chorea ought not to be excited by much company; and if it is a child it should not be associated with other children, from the fact that children, seeing the constant nervous, and apparently senseless movements, of their companion are very apt to laugh and make fun of him, or her, and consequently destroy what little confidence the patient may have in its ability to control its movements. The patient should be kept clean; should be frequently bathed; well rubbed after each bath, and be placed with cheerful, happy people. His surroundings and companions should be restful. If it is an exceedingly bad case the patient should be kept in bed as much as possible; and if the motions are violent to the extent that he bruises himself, it is also well to put on a jacket by which you can fasten his hands. Massage treatment is very beneficial in these cases. If the child is anemic he should have iron. If he is poorly nourished, and does not eat enough food, he should have cod-liver oil. If he comes from syphilitic or tubercular parentage, his treatment should be directed to these peculiar points. All sorts of remedies have been recommended for the treatment of this disease (Shoemaker forty-seven, Bartholow seventeen). Arsenic, zinc compounds, cimicifuga, antipyrin, chloral, sulphur, quinin in large doses, opium, digitalis, and I might mention a host of other remedies, but it is unnecessary. Then as toward treatment during the changes in action: If in pain, plasters. In endocarditis, potassium chlorid. Now all these remedies may be well in their places, but there is one remedy upon which I place my greatest faith, and that is strychnin. I have given it so much that I have come to look upon this drug as a specific in the treatment of this disease; and no matter what complications I may find, I treat each complication and hold fast to my strychnin. I give it about every four hours, beginning with the one hundred and twentieth of a grain, and gradually reaching one-sixth, and then continue it for an indefinite period, or until my patient gets well. In connection with that I give digitalis, or iron, or cod-liver oil, or salsoda where indicated; and if my patient is very restless, and he needs rest I give chloral, potassium bromid, morphin and sulfonal, as I think best for each special patient.

And now as to the prognosis of this disease: I believe that every case of pure chorea should, and can, be cured. If you will study the peculiarity of your patient, and follow the remedies as indicated in this paper, if you can control the parents, you can absolutely say when a case of chorea is brought to you, that it will surely be cured.

MAN'S BRAIN AND MIND.

THE FORMER SOMETIMES INSANE, THE LATTER NEVER.

Read in the Section on Neurology and Medical Jurisprudence at the Forty-seventh Annual Meeting of the American Medical Association held at Atlanta, Ga., May 5–8, 1896.

BY G. W. DRAKE, M.D.

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Man's brain is the storage battery of energy, the seat of consciousness and the organ of the mind. From it are transmitted by nerve fibers, energy for the functional activity of all organs and the vital metabolism of all tissue cells. In it are localized areas for the reception of energy and the perception of sensations.

A sane brain is one in which all its cells and cell derivatives, fibers and other material substances are in a normal condition chemically, physically and vitally.

Chemic analysis of the different parts of the brain is not alone sufficient to enable the neurologist to judge of its sanity, nor is a microscopic examination adequate. Because neither will reveal the relative position of molecules in a cell, or atoms in a molecule, upon which in my opinion the normal function of the parts depends, as also the kind, number and shape of the molecules, together with their atomic structure. When the cerebral centers are in a normal condition, the brain is sane, otherwise it is insane. When the dominating brain centers which supply functional energy to the various organs and tissues of the body are not perfectly sane there can not be perfect function. None of these centers are in a condition of perfect sanity and there is no organ or tissue that is perfectly healthy in function. The consequence is that the period of activity of every tissue is limited and it can not exist perpetually. It must sooner or later cease to manifest life, dissolve into its original elements and return to the dominion of chemic energy, as the dust of the earth. This is the common lot of all vital tissues. The source of their vital energy is finite, and they are consequently doomed to inevitable exhaustion.

Passing from the involuntary centers of the brain we come to consider the centers of conscious sensation, the habitat of consciousness.

Man is a triune being, consisting of a material, a sensible and an intellectual ego. These parts are usually denominated, body, spirit and mind. Contrary to the doctrine of the scientific Christian and that of the christian scientist, I do not believe in the existence of mental diseases, nor diseases of the sensible ego. Disease, I believe to be a disarrangement of the normal arrangement of matter in the structure of one or more cells of the body. The gravity of the symptoms depends on the locality and the number of the cells affected. So-called "functional diseases," all have a material cause, whether the physician can

find it or not. So long as the material structure is normal the functional activity will be normal. The sensible ego, or consciousness, is always ready to exercise its faculties in the various brain centers of sensation where it is situated, viz., those of hearing, feeling, tasting, seeing and smelling. The peripheral and central organs of the five senses must be in health in order that the sensations may become conscious of normal impressions. All the cerebral centers of the special senses are more or less insane, and there does not exist perfect vision, perfect hearing or perfection of any of the sensations. Everybody is color blind to a degree, and there is a degree of imperfection in all the senses, owing to material disturbances. There is a material basis for every pain and every subjective symptom of disease or discomfort. The sooner physicians recognize this fact and bring to bear their materia medica on all material disturbances, the better for the patient. Let not christian science, spiritualism, faith cure and other kindred humbugs lead astray the grand old profession of scientific medicine. The best brains of our best doctors are to be relied on as bulwarks of defense against the cunning novelties which are attempted to be introduced into therapeutics. Suggestion and hypnotism as therapeutic agents can be effective only as the material structures, the seat of the diseases, are responsive to their action. Imaginary diseases are real material images and should be treated as such. The intelligent physician should search diligently for the concealed picture before attempting to efface it. Therapeusis based on mistaken diagnosis may lead to disastrous results. It is possible thus to make a diseased image where one did not previously exist. Insanity of the intellectual centers of the brain is the form usually denominated mental insanity, and its subjective symptomatology can be learned by studying that of the so-called "mental diseases." The function of these centers is to manifest the faculties of the mind, and it is essential that they be in perfect order to make a perfect reflex of mental action. Any derangement of matter or departure from the normal standard more or less unfits these organs of the mind for their physiologic work. Every case of insanity should be carefully studied etiologically, with the view of cerebral localization of the seat of diseased tissue. After the discovery of the part affected, a rational materia medical course of treatment should be instituted in conjunction with suitable hygienic environment. Disarranged brain substance in the intellectual centers can not make a correct manifestation of the faculties of the mind. Brain culture as a physical science has not hitherto received the attention which its importance demands. The cerebral centers for special senses, together with those for the higher faculties of the mind should be duly exercised for the purpose of enhancing their capacity. By systematic physical culture of these centers the equilibrium of the brain may be maintained, and in this way insanity be prevented in many cases. Brain sanitation is conducive to sanity, and I may here interject that watering the brain copiously is a measure of great hygienic value as well as an essential therapeutic procedure. Water the sick of all diseases, but especially those sick of insanity.

I pass to a brief consideration of man's mind. This is the the terra incognita of the anatomist and will ever continue so, for it's not of the earth, earthy. Mind is a general entity, specialized in man and individualized in a particular man. Man's mind is the first person of the human "trinity," and is made in the likeness of the first person of the divine trinity. It is the supervisor and supreme director of the material man. The brain is its organ, but its habitat is unknown. It may dwell in some localized area or it may be ubiquitous. The minds of all men I believe to be equal, but there is great diversity in the structures of the brains or mind organs of different individuals. The mind of the fool or idiot is equal to that of the most brilliant philosopher. The mind of the newborn babe is equal to that of the full-grown adult. There is, however, a marked difference in the manifestations of mental action in different classes of human beings, owing to the difference in the material composition of their brain centers. These brain centers may be cultivated and developed by use. They may be brought nearer and nearer to perfection and become better organs of the perfect mind. The mind does not develop or deteriorate. The nearer the mental cerebral centers approach perfection, the grander their manifestations of the conceptions of the mind. The farther they fall below the normal standard the feebler they portray the mental faculties and the more imbecile their individual possessors. Great thinkers are all men, young and old, ignorant and educated, sane and insane or idiots, but great also is the difference of the brain impression of their thoughts.

The mind is never insane. It belongs to that class of imponderable agents or energies which was created perfect in the beginning. It requires a certain adjustment of matter for its manifestation, and the better this adjustment the better the manifestation.

There can be no change in the mind, but only in its mode of action through a change in the cerebral apparatus. Defective machinery makes imperfect movement however perfect the motive power. Electricity is the same, whether it turns a simple wheel or is applied by suitable adjustment to the most complicated mechanical contrivance. It is no more and no less electricity whether it runs the street car or the wheel of the fanning machine. It never gets out of order and never needs repair. So with the mind, its brain machine may break down and need adjusting, but the mind can not be injured by traumatism, autointoxication or bacterial toxins. It can not be pierced by the bullet or cut in twain by the knife; it fears no evil from without; its only concern is for its fellow entity, the body, from which it must sooner or later be separated. The body will crumble away and return to the dust as it *was* and the spirit to "God who gave it," but the mind will roam about in the unseen universe and wait for the resurrection of the body. After the resurrection, the mind will preside over a perfect body and spirit, and redeemed man will be a perfect triune being in the image of the Triune God. *Cerebrum sanum in corpore sano* is all that is needed to complete the perfect man. The *mens sana* needs not a physician. Brain culture should constitute a prominent department of physical culture. Brain development should not be neglected in the present craze for muscle training. A systematic curriculum of exercises should be arranged for training every sense organ with reference to its better education. The courses in music, painting, sculpture, etc., should be studied with reference to their importance in brain culture. Every sound, every picture, every form, every muscular movement makes its image on the brain and contributes to its development. The brain is the highest organ of the body in position and

importance. In it mind, spirit and matter meet to form the triune man in the image of the Triune God. There is no difference in the members of the human family, Hottentot, Mongolian or European, as to their minds, the difference is only in the structure of their brains. After death and the resurrection all the redeemed of Adam's race will be equal.

Often on the thoroughfares of crowded cities, in the parlors of the devotees of fashion, in the offices of money dealers and in the haunts of the busy fortune hunters, I have tried to imagine the appearance of the brain structures of the different types of the *homo genus* and compare one with another. Shape of head, contour of face and form of features furnish a slight index to the hidden form and individual structure of the brain. The behavior of the individual is the best criterion of the sanity or insanity of his mind organ. The conduct of every individual must be compared with that of the highest type of man and his brain can be graded thereby with accurate precision.

Faces may deceive, pomp of wealth or foible of fashion may conceal, but truth will out and show by character the inwardness of the brain. The brainiest men are those whose habits of life are nearest perfection. The world is full of deformed brains.

A NOTE ON THE PATHOMENTAL EFFECTS OF DEGENERATIVE HABIT.

Read in the Section on Neurology and Medical Jurisprudence at the Forty-Seventh Annual Meeting of the American Medical Association at Atlanta, Ga., May 5-8, 1896.

BY H. S. DRAYTON, M.D., LL.B.

NEW YORK.

In his play, "Two Gentlemen of Verona," Shakespeare makes Valentine say—

"How use doth breed a habit in a man."

In this remark we have an expression of psychological truth, that three centuries of later observation has not been able to gainsay. The disciples of heredity have availed themselves of the apparent effects of habit impression in formulating their creed, employing them as evidence of a double meaning, especially if they were of a degenerate nature. "Evidence here," they would say, "of congenital predisposition, to think and act in lines that enfeeble mind and pervert body." The pessimistic speculations of a Schopenhauer or a Nordau may echo the opinions of medieval prophets of a fate-bound destiny, and find a hearing in a certain class, but the cheerful, sunlit view of a better future for him who seeks it earnestly is finding a larger recognition among the sober and thoughtful year by year. In the field of anthropology there does not appear that tenacious insistence upon the preëminent influence of heredity that characterized the discussions of ten years ago. Manouvrier, Brouardel, Magnan, and others of authority refuse to admit the existence of any distinctive type of nervous organism for the vice-bound and criminal, and contend that it is not so much the inheritance of a disposition toward conduct of an irregular, vicious nature as it is the social relation into which one is born or in which he lives, *le milieu*, that should receive consideration, when we commence to trace the etiology of moral perversion and crime. In the Paris Congress of 1889 M. Manouvrier argued with great force upon the principle that the commission of acts in violation of law did not demonstrate a morbid type of constitution but rather a certain caste of temperament and unfortunate surroundings.

Dr. Henry Maudsley, once a pronounced apostle of heredity of the severer class, said lately in answer to the question. "Is a man hopelessly chained down by the weight of his inheritance?" "By no means, for there is something else besides inheritance that makes fate, and that is education. It is a physiologic law that the brain throughout infancy, childhood and youth grows to the circumstances with which it is placed, and therefore the actual development of a brain may be as much influenced by the kind of nutriment supplied to it as long as it grows."

The verdict of psychology is substantially in keeping with that of physiology. Sully, for example, in "Handbook of Psychology," writes: "In the present state of knowledge heredity only helps to account for comparatively few among the host of peculiarities that go to make up the natural phases of individual character. . . . External influences cause variations. No two are subject to the same influences. The school, the circle of friends, the business, etc., differentiate minds. The body takes on a form of growth because of the special line of habit in eating, exercising, etc., of the individual. So the mind grows on what it is fed in the daily life. Lines of mental growth will be to some extent predetermined by innate capabilities and tendencies, but these only partly limit the process; they do not fix its precise character. The particular ideas and connections of ideas that form the intellectual habits fix the peculiar coloring of the feelings and the special lines of conduct will all be determined by the character of the surroundings." A particular trend of thought now becoming popular in educational circles is derived from a philosopher of a century ago, Herbart, and which accentuates in stronger terms than those of Sully the effect of education. According to Herbartian pedagogies children have at first no real moral character but acquire it through the union or association of acts of will that have a moral quality. It is the business of training to bring all classes of will action under the dominion of moral maxims in order that "a symmetrical passion for good" may be created. Thus it is clear that in the Herbartian doctrine it is the tone and quality of the general habits that determine the character, and these habits are not fortuitous, or predetermined by birth.

As to the effect of habits, however acquired, it is undeniable that they produce in time conditions of mind and body that in themselves reflect a healthful or injurious nature. Are the habits of a vicious kind? Persisted in they accomplish alterations in the substance and relations of the cerebro-spinal organism that are abnormal and degenerate. Thus the soil of mind becomes more appropriate for the generation of evil fruit than for good. The benign elements become feeble and uninfluential or so perverted that their response to suggestions of a vicious sort contributes to moral disorder.

The studies of the cerebralist have shown that the form and constitution of the brain bear a particular relation to mind capacity and character. We know that certain endowments of structure render one more susceptible to the adoption of manners and habits of a coarse and perverting nature. Benedikt, Lombroso, Maudsley, Spitzka, H. Mann, Allen, Buttolph, etc., have discussed the characteristics of structure that may dispose a man in certain relations of suggestion to respond to impulses of an unlawful kind. Dr. Maudsley remarks, "All broad-headed people are very

selfish; that is, all who have the head broad in proportion to its length. . . . An undue preponderance of the breadth of the head throughout the region in which they (the phrenologists) place the propensities, indicates with certainty an animal self-love which can scarcely be trusted at all times to adopt only fair means for its gratification." The London professor, arguing from the relation of the anterior brain lobes to intellect further remarks, "The bad features of a badly formed head would include a narrowness and lowness of the forehead, a flatness of the upper part of the head, a bulging of the sides toward the base and a great development of the lower and posterior part: with these grievous characters might be associated, a wideness of the zygomatic arch, as in the carnivorous animal, and massive jaws." Such a development of brain intimates the possession by nature of strong animal instincts, and a comparatively weak endowment of those sentiments that inspire kindness, sympathy and deference. Upon such a stock it were easy to graft habits of a vicious sort through exposure to surroundings that are degraded and brutal.

Thought habit then has its coördinate factors in the cerebral substance, where molecular changes are produced with facility and effect correspondent to the duration of the habit. Repetition operates not only to render these molecular changes more rapid and easy, but is productive of growth of nerve substance of a special sort, an evolution correlative to the habit acquired. The motor areas of a trained artisan are more extensively furnished with appropriate cells than those of an office clerk. The use of hand and arm stimulate action and consequent cell proliferation in the anterior and posterior ascending convolutions. The artist develops those centers of form and color that are of daily employment in his profession and they become noticeably marked in his cranial physiognomy. Professor Gates of Chicago experiments on the color sense of dogs and proves that the enforced exercise of that sense for a period had a result in decided increase of brain tissue in the color area.

Conversely, disease of mind faculty is attended with declension and disease of the cell elements of the coördinate center and decline in strength. Any habit, therefore, that inhibits or suppresses the activity of an important intellectnal or moral faculty disturbs the mental balance and impairs the integrity of judgment in no trifling degree. This impairment if not compensated will go on until pronounced insanity results. Interference with the normal function of any physiologic organ continued or frequently repeated causes deterioration of that organ and of its cerebral center of nervous supply. This deterioration implies either functional decline or positive disease of the reciprocal parts. Habits that contribute to the maintenance of health oppose tendencies to disease, of whatever nature the disease may be. The late Sir James Coxe, in his enumeration of the six leading causes of physical deterioration that may eventuate in insanity, places "dissipation of various forms" first, because habits of dissipation affect the nervous system more directly and certainly than other causes. The specially conspicuous of these habits are: Alcoholism, the use of tobacco and opiates. The disturbances of function wrought by the practice of taking alcoholic beverages daily belong to our common stock of knowledge and represent generally or analogously what of nerve injury is done by toxic narcotics as a class. They depress the vital tone of every organ of the body. Of alcohol we know that its high diffusible quality enables it to penetrate the animal tissues in every direction, and by impairing the nutritive properties of the blood to interfere with those metabolic changes that are essential to the maintenance of the integrity and vigor of every organ, muscle, nerve, gland, mucosa, lymphatic, etc., all suffer deterioration from frequent contact with it. We know well its ravages on stomach, kidney, heart and liver, and its inhibitive effects upon the cerebral and spinal centers are matters of every day observation. It may be that Hyrtl more than merely accentuated his impressions from laboratory examination when he said that he could easily detect the brain of a drunkard in the dark because of its comparative hardness, but we certainly should expect a similar effect upon the nerve mass whether it were placed in alcohol to soak, or the latter instilled by daily installments. The impairment of the functional energy is so reflected in the character and conduct of the habitué that we are irresistibly led to the conclusion that the disturbances of the nervous centers are those with which the higher psychical faculties of mind are directly concerned. These no longer exert their normal control in the intellectual and moral expression, and weakness of will and instability of judgment advance *pari passu* with the alcoholic invasion.

It is not claimed that alcohol has a *specific* effect upon certain brain parts, and attacks them on opportunity, but that by perversion of the nutritive supply it as an early effect lowers the functional tone of the brain, and these may introduce a train of evil consequences to motor and psychic action. The senses, which at first may be exalted through inhibition of vaso-motor control, become later obtunded; the intellectual perception relatively declines, and with this power to reflect and to appreciate nice distinctions is lost. The sentiments of courtesy, refinement and kindness, esteem of virtuous character, independence and manly resolve become less and less exhibited, until quite replaced by indifference to the commonest usages and requirements of propriety and duty. The character assumes more and more a pathologic form. We have the exhibition finally of a mental lesion, as insanity, whose physical concomitants of perverted function offer material for an easy diagnosis. The alcoholic invasion especially affects the higher organic centers of the brain, those that correlate moral apperception, because of their more delicate adjustment to the economy of nutrition and sympathetic impression. Then, too, their comparative remoteness from the arterial centers may be another reason for their disturbance. Grief, disappointment, chagrin, poverty, may be alleged as cause for a large proportion of society's inebriates, but the fact remains that eight-tenths of the intemperate drinking that abounds is begun in the home or the friendly circle by indulgence of the appetite in ways imprudent or vicious. As Dr. Bushnell once said: The scale and order of simplicity once broken, then ensues a distempered or distemperate life that runs more certainly to that which is intemperate.

The cocain, opium and other drug habits of our day may run a shorter course than that of the alcoholic, but their perverting effects are not more certain or disastrous. A similarly associated impairment of the physical and mental organisms is the outcome, a similar change of function, from capacity to incapacity, from strength to impotence, from probity to dishonesty, from nobility to vileness, from humanity to

bestiality. These are pathomental artefacts of an uncontrolled self-indulgence. Now that we have the *dictum* of the French pathologists at command to supplement our own observations, we know that the habit of smoking operates to produce changes in the blood and the tissues through cardiac irritation and gastric derangement, changes that in time necessarily lower the general vital tone, and affect unhappily the economy of mind. The pessimism and dyspepsia of Carlyle were correlative. What of his inveterate pipe smoking and his almost equally inveterate indulgence in stomach-trying diet? How the fine cells of that powerful brain must have suffered from the scanty nutritive supply that a vitiated blood stream brought to them! We can easily imagine that the blood of the author of that story of the French Revolution so luridly picturesque in its narration of horror must have bristled in the microscope with its billions of crenated corpuscles. The eccentric vision of the historian and the distempered conduct of the man as husband and acquaintance furnish a homily for the moralist, and a fertile study for the neurologist.

The successful treatment of the chronic habitué involves as a primary object the readjustment of the factors of his thought life, so that his motives for right and orderly living shall be renewed and his will inspired with energy and persistence. But we shall fail to restore coherence and harmony in his psychic relations if we do not in the outset attend to the rebuilding of his body, awakening to fresh activity the organic functions, so that the nervous correlates of mind—cell and fiber—shall be supplied with the elements essential to their reinvestment, and this reinvestment should go on in advance of psychic reformation in order that the intelligence of the man shall be conscious of a growing strength. The older the habit the more difficult its management, yet it is the age of the habitué that has more to do with the determination of curability. Who, however, will say that the degenerative changes in a given case have gone so far that no improvement is possible? Those whose experience warrants an expression of judgment are inclined to take encouraging views of the effect of considerate treatment. The President of this section, after years of critical observation, has said: "The tendency in nature being toward the maintenance of the perfect type, we may look for an endowment of new normal tissue where all the conditions are favorable, and under such circumstances a cure, or what is popularly called reformation, takes place."

Each case must be studied by itself; the type of constitution being understood, the stage of degeneration may be approximated, and a forecast of the probable outcome of systematic treatment be ventured.

DISCUSSION ON PAPERS OF DRS. DRAKE AND DRAYTON.

Dr. Charles H. Hughes—The first paper seems to take a rather peculiar position. The term mental disease, as applied to insanity, and as a synonym for insanity, has been understood by alienists and psychiatrists in all countries to be a conventional term. Science has assumed that mind is the aggregate of the personality and individuality of the person, as discerned through the several functions of the brain and cerebro-spinal axis. It has never entered into the metaphysical question as to what is mind. Nor has it attempted to fathom the nature of the cell. Psychologic science has relegated the question of the nature and essence of mind to the unknowable. The Cartesian philosophers maintained that the mind resided in the whole and in every part of the organism; that it represented the individuality of the person and was the psychic portraiture of his personality. Science has to do with material things; its instrumentalities of research are material, and the organs which it examines with the microscope, the test tube or the crucible are material. Science says that the brain is the organ of mind, adopting that term and accepting it from the psychologists. The somatic psychologists study the physiology of the brain in regard to the manifestations of what philosophy has called mind. Now, we have never attempted to maintain that the material entity of the psychologists could become diseased, because if it become diseased it might also die, and we know the dilemma in which we might be placed. Science has judiciously evaded this question, and left it to the domain of pure psychology. No sound psychiatrist, no correct alienist, who is careful of what he says, will go upon the witness stand or the rostrum and maintain that the mind can become diseased.

We do not think that the brain centers preside exclusively over the material metabolism of the organism. While science has reached the point at which it believes that conditions in the gray cortex have much to do with the normal metabolism of the organism, it has not reached the point at which it can say that they all reside there, for we know that acephalous beings have the power of physiologic metabolism in their ganglionic processes; that hearts are formed, livers developed, kidneys evolved, etc., without the intervention of the higher psychic centers of the cerebrum. While, in the main, the object of the paper would meet with the concurrence of most men who have made this a life-long study, still I think it has somewhat trespassed beyond the domain of science.

Dr. Burr—It seems unnecessary for us to go into matters in connection with the soul, the spirit.

The subject of autointoxication I consider of great importance to those who are treating insane conditions. I find myself confronted with difficulties in the way of medicating those cases ordinarily. They have symptoms which I would like to meet by medicine directed to the condition, but the objection of the patient is very difficult to counteract.

As I have always understood the term hypochondriasis, it signifies a willful lack of interest in one's self, and I am satisfied that in the majority of cases of hypochondriasis there is at the bottom a pathologic condition, and often this condition of autointoxication, owing to trouble with the kidneys, the intestine, malassimilation and faulty metabolism.

Dr. Sanger Brown—The great trouble in neurology has been that we have been wanting in sufficient distinct and clear data with which to work, and I think the conception of the neuron as it has been promulgated by students in various countries in the last year or two—due mainly to the great improvements that have been made in the process of staining, and studying the primary unity of the nerves—has gone a great way toward giving the remarks which we have before made, and which have been hypotheses, an actual definite meaning.

I simply wish to refer to the published results of Dr. Berkeley's recent investigations in Johns Hopkins University, which were set forth some months ago in *The Brain*. This only covers one department of this subject, but it is a very important one and one which I think ought to be emphasized, because it shows that it is possible we may look forward to a time when the various poisons, the auto-infections, etc., can be definitely reducible to a distinct anatomic basis; indeed, that it may be possible, perhaps, to reduce insanity to this anatomic basis.

Heretofore we had been forced to say that there were gross changes in alcoholism in the brain. There might be sclerosis in alcoholism or there might not; I do not think it is possible to demonstrate that. If two brains were laid down before us, one of the worst drunkard in the world, and one of a man who had never tasted a drop, I do not think it would be possible to differentiate between them. Dr. Berkeley took a large number

of rabbits and fed them with all the alcohol they would stand for seven or eight months, until many of them died of convulsions. He found no process of hardening on examining their brains but he did find changes in the body of the neuron —not changes in the axis cylinder. This was not the result of the staining process, because he made numerous control experiments. I think this indicates the direction in which we should look, because when we are studying neurology we are only studying the function of the neurons, and everything indicates that they may be regarded as so many units, and we can study the symptoms exhibited from that standpoint.

Dr. J. T. Searcy—I refer in my paper to changes by toxins in the neuron, a change in the shape and size of the body, this becoming shrunken, and the processes of the neuron being altered at their extremities.

The changes in the axis cylinders of peripheral nerves are also noted in some conditions like the neuritis of alcohol and peripheral neuritis. The whole subject is still in the beginning of its growth.

Dr. Drake—One of the strictures on my paper seems to be as to my claim that the functional activity of the centers of metabolism was dependent upon the tissues in the brain. This I wish to explain, as I include in the brain everything in the cranial cavity. The ganglionic centers I cousider to be centers which receive their energy from these higher centers. If they receive no reinforcement of energy, then the metabolism ceases, but so long as they are connected by nerve fibers with the higher centers then the process continues. Cut the connection and the process continues for awhile, but as soon as the energy which is already contained in those lower centers is exhausted the metabolism ceases. The heart can pulsate out of the body for awhile by virtue of the energy which is contained in its own ganglion centers. As soon as that energy is expended, it ceases to beat.

Dr. Kleinschmidt, of Washington, D. C.—Hodges has shown very clearly the great influence exerted upon the central nerve cells by excitation of its axis cylinder process, the changes being shown in altered conditions of form, etc. Again, it has been shown, over and over again, by Weigert especially, that normal excitation, if repeated through the cells of the nerve centers, have their influence upon the morphology and undoubtedly also upon the chemistry and molecular structure of the central nerve cells. So that, considering the central nerve cell as the center of energy, we may readily suppose that influence such as cited by the gentleman from New York will have a very decided impression upon the central nerve cell. He held that by a proper mode of educating the brain that had been reduced by disease or intoxication or bad habits, we were able to reproduce by proliferation new central nerve cells. I do not believe that that process has as yet been clearly demonstrated. I do not believe that the central nerve cell, and especially the higher differentiated nerve cell of the cerebral cortex, under any conditions can increase and multiply by proliferation. But there is another way in which we may educate that central mechanism. Taking the studies of the neuron we find that the nerve cell itself adds to its connections and the capacity of the nerve cell is entirely to be measured by the number of connections it can make with other nerve cells, bringing it into nearer connection with the center of the system in which it may be. In this case proper education may lead to a new combination, to increase in the protoplasm processes by which new combinations are brought about, and in that way we gain a greater result. We can not suppose that all nerve cells are equally affected; and all the nerve cells in a single cortex are probably not occupied at one time. Now, if we can increase the metabolism in a nerve cell to such an extent that these processes shall form into wider connections, we therefore improve that nerve cell. I do not think that a cerebral cell once formed can proliferate.

Dr. Charles H. Hughes—I only know of one man who ever maintained that the cerebral cortex cells could be reproduced, and that was John P. Gray, of Utica. The peripheral nervous system can reproduce the central nervous system. I do not think in regard to the question of degeneration, that toxicity is the sole cause of mental aberration in those cases in which insanity appears. I think that we are not yet prepared by any of the later researches to explode the doctrine that insanity is the product of more than one generation; that a morbid aptitude of the cell, or the neuron as we shall have to say now, and we shall have to speak of neurons, neurils, and epi-neurils, in order to be in accord with the progress of modern histologic research—is one of the factors. I do not think that insanity, as a rule, is primarily developed by any form of acute toxicity. It is excited by it, but it resides originally in the morbid aptitude of the psychic center or cell envelope.

I do not believe, however, in the degeneration of the race, that the psychic sense of the average human being is less capable of sustaining pressure; on the contrary, I believe that they are standing more than the same centers in our ancestors and that the tendency of nature is to preserve the type:

"So careful of the type she seems;
So careless of the single germ."

Individuals fall by the wayside, unable to carry the burdens laid upon them, and failing to learn wisdom early in life.

It is the pathologic condition of the center of the cell soil that gives rise to the morbid manifestation. Given a certain influence that acts upon the psychic centers of one individual and his cerebrum sustains it without morbid result. One individual takes alchohol in his blood, and displays no delirium; another takes opium, and displays no delirium; while the third becomes crazy drunk or markedly insane under the influence of either. It is the pathologic condition of the cell that displays the aptitude of degeneracy of habit, and it is the morbid tendency which is the exciting cause.

SARCOMA OF THE CHOROID, A SERIES OF CASES.

Delivered before the Section on Ophthalmology at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5–8, 1896.

BY GEORGE F. FISKE, M.D.

CHICAGO.

Case 1.—M. E. B., architect, age 50, presented himself April 3, 1888, complaining of a cloud in the right eye which followed a severe attack of "catarrhal fever" three weeks before.

O. D. 36 in. Sph., 42 in. Cyl., 90 deg. 5-5 Sz.
O. D. 48 in. Sph., 18 in. Cyl., 90 deg. 5-6 Sz.

In the left eye there were several choroidal plaques in the upper outer periphery, and floating opacities in the vitreous. In the right eye separation of the retina on middle nasal side, extending within 2 mm. of the papilla. Nothing to distinguish it from ordinary separation of the retina. No suspicion of tumor.

Patient gave a history of very close application and was in a highly nervous state. Consultation was had with two other specialists, with no thought of sarcoma. Patient stopped work for two weeks, protected the eyes from light, wore a bandage and remained in bed quite constantly, with no change. He then resumed his work to a certain extent, contrary to advice, and did not return to the writer until June 18, when vision was reduced to perception of light, anterior chamber shallow, tension plus, pain and cyclitis. Diagnosis of sarcoma was made and immediate evisceration of the orbit advised. Patient preferred to go to Europe, where eye was enucleated in Berlin, the middle of July and proved to be a melano-sarcoma, patient dying within six months, result of metastases in the liver; no recurrence at seat of operation.

Case 2.—Mr. G. A., plumber, aged 40, consulted me Oct. 9, 1890, having noticed for five weeks that sight in the right eye was imperfect.

O. D. 0.75 D. Cyl. 90 deg. 5-8 Sz.
O. S. 0.75 D. Cyl. 90 deg. 5-5 Sz.

Examination of the right eye with the ophthalmoscope revealed a small separation of the retina on nasal side, showing the retina pushed forward by a small body, apparently 1 mm.

in diameter, extending diagonally over the papilla, not quite to its center. Diagnosis was made of sarcoma of choroid and immediate enucleation advised.

Patient did nothing for nearly two weeks and then consulted three eminent colleagues, all of whom pronounced the separation as probably not due to a tumor, though one proposed a needle operation for purpose of diagnosis, which was refused. This means that the separation had extended greatly during the two weeks, as there was no question as to the diagnosis October 9. January 19 patient again consulted a colleague, presenting iridocyclitis and a glaucomatous condition. Enucleation was performed Feb. 1, 1891, and a choroidal tumor of 5 mm. in diameter found, of uniformly black color, composed of small spindle cells without reticulum and numerous large pigment cells. Later, patient came again under my observation and remained there for six months. There was no recurrence in the orbit of the sarcoma, but the patient began gradually to fail; six months after the operation, went away for his health and died within eighteen months of "liver trouble." No post-mortem.

Case 3.—Mrs. M. presented herself Sept. 16, 1893, with a history of poor vision in right eye for several months. Vision equals fingers in the outer field at two feet. Separation of the retina involving all but the outer upper and inner upper portion of the retina. Optic nerve not visible. No tension and no iritis or cyclitis. Media clear and the retina apparently pushed forward by a large, dark, rounded mass growing from the outer central portion of the choroid.

Diagnosis: Melano-sarcoma, and I enucleated September 20. The tumor was round, 7 mm. in diameter, not extending to the papilla; composed of spindle cells, round granular and pigment cells. Optic nerve showed no infiltration nor did specimens from the connective tissue of the orbit. Jan. 1, 1896, there had been no recurrence; patient in normal condition.

Case 4.—Mr. E. C., merchant, aged 56, came Nov. 6, 1893, with a history of poor vision in right eye since May 1893. Old corneal scar from blow with a marble at ten years of age. Counts fingers at five feet. Separation of the retina nearly complete, except in upper inner quadrant. Ophthalmoscope reveals a mass reaching nearly to the iris in front growing from the outer upper portion of the field, covered by the retina still showing the retinal vessels. Enucleation advised, with diagnosis of sarcoma of choroid. I operated Nov. 17, 1893, and found tumor of 4 mm. diameter, having its origin 6 mm. from the papilla. Tumor had a very small base, was a spindle-celled sarcoma with some pigment. Patient's condition Jan. 20, 1896, good, health excellent, with no sign of recurrence.

Case 5.—Mr. C. K., business man, age about 48, consulted me November 28, 1893, with the request that I give him a pair of glasses.

O. D. — 1 D. Cyl., 160 deg. 5-6 Sz. Partly.
O. S.—0.50 D. Cyl., 160 deg. 5-5.

The day was rather dark and vision so good that it was only a fixed habit which led me to examine the fundus, when I was greatly surprised to find a small tumor on nasal side near the macula, with retina pushed forward and adherent to the tumor; no separation of the retina extending away from the base of the tumor.

Diagnosis: Sarcoma. The patient lost a brother from carcinoma of the tongue. Patient went to Brooklyn for operation at the hands of a friend who is a specialist and the eye was enucleated Dec. 5, 1893.

The following is the report of the pathologist at the New York Hospital: "The tumor is almost spherical in shape. It originated in the loose connective tissue of the suprachoroidal space and involved the entire choroidal layer and external layer of retina, pigment layer, rods and cones, mebrana limitans externa and extended a short distance on either side in the external molecular layer of the retina, the other layers of the retina are pushed before the tumor and can be recognized as a thin membrane everywhere limiting the tumor in front. Posteriorly it is limited by the sclerotic, which at the point of contact with the tumor is only one-half the normal thickness. The tumor is 7 mm. in diameter. It is estimated that the center of the tumor is 5 mm. from the physiologic excavation. It is composed of spindle cells of medium size, spindle-celled sarcoma, with a minimum amount of basement substance. The vascular supply is quite abundant. There are pigment granules throughout, but it can not be regarded as a melanotic sarcoma. Along the course of one or two of the vessels in the sclerotic coat are numerous round and spindle-form cells, but can not be identified as sarcomatous elements. The optic nerve, dural sheath and external sheath show no evidence of tumor tissue."

Feb. 29, 1896, patient's health perfect; no sign of recurrence.

There are in addition to the above five cases, of which I have been able to give more or less complete histories, two cases in my record books which I have not been able to report; one where the diagnosis was quite certain and whose history I hope to give later, and another where it is a question as to whether there is a tumor under the separation of the retina or not.

Of the above five cases two died, one certainly and the other probably as a result of a recurrence of the sarcoma in other parts of the body. Both cases where death ensued were rapid in progress and had reached the stage of glaucoma and involvement of the ciliary body.

The report is presented for the purpose of a discussion as to the practical questions which present themselves.

1. The question of early diagnosis between the separation of the retina and the separation of the retina which is caused by a tumor behind it.

2. The question as to whether enucleation shall be advised in cases where the diagnosis is not certain.

3. The importance and duty of assisting one another by giving to each patient, in all cases of doubt, i. e., in almost all cases of ablatio retinæ, full notes and sketches for use when patients consult other specialists, which is usually the case.

First, as to diagnosis: This is often easy when the tumor can be seen, or where glaucomatous symptoms or inflammations of the ciliary body, have presented themselves, also where the separation follows extreme myopia, or a blow, or injury, or seasickness. Where the separation is slight and occurs in the upper half of the field, the tendency of the sub-retinal fluid to seek the lowest level will often assist the diagnosis, and in some cases drawing off the fluid with a hollow needle and syringe will clear up the doubt even though the separation is not cured by that means.

The importance of early diagnosis is greatly increased by the fact that these choroidal sarcomas almost always occur as primary and not as metastatic sarcomas. I have not found in the literature a single case of a sarcoma or melano-sarcoma occurring as a metastasis following sarcoma in some other portion of the body. On the other hand, particularly in the case of melano-sarcoma, metastases in other parts of the body following the sarcoma in the eye-ball are very frequent and fatal.

Second, as to indications for an operation in cases of doubt, I would suggest enucleation be advised where: *a*, the vision is irrevocably destroyed and there is doubt as to the presence of a tumor; *b*, where, though there is slight vision present, it is failing rapidly through extension of the separation, and there are no previous examinations by colleagues, excluding the presence of a tumor, with no good reason for excluding it from the history of the case; *c*, where glaucomatous symptoms show themselves or cyclitis or irido-cyclitis.

DERMOID TUMORS OF THE CORNEA.

Read in the Section on Ophthalmology, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8. 1896.

BY ALBERT RUFUS BAKER, M.D.

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Although a number of cases of dermoid tumors of the cornea have been reported from time to time it has seemed to me that a brief report of the only two cases that have come under my observation might be of sufficient interest to claim your attention.

Case 1.—July 1880, Mr. M. G., aged 24, a peculiar growth from the cornea of left eye, protruding between the lids, present since birth, pedunculated, occupying the entire palpebral opening, measuring about one inch in length by one-half inch in breath, and rather thickly studded with stiff black hair. Being pressed together by the eyelids, the tumor presented upon superficial inspection the appearance of a small hair brush instead of an eye. The eyeball was entirely concealed by the growth, but by opening the lids widely and pushing it downward some clear cornea could be seen, and fingers counted. Patient declined operation at that time but returned in 1884. He thought the tumor was growing larger but it seemed to me about the same size as when first seen. An anesthetic was given and the tumor removed without difficulty. It was found to be attached to a little more than half of the cornea at its lower and outer portion, but peeled off smoothly, leaving a transparent cornea beneath.

It extended close up to the sclero-corneal margin but did not encroach much, if any, upon the conjunctiva, with which it seemed to be intimately connected. The portion of the cornea occupied by the tumor became somewhat cloudy for a few days but soon cleared up excepting a small line running in a semicircle across the cornea, marking the point of attachment; vision fairly good; is able to read ordinary book print.

Case 2.—July 15, 1893, Miss A. P., aged 17, three small flat dermoid tumors of cornea of left eye. Two of them were on the outer sclero-corneal margin and each about one-third the diameter of the cornea: the other a small one consisting of a fine line extending perpendicularly across the pupillary area almost at the center of the cornea. The three tumors were all separated by clear cornea. They had the appearance of ordinary integument with a slightly pinkish tinge. Present since birth and no increase in size. Patient was seen by Dr. C. R. Agnew in 1877. It seems to me that I have seen a report of the case by Dr. Agnew, but I have been unable to find it in the literature at my command. Under a general anesthetic I dissected off the tumors. Was very glad I gave a general anesthetic at the urgent solicitation of the patient because of the free hemorrhage which would have embarrassed me very much with cocain alone. The case made an uneventful recovery, but with much more opacity of the cornea than I had hoped, judging from my experience with the other case. There was a high degree of hypermetropic astigmatism and with full correction vision was only brought up to 20-200 S.

Ryba[1] in 1853 collected twenty-seven cases that had been reported up to that time in human eyes; three in oxen's and four in dogs' eyes. Mr. Dixon[2] reported a case of dermoid tumor the size of a hazel nut upon the lower part of the cornea and sclerotic of a little girl. The tumor was removed and found to be white, smooth and hard. The cornea after removal was transparent but in three or four days became white and opaque.

Cases have been reported by Graefe;[3] Virchow,[4] Arlt,[5] Taleferro,[6] Hulke,[7] Wells,[8] Labrum,[9] Cooper,[10] Strawbridge,[11] Risley,[12] Roberts,[13] Fuchs,[14] Brose,[15] and others.

Ammon[16] reports a case of coloboma of eyelids in which a dermoid tumor of the cornea filled the gap.

Mr. Swanzy[17] gives detail of a case he observed under the care of Von Graefe. The tumor was very large and was removed by Graefe. It occupied the whole of the depth of the cornea. The anterior chamber was opened and considerable vitreous escaped.

Milvalsky[18] (Prague) reports two cases of dermoid tumors of the eyeball. The paper is published in Cezechesh with a résumé in French. The author has reviewed the literature on the subject very carefully and has found recorded seventy-five cases of dermoid tumors of the eye-ball. Seven of these he calls atypical, being connected with the eyelids. Five of the cases were entirely corneal, and twelve were situated on the sclerotic and fifty-one were placed partly on the sclerotic.

"The relation of these tumors to the conjunctiva varied. In some the conjunctiva seemed to be replaced by the tumor tissue; in others it covered the surface of the latter, while in most instances a portion of the growth was apparently covered by conjunctiva, while the remainder exhibited on the surface a pavement epithelium, papilla, hair follicles and fine hair. The cystic form or closed dermoid is never met with in the eye."

A review of the preceding cases seem to show that they are all congenital; a few may be located on the cornea alone, a few on the sclerotic but the largest number involved both structures and are found most frequently at the outer and lower sclero-corneal margin.

Van Dusyse's[19] ingenious theory as to the origin of these tumors is not generally accepted, namely, that the amnion was at one time united and through constriction and separation, there remained at the original point of contact amniotic cells from which later the dermoid cysts developed." A more reasonable explanation is the one generally accepted as to the etiology of dermoid growths in other parts of the body, *i.e.* an inversion of the epiblast during embryonic existence, an islet deposit of cells, which makes skin, sebaceous glands and hair follicle.

Little need be said as to treatment. Removal for cosmetic purposes is usually desirable. Notwithstanding Von Graefe's unfortunate experience the danger of penetrating the eyeball is slight. It does not seem to me that cauterizing the wound as recommended by most writers is necessary, and may only add to the amount of opacity present upon recovery. The same objection is true with regard to the advisability of covering the surface of cornea exposed with conjunctiva, recommended by some writers.

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DISCUSSION.

Dr. ADELAIDE E. PORTMAN, Washington—From the situation it can be readily understood why it is so serious in removal as it involves the whole depth of the cornea and the sclerotic, removal causing results to visual acuteness. Hirschberg reports a case, in a girl of 17, of enormous size in which the result was vision of normal acuteness.

Dr. J. A. WHITE, Richmond—I reported a case of dermoid growth of the cornea in a man some years ago. The growth was so large as to prevent closure of the lids, the cornea being entirely covered and the sight in consequence abolished. It had begun at the corneal margin some ten years previously and gradually overspread the cornea in which by pressure it had produced ulceration, followed by cicatricial adhesions over one-third of its surface. Its removal was followed by favorable healing, the cornea cleared and subsequently the eyesight became nearly normal. This tumor was not congenital but was shown by the microscope to be a dermoid growth.

Dr. D. S. REYNOLDS, Louisville—The technique of the operation is vastly more important than the study of the comparative

rarity of dermoid growths of the cornea. Any growth of this kind which invades the sclerotica must make any attempt at complete removal fatal to vision by the inevitable cyclitis which ensues. A comparatively large growth located entirely in the cornea may be safely removed. In the case of a man who lost the fellow eye, I removed a large dermoid tumor of the cornea, closing the wound by the Lembert suture, with the result of restoring such useful vision as enabled the man to go about alone. If the sutures penetrate the whole thickness of the cornea the openings through which the sutures pass will continuously drain away the aqueous humor, keeping the sutures so long in contact with the surface of the iris as to lead to its fatal inflammation.

WATER.

BY I. N. LOVE, M.D.
ST. LOUIS, MO.

In searching for the striking and unusual we often overlook that which is trite and commonplace to our detriment. Nowhere is this more true than in the practice of medicine. I believe that we are, safe not only as teachers in medicine but among ourselves, in laying stress upon the importance of using the simplest possible means for gaining a given end. The neophyte is not the only one who seeks for the unusual, for the formidable, as a means to an end and overlooks that which is near his hand. Indeed, all of us are prone to err in the same direction. As a profession we need to call a halt, ever and anon to get down off of our stepladder in our search for the unattainable, to come down to terra firma and use the things that nature has given us. Drugs, drugs, drugs, seem to be the chief inspiration in the life work of too many medical men, and in these modern days we must have a care in our use of animal therapy, for we know not as yet but what this form of medicine is quite as dangerous, if not more so, than the articles belonging to the mineral and vegetable kingdom; the drugs of which Oliver Wendell Holmes very truly said, "That the world at large would be better if they were all thrown into the sea," but the fishes would more than likely cease to be, as a result of the dumping.

Water, which is everywhere near at hand, ready for use, is one of the most important remedial measures we can bring into play. The hydropaths, who for long were looked upon as fanatics, have done humanity and the medical profession a service, in that they have demonstrated the great value of water. However, the fanatic in the use of one remedy oftentimes is in danger of denying his patient remedies of value that would work in harmony with his special hobby. Surely, when we recall the fact that more than 75 per cent. of the whole make-up of the human body (including every tissue of the same) is water, we can appreciate its importance. It has been demonstrated, time out of mind, that while water fulfills many other subsidiary offices, it is essential for the occurrence of molecular change, or mobility—the essence of the manifestations of life. In the absence of water a state of molecular rest (which means the absence of activity) prevails.

It goes without saying, that water in some shape or other, is one of the essential conditions of life and just as essential as solid matter, it not only entering into a constitution of every part of the body, but is required for various purposes in the performance of the operations of life. Without it there could be no circulation or mobility of any kind. "It forms the liquid element of the secretions through the medium of dissolving and enabling the digested food to pass into the system and the effete products to pass out; a constant ingress and egress are occuring, and the former requires to stand in proper adjustment to the latter. The demands for water are effected by the amount of muscular exercise and the degree of temperature to which the individual is exposed, as in both conditions the loss through the skin as well as through the lungs is greatly increased." It has been a popular impression for long that the drinking of water with the meals interferes with digestion in diluting the gastric juice, and as a result of this notion, the public have largely refrained from drinking water with their meals. Pavey well says that it is a mistaken notion to think that when we drink with a meal we are diluting the gastric juice. The act of secretion is excited by the arrival of the meal into the stomach, and the gastric juice is not there at the time of ingestion. It happens indeed that the absorption of fluid takes place with great activity and the liquid drunk during the meal (unless the quantity be very great) becoming absorbed may be looked upon as proving advantageous by afterward contributing to yield the gastric juice which is required.

For an irritable stomach or an attack of so-called bilious colic, nothing is superior to liberal quantities of hot water as pure as possible. The first amount administered may be rejected, but if so, it accomplishes the washing out of the stomach. If the drinking be persisted in, a large quantity will be retained and finally a relaxation of the pyloric orifice of the stomach will occur, and the water will pass freely into the smaller bowel, relaxing and stimulating secretion as it goes. The intense pain of these attacks can often be promptly relieved and if helped by the addition of hot water applied over the stomach and bowels, through the medium of cloths saturated with the same, and occasionally sprinkled with small quantities of turpentine, which acts as a counter irritant. In the majority of cases the stereotyped administration of morphin by injection, is uncalled for. Indeed we are safe in saying that in the bulk of the attacks of acute indigestion and intense pain resulting therefrom, we had better relieve the condition in the simple manner suggested, rather than apply remedies which deaden pain, check secretion and retard convalescence, and frequently mask the preliminary symptoms of a dangerous disease. Nothing will more promptly relieve a patient's suffering from the after-effects of a banquet or midnight dinner, where the victim has possibly tarried with and looked too long upon the wine which is red (and white wine too for that matter) resulting in the dark brown taste and that terribly different feeling in the morning, than the imbibition of large quantities of hot water. The instruction to drink one or two pints of extremely hot pure water, prior to rising and sandwiching in between the various glasses a cup of black coffee, without cream or sugar, will give us a good result. The hot water washes out the stomach from above downward, stimulates the activity of the excretory glands, soothes and tranquilizes the nervous system, which is thoroughly on edge, and the black coffee administered in the manner suggested, meets the necessities of the hungering and the exhausted nerve centers, serves as a disinfectant for the alimentary

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canal and encourages diuresis. The injuction to abstain from food for several hours, will as a rule make our patient all right and in good shape for a a hearty mid-day meal.

While it is true that water does not in itself undergo any chemic alteration and hence is not susceptible of liberating force, does not in other words, constitute a force-producing agent, yet it contributes to chemic change by supplying a necessary condition for its occurrence in other bodies. In other words the proper metabolism of tissues, the entire scheme of nutrition, depends upon water. Not only do we need water then for the proper accomplishment of nutrition and as an element of food, but we need it for eliminating purposes. Pavey has stated that it may be reckoned that we receive from about fifteen to twenty-five ounces of fluid into the system mixed with solid food that is consumed and, besides this, it is advisable that about sixty to seventy ounces and even in some cases as much more should be taken. The average amount of urine passed daily may be said to be fifty ounces and there is considerable loss of fluid through the skin and lungs. To meet this waste by elimination, compensation must be affected by a corresponding amount of liquid; as long as the fluid taken is devoid of noxious properties a free supply must be regarded as beneficial, forming as it does, a means of carrying off impurities from the system. Pavey further says he believes that the benefit derivable from a course of water treatment is often in a great measure due to this cause. Water then, taken in free quantities acts as a purifier of the system, flushing as it were the animated system of sewerage, dissolving out poisonous materials and waste products of the body, which otherwise might be accumulated. For instance it is well known that uric acid, a very important factor in gouty conditions, requires a large amount of water to render it sufficiently soluble to be carried out of the system. For fully fifteen years I have been impressed with the thought that the majority of people, sick and well drink an insufficiency of water. I would advise the establishment of the water drinking habit on the part of children from the beginning, through life. And as each year passes, I have been more and more convinced of the correctness of this position. It is the universal observation that thin people are scant water drinkers and a change of habit in this regard often results in an improvement quite manifest. Then again we will observe that the fat and well-fed looking ones are uniformly liberal water drinkers. We have then in this, evidence of the fact that a free supply of water improves nutrition. Furthermore, the one who does not drink water, often has a dark, swarthy, so-called bilious complexion, inactivity of secretion, manifested in the appearance of the face; whereas the water drinker has a clear, healthy complexion, suggestive of the fact that secretion is active and that the poisons due to waste are not retained and stored up in the system. We can not impress too forcibly upon the young and particularly the female devotees of society, that the greatest improver of the complexion which they can have, is the free use of water internally and externally. Surely if the general conditions of those who are supposedly well are improved, it follows that those attacked by disease in any form, will be the better for the free use of water. When medicine is administered, it should be accompanied or followed by as large a quantity of water as may be retained by the patient. Prompt solution, absorption, action and elimination of the medicine will be the result.

For years, in the management of my typhoid fever patients, as well as most other diseases, I have insisted upon the drinking of a liberal quantity of water, endorsing by my practice the course of Debove, who administers almost to the exclusion of all drugs in typhoid fever from four to eight ounces of cold water, every two or three hours when awake, to wash out the poisons from the system. The free secretion which follows its use, comforts the patient in every way and undoubtedly serves as a reducer of temperature. This internal use of water accompanied by its proper external application almost excludes medicine from the field, though it has been my custom for years, not less than ten, to use infinitesimal doses of the mild chlorid, eucalyptol, menthol and oil of gaultheria, for a gentle stimulant to excretion and local antisepsis for the alimentary canal, preferring always to have the bowels gently open with a view to eliminating all poisonous matters rather than a constipated or tied-up condition of the alimentary canal, with a consequent retention of poisons. In this connection permit me to say, as I have repeatedly said in debate, that the views and treatment of my friend, Dr. Woodbridge of Ohio, are in no way new, nor are they original. They are simply the application of the accepted antiseptic and gentle eliminating treatment of typhoid fever. I will grant that the extravagant manner of his presentation of the subject has resulted in a more general dissemination of the advantages of this treatment, but this is more than offset by the absurd position taken by him in stating that under this treatment he allows a complete recklessness in the matter of food and exercise. I know Dr. Woodbridge is honest, but I know furthermore as well as I know anything, that he is mistaken in his conception of typhoid fever, and many of his cases reported as such, have never been made acquainted in the remotest way with Eberth's bacillus, the causative factor.

It is well known that there is no solvent which will remove poisonous materials, such as uric acid (the exciting cause of gout) and many other poisons from the system, so readly and completely as absolutely pure water. Indeed, the temperature-reducing and gland-stimulating affect of copious water drinking has been utilized for many years, and more recently by Meigs, Cantani, Dujardin-Beaumetz, Debove and Sahli.

Cantani is a great believer in the reduction of temperature slowly but surely by the regular drinking of large quantities of water. Indeed, he believes in the liberal introduction of it into the alimentary canal from both directions.

Dujardin-Beaumetz, no better authority in the world, promotes diuresis, or elimination or washing out of the products of organic disintegration (or waste) in disease by copious drinking of water.

Debove administers, almost to the exclusion of all drugs, in typhoid fever, six ounces of cold water every two hours to wash out the poisons from the system.

Simon Baruch of New York, one of the highest authorities upon hydrotherapy and value of water enjoined as a remedial agent, endorses the use of water by those whose names have just been cited, and even goes further.

Every authority will sustain the thought that the

purer the water, the more complete the elimination and more satisfactory the result in every way.

Let it be remembered that to Dr. James Curry of Liverpool belongs the credit of first using the cold water treatment in a systematic way in fevers. He employed as a rule cold effusions frequently and occasionally cold baths. His method was adopted by many physicians and soon came into extensive use both in England and on the Continent in the treatment of many febrile affections and especially in the management of typhus, typhoid and scarlet fever. It gradually fell into neglect, like many other excellent therapeutic medicines, and was for a long time almost forgotten. Dr. Ernest Brand of Stettin revived the cold water treatment of fevers in 1868 and the method came rapidly into use in Germany, Austria and Switzerland. This history of the application of cold water bears out the thought that in these modern times, that many measures which have their seeming origin in Germany are more readily accepted and popularized than if coming from other directions. There are many objections that can be presented to the extreme application of cold baths, as was the rule with Brand, the modification of Ziemssen being much to be preferred. Ziemssen recommended the introduction of the patient into water having a temperature of ninety-five degrees, then cold water to be gradually reduced to seventy-five degrees Fahrenheit, or even below. This method is much less apt to produce shock, and the pleasantness of the procedure is such as to render it much more acceptable to the patient and attendants. To secure the same reduction of temperature to the patient a longer time is necessary for the bath. The placing of a sensitive or nervous patient into an ice cold bath skirts the border line of the brutal and is to be condemned, except in rare cases. This method is certainly to be condemned in the fevers of children. Sponging of the surfaces with cold or tepid water in which a little alcohol or aromatic vinegar has been placed is often very comforting and soothing to the patient. It does not reduce the temperature to any very remarkable degree but has a cleansing effect on the skin and stimulates its activity, and is for that reason oftentimes a great advantage.

I am convinced that experience in the application of water in the treatment of fevers will endorse many of the conclusions of Brand, Ziemssen, Hare, Vouveret, Winternitz, Dujardin-Beaumetz, Vogl, Peabody, Austin Flint, Simon Baruch, to the effect that it is not only valuable as a reducer of temperature but as a stimulant and a helper in the direction of elimination and a tranquilizer and securer of rest and an aider in the digestive and assimilative processes essential to repair. He who had ever seen a patient almost unmanageable with the delirium of high fever or the convulsions of childhood dependent upon fever, promptly relieved by a cool bath followed by restful sleep, can not require further argument. Indeed, I believe that no one in the profession would deny that the utility of water used judiciously in this way, has been absolutely proven.

The hot bath as applied to children suddenly taken with convulsions is often misapplied. When we recall the fact that convulsions are more frequently produced by high temperature than any other cause, we can readily see the objection to extremely hot water baths. Before being used the temperature should always be reduced and if it be used, the bath should be comfortably warm and cold water gradually added. However, the hot water bath in many conditions in childhood is of great service in the treatment of those who are sick, particularly in its cleansing effect upon the skin, rendering the excretory appendages of the skin more active. It serves admirably as a tranquilizer, producing restful sleep when applied immediately before retiring, to victims who are sufferers from insomnia and restlessness.

We all know the value of hot water when applied locally to inflammations. Recalling the parboiled, shriveled, whitened look of the washwoman, whose hands remain in hot water long, we can readily understand that the hot water drives the blood from the inflamed tissues and gives great relief to the pain, as well as removing the trouble permanently. Racking headaches can often be relieved magically, as any lover of the luxury of a graceful barber and a comfortable barber's chair can testify, by the application of towels rung out in boiling water and laid across the forehead, eyes and part of the head which seems to be most affected. Apparent suffocation and complete stenosis accompanying diphtheria and acute laryngitis is often relieved very satisfactorily by a liberal application for a few hours of cloths wrung out of hot water to the external parts.

Liberal poulticing with soft cloths saturated with almost boiling water are cleaner and in every way to be preferred to flaxseed, bread and milk poultices, and other filthy abominations.

THE TREATMENT OF DIPHTHERIA.

BY DOWLING BENJAMIN, M.D.
CAMDEN, N. J.

To thread one's way through the enormous and conflicting mass of statistics that have been published in regard to the treatment of diphtheria by means of antitoxin, or serum therapy, is an undertaking to appall the stoutest heart.

By patience and application we may observe a few facts, however, standing prominently and seemingly substantial enough to remain as useful monuments to guide us through the wilderness of uncertainties to some safe vantage ground.

THE RESULTS IN PRIVATE PRACTICE.

A study of the results of the antitoxin treatment in private practice presents much greater difficulties, for obvious reasons, than does the study of the same subject in institutional practice.

Exactly what the results have been can not be ascertained, as it is not possible to obtain the personal and private statistics of each individual physician as to its results and his death rate; nor would it be wise, since such results might do injustice to thoroughly competent men. If results are particularly good, however, occasionally an individual practitioner will publish such, which seems to be the only way we can obtain them.

The limits of this paper would not permit the quoting of each of the publications by private practitioners, giving the results of their individual practice. The introduction of a few, however, will be necessary. In the present enormous amount of literature and reports on the subject, the results obtained by any one man in private practice can have but little effect on the question.

One year ago, Dr Rosenthal of Philadelphia, in a paper read at the meeting of the Medical Society of

the State of Pennsylvania, arrived at the following conclusions: "Antitoxin is a specific for diphtheria. In early cases, those seen one or two days after infection, no death rate should be recorded. In laryngeal diphtheria, the so-called membraneous croup, antitoxin is especially indicated. It should be used in every stage and at any date of the disease, no matter how late we see the case. Its influence can be proven, for cases of laryngeal diphtheria perish from suffocation long before any toxic symptoms can be manifested." For that reason he strongly urges the necessity of prompt intubation when indicated, even if before the injection of antitoxin.

Regarding the use of antitoxin, he says: "Do not delay or hesitate in this disease because the case is not so bad, or because it might get well without, but use it at once: the earlier it is used, the more certain its success."

This and similar sentiments from other sources, and the very logical character of the theory of antitoxin treatment, based as it was on laboratory experiences, necessarily made an impression upon thinking physicians, and Dr. Rosenthal was not alone in this radical and sweeping position. It represented pretty fairly the sentiments of the writers on antitoxin during the winter of 1894-5.

Three days ago I wrote to a leading antitoxin firm to send me the latest data in favor of antitoxin, as I wished to use it in a paper.

This recent literature received consisted of a reprint from the *Atlantic Medical Weekly* for March 21, 1896. In this paper Dr. Rosenthal says, in speaking of the number of cases treated with antitoxin, "I have treated seventy-eight cases of diphtheria with but two deaths."

It is important to state, however, that Dr. Rosenthal has found that mercury is equally as good a specific for diphtheria as antitoxin, according to the *Medical and Surgical Reporter* of June 13, 1896, for at the Philadelphia County Society's stated meeting May 27, 1896: "Dr. Rosenthal said that *before* the advent of the antitoxin he had *always* considered mercury a *specific* for diphtheria. As early as 1885 he had given calomel in diphtheria but in rather larger doses than had Dr. Flick."

In laryngeal diphtheria he has given as high as five grains every hour—in fact, he has given as high as 120 grains to a child five years old, in twenty-four hours, nor did he notice that the child showed any of the physiologic action of the calomel. He was led to believe that to ptyalise a child who suffered from diphtheria was an impossibility, and he not only gave such large doses of calomel to these children, but he has used at the same time corrosive sublimate in enormous quantities, having introduced 1-500 solutions into the child's nostrils, and swabbing out the fauces with it, probably introducing into the body of the child about a grain of corrosive sublimate, inside of twenty-four hours.

If the doctor had deaths occur under the above treatment I believe he would have said so, as it was a vital point at the time, just as important as to state the death rate under antitoxin, and if he has treated seventy-two cases since the advent of antitoxin, he must have treated a great many more before, with as good or better results, or we will have to leave his evidence out altogether.

Dr. S. S. Haldeman, of Portsmouth, Ohio, in a paper read before the Ohio Medical Society, on May 28, 1896, says:

"I have had an experience of eight months in the treatment of diphtheria with antitoxin, embracing the administration of the remedy to seventy cases of the disease, several of them bacteriologically examined, and all presenting the usual well marked signs and symptoms of the disease, and occurring during an epidemic of a severe type, characterized by a high rate of mortality where the antitoxin was not employed in the treatment, without losing a case treated."

He used it for the purpose of immunizing in twenty-seven cases that had been exposed to the disease, with the desired result of preventing it in all but three cases. In these, the disease began before the end of the third day after immunization.

He also stated: "That in a child five years old he had used the antitoxin for the prevention of the disease, the child being perfectly well. The child died in four minutes. Other children injected at the same time were not injured by the antitoxin." He says: "As to the cause of the fatal result, it is not clear to my mind." He said further: "The wide adoption of antitoxin as a remedy in diphtheria enables one to draw some useful conclusions as to its value. Yet I speak with some caution and reserve, with my limited experience of the remedy, and the results in my own practice have led me to wonder if it were really the treatment with antitoxin, or the non-employment of remedies, such as chlorate of potassium internally, and the local irritants to the diseased parts, that had something to do with the uniform and rapid recovery of my cases."

"Usually in conjunction with the injection of antitoxin, I would give calomel freely, and a prescription combining a few drops of tincture of ferric chlorid in glycerin and syrup, to be given hourly." "After exfoliation of the membrane and the subsidence of fever, I would give small doses of quinin and strychnia every four hours, to a child one year old, and order this continued for not less than three or four weeks. Of the various local applications administered, I think most of that of Professor Loeffler. For a young child I have diluted the solution with alcohol and water, and directed that the mouth be swabbed out with this preparation, but in the case of older children and adults would advise the use of the solution in full strength. The preparation consists of menthol, 2½ drams dissolved in 9 drams of toluol, one dram liq. ferri. chlorid, and alcohol, 2 ounces."

He used local disinfectants to prevent or limit the growth of bacteria in the throat and supporting treatment. He had but one case with laryngo-stenosis.

Query: Which one or two of the above remedies cured the disease?

It is well to remember that Professor Loeffler cured seventy-one consecutive cases of genuine diphtheria in 1894 with the same remedies that Dr. Haldeman used (except the antitoxin), during an epidemic, the general mortality of which was 28 per cent. (See Loeffler's report at the 8th International Congress of Hygiene and Demography, held at Budapest, Sept. 1894.)

THE USE OF ANTITOXIN IN GENERAL PRACTICE IN CAMDEN.

Since the introduction of antitoxin, July 5, 1894, (it is claimed by Dr. Robinson) it has not been very extensively used in Camden. As far as I can learn the number of cases in which it has been used would not

exceed one hundred, and by quite a number of physicians.

Last May Dr. McAllister reported, in private practice, ten cases with two deaths, or 20 per cent., and at West Jersey Orphanage, nineteen cases with no deaths.

Dr. O. W. Bramer has had thirty cases of diphtheria treated with tincture chlorid of iron internally, and local antiseptic sprays of creolin without a death. He tried antitoxin in three cases, no worse than some of the others, with one death, a mortality of 33 per cent.

One means of ascertaining the results of the new treatment outside of hospitals, that we can use at present, is to take the general returns of the disease from all sources of private practice, ascertain the mortality and compare with an equal number of cases returned by private practitioners, not using antitoxin, and ascertain the death rate. In this method, however, there are two sources of error. One is the difficulty in knowing to what extent the antitoxin has been in general use, and in ascertaining whether the two sets of cases were in all respects sufficiently similar as to the prevailing type of the disease and their environment. All the official returns available, however, are composed of both private and institutional practice, no attempt being made by the boards of health to keep separate lists.

The results of treatment in 10,240 cases of diphtheria in the German hospitals and in private practice were recently reported to the Society for Internal Medicine by Professor Ulenburg. Of this number 5,790 were treated with the antitoxin serum, with 552 deaths, a mortality of 9.5 per cent. for all ages; 4,450 were treated by other methods with 652 deaths, a mortality of 14.7 per cent.

The German government is interested in the sale of antitoxin, and most of these statistics are prepared by government officials. It should be noted that most all the literature on the subject is being furnished to the profession by manufacturers and importers of antitoxin and I am sorry to find they sometimes leave out unfavorable reports, as I have ample proof.

It is worthy of note that foreign statistics, especially the institutional, are so different from ours in their results that there can hardly be any comparison. For instance, the high mortality averaging from 50 to 75 per cent. claimed by European hospitals to have been their rate previous to the antitoxin treatment, is something an American practitioner can not understand. Either Europe must be a very unhealthy place, or the professional skill is not equal to the American. Their standard text-books have never made such statements of mortality.

The most decided and brilliant test of antitoxin, and the most favorable so far, seems to have been the one reported by Dr. Otto Katz of results obtained in the Kaiser und Kaiserin Friedrich Kinder-Krankenhaus of Berlin with Schering's antitoxin, in a paper read before the Berlin Medical Society, June 27, 1894. From January 1, until March 14, 1894, the date when the new treatment was begun, there were in 86 cases, 38 deaths, a mortality of 41.8 per cent.

From March 14 to June 20, 128 diphtheritic children were treated with antitoxin, with 17 deaths. In every case Löffler bacillus was demonstrated by means of blood serum culture. Now, if we add to this 13 per cent. the six moribund cases that were received at the hospital at the same time, it would give us a mortality of 19.21 per cent., as against 41.8. The above are the celebrated "brutal figures" which converted Professor Virchow.

The other treatment has remained the same that it was before the injection method was introduced. Local applications, sprays and salves were used as before. Tracheotomy or intubation was done for the same indications. When the antitoxin ran out in July in this institution the mortality rose to its usual high average and fell again on the renewal of the antitoxin treatment, *but the average of deaths* per year in proportion to population *is no less* than it was before the advent of antitoxin, though the remedy is said to be in pretty general use in Berlin.

To return to the United States: In Boston, during the year 1895, antitoxin period, 588 deaths occurred, or 11 for every 10,000 inhabitants. For fourteen years preceding the antitoxin treatment the average mortality per 10,000 of population was 9. In New York, antitoxin treatment 1894-95, 3,993, or 10 deaths for every 10,000 inhabitants. During the fourteen years preceding the antitoxin treatment the deaths averaged each year 10 per every 10,000 inhabitants, which is about the same as it was after the introduction of antitoxin. The same is true of Brooklyn. There were 1,139 deaths from diphtheria in Brooklyn during 1895, or 10 for every 10,000 inhabitants. In 1890, before the antitoxin treatment, there were 902 deaths, which is 10 per every 10,000 inhabitants. These statistics are from official returns of the health department.

In Camden, N. J. (from official records):

Year.	Cases.	Died.	Death rate, Per cent.	Rate per 10,000 inhabitants.
1893	285	66	23	16.60
1894	314	61	16	10.10
1895	168	29	18	4.50 (antitoxin)
1896, to June 15	117	20	18	6.40

HOSPITALS.

In the Boston, New York and Philadelphia Municipal Hospitals, antitoxin has been applied thoroughly for a year. It would be fair to presume that more light cases were sent to the hospitals since the advent of antitoxin than before, as physicians have improved greatly in the last two years in their habit of sending to the health officers notice of their cases. They more fully appreciate the importance of the matter, and health authorities have more vigorously enforced the ordinances. The returns have improved in Camden since the board of health proceeded against several physicians, and such is the case in all the large and progressive cities.

In Berlin, after two doctors were arrested and punished the returns doubled. For a generation the law has been, that all deaths must be returned before burial, but for various well known reasons many cases were not reported, unless likely to die or malignant.

BOSTON CITY HOSPITAL.

Year.	Cases.	Deaths.	Per cent.	
1892	387	185	47.80	
1893	419	203	48.44	
1894	598	266	44.48	
1895	1,566	207	13.21	(antitoxin)

WILLARD PARKER HOSPITAL, NEW YORK.

1888	258	60	23.25	
1889	383	79	20.62	
1890	292	67	22.94	
1891	289	85	29.41	
1892	295	79	26.77	
1893	343	108	31.41	

Year.	Cases.	Deaths.	Per cent.	
1894	699	205	29.32	(antitoxin thoroughly used)
1895	778	190	24.42	"
1896 to May 1	251	58	23.10	"

The death rate at the Willard Parker Hospital was lower in 1889 and 1890 without antitoxin than it was under the antitoxin treatment carefully applied for over a year.

I have visited New York for the purpose of investigating the subject. I find Dr. Winters of the Willard Parker Hospital has carefully investigated and verifies these statements. His impression is that 38 per cent. mortality would fairly represent the actual mortality of Willard Parker Hospital at the present time under serum therapy, if patients who have clinic evidence of diphtheria were subjected to this treatment to the exclusion and elimination of those cases which have no clinic data to warrant the diagnosis of diphtheria. This was the percentage found by Dr. Ewing in such cases in that hospital. In laryngeal cases the mortality is 70 per cent. in this hospital, while in Geneva it is 49 without antitoxin. In the University College Hospital, London, it was 47 per cent. without antitoxin. In Philadelphia Municipal it is 52 per cent.

I have anxiously awaited the criticisms by Dr. J. W. Brannen of the Willard Parker Hospital in regard to the statements and figures given by Dr. Joseph P. Winters (already quoted by me) before the New York Academy of Medicine May 21, 1896, and I expected that he would be able to show many important defects in Dr. Winter's statistics, but I really find that while he deprecates the unfortunate position in which Dr. Winter places the hospital and discusses some of the subordinate issues and even goes so far as Japan for testimony, that he makes no perceptible impression whatever upon the elaborate paper of Dr. Winters, whose figures seem like the Rock of Gibraltar to stand firm and unscathed after the assault. The plain fact remains that the antitoxin treatment has not lowered the death rate, at least in that institution. Nor was *early* treatment by antitoxin better than *early* treatment by other antiseptic practice.

MUNICIPAL HOSPITAL, PHILADELPHIA.

Results for 1895 were as follows: Treated with antitoxin 302, deaths 85, rate 28.14 per cent.; treated without antitoxin 404, deaths 105, rate 25.99 per cent.; of the 302 antitoxin cases 51 were intubated, with 27 deaths, 52.94 per cent.; of the 404 non-antitoxin cases 71 were intubated, with 40 deaths, 56.33 per cent.; in favor of antitoxin 3.39 per cent.; of the antitoxin cases 16.88 per cent. were intubated; of the non-antitoxin cases 17.57 per cent. were intubated; in nearly all the cases peroxid of hydrogen was used as a spray locally; in the 404 non-antitoxin cases tinct. ferri chlor. and hyd. bichlor. were used internally; in the 302 antitoxin cases tinct. ferri chlor. was used. The death rate was therefore higher with antitoxin.

LONDON HOSPITALS.

In the Northwestern and Southwestern Hospitals: 1892, 1893, 1894, cases 4,672, deaths 1,187, per cent. 25.4; in all the hospitals, 1895 (antitoxin) cases 2,182, deaths, 615, per cent. 28.1.

What is embodied in the foregoing in regard to antitoxin as a therapentic agent must arouse in thinking minds a number of reflections. No subject since the earliest dawn of medical science has been so thoroughly and extensively investigated in so short a time as has the use of antitoxin in diphtheria. This is gratifying, for it shows that the science of medicine has emerged from its puerile stage and is advancing to maturity and accuracy. By the enthusiastic and universal application of this method by the profession throughout the world we can settle in one year a question that would have taken 100 years by the slow progress of a few generations ago. Electric transmission of intelligence and statistics have shortened periods of investigation at least 99 per cent.

The results of treatment without antitoxin in the United States seems to be better than in Europe. The results with antitoxin in this country have not been nearly so favorable as have those reported from Europe. The fact is, is that nearly all the instances where antitoxin has been used it has not been relied upon exclusively, but other treatments of the most important and powerful character have been used at the same time.

It is worthy of remark that in all cases where good results have been obtained, antiseptics or disinfectants have been applied to the throat and mucous membrane. With all the mass of accumulated facts, experiences and figures, we will have to wait another year before the question of the value of antitoxin can be fairly and conclusively settled.

To discuss the value of antitoxin as an immunizer would require an amount of space, statistics and time which would make this paper too long. Suffice it to say on this subject, from what I can gather from a fair and impartial investigation of the subject it appears that antitoxin does immunize in the majority of cases, but not longer than about thirty days.

It does not destroy the bacilli of diphtheria at all They seem to remain in the throat the usual length of time, a constant source of danger to other persons, unless local antiseptics be used. Antitoxin is not an antiseptic, you can cultivate the bacilli in it.

A number of cases are on record where antitoxin has been injected as an immunizer, or to cure patients, and has caused their death. These are not sufficiently numerous, however, to forbid its use, provided its claims as a curative agent can be established, as the deaths occasionally occurring from the use of ether are not a sufficient argument to lay it aside as an anesthetic, and there is good reason to believe that carbolic acid or some other foreign substance in the antitoxin has been the cause of these accidents. Nor is there a decided difference in sequelæ.

The theory of the antitoxin treatment appears to be perfect and the treatment seems satisfactory in the laboratory; I have always been a student of the microbe pathology and I still have high hopes of the success of antitoxin; but as Professor Virchow has stated, "Every consideration and theory must give way to the mere brute force of figures;" and there does not appear to be quite enough figures, as yet.

We are no doubt so familiar with the early statistics which came from abroad, inducing the extensive trial of antitoxin in this country, statistics of a very favorable character, during the latter part of 1894 and the early part of 1895, that I have naturally not encumbered this paper with them; as after a year's trial, the latest results are the only figures of real interest and importance, and they do not seem so favorable as we would have wished for. I do not wish to be classed as a partisan in this matter, I am simply an earnest seeker after truth, trying to find the real value of a remedy.

I have great confidence in the results obtained at the Municipal Hospital in Philadelphia, owing to my personal knowledge of the carefulness of Dr. Welch, the physician in charge. I have been using the streptococcus antitoxin in cases that have been brought into the Cooper Hospital with puerperal septicemia but am not yet ready to report on the results.

THE ANTISEPTIC TREATMENT OF DIPHTHERIA.

Nothing could be of more practical value in the science of medicine than results obtained by a physician in general practice and ripe experience upon a common disease, after fifteen or twenty years of careful practice and close observation; I wish to lay before you a presentation of what I consider the antiseptic method of treatment as applied to diphtheria.

In 1877 in my graduating thesis at the University of Pennsylvania (which received honorable mention from that institution) I wrote as follows:

"The evidence that disease may be caused by germs, or at least in some instances, amounts to demonstration; and it should be recollected that low organisms split up their nutrient matter, or pabulum, into new compounds, which in many instances have a powerful effect upon the human system, and may disturb their functions as long as they are generated within it. When we view the practice of medicine and surgery with reference to this subject, we find that all those meteorologic, all those hygienic conditions, all those medical and surgical appliances and means which are most antagonistic to the form, growth and development of living germs and low forms of life, have been the most effective in the treatment of contagia, even before the laws of germ development and their relation to disease were so well understood as at present, practically (owing to the accuracy of clinical observations) contagia were treated in many instances as if their true nature had been known.

"Quarantines were established and disinfectants quite intelligently used; but now, guided by a better knowledge and understanding of the nature of zymotic disease we are able to lay down a foundation of broad principles upon which to erect the superstructure of a more perfect practice."

Since that time pathogenic germs or bacilli have been so universally admitted by the profession to be the cause of the zymotic diseases that it can no longer be a debatable point in pathology.

You can not have diphtheria without the presence of this microbe. Like all other vegetables, and especially the low forms of life, it is necessarily subject to variations in the character and amount of its poisoning products; for the bacillus after all is not the real poison which causes such disastrous consequences in the human system, but the ptomain which it produces.

Various staphylococci and micrococci found in connection with this germ in diphtheritic cases no doubt produce some of the lesions found in the neighborhood of the diphtheritic points, especially the secondary affections.

IMMUNITY.

It is claimed by good authorities that an attack of diphtheria does immunize a patient. My own experience is that I have never known two well-marked attacks of severe diphtheria in the same person. I have seen two cases followed in a year or two by a lighter attack.

The literature on the subject would cause me to think that some must have had a different experience.

THE MEMBRANE.

Formation of the membrane.—The formation of the membrane is not well understood. It appears to be an exudation of fibrin from the capillary blood vessels, under a high state of irritation and congestion, in the same manner as it is produced by any other irritation or congestion, and may be seen sometimes thinner and sometimes thicker in stumps that are left open to "glaze," in peritonitis, croup, etc. Now the question arises, as to the nature of those peculiarly malignant cases of diphtheria that show intense intoxication, and even die before any visible membrane is formed. It seems quite probable that large surfaces of the pharynx and nasal cavity have been covered by the bacillus in very active and virulent form before the false membranes are seen; so that sufficient toxin has been absorbed into a susceptible system to produce fatal symptoms before the exudation has had time to form.

Pseudo-membranous croup.—I believe this to be an entirely different and distinct disease, clinically and etiologically. While the Löffler bacillus is always found at some stage of true diphtheria, it is not found in croup, except as a rare and accidental visitor. The microscopic and clinical pictures of these two diseases are totally distinct. Croup usually begins at the larynx, little or no fever, usually progressive and fatal, simply by a mechanical stenosis of the larynx, occasionally extending into the bronchi, seldom visible in the pharynx, and without the Löffler bacillus. Diphtheria on the other hand, usually begins with fever, symptoms of intoxication and one of the first things seen on examination is the exuded patch in the throat, often tinged a little yellow. No doubt many cases of true diphtheria were formerly treated as cases of croup, or have been returned as such after death. I do not believe that croup is a contagious disease. Never but once in nineteen years have I seen two or three children with croup at the same time in one family.

At present I am inclined to believe that membranous croup is not due to any bacillus, but to severe local congestion or a disturbed circulation, caused by exposure of parts of the body to cold and dampness.

Follicular tonsillitis is sometimes mistaken for diphtheria, it differs clinically and microscopically, and I think we are rapidly approaching a period when it will be demanded of the entire profession to make use of the microscope in differentiating these closely allied throat diseases, and I believe that the Board of Health has done a good thing in ordering all cases of supposed croup to be reported to the Board in less than twenty-four hours.

LOCAL QUARANTINE IN DIPHTHERIA.

My experience has been that it is easy to quarantine a case of diphtheria in a room where there is a large family and many children, successfully preventing extension of the disease to the other inmates, as I do not think that the germs spread more than a few feet in the air at a time, but may be rapidly disseminated by contact or fomites. But, in two instances where I had successfully quarantined a case in the house from the rest of the family, in about a year afterward a number of the family were taken with the disease, not having been exposed elsewhere; so that we were driven to the conclusion that quilts or

something that was in the room during the previous sickness had not been properly sterilized, and the germs had been animated after this long period.

This leads me to a very important reflection in regard to quarantine in a city, namely, if the case of diphtheria in a house was properly quarantined, why could not the family be permitted to go to their work, pursue their usual avocation, and not be submitted to the objectionable fate of being compelled to remain in that house during the disease; and, since the disease is more likely to be carried, after the general quarantine has been removed from the house, by the inmates for months or years, is it not equally safe with proper room quarantine to allow the inmates egress and ingress during the existence of the case in the house?

Since the authorities do not thoroughly and persistently quarantine a house usually during all epidemics, the inmates of the house go out and the neighbors intermingle, it might be more practicable and agreeable to a community for a board of health to quarantine a portion of the house. This procedure has many things in its favor.

How is the bread winner to pay his rent, when he has a family? How can he pay the doctor?

Under proper conditions he could see his child's face at evening if he is anxious to do so without carrying the disease.

Intubation vs. tracheotomy.—I have performed both intubation and tracheotomy in a number of cases (I always prefer intubation) and I have had recoveries take place with intubation under conditions which I believe would have proven fatal had tracheotomy been performed; however, we have tracheotomy to fall back on in case intubation fails.

LOCAL TREATMENT.

The symptoms are usually not very pronounced before the diphtheritic "patches" are visible. I make the bacteriologic or culture test in all cases when possible. From the foregoing statements it may be seen that I hold that this disease is essentially local and external; for anything on the mucous membrane practically is not in the system, but the products of the bacillus being absorbed into the system as fast as produced, cause the general and constitutional symptoms.

Basing our treatment upon the views above stated, I have for over 15 years held, that the rational procedure, in combating this disease was simply to destroy the bacilli where they are located on the mucous membrane of the throat or elsewhere, by the proper applications of antiseptics or germicides and secondly, meeting the poison in the blood by such therapeutic means as physiologically and chemically were the best antidotes for it.

Now, while many scientific and learned physicians have followed these lines in treating diphtheria, they have so frequently been disappointed in their results and struggled along with a high mortality (in many cases, 30 to 40 per cent.), yet I have always contended that this is the correct line of treatment, and will give the best results if accurately and thoroughly carried out.

The important consideration, therefore, is what local and general medication to use, and equally important, the method of applying and using these remedies; for I believe that the failure to cure by this practice will be due either to a want of proper applications of the treatment, or to the fact that it has been commenced too late in the disease.

If you will refresh your knowledge of anatomy by examining the drawings of the interior of the nose, pharynx and larynx you will conclude that no treatment applied by the ordinary swab or probang, could

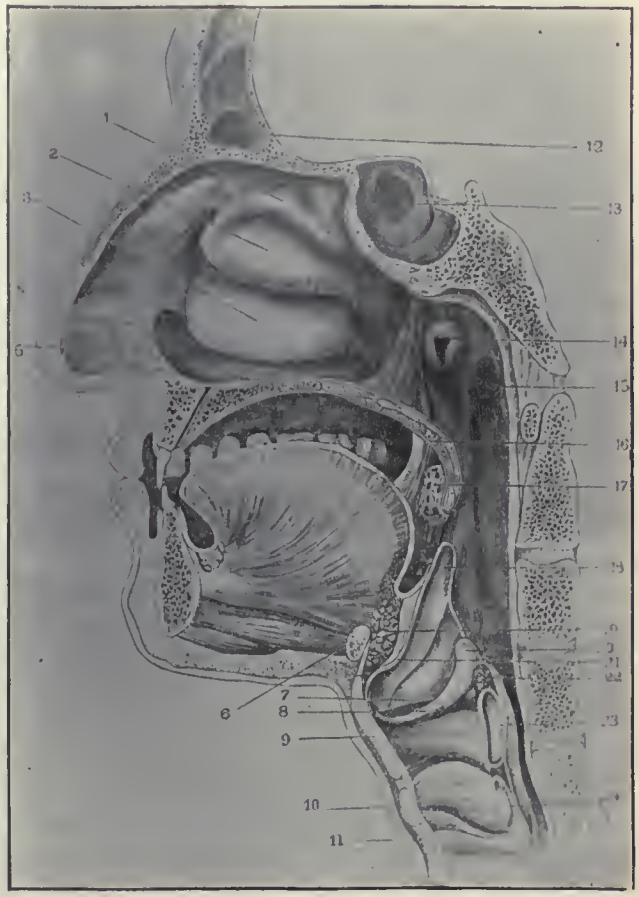


FIGURE 1.—VERTICAL SECTION OF HEAD, SLIGHTLY DIAGRAMMATIC.

1. Superior turbinated bone. 2. Middle turbinated bone. 3. Lower turbinated bone. 4. Floor of nasal cavity. 5. Vestibule. 6. Section of hyoid bone. 7. Ventricular band. 8. Vocal cord. 9 and 23. Section of thyroid cartilage. 10 and 24. Section of cricoid cartilage. 11. Section of the tracheal ring. 12. Frontal sinus. 13. Sphenoidal cells. 14. Pharyngeal opening of Eustachian tube. 15. Rosenmüller's groove. 16. Velum palati. 17. Tonsil. 18. Epiglottis. 19. Adipose tissue behind tongue. 20. Arytenoid cartilage. 21. Tubercle of epiglottis. 22. Section of arytenoid muscle.

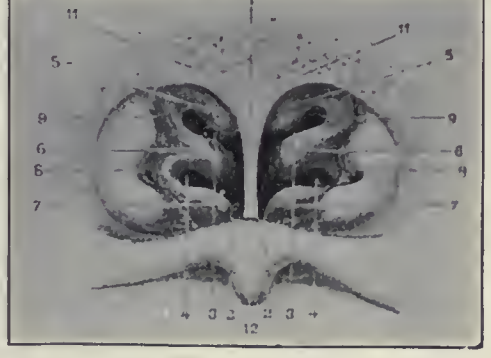


FIGURE 2.—RHINOSCOPIC IMAGE.

1. Vomer or nasal septum. 2. Floor of nose. 3. Superior meatus. 4. Middle meatus. 5. Superior turbinated bone. 6. Middle turbinated bone. 7. Inferior turbinated bone. 8. Pharyngeal orifice of Eustachian tube. 9. Upper portion of Rosenmüller's groove. 11. Glandular tissue at the anterior portion of vault of pharynx. 12. Posterior surface of velum.

by any possibility reach the disease at its most dangerous points, and consequently must be very inefficient in nasal and laryngeal cases. Even the physician could not apply the treatment thoroughly in an adult, and the idea of applying it in a struggling child is preposterous. Moreover, since the treatment has to be applied every hour at least, it must be left to the family to be carried out. It is therefore utterly impracticable, and I have found where it has been tried it did not accomplish the results. There would be a considerable mortality.

Antiseptics applied by the nasal douche, after Thudicum's method, do reach the nasal cavity thoroughly, but it is so difficult to accomplish that it can not be employed with children in private practice to any great extent, even if the physician superintends its use.

Gargles are of little or no use in the nasal and laryngeal cases.

The spray or atomizer therefore remains the only feasible method of applying antiseptics to all parts of the affected mucous membrane. To the recognition of this fact, and its early and thorough adoption together with an efficient and pleasant antiseptic remedy to be used in the atomizer I must attribute largely my success in the treatment of this disease.

I acknowledge that it is with the profoundest diffidence and respect for the criticisms of my medical brethren that I advance the following statement:

For over ten years, including 100 cases, I have not had a death from diphtheria, unless a case that died about twelve years ago be included; connected with this were three other physicians and I have never been convinced that it was not a case of membranous croup. A white membrane was very distinct in the pharynx, extending downward. I early practiced the antiseptic treatment and would not be justified in experimenting with other things, unless my results change, but I never use the bichlorid of mercury, nor do I think it should be used in this disease; because its action though beneficial is almost wholly due to its local effect upon the bacilli in the throat. Many cases, especially in young children, have been injured by the too free use of this substance. Other antiseptics, such as carbolic acid, salicylic acid, sesquichlorid of iron, are equally efficacious and may be used in ample quantity without the same amount of danger to the person.

Since we usually depend on the laity any treatment that can be properly and thoroughly applied, even to young children, must have vast advantages over any other. In severe cases I have all the mucous membrane thoroughly sprayed through the nose and mouth at intervals of fifteen or twenty minutes, or even longer, about fifteen seconds at a time, the child breathing as naturally as possible during the application. The spray comes in contact with every part. The membranes and symptoms rapidly disappear. On several occasions I have suspended local treatment after their disappearance; and in twenty-four or forty-eight hours the membrane would again spread over the throat, a few bacilli having been left alive, disappearing again promptly on resuming the local treatment, thus demonstrating its efficacy. It is necessary to see that the atomizer works properly and that the attendant applies it thoroughly.

Professor Loeffler claims that the disease being entirely due to germs lying in the throat, consequently in a position where they could be reached by local antiseptics, could be readily cured by local application, and instances seventy-one cases of diphtheria treated exclusively by local antiseptic applications, without a single death, in his private practice. This statement was entirely consonant with my experience and practice, instituted ten years before his great discovery of the germ.

If it be true (and I do not think that it can be successfully disputed now, that diphtheria is due to the presence of germs in the pharynx), why would not germicides destroy them? For we know that we possess a number of antiseptic or germicidal medicines that are invariably fatal to germs and can be used in quantities sufficient for that purpose without any detriment to the patient. Holding the view of the disease that I have advanced, I could never understand why a local treatment would not be all that was required.

Proffessor Loeffler, after various experiments, suggested a combination of:

Menthol cryst	10	gm.
Toluol q. s. ad fac	36	c.c.
Alcohol absolute	60	c.c.
Liquor ferri sesquichloridi	4	c.c.

I have found the the formula of Professor Loeffler to be disagreeable to the patient, while the one I use has not that objection and is quite as efficient.

Acid. acet. dilut	fl. ℥ii
Pot. chlorat	℥ss
Acid. carbol	gtt.i
Tinct. ferri chloridi	gtt.v
Pulv. Alumen	gr.v
Acid. salicylic	gr.i
Glycerin	fl. ℥ss
Aqua ros	fl. ℥ss
Aqua q. s. ad	fl. ℥iv

Misce. Sig. Use as directed.

It is a clear, permanent liquid of a purple color.

In making application to the throat of diphtheritic patients the doctor or nurse may use a disc of glass held between his face and the patient, to prevent infection from the sudden coughing and spitting of the patient.

I always give tincture ferri chloridi in large and frequent doses, and I believe it produces favorable conditions of the blood, as it does in many other cases of septicemia, notably erysipelas, which often disappears under this treatment alone.

One of the benefits derived from this remedy is its local action while being swallowed.

Result under the local antiseptic treatment: Benjamin, 100 cases, 100 recoveries; Loeffler, 71 cases, 71 recoveries.

I will not weary you with a repetition of illustrative cases. I hope the profession will give this treatment a fair trial and report on it.

CASES IN POINT.

I was called to attend a girl, 10 years old, whose brother, the only son, had died of the disease the day before. The patient had diphtheria in a very grave form; pulse 140, temperature 104, respiration 40, and the throat covered with a thick membrane. She was placed under treatment. Marked improvement took place in twenty-four hours. At the next visit, the patch of membrane had diminished in size, the pulse was 120, the respiration 25. She was well in eight days, running about the house.

In another part of the town I was called where five children had the disease, as well as mother and her

baby, about six months old. Three children across the street had just died and were awaiting burial. Others in the neighborhood had the disease. All these cases rapidly recovered. I might go on until it would become monotonous, relating cases of which I have records. My former assistant, Dr. W. I. Kelchner, reports seventy-five consecutive cases by this treatment during the past three years, without a death.

The more malignant the case the more brilliant the results that I have obtained by this treatment. When I seek an explanation of this phenomenon it seemed quite natural that it should be so, for the abruptness and urgency of the onset of the disease causes the patient to send for medical assistance promptly, and the severe symptoms being due to the large number of germs spread over the mucous membrane of the pharynx and throat, the local antiseptic treatment is effective before sufficient time has elapsed to protect themselves by a false membrane.

This was illustrated in the case of a woman who was taken with the most malignant symptoms, after having just buried her three children who died with the disease on that day. She was practically well in forty-eight hours after treatment began, and attended to her household duties on the fifth day.

If it be true that we can save our patients by local antiseptic treatment, properly applied early, the local treatment will displace the antitoxin treatment in general practice. Patients can go about with less danger of spreading the disease when convalescing, since their throats are sterilized and no bacilli can be found by culture tests.

Microscopic and culture tests should be made before using the treatment, as generally the bacilli disappears after using the antiseptic remedy.

215 Cooper Street.

THE STATISTIC EVIDENCES OF THE VALUE OF VACCINATION TO THE HUMAN RACE, PAST, PRESENT AND FUTURE.

Read before the American Medical Association at the Jenner Centennial Celebration, held at Atlanta, Ga., May, 1896.

BY EUGENE FOSTER, M.D.

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(*Continued from page 811*).

PROPOSITION 7.

In some communities and even nations a greater number of vaccinated and unvaccinated persons are attacked with smallpox. Anti-vaccinationists parade such instances and use such data to bolster up their ridiculous assertions that such facts show the utter futility of vaccination. Without a single exception every such effort is based upon the most shameful perversion of facts.

Let us take Great Britain to illustrate this proposition. It is true that in the epidemic of smallpox, 1871–72, a greater number of vaccinated died than those unvaccinated. But does this fact prove the failure of vaccination! By no means. Why? The vaccinated portion of the population number thirty to forty times that of the unvaccinated. In 1872 there were 300,000 of children under 5 years of age in Great Britain (Sir Lyon Playfair, *loc. cit.*). These were divisible into two classes, vaccinated and unvaccinated. The vaccinated were thirty to forty times more numerous than the unvaccinated. Now for results of vaccination. In the vastly more numerous class—the vaccinated—the smallpox deaths numbered 1,780, while among the fractional portion of the population—the unvaccinated—the deaths number 413. According to Dr. Playfair the mortality from smallpox was from 120 to 160 greater among the unvaccinated than the vaccinated. The Registrar General of Great Britain showed that taking the whole community of the kingdom, there was only one death among the vaccinated for every forty among the unvaccinated.

Let us take the epidemic of smallpox in London in 1882. During that year 2,317 deaths were registered from smallpox[35] (vide Registrar General's Annual Summary for 1882). Of these, 524 were stated to have been vaccinated and 962 unvaccinated, while regarding the condition of others as to vaccination, no statement was made. It is tolerably certain that among the population of London not more than 10 per cent. are unvaccinated, and if 10 per cent. be supposed to be doubtfully vaccinated there will remain 80 (this estimate is certainly well within the true proportion) per cent., presenting clear evidence of vaccination. If, then, the vaccinated and unvaccinated had been equally liable to fatal smallpox, the former would have died at the same rate as the latter, and since 962 of the unvaccinated died there would have died 7,696 among the vaccinated. But the actual number of deaths among the vaccinated was 524; hence it is clear that the vaccinated and unvaccinated were not equally liable to death from smallpox.

Moreover, if the mortality among children be considered, the difference between vaccinated and the unvaccinated appears still more striking. The deaths from smallpox during 1881 included 27 of vaccinated children under the age of 5 and 368 of unvaccinated children under that age. If unvaccinated and vaccinated children would have died at the same rate as the unvaccinated, *i. e.* (taking the proportion of vaccinated and unvaccinated as previously stated) the deaths among the vaccinated children under 5 would have been 2,944. But the actual number was 27, and it is therefore obvious that unvaccinated children are liable to fatal smallpox to an enormously greater extent than vaccinated children; or, in other words, vaccinated children are to a larger extent protected from fatal smallpox.

Dr. Seaton, in Annual Report of the Local Government Board of Great Britain, 1874, says on this subject:

But if the actual number of smallpox deaths in persons above puberty who had been vaccinated were equal to, or even exceeded, that which occurred in persons who had not been vaccinated, it must be borne in mind that the proportion of our adult population which is protected against smallpox by vaccination is at least from twenty-five to thirty times as great, and much more probably from fifty to sixty times or more as great, as that which is unvaccinated. The relative number of persons who now-a-days attain manhood or womanhood without having been vaccinated is very small. Examination of the young men who are recruited for the army has shown for many years past that, putting aside the small percentage who are marked with smallpox, the proportion of the remainder who do not present distinct marks of having undergone vaccination averages for the whole of England 3.9 per cent. of those examined, and for London separately, 2.8 per cent. As these small proportions include all doubtful cases, it is clear then that somewhat considerably more than 96 per cent. of those in England, or than 97 per cent. of those in London only must have been vaccinated. Now recruits, I apprehend, are not generally drawn from that class of the population which has been the most cared for; and there is, therefore, a reasonable probability that the proportion of the whole adult population of England which is thus protected against smallpox is much larger. But even if the full proportion just given, or more than that proportion, be applied to the adult population generally—4 per cent. being taken as unvaccinated and 96 per cent. as vaccinated—it is clear that with equal actual mortality among the two classes, the relative mortality of the former would be twenty-four times that of the latter. The figures, then, are conclusive that vaccination as it was practiced in this country fifteen years ago and upward, instead of failing to protect persons from fatal smallpox after they had grown up has, in the immense majority of cases, very effectually protected them.

But proof of Proposition 7 does not rest alone upon statistics as to the protective influence of vaccination in children. Let us inquire as to the value of vaccination upon all classes and ages of population under recent so-called failures to such extent as to have shaken the confidence of some few former advocates, and supplied vaccinophobists with what they term "an arsenal full of facts testifying to the utter futility of the measure." Let us take the most widespread and fatal epidemics of smallpox which have fastened their remorseless fangs into the bodies of communities since compulsory vaccination, and see if we can compare the results of vaccination and non-vaccination. This is the only rational test. Ask vaccinophobists to select their own times and places of occurrence of smallpox for this demonstration, and they will point to the epidemic of smallpox in Great Britain from 1870 to 1873, and

[35] The Influence of Vaccination in the Prevention and Diminution of Mortality from Smallpox, presented to the Parliamentary Bills Committee of the British Medical Association. By Dr. Ernest Hart, Chairman of Committee.

with pride declare that in this epidemic we have an illustration of the futility of the prophylactic powers of vaccination. We accept the issue thus made, and shall demonstrate the wonderful prophylactic power of vaccination in this time (their own selection), to the satisfaction of any sane or reasonable man. Of this epidemic, Dr. Seaton, who was specially detailed to investigate it, says: "The epidemic of smallpox which began in England toward the close of 1870 and terminated in the second quarter of 1873, was part of a general outbreak of that disease, of world-wide diffusion, marked wherever it occurred by an intensity and malignancy unequaled by any previous epidemic of the disease within living memory. The outbreak seems to have begun in France about a year before it manifested itself in the United Kingdom. In the last quarter of 1869 it was already making considerable progress in Paris. Early in 1870 it prevailed in Orleans, Bordeaux, Lyons and other large towns, and in the course of the year extended with great mortality over nearly the whole of France. Except, however, in so far as it was directly conveyed by the French prisoners to various places in Germany, there was very little extension beyond France till toward the close of 1870. The epidemic then manifested itself in London, in two or three of the chief towns of Holland, in Milan, at Geneva and in some other places, becoming thereafter rapidly diffused over a great part of Europe. During 1871, England and Scotland, Holland, Prussia and the whole north of Germany, Italy and Spain felt the full force of the epidemic, and the first beginnings of its ravages were experienced in some of the other countries of Europe, as in Ireland and Denmark. In the course of this year it spread beyond Europe to various places in Africa (where it raged along the Gold Coast), to the West Indies and to North America. During 1872, while still continuing its course in most of the countries it had attacked in 1871, it made further extensions over the continent of Europe, invading Austria, Hungary, Russia and Finland, over Africa and over North America; it spread, also, to South America and the South Sea Islands, and it invaded various places of the East. In 1873 the greater part of its course in Europe had been run, but there were yet, during the earlier parts of the year, various countries and districts and important capitals, as St. Petersburg and Vienna, still under its full influence. By the middle of 1873, however, the pandemic extension of the disease in Europe may be considered to have terminated, and smallpox generally has since then been quiescent, though there have been some considerable local outbreaks."

Here, then, is, we hope, an epidemic of smallpox of widespread prevalence and malignancy sufficient to satisfy these anti-vaccinists. Now for the lessons taught by this truly frightful epidemic, as applied to great Britain. Seaton says: "The varying intensity of different epidemics of the same disease is, indeed, a well-known fact, and had been illustrated as regards smallpox, at various times, at the hospitals set apart for the treatment of that disease in London; the ordinary mortality of natural smallpox as therein observed, 35 per cent. of the cases admitted having in certain epidemics been known to mount as high as 47 per cent., and that of post-vaccinal smallpox to increase from 7 to 10 per cent. But no experience which had been acquired in the hospital had led to the expectation that the ordinary rate of mortality to attacks would by any epidemic influence be nearly doubled. Yet such was the case in 1871 and 1872, in the former of which years the deaths from the natural disease were 66.2 per cent. and in the latter 77 per cent. of the natural cases, or in the two years combined (for the admissions in 1872 were too few to form by themselves a proper basis of comparison) 67.5 per cent. of such cases. This result is stated by Dr. Munk and Mr. Marson in their report for 1871, to have been due 'to the severity of the disease, and especially to the number of cases of malignant smallpox, the proportion of which to the other cases has been very largely in excess of anything within the experience of either of your medical officers.'"

"In the hospitals of the Metropolitan Asylum district, in which the cases admitted would be of a more average character, the ratio of deaths to admissions was extraordinary, amounting to 44.80 per cent. among the unvaccinated and 10.15 per cent. of the vaccinated. The ratio in the hospitals of provincial and foreign towns generally has ranged from 40 to 50 per cent. among the unvaccinated and from 8 to 10 or 11 per cent. of the vaccinated—enormous rates, and attributed everywhere to the same cause, viz., the unusual proportion of malignant, black and hemorrhagic cases. In several of these hospitals the rates were as high or higher than in the smallpox hospital of London, as in the 'Barackem Lazareth auf dem Tempelhofer Felde,' at Berlin, which were used as additional smallpox hospitals during the epidemic in that city, and in which the mortality among the unvaccinated was 81.25 per cent. and among the vaccinated 14 per cent., and in the hospital at Leipsic, in which the mortality among the unvaccinated was 71 per cent. and among the vaccinated (including doubtful cases) between 9 and 10 per cent."

Let us now compare the mortality of this epidemic with that of other recent epidemics of the disease. Here it is: "In the thirty-three years which at the time this outbreak commenced had elapsed, from the first establishment in England of a complete system of registration of the causes of death, there had been abundant illustrations of the varying fatality of smallpox epidemics, but it had been supposed by many—quite erroneously as it now appears—that that period had been sufficient to exhibit the limits of the fluctuations. Only twice since the close of the great epidemics of 1837-41 had the smallpox deaths in England exceeded 7,000, viz., 1852, when they were 7,320, and in 1864, when they were 7,684. And though the epidemic of 1837-41, just referred to, had exhibited a mortality enormously in excess of these numbers (the deaths in 1838 alone having been 16,268), yet as this was anterior to any vaccination laws and at a time when the proportion of the population which was unprotected by vaccination was many times as great as it is now, a recurrence of any such considerable mortality as was then observed had been quite outside ordinary calculations. The mortality of the 1870-73 epidemic has not indeed been by any means so great in proportion to population as was that of 1837-41, but it has approached it more nearly than had appeared possible. During the 1837-41 epidemic there were registered from July 1, 1837, the termination of the epidemic in 1841, 48,012 smallpox deaths in a mean population of fifteen and one-half millions; during the 1870-73 epidemic, 44,433 deaths in a mean population of nearly twenty-three millions. The proportionate mortality therefore of the epidemic of 1870-73 has been less than two-thirds that of 1837-41."

What of the mortality of smallpox in this epidemic of 1870-73 compared with the smallpox mortality of the last century? Dr. Seaton says of it: "The mortality of this epidemic was, as I have said, such as has not been known in England for thirty years, and has at least proved a complete answer, if, indeed, an answer had been required to the notion which had of late years been ventilated by some that smallpox was a disease naturally tending to extinction. . . . But, before proceeding further, it seems very important that it should be noted that the mortality of this epidemic, alarming as it has been, has not approached what was the usual annual smallpox mortality of the kingdom at the time when vaccination was unknown. The annual average smallpox death rate of that period—not, be it observed, the death rate of a particular year of special prevalence of the disease, but the annual average death rate—was more than three fold the death rate of this, in our time, quite exceptional outbreak. The estimated annual smallpox death rate of England in the last century was 3,000 per 1,000,000 of population; the mean annual death rate of this epidemic was 928 per 1,00,000, having in 1871 been 1,024 and in 1872 833 per 1,000,000. The average annual smallpox death rate of the metropolis in the pre-vaccin period was from 400 to 500 per 100,000 of population; the mean annual death rate of this epidemic was 148, having in 1871 been 243 and in 1872 54. And if an average be taken of the smallpox mortality of England for the whole twenty years (1854-73) during which there has been a compulsory vaccination law, a period which includes the whole of the recent epidemic, the annual death rate is found to be 245 per 1,000,000 of population, or less than a twelfth of the rate of last century."

And yet in the face of such facts as these Mr. P. A. Taylor, M.P. of England, seriously asserts:

"That the practice of vaccination affords no national protection from smallpox, and has had no effect whatever in preventing or diminishing smallpox epidemics. That the mortality among vaccinated smallpox patients is as great as among unvaccinated."

I have no patience with a man who would seriously advance such ridiculous nonsense into the arena of scientific discussion. I would as soon enter into debate with my horse as with such a man.

PROPOSITION 8.

1. Vaccination performed in infancy in the best manner, confers upon the majority of these individuals absolute protection against smallpox during life.

2. In not a few instances (the proportion being unknown) individuals properly vaccinated, at or or about the age of puberty partially or wholly regain that susceptibility to smallpox which vaccination had once extinguished in them.

3. In the overwhelming majority of instances of individuals contracting smallpox after primary vaccination the disease is so mitigated as to be practically devoid of danger to health or life.

4. The vast majority of cases of severe post-vaccinal smallpox result from careless or inefficient smallpox.

Inasmuch as in a considerable proportion of cases smallpox occurs a second time, and in rare instances, a third and even a fourth time in individuals, it is expecting too much of vaccination to demand that post-vaccinal smallpox should not be found in a considerable portion of those who had been previously thoroughly well vaccinated.

It must be confessed that the illustrious Jenner at first claimed that a successful vaccination afforded the individual absolute protection against smallpox. In his work, "An Inquiry in the Causes and Effects of the Variolæ Vaccinæ," June, 1798, he says: "But what renders the cowpox virus so extremely singular is that the person who had thus been affected is proven afterward secure from the infection of the smallpox."

Further experience caused Jenner to modify his views on this subject, as follows: "Duly and efficiently performed vaccination will protect the constitution from subsequent attacks of smallpox as much as the disease itself will. I never expected it would do more, and it will not, I believe, do less."[36]

It has long been demonstrated that the great benefactor of his race was mistaken even in his later estimate of the prophylactic powers of vaccination. Primary vaccination is not and never was as fully protective against smallpox during life as a previous attack of smallpox. As early as 1807 numerous cases of post-vaccinal smallpox were reported in England. The Royal College of Physicians investigated the matter and found that some of the reported cases were well founded, but said: "The number of alleged failures has been surprisingly small, so much so as to form certainly no reasonable objection to the general adoption of vaccination." Within the next few years the proportion of post-vaccinal smallpox was found to be increasing, and in some epidemic seasons they presented a very alarming total.[37] It was claimed that these cases of post-vaccinal smallpox were not chargeable to vaccination properly performed, but were due to spurious vaccination. But this claim was disproven to such an extent as to perplex and disappoint many advocates of vaccination. Injudicious friends of vaccination endeavored to prevent publicity being given to the facts, and the enemies of the measure decried it with the zeal which has ever characterized their fight upon this, the most beneficent gift to man. Simon very properly says: "At no moment in the progress of Jenner's discovery had impartial investigation been needed more than now; for, partly by the facts themselves and partly by hostile overstatements of them, public confidence began to be disquieted. There seemed a breach in the contract under which vaccination had been accepted. In what had promised so much, failures were all the more conspicuous; men looked to them, even where most exceptional, rather than to the successes of vaccination; and there were (1820-35) not a few persons whose minds began to misgive them whether the old plan of smallpox inoculation had not perhaps been too easily abandoned."

In 1818, after vaccination had become general in Scotland an epidemic of smallpox visited the inhabitants—a large proportion of the smallpox patients having been previously vaccinated. This gave rise to great surprise, and the prophylactic virtues of vaccination were freely discussed. An examination into all the facts relative to these cases of post-vaccinal smallpox so conclusively demonstrated the beneficial results of vaccination that public confidence in the measure was regained. The cases of post-vaccinal smallpox were so much milder than in the unmitigable variety that it gave rise to the term varioloid.

In Sweden an epidemic of smallpox appeared in 1824, in which 103 cases of post-vaccinal smallpox proved fatal, 69 of these presenting good vaccinal scars and 34 less perfect vaccin scars. Smallpox assumed epidemic proportions also in Germany, France, Italy and London, and in many cases appeared among the inhabitants who had been vaccinated in childhood.

In Ceylon the government of Great Britain, at an early period of vaccination, had the population so generally vaccinated, and so successful did the measure seem that smallpox was wholly banished from the island for a term of years. In 1819, however, Ceylon suffered a widespread epidemic of smallpox, which was marked by great virulence of the disease. In this epidemic many inhabitants who had previously been vaccinated in childhood, contracted smallpox. This island had a like experience in 1830, again in 1833 and again in 1836. In the epidemic of 1833 fully 75 per cent. of those contracting smallpox had been vaccinated in childhood.

Denmark was visited by several epidemics of smallpox between the years 1824 to 1835. Gregory says: "Yet in no country in Europe has more attention been paid to the practice of vaccination, both as to the numbers submitted to the process and the purity of the lymph employed." Notwithstanding these facts in Copenhagen, between 1824 to 1835, 3,839 cases of smallpox were observed, 80 per cent. of this number had been vaccinated during childhood. Even under these discouraging facts the value of vaccination was conclusively demonstrated, for the mortality in post-vaccinal smallpox was only 2.13 per cent.

The British army furnishes valuable statistics proving the proposition under discussion. From 1835 to 1838 the average strength of the army, including men, women and children, was 105,000. This force (including women and children) had been thoroughly vaccinated, yet 1,025 of them contracted smallpox and 122 of them died, a mortality of 11.9 per cent.

The records of almost all hospitals prove that the majority of cases of smallpox from a community generally vaccinated are among those who have been vaccinated during childhood. Dr. Gregory's service at the London Smallpox Hospital (1826 to 1850) has been divided into quinquennial periods with the following results: In the first period the number of cases was 1,262, of which 34 per cent. had been vaccinated; in the second period the number of cases was 1,331, of which 36 per cent. had been vaccinated; in the third period there were 1,763 cases, of which 41 per cent. had been vaccinated; in the fourth period, number of cases 1,643, of which 43 per cent. had been vaccinated; in the fifth period, number of cases 1,780, of which 52 per cent. had been vaccinated. Thus we see a gradual though decided increase of cases in persons previously vaccinated—the proportion of cases of post-vaccinal smallpox from the first quinquennial to the last having been 18 per cent.

In the London Smallpox Hospital Marson says the total number of smallpox patients received during the ten years, 1855 to 1865, amounts to 7,326, of which 78 per cent. had been vaccinated.

Dr. Welch, physician in charge of the Municipal Hospital, Philadelphia, Pa., says that during the epidemic of smallpox, 1871-72, the number of cases received amounted to 2,377, of which 68 per cent. had been vaccinated in childhood. In the same hospital in the epidemic of 1880-82 the number of cases admitted into the hospital was 1,659, 54 per cent. having previously been vaccinated.

Similar data might be presented from numerous sources, but it is unnecessary. Enough has been given to conclusively prove that smallpox occurring in persons who had been vaccinated in infancy is of much more frequent occurrence than is witnessed in individuals previously attacked by smallpox.

Let us now examine the question of redevelopment of susceptibility to smallpox. This redevelopment of susceptibility progressively increases up to a given period of life, the greatest increase up to a definite point corresponding with the length of time intervening primary vaccination.

The following tables, selected from many at hand, demonstrate this fact:

Ages.	Gregory of London.		Heim of Württemberg.	Mohl of Denmark.
	Cases.	Deaths.	Cases.	Cases.
Under 5 years of age. . .	. .	. .	40	14
From 5 to 10 years	5	. .	68	102
From 10 to 15 years. . . .	25	. .	186	173
From 15 to 20 years. . . .	90	6	275	187
From 20 to 25 years. . . .	106	16	239	156
From 25 to 30 years. . . .	55	8	172	19
From 30 to 35 years. . . .	13	1	75	2
Above 35 years of age. . .	4	. .	. .	. .
Total.	298	31	1,055	653

The following table compiled by Dr. Welch from the Municipal Smallpox Hospital, Philadelphia, Pa., shows 2,907 cases of post-vaccinal smallpox admitted into the hospital from 1871 to 1883, including the cases classified according to the quality of vaccinal scars in individuals below the age of puberty:

		Cases.	Deaths.	Percentage of deaths.
Under 5 years of age	Good cicatrix	1	0	. . .
	Fair cicatrix . . .	4	1	. . .
	Poor cicatrix	5	1	. . .
Total.		10	2	. . .
From 5 to 10 years	Good cicatrix	11	. .	. . .
	Fair cicatrix	9	. .	. . .
	Poor cicatrix	26	8	30.73
Total.		46	8	17.39

[36] Seaton's Hand-book of Vaccination, p. 223.
[37] John Simon: Royal Vac. Commission, 1889, p. 73.

		Cases.	Deaths.	Percentage of deaths.
From 10 to 15 years	Good cicatrix	45	2	4.44
	Fair cicatrix	18	2	11.11
	Poor cicatrix	36	4	11.11
Total.		99	8	8.02
From 15 to 20 years of age		388	47	12.11
From 20 to 25 years of age		745	96	12.88
From 25 to 30 years of age		580	92	15.86
From 30 to 35 years of age		356	64	17.97
From 35 to 40 years of age		249	51	20.48
From 40 to 45 years of age		154	38	24.67
From 45 to 50 years of age		105	22	20.95
Fifty years of age and upward		175	63	36.00
Grand total		2,907	491	16.89

Sufficient data have been presented to conclusively demonstrate that it is and has ever been during the practice of vaccination, fallacious to contend that primary vaccination always confers upon the recipient an immunity equal to that which he would enjoy had he previously had an attack of smallpox. From numerous data throughout this paper it must be evident to every student of vaccination that a primary vaccination made in infancy confers upon the individual so treated a positive and well nigh unvarying protection against smallpox for an unknown number of years, generally to puberty, and that in a considerable, though undetermined, proportion of such individuals a redevelopment of susceptibility to contract smallpox ensues in consequence of the deterioration of the protective power which vaccination had exerted against smallpox. This fact in no wise militates against the efficiency of vaccination in the prevention and control of smallpox; nor does it detract one iota from the splendor of the discovery of the immortal Jenner. An appreciation of this fact places vaccination upon the impregnable rock of truth, and enables Jenner's successors to intelligently take the one additional step necessary to stamp out smallpox, *i. e.*, revaccination.

It being an incontrovertible fact that a thorough primary vaccination protects the majority through life from smallpox, but that in a considerable proportion of primary vaccinations a redevelopment of susceptibility to smallpox ensues, and inasmuch as we are utterly unable, from examination of vaccin cicatrices or otherwise, to decide who are not enjoying the full protective influence of vaccination, it is our duty to revaccinate every vaccinated person within ten or fifteen years from the primary vaccination, and in the face of exposure to smallpox to revaccinate even though the primary vaccination had been performed only several months previously.

PROPOSITION 9.

A good primary vaccination may be made in infancy, coupled with successful revaccination at puberty, as fully protects every individual so treated from smallpox as if he had previously had an attack of smallpox.

Revaccination at puberty being admitted to be necessary to confer upon the recipient the full protective benefit of vaccination, let us ascertain what this protective power has been ascertained to be.

Experience in Smallpox Hospitals.—Dr. Welch, physician in charge of the Municipal Smallpox Hospital, Philadelphia, Pa., says: "My experience in hospital work, which, as regards time, comprises a period of more than twelve years (Jan. 1, 1871 to May 1, 1883), entirely agrees with that of Marson and other observers just quoted. Only very few patients during that time have been admitted into the hospital under my charge, with varioloid, who presented evidence of having been successfully revaccinated, and these few had the disease in so mild a form that death has not occurred in a single instance. During my service no person entering the hospital in any official capacity, as resident physician, steward, matron, nurse, laundress, or other employe, who had taken the precaution to be revaccinated before entering upon duty, has suffered from smallpox in any form whatsoever. But, on the other hand, I have seen a few employes in whom revaccination was for some cause omitted, become infected by the disease."

Dr. Seaton (in report of Medical Officer of Privy Council and Local Government Board for 1874) says: "The observations which were made during the recent epidemic (1870-1873) afforded remarkable evidence of the value of revaccination, not merely in controlling the mortality from smallpox, but usually preventing altogether the occurrence of the disease. Its power of preventing smallpox under circumstances the most favorable for contracting it was tested on a very large scale on the nurses, servants and attendants of the various hospitals established for the treatment of the epidemic in the metropolis and in the provinces, the attendants in the hospitals of the Metropolitan Asylum Districts alone amounting at one time to above three hundred. In every hospital report which has reached me it is specially stated that not a single one of these officials, who had been revaccinated before coming to take duty at the hospital, contracted smallpox. On the other hand, a few cases occurred among some nurses and servants in the hospitals of the Metropolitan Asylum District, whose revaccination in the pressure of the epidemic had been overlooked; and there was one case in a nurse who, having had smallpox previously, had consequently not been vaccinated on coming into the hospital. There was also a modified case in a nurse in whom revaccination had been performed, but not till after her arrival at the hospital, and when the smallpox infection had already been received. The cases of smallpox which were admitted for treatment in the several hospitals in persons who had been successfully revaccinated were very few and very slight. In the hospitals of the Metropolitan Asylum Board, in which upward of 14,800 cases of smallpox were treated, there were but four cases in which there was good evidence of revaccination having been performed with effect, and these were all light cases. In Liverpool, says Dr. French, revaccination was found a constant and perfect protection against smallpox. In the Newcastle-on-Tyne smallpox hospital, in which 778 cases were treated, there were two in which revaccination was alleged to have been successfully performed, one of them ten years and the other four years before the attack of smallpox; both of them recovered. In the same hospital eight patients were admitted, stated to have had smallpox, five of whom were distinctly marked by it; one of the three not marked died, the remaining seven all recovered. In the Leeds hospital there were four cases in which previous revaccination was alleged, but in none of them was the evidence of revaccination conclusive. One of them, in which the revaccination was said to have been done at seven years of age, was fatal; the other three cases were mild. There were three (fatal) cases of smallpox in persons believed to have had smallpox previously, but the evidence of the former smallpox is not stated. Similar infrequency and mildness of smallpox after revaccination was noted in the hospitals abroad. In the municipal smallpox hospital at Berlin, in which 1,529 cases were treated who had been vaccinated, only nineteen of these were in persons (all above 30 years old) who had been successfully revaccinated; they were all of them cases of varioloid, or of variolous fever without eruption, and none of them died. In the same hospital there were seven cases (three of them fatal) in persons who had previously had smallpox. In the Baracken-Lazarethe, used also as smallpox hospitals in the same city, in which 1,805 cases were treated in persons who had been vaccinated, seven only were in persons who had been successfully revaccinated, of whom six had a mild attack and one (a woman 60-70 years old) had the hemorrhagic form and died. In the hospital at Leipsic, out of 1,504 vaccinated patients there were thirteen who had been successfully revaccinated in early life, all of whom recovered; in the same hospital there were twenty-two cases in persons who had had previous smallpox, and of these six died. In the hospital at Hamburg the cases in persons who had been revaccinated were more numerous, amounting to fifty-nine out of a total of 2,267 vaccinated patients, and there were three deaths."

Dr. Marson, having the greatest experience perhaps of all writers upon this subject, says of the test of vaccination in preventing smallpox: "For thirty years we have revaccinated all the nurses and servants who had not had smallpox, on their coming to live at the smallpox hospital, and not one of them has contracted smallpox during their stay here."

[38]*Manchester Royal Infirmary.*—Dr. Henry Thomkins, medical superintendent of the fever hospital belonging to the Manchester Royal Infirmary at Monsall, in a paper recently read at Owens College, said: "The most striking of all evidence is, perhaps, that derived from the smallpox hospitals themselves. Here the protective influence of vaccination is seen and proved in a manner beyond all cavil. At Highgate, during an experience of forty years, no nurse nor servant, having been revaccinated, has ever contracted smallpox; and evidence of the same character I can myself bring forward, for, during the whole time that I have had charge of the fever hospital more than a thousand cases of smallpox have passed under my care, yet no servant, nurse, porter, or other person engaged there has, after revaccination, ever taken it, though exposed daily to infection in its most concentrated form. . . Again, among all the students who during the past two years have attended the hospital for clinic instruction, not one has suffered, all having been revaccinated before being permitted to enter the smallpox wards. . . I defy the most enthusiastic or conscientious of anti-vaccinators to produce evidence like

[38] Annual Report of the Board of Health of Detroit, Mich., 1882, pages 109 and 110.

this on his side of the question, or to bring forward even half a dozen persons, choose them whence he may, who have not been protected against smallpox, and expose them as the students are exposed, without more or less of the number taking the disease."

At Versailles, in 1828, during an epidemic of smallpox of marked severity, revaccination was first tested as a means of checking the ravages of smallpox. A large number were revaccinated, and no one of these revaccinated individuals contracted smallpox.

In Copenhagen, there were three severe epidemics of smallpox between the years 1828 and 1835, during which not a single revaccinated person was attacked by smallpox.

In the epidemic in Heidelberg, 1843-44, notwithstanding vigorous and thorough vaccination, a large number vaccinated ten or more years previously contracted smallpox, yet not one revaccinated person was attacked.

In Württemberg with a vaccinated population of 1,263,298, during five years the total number of cases of smallpox was 1,677, 354 of these were cases of confluent smallpox, 1,043 were cases of varioloid—being about one case of failure of protection against smallpox to 217 vaccinated persons. In a few years subsequently, of 44,000 revaccinated subjects, 20,000 took the vaccin disease perfectly, 9,000 imperfectly, and failed with 15,000, the successful revaccinations being almost exclusively in those who had been vaccinated many years previously and only 3 of these in a subsequent epidemic of smallpox contracted the disease.

Of 14,334 revaccinations in the army of Württemberg, 1831-1835, 8,845 had what are described as genuine vaccin marks or scars, and of this number 31 per cent. were successfully revaccinated; aborted vaccin vesicles in 29 per cent.; and revaccination failed in 40 per cent. With those having imperfect marks of previous vaccination, revaccination succeeded in 28 per cent., modified in 26 per cent., failures 46 per cent. Mr. Simon, in his able digest of the subject, published by the General Board of Health, shows that, during the years from 1833 to 1837, notwithstanding the fact that smallpox had been sixteen times brought into the army of Württemberg, there had ensued among the 14,334 revaccinated soldiers one single instance of unmodified smallpox.

In the Prussian army, in 1840, revaccination was performed upon 43,522 soldiers. Upon these soldiers were found distinct vaccin cicatrices in 34,573; indistinct vaccin scars in 6,177; in 2,772 persons no scars of previous vaccination were found, although they had formerly been vaccinated. The result showed 20,952 successful revaccinations; 8,820 partially successful; and 13,750 unsuccessful revaccinations. Revaccination was practiced in this army because of the increase of the number of cases of post-vaccinal smallpox among the soldiers. For ten years prior to 1831 these cases had been observed; and from 1831 to 1833, 312 deaths had occurred among the troops formerly vaccinated. For twenty years subsequent to revaccination, two deaths annually have occurred from smallpox, whereas 104 deaths annually occurred before revaccination was practiced.

In the Bavarian army revaccination has been compulsory since 1843; and for twelve years—1843 to 1855, as shown by the report of the minister of war—not a case of unmodified smallpox had occurred. A few cases of varioloid had occurred during this period of time, but not a single death from smallpox.

Dr. de Kerschensteiner, chief medical officer of Bavaria, as the result of official statistics of Bavaria for ten years, 1871-80, says: "Of those once vaccinated, 12 per cent. of those attacked, of the revaccinated only 7½ per cent., but of the unvaccinated, 46½ per cent. died of smallpox."

The annual reports of the Medical Departments of the Army and the Navy of Great Britain, afford most striking proof the protective power of revaccination in adult populations. The soldiers and sailors serving in the United Kingdom may be looked on as virtually a wholly protected force, for now, for several years past, every man serving in the Army or Navy, whether or not he has marks of smallpox or of previous vaccination, is required to be vaccinated on entering the service. This rule has been in force in the army since 1858, but until some ten years later, there was no rule in the navy requiring the vaccination of all who entered, whether previously protected or not. This has, however, now been rectified, and the result is seen in the fact that whereas in the days of the absence of such rule the smallpox death rate was much higher in the navy than in the army, the rate is now considerably lower, being in fact, for the six years, 1873-78, absolutely *nil*. Indeed, in the whole of the British Navy in all parts of the world, numbering 46,400 men, there were in 1878 but nine cases of smallpox, four on the home station, three on the East India, one on the Mediterranean, one on the China stations. All these nine cases are noted as mild, and were unquestionably modified by revaccination. In the very large proportion of the men employed in both services, the protection against smallpox is that afforded by vaccination. In the year 1877 only 5.45 per cent., of recruits proved on examination to have marks of smallpox, while 90.85 had marks of vaccination, and 3.69 had neither vaccination nor smallpox marks.

If the records of these protected services be examined to see what ravages are now made in them by smallpox, the disease which, according to Sir Gilbert Blane, was, before the discovery of vaccination, "one of the great embarrassments to the operation of armies," and obliged ships of war occasionally to quit the seas, we find that during the eighteen years 1859-76 inclusive, the annual deaths from it were considerably less than one per 10,000 (.643 only) amongst troops serving in the United Kingdom. More than a third of the whole of the deaths during these eighteen years occurred during the smallpox epidemic of 1871-72, the exceptionally severe character of which has already been adverted to. Among the sailors employed on the home force, there were, during the 20 years, 1859-78, as nearly as possible, one per 10,000 (1.0085) attacked annually with smallpox. During the same period the cases of smallpox did not exceed annually 9.05 per 10,000 soldiers and 16.16 per 10,000 sailors. If the influence of the ferocious epidemic of 1871-72 be duly allowed for, a steady decrease in the number of cases and of deaths will be observed from the commencement. In fact, omitting these two years, there has not been a single death from smallpox in the navy 1864 and 1880, *i. e.*, sixteen years ago. The recent statistics of the army are hardly quite so favorable, but still they show the year 1865 to 1880, with the exception of the epidemic years 1871-72, only one single soldier out of the 80,000 troops serving in the United Kingdom, has on an average died of smallpox in each year.

TABLE O.—Table showing for each of the years 1870-83 the mortality from smallpox in Berlin, in London and in Vienna per 100,000 inhabitants.

Year.	Berlin.	London.	Vienna.	Year.	Berlin.	London.	Vienna.
1870 . .	28.37	30.20	46.71	1877 . .	0.40	70.98	84.01
1871 . .	632.56	242.16	74.90	1878 . .	0.78	38.31	73.91
1872 . .	138.61	53.80	536.98	1879 . .	0.75	12.13	46.91
1873 . .	11.21	3.55	228.50	1880 . .	0.81	12.50	73.52
1874 . .	2.47	1.66	135.26	1881 . .	4.74	61.91	123.95
1875 . .	5.19	1.32	113.50	1882 . .	0.43	11.07	108.29
1876 . .	1.81	20.80	167.80	1883 . .	0.33	3.00	9.60

Average for nine years from 1875 to 1883: Berlin, 1.7; London, 25.83 Vienna, 89.29.

The above table furnishes incontestable proof of the efficacy of revaccination. The vaccination law of Prussia, requiring vaccination at the age of 1 year of age and revaccination at the age of 12 years, was enacted April 8, 1874, and has been rigidly enforced. In England, primary vaccination is compulsory, but revaccination, while urged upon the people, is not required except in the face of exposure to smallpox. In Austria neither vaccination nor revaccination is compulsory. The Austrian government warmly recommends vaccination and revaccination, but citizens adopt or reject the recommendation at will. Now, for the result. For the five years in the table, 1870 to 1874 inclusive, prior to compulsory vaccination, the average annual smallpox mortality per 100,000 inhabitants of Berlin was 162.64, while during the nine years of enforcement of compulsory revaccination at 12 years of age, it was 1.7 per 100,000 inhabitants. In London, it was 66.27, while during the nine years, 1875 to 1883 inclusive, it was 25.83. In Vienna, 1870 to 1874 inclusive, it was 205.41, while in 1875 to 1883 inclusive it was 89.25.

Again, during the nine years, 1875 to 1883, the average annual smallpox mortality in each of the three cities was as follows: Berlin, 1.7; London, 25.83; Vienna, 89.29 per 100,000 inhabitants. What is lacking to convince any sane man when such figures are presented?

In the smallpox epidemic in Sheffield, England, 1887-88, as previously shown, a house-to-house examination made under direction of Dr. Barry, inspector of the local government board, disclosed the fact that 64,431 citizens of Sheffield had been revaccinated and only 27, or 0.04 per cent. of the total revaccinated population had contracted smallpox, and one person, rather more than 0.001 per cent., died: 8,198 of these revaccinations were made prior to 1887, and of this number 25, or 0.30 per cent., contracted smallpox and 1, or 0.01 per cent., died. The remaining 56,233 were stated to have been revaccinated during 1887-88, and of these 2 persons, or 0.004 per cent., were said to have contracted smallpox and none of them died. The facts detailed by Dr. Barry show, however, that neither of these two cases were smallpox.

The enumerators under Dr. Barry reported that the total

number of persons living in Sheffield who had suffered attacks of smallpox prior to 1887 amounted to 18,292 persons. Of these, 23, or 0.13 per cent., contracted smallpox, of which 5, or 0.3 per cent., died, the percentage of deaths to cases of second attacks of smallpox having been 23.5 per cent.

VACCINATION AND SMALLPOX IN UNITED STATES ARMY AND NAVY.

The following tabular statements relative to vaccination and smallpox in the United States army and in the United States navy have been kindly furnished me by Surgeon General Sternberg of the army and Surgeon General Tryon of the navy. These tables richly illustrate the value of vaccination in prevention of smallpox.

In the army all men are required to be protected from smallpox by vaccination at time of enlistment. Now, for the result: For the eight years, 1884 to 1891 inclusive, in an army never numbering less than 23,226 men, there were 17 cases of smallpox and only three deaths from this disease.

In the navy for the sixteen years, 1880 to 1895 inclusive, among 68,944 men there were 95 cases of smallpox and only five deaths therefrom.

Vaccination and Smallpox, United States Army; Years 1884-91 inclusive.

Years.	Mean Strength.	Cases Vaccinated.	Cases vaccination Undetermined.	Primary Vaccination.	Revaccinations.	Total.	Primary Successful.	Revaccinations Successful.	Total Successful.
1884 . .	24,064	. . .	. . .	819	6,839	7,658	271	856	1,127
1885 . .	24,138	. . .	. . .	1,370	7,475	8,845	378	1,110	1,488
1886 . .	23,572	1	2	857	6,319	7,176	444	1,465	1,909
1887 . .	23,841	2	. . .	1,398	8,404	5,802	661	2,099	2,760
1888 . .	24,726	*a*2	. . .	1,605	9,593	11,208	891	2,920	3,811
1889 . .	25,008	4	. . .	1,800	10,377	12,177	944	2,985	3,929
1890 . .	24,234	. . .	1	1,224	6,230	7,451	729	2,052	2,781
1891 . .	23,269	*a*2	*a*3	2,382	7,974	10,356	1,455	2,948	4,403

"*a*" 1 died.

Report of Vaccinations.	1880-1885.		1885-1890.		1890-1895.		
	Successful.	Unsuccessful.	Successful.	Unsuccessful.	Successful.	Unsuccessful.	Total number Vaccinated.
No evidence of previous vaccination	1,560	2,014	1,168	1,803	1,235	1,767	9,547
Presenting good cicatrices.	6,687	13,372	5,563	12,912	5,024	13,597	57,155
Evidence of former attack of smallpox . . .	218	770	193	570	116	375	2,242

Total number vaccinated, 68,944—Successful, 21,764; unsuccessful 47,180

Admissions and Deaths from the following diseases, from 1880 to 1895, in the United States Navy.

Disease.	1880-1885.		1885-1890.		1890-1895.		Total.	
	Cases.	Died.	Cases.	Died.	Cases.	Died.	Cases.	Died.
Vaccina	433	. . .	368	1	501	. . .	1,302	1
Varicella.	3	. . .	7	. . .	11	. . .	21	. . .
Variola.	18	1	20	2	23	3	61	6
Varioloides. . . .	28	. . .	6	. . . . .		. . .	34	. . .

(*To be continued.*)

SOCIETY PROCEEDINGS.

American Association of Obstetricians and Gynecologists.

Ninth Annual Meeting held in Richmond, Va., Sept. 22-24, 1896.

(*Concluded from page 816.*)

Dr. WILLIAM G. MYERS, of Fort Wayne, Ind., read a paper entitled

ATRESIA WITH RETENTION OF THE MENSES; TREATMENT.

The author reported two cases of atresia, one with absence of the vagina and uterus and the other with retained menstrual fluid. The last was operated upon successfully. He believes that in a case of atresia of the vagina with retention of menstrual fluid in the uterus, an operation ought to be completed at one sitting, adopting the direct method. He thinks the teaching in a recent work that "the best way is to make a small opening into the mass and allow the contents to flow away gradually," is not sound. He could not therefore see in rapid evacuation such great dangers as were referred to in the books.

PRINCIPLES AND PROGRESS OF GYNECOLOGY.

The president's address was delivered by Dr. JOSEPH PRICE, of Philadelphia. He first thanked the Association for the distinguished honor in electing him president, which he said was the most gratifying expression of personal and professional kindness. He said the Association was made up of earnest, enthusiastic and eminent men of the medical profession. We had more than a passing interest in the record of the transactions of our medical and surgical associations. From them the history of the progress of medical and surgical science would be made up; they would reflect the advanced thought and opinions, the strength of the endeavors, the results of clinic experience and research of the profession of this period. We had the inspiration of the reflection that our high service was that of humanity, and Dr. Price said the members were there to learn through the interchange of the best counsel how to make that service the best.

Dr. GEORGE H. ROHÉ, of Catonsville, Md., read a paper on "Some Causes of Insanity in Women," of which the following is an abstract.

The general causes of insanity are the same in women as in men, but there are modifying conditions in the life history of men and women that influence the causation of mental disturbances in the two sexes. General paresis and alcoholic insanity are more frequent in men because the latter are exposed to their causes to a greater degree and intensity. Menstrual, puerperal and climacteric insanity are on the other hand self-evidently limited to women.

Women are especially subject to mental disturbances dependent upon their sexual nature at three different periods of life: puberty, the child-bearing period, and the menopause. The functions and activities peculiar to these periods have an intimate etiologic relation to certain insanities. It is probable, however, that these functions have no influence in the production of insanity in their normal condition. It is only when the functions are disturbed, or when pathologic conditions are present that they have any unfavorable influence upon the psychic functions.

At the period of puberty, menstrual derangements are not infrequently causative of mental disturbances which do not yield until the menstruation becomes normal. In the puerperium, insanity is dependent upon septic absorption, or the consequences of other morbid conditions of the reproductive organs. Lactational insanity may be due to physical exhaustion, but in some cases pathologic conditions of the genitals or of the breasts seem to have an etiologic relation. At the menopause the disturbances of nutrition associated with the arrest of menstruation often produce insanity, and in many of these cases there will also be found abnormal alterations of the reproductive organs. The insanities following gynecologic operations are either due to septic conditions, or are merely due to the rapidly induced menopause. Their frequency has been much exaggerated.

Dr. WALTER P. MANTON, of Detroit, Mich., read a paper on

THE RELATION OF VISCERAL DISORDERS TO THE DELUSIONS OF THE INSANE.

He said, that the delusions of the insane are often an expression of somatic peripheral irritation has long been recognized, but observation leads Dr. Manton to believe that the importance of these mental manifestations as indices of bodily suffering was frequently ignored as a mere phase of the brain disorder, especially in the instances of supposed fancied visceral disturbances.

For convenience of consideration, he placed the so-called visceral lesions in four classes: 1, Delusions arising de novo from the diseased activity of the brain; 2, delusions regarding external or visible abnormal bodily conditions; 3, delusions arising from easily determined visceral disorders, and 4, delusions dependent upon obscure abdominal and pelvic states. The last three classes were briefly considered.

One can readily understand how visible bodily defects may be misinterpreted and the mind of the patient become confused as to the real nature of the condition which is always more or less open to inspection. The site of a dermoid tumor slowly developing in the abdominal walls led one of his patients to believe herself pregnant, but the removal of the growth soon dispelled the illusion. In another instance a uterine fibroid

called out the same impression, and the patient requested the physician to listen to "hear the young ones." The appearance of a complete procidentia uteri in another case gave rise to the idea that the protruding mass was the male organ, and under such conditions the patient could no longer retain her feminine appellation, and immediately rechristened herself "John." Such examples might be multiplied, for they were of frequent observation by all who had to do with the insane. In such instances the connection between the delusion and the somatic disorder was obvious, being, as it were, on the surface. In the third class, however, the relation of the condition to the expressed idea was not always so apparent.

The author reported interesting cases. In each of the patients the delusions referred chiefly to the abdomen, and in each an abnormal condition of some of the viscera was found, but a condition in which the early intervention of surgery would have afforded great, if not permanent, relief to the sufferings of patients. Laparotomy, in properly selected cases of the insane in whom visceral delusions are a pronounced and constant feature of the mental disorder, was not only justifiable, in his opinion, but urgently demanded in the interest of the patient.

Dr. David T. Gilliam, of Columbus, Ohio, read a paper on:

OOPHORECTOMY FOR THE INSANITY AND EPILEPSY OF THE FEMALE; A PLEA FOR ITS MORE GENERAL ADOPTION.

The author showed in this paper that oophorectomy was a logical and legitimate operation for the epilepsy and insanity of the female. Insanity is hereditary, as also epilepsy. They constitute the greatest curse to humanity. An insane father or an insane mother brings more misery into the world than any other father or mother. The offspring of such a parent, when ushered into the world, would be confronted by the awful specter of impending doom, and though he called on the rocks or mountains to fall on him, the curse would pursue and overtake him. Dr. Gilliam then gave a picture from real life. He would limit the operation to those in whom the malady appears in some way to be connected with, or dependent on sexual disturbance. He would go further and include all who were willing to undergo the operation to save themselves and their offspring from the miseries which awaited them.

Dr. J. F. Baldwin, of Columbus, Ohio, followed with a paper entitled:

TREATMENT OF THE STUMP TO PREVENT ADHESIONS.

He estimated that about 1 per cent. of all cases operated upon die from intestinal obstruction, the result of adhesions to the stump. To diminish as much as possible the danger of adhesions, he recommended the careful closing in of stumps by a peritoneal flap, and described the method of securing this flap. In cases where the pedicle is, after a simple ovariotomy, not too large, he recommended that the pedicle be so ligated that the ends of the ligature were on the anterior face of the pedicle: that the ends of the ligature be then carried across the face of the stump, down and through the broad ligament, transfixing the ligament from behind forward. The ligatures should be passed through about half an inch apart. As the ends are drawn through and tightened, the raw end of the stump is rolled down and under the broad ligament, so as to be entirely protected. He had used this method in a large number of cases and with entirely satisfactory results.

Thomas E. McArdle of Washington, D. C., read a paper entitled

ABDOMINAL SECTION FOR TUBERCULAR DISEASE.

The author formulated in a terse manner what had already been done by surgical means for the relief of women suffering from tuberculosis of the generative organs. There is no doubt that tubercular disease of the female genitalia is more frequent than is generally supposed. Every portion of the genital tract may be affected, the order of frequency for the various portions being the tubes, body of the uterus, ovaries, vagina, cervix and vulva. The tubes are affected in all cases, the body of the uterus in about three-fourths of the cases and the ovaries in about one-half of all cases. Tuberculosis of the body of the uterus is not at all a rare affection and has been frequently discovered in autopsies upon phithisical subjects. It can be the only focus of disease of the body, but it is generally associated with disease of the tubes and is generally secondary to disease of that organ. Of all the female genitalia, the vulva is the least liable to tubercular infection. The author then dwelt upon the etiology of tuberculosis of the female genitalia, after which he detailed the various ways by which the disease might be caused or transmitted.

The treatment of tuberculosis of the vulva, vagina and cervix did not come within the scope of the paper. The destruction of the tuberculous focus by fluid or solid caustics had been advocated by some surgeons, and if these means were not satisfactory, extirpation of the part was recommended. We had a very efficient means for the removal of the tubercular ulcers of the vagina and vulva in the application of the tincture of iodin. They rapidly disappear under its use. In case of failure, however, excision could be practiced. When the cervix is involved, and not the body of the uterus, the method of treatment advised for the vulva and vagina should be given a fair trial, but if they prove ineffectual no time should be lost in amputating the cervix. When the endometrium is involved there is a diversity of opinion as to the best method of procedure. It has been recommended to first curette the organ and remove all evidence of disease. The iodoform suppositories are introduced into the uterus. If there should be a recurrence of the trouble, removal of the organ is advised. If we bear in mind that tuberculosis of the body of the uterus is so frequently associated with the same disease in the tubes and ovaries, it seems to Dr. McArdle that having once ascertained the existence of tubercular disease in the uterus, it is our duty to look for a similar condition in the tubes and ovaries, and, if found, it behooves us to waste no time in curetting the uterus and treating it with iodoform, but to proceed at once to the performance of an abdominal section for the removal of the uterus, tubes and ovaries. This heroic method of treatment is advocated in primary disease of these organs. In a case complicated with tubercular peritonitis there would be no special danger in removing the tubes and ovaries. We all know how many cases of that disease have been cured by section and drainage. We could then curette and treat the body of the uterus.

Dr. Charles A. Reed of Cincinnati, Ohio, read a paper entitled

MELANO-SARCOMA OF THE FEMALE URETHRA; URETHRECTOMY; RECOVERY.

This interesting case was as follows: Mary E. Y., aged 64, single, was brought to his private hospital Dec. 3, 1895. The patient had had no previous serious illness. There was no history of tuberculosis or syphilis in the family. The vaginal condition of the genitalia precluded the supposition of venereal infection of any character. Her general health was good, although there was some emaciation about the neck and breasts, the latter of which were flabby—changes no doubt incident to age. Careful examination revealed no diseased conditions about either the lungs or heart. Careful palpation and percussion of the abdomen yielded negative results.

About eight months previousiy, *i. e.*, in April, 1895, she began to notice some pain accompanied with blood on micturition. This was shortly followed by a more or less constant pinkish discharge from the genital fissure. The self-examination which followed revealed a tumor at the meatus urethræ. This tumor continued to increase in both size and hemorrhagic tendency until she was prompted to consult Dr. Morris, who curetted the neoplasm thoroughly aud treated it with styptics. When the patient came under Dr. Reed's care he found a black lobulated and eroded mass about three centimeters in diameter separating the labia majora. The orifice of the urethra was in the very center of this mass. A careful vaginal examination was not made at the time, as the vaginal structures, present in their integrity, rendered such an operation very painful.

Operation was done the next day, December 4. The small blade of a Jones' speculum was introduced; the patient being in the Simon's posture, the urethra was exposed in its entire length. A longitudinal incision was made through the mucous membrane along the dorsum of the urethra from a point where the presenting part of the mass was eroded to the base of the bladder. Another incision through the mucous membrane was made at right angles to the foregoing at point far enough above the eroded mass to insure healthy tissue. The mucous membrane was then dissected back in two lateral flaps and the urethra was enucleated. The urethra was found to be distinctly conical in shape, the base of the cone being at the meatus, the apex at the bladder. Care was taken to dissect out the canal to a point manifestly above the zone of malignant involvement. When this point was reached, but a slight distance from the bladder, the canal with the neoplastic walls, was excised. The cut margin of the cystic segment of the canal was seized at various points in its circumference by Kocher's forceps, brought down by gentle traction and fixed by interrupted sutures of silk-worm gut to the vaginal mucous membrane. A self-retaining catheter was inserted and the patient put to bed. The sutures were removed on the eighth day. The catheter was dispensed with on the twelfth day. The patient sat up on the fourteenth day, when she found that she could retain her urine and void it at will. She was dismissed December 21, entirely healed. She remained in good health until July 1, following—seven months when she

again summoned Dr. Morris because of some stomach symptoms. He found her suffering from persistent vomiting, and with a large mass in the epigastrium. This mass rapidly increased in size until it occupied all of the area between the navel and the breast, its nodular characteristics becoming more and more pronounced. She died of exhaustion July 14, 1896, having had no recurrence whatever of the urethral trouble. No autopsy was permitted.

Dr. J. B. MURPHY of Chicago, addressed the Association on

THE SUTURE OF LARGE VESSELS INJURED IN OPERATIONS.

He demonstrated the method employed by him. He said in 1762 Lembert conceived the idea of suturing injuries to vessels. He made two experiments, in both of which he failed. Dr. Murphy then referred briefly to the experimental work of other surgeons along this line, pointing out their successes and failures. His own researches and operative work lead him to believe that, where a large vessel is injured in an operation, a transverse division of it, not exceeding two-thirds of its circumference, the surgeon can resort to immediate suture without resection, and, if the field of operation be aseptic, can feel more certain that he will have union of the vessel and continuation of the current than he could where he sutures the intestine as for resection of the bowel. He believes from his observations that the changes are better with the suture. The importance of this concerned surgeons more in the treatment of aneurysms.

Coming to the question of stab and bullet wounds of the extremities, he said there was a great field for improvement in our past operative work. Formerly, we ligated vessels, and when this was done the inevitable result was death of the limb. He believes that now such limbs can be uniformly saved, particularly in the aseptic cases. With his present method of suturing large vessels, he is not afraid to suture any vessel in the body, feeling confident that adhesion or union will take place.

CONTUSIONS OF THE ABDOMEN.

A paper on the subject with report of cases and conclusions was read by Dr. W. G. MACDONALD, Albany, N. Y.

Contusions of the abdomen are always grave injuries. The question of surgical intervention, although much discussed, can not be regarded as satisfactorily settled. Seven cases of traumatic rupture of the stomach and small intestines are reported. Two operations were undertaken, one recovery, one death the eighth day after operation from second rupture. All the inoperative cases died. Reference is made to the general absence of evidence of contusions in the abdominal walls when serious visceral injury has occurred. Very slight causes, particulary if the intestinal canal is distended with fluids, may produce intestinal rupture, as the falling out of bed, a blow from a barrow handle. The early symptoms of intestinal laceration are not always distinctive. An analysis of two hundred cases of intestinal laceration as associated with abdominal contusion was made with a view to determining the symptoms. The following topics are considered the important ones: History of the nature of the injury, shock or collapse, pain, vomiting, pulse, temperature and physical signs. That careful investigation of a given case will usually show sufficient symptoms to make an early exploratory abdominal section imperative.

The following officers were elected:

President: Dr. James F. W. Ross, Toronto, Ontario.

First vice president: Dr. Geo. Ben. Johnston, Richmond, Va.

Second vice-president: Dr. John C. Sexton, Rushville, Ind.

Secretary: Dr. Wm. Warren Potter, Buffalo, N. Y.

Treasurer: Dr. X. O. Werder, Pittsburg, Pa.

Place of meeting: Niagara Falls, N. Y. Time: August 24, 25 and 26, 1897.

The American Public Health Association.

[Special Correspondence of the JOURNAL.]

The Twenty-fourth Annual Meeting of the American Public Health Association held at Buffalo, N. Y., Sept. 15–18, 1896.

(Concluded from page 818.)

FRIDAY, SEPT. 18, 1896. MORNING SESSION, 9 A.M.

The Association met an hour earlier than usual and listened to the final announcements of the local Committee of Arrangements by Dr. Howe, for the excursions to follow the adjournment in the afternoon and next day.

The Secretary reported that the Executive Committee had recommended the passage of the following resolutions which had been referred to it:

1. The resolution of Dr. Whitehall of New Jersey, that the standing committee on legislation be requested to report methods for rural sanitary administration which are in its judgment the most useful and promising.

2. The resolution of Dr. Walter Wyman of Washington, D. C.: Whereas, yellow fever is believed to be the most subtle and dangerous of all epidemic diseases; and whereas, it is ordinarily conveyed into a new country from an infected seaport of another; and whereas, the continued and persistent presence of this disease in any seaport is believed to be unnecessary and may be prevented by proper engineering and other sanitary measures; therefore be it

Resolved, 1, That it is the duty of every government possessing seaports thus infected to institute such engineering and other sanitary measures as shall remove this menace to seaports of other nations; 2, that it is the duty of the governments continuously threatened with the invasion of yellow fever from a seaport in which this is allowed to persist, to make such expostulations to the government in possession of the offending seaport as shall cause the latter to adopt sanitary measures necessary to remove this obstruction to commercial intercourse and menace to human life.

3. The resolution of Dr. Durgin of Boston, protesting against the passage by the Congress of the United States of the proposed act preventing experimentation on animals.

The Executive Committee further recommended the continuance of all the special committees except that on the centennial of vaccination, and the consolidation of the committee on the cause and prevention of diphtheria with that on the cause and prevention of infant mortality.

Dr. WRIGHT of Connecticut inquired what had become of his resolution recommending the discontinuance of oyster planting at the mouths of polluted streams, and when informed that it had been tabled by the Executive Committee, for the reason that it considers the effort should be to first prevent the pollution of the streams, gave notice of an amendment to the constitution, making the Executive Committee consist of nine members, three of whom shall be elected annually.

The Secretary reported forty additional names recommended by the Executive Committee for election to membership, for which the Secretary was instructed to cast the vote of the Association in block.

Dr. PROBST, of the Auditing Committee, reported that the accounts of the Treasurer had been carefully audited and found correct.

Mr. CROSBY GRAY, Secretary of the Advisory Council, reported that the following members had been nominated by the Council as officers of the Association for the following year:

For President, Dr. Henry Buckingham Holbeck of Charleston, S. C., Health Officer of the city of Charleston.

For First Vice-president, Dr. Peter Henderson Bryce of Toronto, Canada, Secretary of the Provincial Board of Health of Ontario.

For Second Vice-president, Dr. Ernest Wende of Buffalo, N. Y., Health Commissioner of the city of Buffalo.

For Treasurer, Dr. Henry Dwight Holton of Brattleboro, Vt.

For Members of the Executive Committee, Dr. Henry Mitchell of Trenton, N. J., Secretary of the State Board of Health of New Jersey, Dr. U. O. B. Wingate, Secretary of the State Board of Health of Wisconsin, and Dr. Jésus E. Monjarós of San Luis Potosi, Mexico, President of the Superior Council of Health of the State of San Luis Potosi, who were all thereupon elected to these respective offices by the vote of the Association.

Ex-presidents GIHON and FORMENTO were delegated by the Chair to conduct the President-elect to the platform, who made a very feeling address in acknowledgment.

Mr. GRAY further reported that the Advisory Council had selected Toronto, Canada, as its place of meeting in 1897. Dr. Plunkett, President of the State Board of Health of Tennessee, moved to substitute Nashville, Tenn., in which he was ably seconded by Dr. A. N. Bell of Brooklyn, N. Y. Professor Bracken of the University of Minnesota moved to amend, being largely seconded, by substituting Minneapolis, Minn., and he was followed by Dr. Benjamin Lee, Secretary of the State Board of Health of Pennsylvania, who presented invitations from the Mayor of Philadelphia, the board of health of that city and the State Board of Health to meet in Philadelphia, which was ably seconded by Dr. Gihon, who as a Philadelphian argued the propriety of holding the twenty-fifth meeting of the Association—its quarter-centennial—in that city, where it had not assembled since 1874. He said that the presence of the Mayor of Ottawa, the capital city of the Dominion, backed by a strong delegation bearing an urgent invitation to go to that city, in a measure obliged us to hold our next meeting in Canada at Ottawa, having already met in Toronto in

1886 and in Montreal in 1894. After a lengthy and lively debate by the advocates of the various cities, Philadelphia was selected as the place of meeting in 1897.

The appointment of Dr. Domingo Orvañaños of the City of Mexico to be Assistant Treasurer for Mexico was then announced, and members appointed on the special committees authorized by the Association.

The members of the new committee on transmissibility of infections and periods of danger from infected persons, constituted in accordance with the recommendation of the President in his annual address are Professor Eduardo Liceaga of the City of Mexico, Dr. John L. Leal, of Paterson, N. J., Surgeon Fernando Lopez of the Mexican Army, Medical Director Newton L. Bates, U. S. Navy and Surgeon General J. J. Kinyoun, U. S. M.-H. S.

Professor Stephen Smith of the City of New York was appointed Chairman of the new committee on international coöperation in preventing the transmission of contagious diseases with authority to select his associates.

The President, Dr. Liceaga, then extended an earnest invitation on the part of Dr. Rafael Lavista, Dr. Manuel Carmona y Valle and himself as the Committee of Management of the 2d Pan-American Medical Congress to all the medical members of the Association and their professional friends to attend that Congress which opens in the City of Mexico, November 16 and continues until the 19th.

The thanks of the Association were then tendered the retiring President, who eloquently responded, expressing the hope that the community of interest between the United States and Mexico shown by his election might be unending; and to the retiring First Vice-President for the able, prompt, and energetic manner in which he had assisted the President during the protracted sessions, and after a graceful response on his part, the scientific work was resumed in the following order: Report of committee on the "Relation of Forestry to Public Health," by Professor Robert C. Kedzie, of Michigan; Report of committee on "Transportation of Diseased Tissues by mail," by Dr. Henry Mitchell, of New Jersey.

Dr. Lee commended the committee (Drs. Mitchell of New Jersey, LaChapelle of Montreal and Orvananos of Mexico) for the admirable work they had already accomplished and in recognition of the fact that the Hon. William L. Wilson, Postmaster General of the United States, had permitted the transmission of diseased tissues through the mail making their distribution possible, offered a resolution expressing the appreciation of the American Public Health Association of the deep scientific discernment exhibited by the Postmaster General in so doing.

A paper "On Statistics of Vaccination and Mortality from Smallpox in the city of Mexico, 1872-1895," was read by Dr. José Ramirez, who said that vaccination met with no opposition in Mexico, where it was compulsory, and consequently smallpox had become very rare, the epidemic outbreaks occasionally occurring being due to foreign importation. A paper "On Drunkenness a Vice; it should be so treated," by Dr. A. Nelson Bell of Brooklyn, N. Y. This paper advocated the punishment of voluntary drunkenness as a misdemeanor, with increased penalties for repitition of the offense against society. "Municipal Cattle and Meat Inspection, by Dr. Peter H. Bryce of Toronto; "The Prophylaxis of Scurvy in Prisons by Pulgue," by Dr. Francisco Martinez Baca, of Puebla, Mexico. Vice-President Woodhull, in confirmation of the statement of Dr. Baca, said that the use of the maguey juice had long been known to medical officers of the army serving in the Mexican frontier as an excellent remedy for scurvy.

The following papers were presented: "The Relation of Noises to Public Health," by Dr. William C. Krauss of Buffalo, N. Y.; "The Degeneration of the Human Animal Through the Nursery and Schools," by Dr. J. B. Learned of Massachusetts; "The Importance of Supplies of Pure Water," by Dr. J. L. DeHart of Brooklyn, N. Y.; "Racial Deterioration," by Lawrence Irwell, M.A., of Buffalo, N. Y.; "The Protection of the Innocent from Gonorrhea," by Dr. Ferdinand C. Valentine of the city of New York: "The Necessity of Isolating Beds in Hospitals by means of Windows between Them," by Dr. Jésus E. Monjaras of San Luis Potosi, Mexico: "Filth Deposits with Regard to Public Health," by Drs. José D. Morales and R. E. de Guerrero of Mexico.

The program having been concluded, Medical Director Gihon, United States Navy, rose to say that he had deferred to the last to make formal announcement of the recent death of two of the most distinguished members of the body, Dr. Joseph M. Toner of Washington, D. C., one of its founders in 1872 and its second President (1875), and Dr. Jerome Cochran of Mobile, Ala., State Censor of Alabama and senior member of the Advisory Council, who since 1878 had never failed in his attendance at the meetings when that was possible and who until a few weeks ago anticipated with great pleasure being with us at Buffalo, and offered a resolution of sorrow and regret, which was adopted by a rising vote. After appropriate valedictory remarks, the President at 2 P.M. declared the twenty-fourth meeting adjourned.

An excursion around the harbor and an exhibition drill by the life-saving service during the afternoon, and an excursion on the following day to Niagara Falls, by steamer on the Niagara River to Chippewa, by trolley along the Canadian bank to Brock's monument and Queenston Heights, by boat across the river to Lewiston, thence by trolley through the gorge to Niagara Falls, where dinner was served, and back to Buffalo by train closed one of the most interesting and successful meetings in the history of the Association.

Second International Congress of Gynecology and Obstetrics.

(*Continued from page 761.*)

The discussion of pelvic suppurations showed that the conservative operators were in the majority. Doloris (Paris) remarked that the fact which established with the most certainty the evolution of the subject under discussion was the return backward. "We have been sliding down an incline at a dizzy rate, and we are now working our way back." This is indicated by the more general adoption of vaginal incision. The success of this simple and familiar operation augurs the adoption of still simpler methods and promises to restore early uterine therapeutics to its true importance. Anterior vaginal celiotomy is a more recent but valuable conservative process. Since we find that pregnancy occurs sometimes even after double lesions, conservative processes have acquired a new importance. The conservative tendency which has been manifested at the Congress is logical and bound to assert itself more and more. After mentioning that the severest and most virulent processes rarely generate pus, and that about 40 per cent. of pelvic suppurations contain a sterile fluid without pathogenic action, he described the unreliability of the symptoms upon which we have to base our diagnosis, and concluded with the assertion that the treatment of pelvic suppurations is akin to the treatment of pelvic inflammations, and should follow the same general and absolute therapeutic rules, beginning with simple methods and proceeding to others as may be found necessary. What we most need is better knowledge of the evolution of pelvic inflammations, especially of salpingo-ovaritis, as this is the most frequent; the cases tending naturally to recovery with a series of recrudescences, gradually subsiding in intensity, and those in which the acute attacks extend beyond their usual term with complications that involve the general health, or when the lesion becomes permanent and some etiologic factor is discovered, tuberculosis, syphilis, arthritism, neuropathy, alcoholism, etc. He asserted that no real information is to be derived from the statistics of radical operations performed without any preliminary conservative treatment, and emphasized that the only treatment for pelvic suppurations was to try the simplest means of cure first and only proceed to sacrificial measures as a last resort.

Doederlein (Leipsic) considers that if there is pus in the tubes or ovaries total ablation of the diseased organs is the only chance of cure. But the uterus and ovaries may be left in certain cases. He prefers Péan's operation when the entire genitalia have to be removed, but when the pus has disappeared, anterior and posterior colpo-celiotomy may be preferred, as this in some cases allows a radical operation.

Segond (Paris) spoke in high terms of the American method, which allows the total ablation of the uterus and its adnexa with "veritably marvelous security," as he ascertained for himself by watching the American surgeons at work. He has also performed it himself recently, with success each time. He called attention to the importance of liberating the cervix as a preliminary to vaginal hysterectomy, whether it is amputated later or not. The cervix free, the broad ligaments can be sectioned at the base. As these are the only obstacles to the descent of the uterus, the fundus can be seized at once. Liberating the cervix also lessens the dangers of injuring the ureters.

Henrotay (Antwerp) stated that gonorrhea is by far the principal cause of suppurated adnexa, and that the majority of cases now called puerperal, are really due to gonorrheal infection. Prophylactic treatment should be based on the extreme severity of gonorrheal affections in women, and the obligation of physicians to fully inform every man with acute or chronic urethritis of this fact. Medical treatment should be tried first in every case where possible. If an operation is necessary, he prefers the vaginal method, and adds that the gonorrheal nature

of the lesion renders total castration imperative. He considers closing the vaginal vault and the pelvic peritoneum a marked improvement in technique, and that it should be done in every case unless there is some special contraindication.

Jacobs (Brussels) prefers posterior and anterior colpotomy in cases of extraperitoneal cellulitis, and uses the thermo-cautery to make the incision, thus avoiding infecting the vagina with the pus which escapes and may cause post-operative accidents. In performing hysterectomy he substitutes ligatures for the forceps, and since he has done this he has had no post-operative intestinal occlusion nor peritonitis. Drainage is not required after a radical operation, except when pus has escaped into the peritoneum.

Acconci (Genoa) prefers vaginal hysterectomy when the indications allow a choice.

Coromilas (Calameta) reported a case of pelvic suppuration caused by malaria and cured by quinin.

Laroyenne's method of vaginal *débridements* was described by him and its advantages confirmed by Adenot. It is more conservative than laparotomy or hysterectomy, while it reaches pus sacs inaccessible by any other method, and makes an opening large enough to empty them and keeps it open long enough to be really effectual. Laroyenne's trocar invented for the purpose is convenient and sure, but is not absolutely necessary. Doyen compared his operation with Péan's with an argument for its superiority. It consists in opening the posterior peritoneal cul-de-sac, and freeing the posterior surface of the uterus from the adherences, if there are any, and then extracting the organ by inverting it to the vulva, after median hemisection of its anterior wall; afterward extracting the adnexa. Hemostasis is unnecessary during the course of the operation, and forcipressure of the broad ligaments is only required afterward, and above the adnexa. (The *Bulletin Medical* of September 6, describes the Doyen method in detail.)

Reynier appealed for a more rational and eclectic treatment, based upon the indications, which should be more definitely established. His record since 1891 is 200 operations for pelvic suppurations. In four cases, with four recoveries, he opened the pus sac by the inguinal and subperitoneal route for phlegmons of the broad ligament after childbirth. In 110 cases he opened the abdomen, with 9 deaths; 7 from peritonitis, 1 from shock and 1 from hemorrhage. He has performed vaginal hysterectomy 52 times, with 6 deaths; 1 from hemorrhage, 1 from shock, 2 from intestinal occlusion, and 2 from peritonitis. In 46 cases he opened and drained the pus sac through the posterior cul-de-sac, with no deaths, but in 9 cases consecutive hysterectomy was required and laparatomy in 4. His experience has convinced him that almost all pelvic suppuration can be approached by the abdomen, and that our methods of draining render the danger of infection much less than the hysterectomist extremists are willing to admit. In case of a young woman with symptoms of recent infection and evidences of pelvic suppuration prominent in the vaginal region, he first makes an incision in the posterior cul de sac with large drainage. If in spite of this, the phenomena of infection continue, he completes the operation with a hysterectomy if the uterus is diseased, but if not, he prefers a laparotomy. His indications for primary hysterectomy are uterine abscesses opening into a neighboring cavity, especially into the rectum. Also old salpingo-ovaritis, with pelvi-peritonitic complications which have produced a diffuse mass walling in the uterus, and also for fibromatous uteri complicated with pus in the pelvis. In other cases he is inclined to prefer laparotomy, especially in cases of doubtful diagnosis.

Pichevin (Paris) has found sclerotic lesions in removed retrodeviated uteri, and has also produced similar lesions in rabbits in ths same way.

In discussing the question of surgical treatment of retrodeviations of the uterus, all seemed to agree that massage and the pessary should be tried first, and the metritis and all other complications receive careful preliminary treatment, which often puts an end to the displacement without an operation. Polk (New York) disapproves of fixation, and restores the uterus to position by shortening the round ligaments through an opening in the anterior vaginal cul-de-sac. He sutures the ligament a certain distance above its base, with its peritoneal covering, to the uterus on a level with its base, leaving a couple of loops. One of these he sutures to the uterus, and the other to the ligament above the first suture. At the same time he shortens the sacro-uterine ligaments when necessary, through a transverse opening in the posterior cul-de-sac, at the utero-vaginal insertion. A strong silk suture is then placed at each sacro-uterine ligament at a median point; the ends brought through the vaginal wall at the extreme corners of the incision, and tied firmly together; catgut closing; drain removed in fifteen days; patient kept in bed three weeks; no pessary but supervision of urinal and intestinal functions and ventral belts for patients with prominent abdomens.

Pozzi (Paris) proposed to substitute the term "excessive movability" for movable retrodeviation. He treats it with the pessary and hypogastric belt, curing the metritis (curettement, amputation of the cervix, etc.) and restoring rents in the peritoneum by an extensive plastic operation. He considers a retrodeviation with adherences a secondary symptom, and treats it by finding and removing the diseased tubes or whatever the cause may be.

Byford (Chicago) outlined his cysto-hysterorrhaphy as a T-shaped incision in the anterior wall of the vagina, separation of the adherences, suture of the fundus to the vesical peritoneum, shortening the round ligament through the vagina and closing with transverse sutures that draw the tranverse incision into the median line.

Schmeltz (Nice) prefers anterior colporrhaphy (simple incision in the mucosa, enlarging it with the fingers), combined with hysterectomy (ligatures) and perineorrhaphy.

Jacobs (Brussels) reports four successful pregnancies in twenty-one cases treated by fastening the anterior uterine wall to the upper part of the peritoneum of the anterior vaginal cul-de-sac. He announced that the later results of other operations, inoffensive in themselves, may prove very dangerous, and exhibited some pedicules that had formed between the abdominal wall and the uterus causing death from ileus, etc.

Engstroem (Helsingfors) reports eighteen ventro-fixations of movable retro-deviations and thirty-four of fixed. All successful. A single suture is passed through the abdominal wall, the peritoneum and the fundus. This leaves the uterus with almost normal movability.

Hartmann (Paris) has found that the development of the fetus brings the pregnant uterus into place, assisted by vaginal manipulation, except where there are adherences between the bladder, omentum and rectum, which require laparotomy, but such cases are rare.

Mangin (Marseilles) has failed with the Alexander or Nicoletis operation alone, but has been successful every time when they were combined with plastic operations. His advice is, first, pessary for movable retrodeviations. This failing, vaginal colpo-hysteropexy with plastic operation on the vagina. He limits the Alexander and abdominal hysteropexy to patients with non-resisting tissues. Complications must be cured with medical treatment, plastic operations, etc., as may be necessary, and if the condition of the appendages requires it, laparotomy when the lesion is single, hysterectomy if double.

The majority of speakers deprecated the use of fixation, as it rendered after-pregnancy so dangerous, especially vagino-fixation, although the operation is a good one after the menopause. Doyen's method of treating painful retrodeviations differs from all the preceding and, as he claims, has none of their disadvantages. He performs the Alexander operation and also shortens the anterior uterine wall, thus avoiding the dangers of suspending the uterus from any one point, and limiting the operation practically to the uterus itself. The cervix is seized with two clamp forceps, as if for a hysterectomy, and drawn down to the vulva. The uterus in this position, an incision is then made in the anterior cul-de-sac of the vagina, the bladder is detached and an opening made into the anterior cul-de-sac of the peritoneum. A silk thread is then passed transversally through the superficial coat of the fundus with a special needle-holder. The other end is fastened in the lower part of the subvaginal portion of the cervix. This ligature shortens the anterior uterine wall and draws the organ into an upright position without interfering in the least with the direction of the cervical passage. A second ligature is made above it to strengthen it, and the vaginal wound is closed with a silkworm gut, the two ends simply held by a rubber tube. The entire operation requires only five or six minutes. It is completed by shortening the round ligaments 8 to 10 centimeters, through an incision into the anterior wall of the inguinal canal.

Reynier performs hysteropexy by putting his threads into the broad ligament, and passing them under the uterine insertion of the round ligament, fastening them on each side to the abdominal wall. In every case the uterus has retained its position.

Schwartz (Paris) reports several successful pregnancies after his hysteropexy. After preparing the patient for laparotomy and introducing a Hegar bougie (6 or 7) into the uterus, held in place with a cotton tampon, he incises 4 to 5 centimeters, and explores with his finger the condition of the appendages, while an assistant straightens the uterus by gently pushing up the bougie into it. After the adherences are detached, a silk thread (No. 2 or 3) is passed through the uterus below the emergence of the two tubes. The loop thus formed serves to

draw the uterus up and allows two or three other threads to be taken below it, avoiding the vesical cul-de-sac, and keeping as far from it as possible. If the appendages are diseased, they are ignipunctured, resected or removed, before the threads are fastened, after being passed on each side through the entire thickness of the wall, except the skin and the subcutaneous cellular tissue. Separate threads close the peritoneum, the teguments, and the muscular aponeurotic planes. He has only had two relapses; one of them after confinement; two still suffer pain, thirty are definitely cured.

SELECTIONS.

A Case of Compound Protozoan and Bacterial Infection.—The patient, A. J., was a Pole about 29 years of age, from whom a satisfactory history could not be obtained. He had been living in a malarious district since March of the past year (1895), but he had been quite well until three weeks prior to his entrance, which was on October 21. His illness began with diarrhea, which rapidly assumed a severe character, the movements containing much blood and mucus. During these three weeks he stated that he had several times experienced slight chilly sensations and also felt feverish. On entrance to the hospital he was very anemic, extremely sallow; had a palpable spleen, slight fever and severe dysentery, the movements showing much blood and mucus. The dejections contained many motile amebæ having the appearances of the ameba coli. The blood examinations showed hyalin bodies and crescentic and ovoid pigmented forms of the malarial parasite. Under the administration of five grain doses of quinin every three hours the temperature fell. The diarrhea was treated with irrigations of quinin (1-1500) repeated twice daily, but without apparent effect. The patient continued to lose blood per rectum and died on November 2.

The *autopsy* was performed seven hours post mortem. Body of a moderately strongly built, much emaciated man. The surface presented a distinctly sallow hue. The mucous membranes of the mouth and conjunctivæ were extremely pale. The abdomen was moderately distended; the subcutaneous fat almost absent; the muscles dark-brownish red in color.

The peritoneal cavity.—The omentum was well spread out, covering the intestines, but it presented an opaque appearance and was covered with a sticky exudate. The loops of the moderately distended small intestine were glued together by a similar sticky exudate. The serous membrane itself was in places vividly injected. In the fossæ small accumulations of fluid containing flakes of fibrin were encountered. The omentum was adherent along its lower border to the much enlarged and inflamed appendix vermiformis. The appendix lay anterior to the cecum and between it and the anterior abdominal wall; it was provided with a mesentery which reached within 3 cm. of its tip, and at the termination of this the appendix was bent sharply upon itself, giving rise to a right angle. The distal 3 cm. of appendix was the least dilated part; the remainder had the thickness of the index finger and presented in addition three bulbous enlargements, which on section were found to correspond to areas of necrotic tissue. The whole was embedded in a sticky, opaque exudate.

Intestines.—The large intestines were greatly distended. The sigmoid flexure was of rigid consistence and projected beyond the pelvic brim. Within this portion for a distance of 2 x 5 cm. the serous coat was infiltrated with blood and presented a necrotic appearance. On opening the large intestine the entire mucous membrane was found in a frayed and sloughing condition, opaque, everywhere infiltrated with gelatinous pus and evidently necrotic. The necrosis seemed to extend far beyond the mucous coat and to involve the deeper layers. The walls, as a whole, were very much thickened. In many places coagula of blood were discovered. Amid this general necrosis and sloughing more circumscribed ulcerations existed, some of which seemed to reach to the peritoneal coat. These in particular were surrounded by thickened and purulent margins, and at times they definitely undermined the adjacent tissues. The ulcerations and sloughing extended from the rectum to the cecum, involving the whole of the latter, penetrating into the appendix, but ending abruptly with the ileo-cecal valve. The small intestine was entirely free from ulceration, and it showed throughout nearly its whole extent, although most prominently upon the crests of the valvulæ conniventes, a slaty pigmentation. The duodenum was more pigmented than other parts of the small intestine.

The *spleen* was enlarged, weighed 380 grams, its capsule was wrinkled, and on section it presented a bluish black color. In consistence it was almost diffluent. The Malpighian bodies appeared enlarged, the pulp increased.

The *liver* weighed 2100 grams, its color was dark and slaty. Small grayish white nodules could be seen on section, which varied in size from a pin point to a hemp seed. The larger ones could easily be made out to be abscesses, the contents of which were opaque, gelatinous and pus-like. The wall of the *gall bladder* was thickened and infiltrated with a similar exudate to that covering the peritoneum. The mucous membrane was, however, intact. The remainder of the organs exhibited no remarkable lesions.

Microscopic examination of the fresh specimen.—Attention was first directed to the study of the exudates for amebæ, and for this purpose pus, *a*, from the peritoneal cavity; *b*, from the intestinal contents; *c*, from the liver abscesses, was employed. The most painstaking search failed to reveal amebæ in the pus from the peritoneal cavity, while on the other hand many typical living and moving amebæ were discovered in the pus from the ulcers in the large intestine and the intestinal contents, and a smaller number in the contents of the liver abscesses.

The exclusion of amebæ from the peritoneal exudate led next to the staining of cover-slips for bacteria. By the use of ordinary staining agents (gentian violet, methylene blue) myriads of capsulated diplococci resembling the micrococcus lanceolatus were revealed. The contents of the liver abscesses, stained in the same manner, failed to show any bacteria whatever. The microscopic examination of the abscess contents indicated that fewer pus cells and more necrotic and disintegrating liver cells composed these than in ordinary abscesses, thus recalling the fact pointed out by Councilman and Lafleur in their monograph on amebic dysentery, that true suppuration is not caused by the ameba dysenteriæ.

The source of the bacteria found in the peritoneal exudate, and which evidently were the cause of the acute peritonitis, was sought in the intestinal contents, where, as is well known, they are not infrequently contained, and from which source, as we have previously pointed out, they may invade the peritoneum and set up a fatal peritonitis. The condition of the appendix vermiformis, which arrested attention from its swollen and necrotic appearance, was believed to have led to the escape of the microörganisms in question. Upon closer examination it was found that corresponding with the dilatations previously described, the entire wall was in a necrotic condition. The ulcerations themselves reached deeply into the inner coats, but did not penetrate all the coats. The lumen of the swollen appendix was filled with yellow, gelatinous pus quite resembling that found in the peritoneal cavity itself. Cover-slip preparations showed many encapsulated diplococci, besides several kinds of bacilli. The former much predominated in numbers.

Malarial bodies were not numerous in smear preparations from the organs, although pigment was abundant. However, a few undoubted ovoid bodies were found in the smears from the spleen and bone marrow.

Cultures.—Petri's plates were made from the blood in the heart, the exudates and all the organs, upon agar-agar. Those

from the *heart's blood, spleen, lungs* and *liver abscesses* showed no growth after having been kept at the temperature of the thermostat for forty-eight hours.

Peritoneum.—The plate was crowded with colonies, apparently of two kinds, which, owing to the large numbers, probably did not reach full development. The larger colonies consisted of bacilli which were identified and shown to be the bacillus coli communis. The smaller colonies (predominating) were made up of oval diplococci which were shown (cultures and animal experiments) to be the micrococcus lanceolatus. The plate made from the *bile* contained 7, from the *liver* 30 colonies of the bacillus coli communis. The plate from the *kidney* was crowded with colonies of the colon bacillus, among which a few smaller colonies of diplococci were found, these being the micrococcus lanceolatus.

Histologic examination.—The microscopic examination of the hardened tissues was confirmatory only of the features of the case as already described. Nothing new was discovered. As regards the malarial pigmentation, the dark pigment was found especially in the liver and spleen (bone-marrow not studied), and in these organs in the usual situations. The parasites themselves were very difficult of demonstration. The lesions in the large intestine caused by the invasion of the amebæ were perhaps the most interesting. The necrosis, it was found, extended into, but for the most part not through the innermost muscular tunic, but it was surprising to what extent the mucous membrane might be dissected away from the submucosa without losing its vitality. Not a small part of the frayed appearance presented by the large intestine was produced by this partial dissection of the mucous coat. The bases of the ulcers proper were formed for the most part by the circular muscle, which was itself infiltrated with inflammatory products, cells, serum, fibrin. The inflammatory infiltration extended into the depths of the tissue, often to the serous coat, and spread laterally for a great distance. It seems probable that the ulcers in the appendix originally were caused by amebæ, and that subsequently the extension of the necrosis to the serous surface was the work of the micrococcus lanceolatus.

Amebæ apparently were abundant. But just here it is proper to state that in the hardened tissues it would be easy to be led into errror in regard to the significance of many of the ameba-like cells present. From a study of the transitions of connective-tissue cells and their progeny in the chronically inflamed parts, it is quite certain that many of the bodies resembling amebæ are swollen and degenerated (fatty or vacuolated) tissue cells. These, too, often lay in definite spaces, and they were found in the submucosa and muscle and within small veins. Without the proof supplied by the examination of the intestinal contents during life and at the autopsy, one must have remained in doubt as to the presence of amebæ among these elements.

The kidneys showed a moderate degree of parenchymatous degeneration. In addition to this, emboli of liver cells were detected in branches of the renal vein. Similar emboli were discovered in the central veins of the liver lobules not infrequently. Lubarsch has reviewed the literature upon the subject of "parenchymcell emboli." It appears that liver cell emboli are either of traumatic or of infectious (or due to intoxication) origin. There is no definite relation between the extent of the injury and the occurrence of such emboli. The transported liver cells, besides being found in the veins of the liver, occur in the heart, pulmonary arteries and branches of the renal and hepatic arteries. Among the infectious diseases liver cell emboli are found very often in eclampsia and chorea. In eclampsia they are found very often in the arteries of the lungs and brain and in the renal veins; in chorea in the hepatic artery and branches of the portal vein (patent foramen ovale). Where hemorrhage, necrosis and softening exist, liver cell emboli are encountered. Thus they have been found in scarlet fever, in softening of hepatic gummata and in liver abscess. The transported liver cells have been found followed from the hepatic veins into the coronary, renal and other arteries. Their occurrence in veins—renal and cerebral—is attributed to retrograde embolism, for which a high degree of venous stasis, such as occurs in eclampsia, has been assumed. Evidence of such stagnation is wanting in our case. On the other hand the disintegration of liver tissue, such as has been found in other cases, is supplied by the abscess formation and circumscribed necrosis in the liver. Lubarsch states that the conveyed liver cells may persist from three weeks to two and one-half months, but evidences of proliferation have never been observed.—Reported by Dr. Simon Flexner in *Bul. of the Johns Hopkins Hospital*, September and October.

Foreign Bodies in the Esophagus.—Dr. Carl Beck of New York in the *Clinical Recorder* argues for an earlier employment of surgical treatment in these cases. His experience shows that valuable time is generally wasted by the administration of emetics and covering (einhüllende) substances, such as soft bread or hashed potatoes, until even successful removal by surgical procedures is not able to prevent the fatal outcome any more. It is justifiable to attempt once to remove the foreign body by administering an emetic. But if this one effort fails, either extracting or pushing down should be done without further delay. All bodies which can either be seen or which can be felt by finger or explorer, within the pharynx, must be extracted. If the body has passed the isthmus, it has to be pushed down into the stomach; sharp-edged bodies, however, like splinters of bone or wood, needles, pins, etc., to be excepted. Repeated attempts should be made to extract such bodies also, because they may perforate into important blood vessels or the trachea, or may cause fatal abscess formation. The best instrument to be employed for such purposes is a so-called "coin-catcher," which consists of a long flexible sound made of whalebone. To one of its ends a piece of sponge is attached for the purbose of propulsion toward the stomach; on the other end is a grooved metal ring. By passing the foreign body first with this grooved ring and then withdrawing it slowly, at the same time turning the instrument slightly, the body is caught in the groove in the great majority of cases. The coin-catcher is introduced best after having it lubricated with the white of an egg. The patient's head is thrown back so as to bring the axis of the mouth and pharynx in line with the esophagus (just like the juggling sword-swallowers). The location of the body will then be indicated by the stoppage of the instrument. If such methods of fishing up or pushing down do not avail, esophagotomy must be performed without delay. Herniotomy does much less harm to a strangulated gut than a prolonged taxis, and the same principle and view applies here. Esophagotomy is by no means a difficult operation, if only the principle is obeyed to operate with blunt instruments. After having introduced a sound into the esophagus from the mouth as a guide an incision is made alongside the left anterior margin of the sterno-cleido-mastoid muscle. Then the tissues containing the carotid and jugular and the pn. vagus, together with the ramus descendens of the hypoglossus nerve can be separated without any cutting by the use of the Cooper scissors and then be retracted with blunt hooks. Now it is easy to feel the sound, previously, and to incise on it. After the foreign body is extracted with a suitable forceps, a sharp spoon sometimes also being useful, the wound is but partially closed and the remainder packed with iodoform gauze. At the New York German Medical Society (see *New York Medicinische Monatsschrift*, April, 1892) Dr. Beck presented a case of a girl, 18 months of age, in whose esophagus a quarter of a dollar piece had remained for four weeks and which he could extract by the coin catcher, the patient making a good recovery. But such cases are only the exception. Repeatedly he has seen cases in which all the various means of extraction and propulsion were tried, and only after much valuable time was lost esophagotomy was resorted to. But the extraction then would not avert septic inflammation and its consequences (broncho-pneumonia, etc.). The Roentgen rays seem to have started a new era in the location of foreign bodies in the esophagus, so that they will not remain unnoticed any more, and are no longer confounded with phthisis pulmonum, croup, bronchitis, asthma, etc. J. W. White (*University Medical Medicine*, June, 1896) could get a definite information by the rays in a successful case of a girl, 2½ years old, which had swallowed a jackstone, the location of which being such that gastrotomy appeared to be preferable to esophagotomy.

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SATURDAY, OCTOBER 17, 1896.

THE TREATMENT OF INSANITY EIGHTEEN CENTURIES AGO.

Nowhere in science is the truth of TENNYSON, that

"The course of time will swerve,
Crook and turn upon itself in many a backward streaming curve"

better illustrated than in medicine. All great medical discoveries seem upon the point of being made long ere the culmination of facts places them beyond destruction by inertia and conservatism. Anesthesia, the germ origin of disease, antisepsis and multitudinous "late" discoveries were discernible for centuries in medical works ere the nineteenth century placed them in the rank of commonplace facts. This is peculiarly true of psychiatry, whose essential principles were outlined eighteen centuries ago. Much suffering might have been saved the hapless insane and much misfortune to the medical profession been avoided had these principles then outlined been adopted in the main. According to SORANUS (A. D. 95, whose writings are recognized as those of CÆLIUS AURELIANUS, his translator), it is useless to examine into causes, as different causes may produce analogous effects. It is only necessary to know the results in order to apply suitable remedies. He was decidedly averse to violent emetics and purgatives. He everywhere manifests the fear lest inflammation should be augmented by the strength of the remedy. He advises frequent exercise, warm fomentations, inunctions, cataplasms, fumigations, frictions, diet, baths, leeches and cuppings. He recommends great attention to the character of the air, whether moist or dry, etc. He rejects all empiric medication and fetichistic formulæ. The maniacal should be placed in rooms moderately light, of a moderate temperature and whose tranquillity should be uninterrupted by noise. No painting should ornament the walls. The air should come in by elevated openings. The patients should be placed on the ground floor rather than on the upper story, as most of them are disposed in their paroxysms to cast themselves down. Their beds should be solidly fixed and so disposed that the patient may not see persons entering, nor be irritated by a variety of figures. If they be so agitated that it is not possible to give them aught to lie upon except straw, this should be well selected, prepared and stripped of everything hard, in order that it may be mild and not disagreeable to the touch. If some parts of the body have suffered from the movements of the patient, use warm applications and fomentations of oil mixed with decoctions of fenugreek, mallow or flaxseed. Frequent passing in and out should be forbidden. Sometimes use an intentional indulgence and sometimes a slightly severe reprimand, with an explanation of the advantages occurring from a better course of conduct. If agitated, difficult to restrain, or irritated by solitude, it is necessary to have supervisors who should be ordered to master the patients without their perceiving it, approaching as if to make friction in order never to provoke them, if the sight of men irritates; and only in very rare cases he employs ligatures, but with the greatest precaution, seeing that the bonds are of a soft, delicate texture. Means of repression employed without discretion augment and even create fury instead of lulling it (GALT'S Insanity, 1846). If they have fear and respect for any one person they should not see him often; frequent visits compromise such an ascendency. But when they resist the wishes of those around them it is necessary to recur to his authority. If light excites them, their eyes must be deprived of it, though not the rest of the body.

Abstinence is suitable at first and recourse to bleeding if the strength permits. If no contraindication exist it should be repeated from time to time. One of the best means of appreciating the degree of the strength is drawn from the state of the pulse, which the physician must observe whether it is strong or feeble. SORANUS should commence feeding with great precautions and not permit any except very light diet of easy digestion. The patient must be thus nourished during the decline of the affection. Injections must not be neglected if the evacution be not regular; in a great number of cases the belly should be covered with emollient cataplasms which descend to the pubis in order that no organ may suffer any pain, which the head also would reciprocate.

Physicians should observe with great care the form of the delirium and have recourse to the salutary influ-

ence of moral impressions, gay ideas and those things causing some relaxation of mind. If the disease remains stationary he shaves the head. Scarifying cups should be applied in turn to the breast and between the shoulders as connected with the head. But these applications ought not to be too near the head nor too largely made, as calling the blood in this quarter, etc. Leeches may be placed on the forehead or the temples, taking care to favor the flow of blood by cataplasms of emollient substances or sponges dipped in water. If the symptoms persist, the same means must be used the second or third day and as often as necessary. If the parts covered by the cups and the leech bites be painful they should be moistened either with oil or a decoction of mallow, etc. If the disease arise from fatiguing overwatching, it is necessary to have recourse to rides upon a bed suspended or upon a chair carried along or even upon enlaced hands. The monotonous noise from the continual fall of a small current of water from a height has good effects. Application of warm sponges upon the eyelids is also useful. When the paroxysm declines it is necessary to give more varied aliments, moderately strengthening when they have regained their strength.

Exercise is then especially beneficial. They must, also exercise the voice. They should be made to read writings containing faults, which often at the same time have the advantage of exercising the mind in the correction of imperfections in style. These writings should be of easy comprehension. The physician should converse with them, asking questions without fatiguing them. Recourse should be had after reading to theatrical performances, the recreation from which will diminish a sadness ready to awaken, or frivolous fears ready to reveal themselves. At a more advanced epoch of treatment, occupy the patients with weighty meditations and discussions in order to give their mind its full capacity, but with the precaution that the commencement of the subject treated should be without warmth, that the narration, on the contrary, and the demonstration should be clear and complete, should solicit an animated utterance and that the epilogue should be brief and careless. His hearers should give the patient their benevolent approbation. After this exercise they should promenade or have their bodies rubbed. As to the unlettered the physician should discuss with them matter only relative to their conditions. He should speak to the laborer concerning agriculture, to the mariner as to navigation. If we have to act with a man ignorant of everything he should present very general subjects or a series of numbers. Physicians are able in truth to find suitable nourishment for all sorts of minds, but above all should agreeably complement the patient. Annointing and frictions which have been recommended should be made at first upon the shoulders and on the neck, commencing lightly, then more strongly afterward on the head, after which a bath. The nourishment should become more and more substantial. After beans, herbs; then fish, the brains of different animals, an easily digested aliment; then little birds. The larger kind later as thrushes and young pigeons. There should be even more reserve as to the hare and the roebuck.

Physicians should grant a little weak and light wine, at first every five days, then four, three, even until every day. When no new symptoms occur and the patient has become much less impressible, change of air will be of great advantage. Voyages by sea or land, distractions of all sorts, recreation of the mind, agreeable, affectionate conversations will produce an excellent effect, for if ennui and sad feelings act on the sane, how much will they influence the scarcely cured? The convalescent, should he desire it, can hear the precepts of the philosopher. They often dissipate sadness, fear and excitement and may contribute powerfully to the reëstablishment of health. If the malady really persists and not merely some of its symptoms, a return is counseled to the previously mentioned means, to exposure of the body to the heat of the sun, the head only being free from its action, to sinapisms and to violent exercise of different kinds.

Soranus combats his predecessor's recommendation of darkness in all cases, because it may suit one and not another, and their recommendations of an immoderate abstinence without exception, because this may sometimes throw the patient into fatal feebleness and prevent the use of means otherwise suitable. They seem, he says, to consider their patients as ferocious beasts to be lulled by hunger and thirst, and led by the same error they wish to chain them cruelly, not considering that it is more convenient and easy to restrain by the hands of men than by violence and the lash, a deplorable treatment which can but aggravate their condition and make bloody their limbs and offer the sad spectacle of their misfortune at the moment in which they regain their intelligence. By medicaments, as the poppy, they provoke a morbid torpor instead of good sleep. They rub the head with oil of roses, etc., and excite organs needing relaxation. They make little judicious use of cold, ignorant that it is often excitant. They employ irritant clysters and thus produce dysenteries. They counsel drunkenness and love, which are causes. They prescribe music as a routine, whereas it sometimes excites. The generative act should not be permitted to the insane. The repression of their desire may sometimes agitate them, but they are oftener found to be worse after coitus. His treatment of melancholia has been indicated in what has been said of mania.

This treatment of insanity was far in advance of that practiced in Europe in the first decades of the

present century, or that of Cook County in 1871, of Auburn (N.Y.) in 1876, of Anchorage (Ky.) in 1882 and of 1896 by the Hahnemanniacs at the Norfolk (Neb.) Insane Hospitals. Whips, violence and excessive restraint were the therapeutic methods employed at these institutions, not spasmodically or furtively, but on a settled principle. SORANUS, long ere PINEL, RUSH, TUKE, CONOLLY or GARDNER HILL, seems to have grasped in the main the true principles of psycho-therapy.

THE PROGNOSIS OF MANIA AND MELANCHOLIA.

The common notion taught in all text-books and held as one of the axioms of practical psychiatry, that mania is the most hopeful and curable form of mental disorder, will receive a severe blow from the lately issued fifth edition of KRAEPELIN'S "Psychiatrie." The author of this volume, one of the best known and admittedly one of the ablest of German alienists, has very largely remodeled his work, and it contains the latest and fullest results of a very wide experience, estimated with a thoroughly critical and competent judgment. His conception of mania is not essentially different from that generally accepted by authorities on mental disease, but he does not recognize it as an independent entity in his classification. All cases, according to him, especially those in the earlier and middle periods of life, before the downward slope of life has been reached, are properly to be referred to the periodic insanities; they are not single, isolated attacks of a disease that may never be again suffered from, but are indications of a constitutional disorder, sure in time to recur. He bases this opinion on an observation of a thousand cases carried over a great many years, and in all these he has found but one in whom the disorder did not recur and that is not in support of the view stated above. A single exception in such a series only proves the rule, and so far as known no one has ever followed up as methodically and carefully the after-histories of his patients as KRAEPELIN seems to have done. It has been a matter of general experience that an attack of mania was perhaps, as we may say, one of the least self-protective of disorders, that a second attack was very liable to occur after a variable lapse of time: but few, if any, had before been led to generalize from these facts that it is properly to be reckoned a periodic disease. KRAEPELIN himself admits that the interval of mental health may be long—ten years or even more in some cases—but he claims none the less the validity of the rule he has laid down that recurrence is inevitable, sooner or later.

It may be thought, perhaps, that this is merely a change in the point of view; that the facts are the same, but that they are differently estimated by him from those who have written before. It is, however, really much more than this; if we accept KRAEPELIN'S views, our prognosis of mania and of the so-called simple insanities generally is completely reversed; instead of being the least, they are to be counted amongst the most formidable types of insanity as regards the future of the patient. What is true of mania is true also in regard to melancholia, which he classes amongst the mental disorders of the period of involution; when it occurs in early life it also falls in his system into the periodic insanities.

How generally KRAEPELIN'S views will be accepted is an interesting question. His authority is certainly of the highest, and his method by which he reaches his conclusions, the careful and thorough research into the after-history of his patients, gives them the very greatest weight. The fact that he was able to follow the careers of a thousand cases of mania after discharge shows the range of his clinical observation, far exceeding the possibilities with many of his less favored co-workers in this department. It will be, nevertheless, with something of a strain, that alienists will give up their time-honored views to take up others, new and altogether different from those they have been accustomed to hold. The publication of these, however, will undoubtedly excite fuller anamnestic research in all quarters, and thus prove a most valuable stimulus for work in a direction that has perhaps been hitherto too much neglected. It will also lead to a more careful diagnosis and scrutiny of individual cases, and the separation of the exhaustion and toxic types from those that fall more properly under the class considered by KRAEPELIN. There is no doubt at all that cases of confusional insanity are very often diagnosed as mania, as pointed out by Dr. W. L. WORCESTER, and the same is true of the post-febrile, toxic and exhaustion deliriums. Excluding these, it may very possibly be true, as KRAEPELIN holds, that mania and melancholia are indications of constitutional taint and incurable disorder.

THE SMOKE NUISANCE; A FABLE.

The editor of the *Glasgow Sanitary Journal*, August, seeks to show in fable that the abolition of smoke nuisances is a possibility. He places his chief reliance upon the developments of science, giving experience the go-by, saying:

One day Experience, Inexperience and the Scientific Mind met at a congress and shook hands. They began talking about the weather.

"What a beautiful morning!" exclaimed Inexperience.

"Wind in the north," said Experience. "It will be rain by evening."

"Then we shall see the rainbow," said the Scientific Mind.

"I wonder," said Inexperience, "when we shall control the weather, like the man in Rasselas."

"Never," said Experience. "The thing is a demonstrated impossibility."

"And yet," gently, as to himself, said the Scientific

Mind, "but yesterday I first spoke to the antipodes; but to-day I listened to the stored voices of my dead; but even now, I have seen with these eyes the cast shadows of the skeletons we are within the flesh. To-morrow, what shall I not see and hear?"

"Yes, yes," said Experience. "The telephone, the phonograph, the X rays, and all that. But that sort of thing can not go much further; there is not much more to know, else we should know it."

"On the contrary," said Inexperience, "we know nothing yet, comparatively."

"*You* speak for yourself," said Experience.

"For us all!" said the Scientific Mind, humbly.

"How?" inquired Experience, surprised.

"As thus," said the Scientific Mind. "Glasgow is sick with fog, which is a cloud, which is the rain. Why? Glasgow burns coal, which is smoke, which makes the fog blanket, which slays the sunlight, which is health."

"That's old news," said Experience. "But what do you propose to do?"

"Burn coke," said the Scientific Mind.

"I never thought of that," said Experience.

"Of course not," said Inexperience. "Who said you did?"

"Think of it now," said the Scientific Mind.

So they shook hands again and went their ways.

We might add that in all human probability coke was *not* accepted by any considerable number of the people, and the smoke and black fog continue to have it all their own way.

A MEDICAL SATIRIST OF MEDICINE.

Medicine in France in the seventeenth century was the peculiar theme of satire; probably for the same reason it is a safe mark for newspaper sarcasm to-day. The sensation mongers who dare not attack the rupture-curers, advertising quacks, patent medicine men or abortifacient mongers, openly assail medical men on the ground that it amuses the public and does not hurt medical science. Precisely the same regard for the sacred cash box prevented the French satirists from attacking the despot LOUIS XIV. and caused his brutal aristocracy and plutocracy to concentrate their venom on the physician. MOLIERE was an expert in this. He had a quasi-medical predecessor to whom he was probably much indebted. BERTRAND HARDOUIN DE ST. JACQUES (1598—1648) entered upon the study of medicine at the University of Montpelier. For unusually outrageous contempt of the boundaries of property, he was expelled and became first a traveling quack and then naturally gravitated into a strolling player. He came to Paris and, under a false name, entered the Bourgogne theater troupe, where his satire against medicine was so renowned that MOLIÈRE, then a youth, was brought to the theater by his grandfather to see ST. JACQUES play. The Paris physicians took the satire good humoredly and were often auditors. After eight years of Paris stage life, ST. JACQUES obtained a medical degree through the influence of Cardinal MAZARIN, and thenceforth practised medicine reputably till his death. ST. JACQUES had something of the degenerate in his make-up, for: "He was a large brunette with dark sunken eyes and flat frog nose, who resembled a huge monkey and did not even need a mask on the stage, as he wore a natural one."

ANOTHER DONATION TO THE NEWBERRY LIBRARY.

Professor DE LASKIE MILLER of Chicago, has given his entire collection to the Newberry Library. It was one of the most complete private collections in the city, not made up of periodicals and miscellaneous books, but composed of standard works of all the best authors from the earliest times to the modern; such a collection as a teacher desiring to keep abreast of the times would naturally purchase.

The library contains about 600 volumes of carefully selected standard works. Those relating to obstetrics and diseases of women and children, are noticeable.

Such libraries as these, like keen tools in the hands of the master workman, are valuable as a whole, not merely on account of the intrinsic merits of the component parts. The books when selected in this way by a skilled hand, have a reference to each other as close and enduring as the inlaid pieces of a Florentine mosaic.

But to use books rightly one must know them. The elder D'ISRAELI said that one might as well fill a room with musical instruments and expect to be an expert musician by mere contact, as to expect a man to become a literary man by the mere possession of books. And so we must turn to the great libraries for the production of our future literary men, and when the right man, comes in contact with the working collection of a worker in his profession, we may expect great results.

WASHINGTON AND HIS PHYSICIAN'S BILL.

Physicians who are drawing pessimistic auguries from the difficulty with which collections are made during the present year, may take some comfort from the fact that, on the eve of the first election for President of the United States, the financial difficulty was such as to affect GEORGE WASHINGTON, the Father of his Country, the unanimous choice of his countrymen for President, in the payment of his physician, Dr. CRAIG. In a letter to the latter dated Aug. 4, 1788, WASHINGTON says:

"With this letter you will receive the horse I promised you, and which I now beg your acceptance of. He is not in such good order as I could wish, but as good as my means would place him. I also send you thirty pounds cash for one year's allowance for the schooling of your son G. W. I wish it was in my power to send the like sum for the other year, which is now about or near due, and that I could discharge your account for attendance and ministerings to the sick of my family; but it really is not, for with much truth I can say I never felt the want of money so sensibly since I was a boy of fifteen years old, as I have done for the last twelve months and probably shall do for twelve months to come.

"Sincerely and affectionately, I am yours, etc.,

"GEORGE WASHINGTON."

PUBLIC HEALTH.

Typhoid in Columbus, Ohio. All physicians of this city are required to report the presence of typhoid fever within twelve hours after having become advised of it. Such is also the rule in cases of smallpox, scarlet fever and diphtheria.

The Pennsylvania State Quarantine Board. This Board met in Philadelphia October 5. Dr. Boening the State Quarantine physician reported for the month of September as follows: Number of vessels permitted up from quarantine during the past month 94, all of which were in good sanitary condition. These vessels were classed as follows: Steamships, 57; schooners, 19; barks, 15; brigantine, 1; ships, 2. They were laden as follows: Single cargo vessels, 49; general cargo vessels, 25; water ballast, 17; solid ballast, 3. Of the foregoing vessels 18 carried passengers, with a total of 1771.

Measles and Diphtheria in Sioux City.—The city is threatened with an epidemic of measles. At least that is the opinion expressed by Health Officer Dr. J. M. Henry. The Doctor when the first case was reported a few days ago looked it up thoroughly as it is something unusual to have measles at this time of the year and it is regarded as a serious matter. With the cold weather coming on he says the disease, however slight, may develop into catarrh, bronchitis and lung trouble. The Doctor found that the child had been attending the Jennings street school until the day it became so sick that a physician had to be called. Several other cases were immediately reported after the first one, and the Doctor attributes them to the exposure to the first case, as the children all attended the same school. He says that parents should exercise more precaution and not send their children to school when they know them to be sick or threatened with some disease. Some people are of the opinion that the quarantine is not so important in a case of measles but the Doctor says it is just as rigid as in a case of smallpox and if the parents do not pay attention to this fact they will be dealt with according to law. Aside from the measles several cases of diphtheria have been reported to the health officer from different parts of the city. A diphtheric child rode in the conveyance provided by the school board for carrying children from the outlying districts northwest of town to the West side and an epidemic is feared. At the suggestion of Superintendent Kratz the conveyance will not be run for several days until there are some new developments and the children will thereby be given a holiday.—*Sioux City* (Iowa) *Tribune*, Oct. 3.

An Epidemic of Fevers.—Diphtheria was reported to the Iowa State Board of Health yesterday at Dubuque, Conway and Blockton, Taylor county; Downs, Wright county; Fertile, Worth county; Clear Lake township, Hamilton county; Early, Sac county, and scarlet fever at Woodbine, Harrison county, and at Dubuque. Speaking of the epidemic at Dubuque, the *Globe Journal*, of that city says: "Scarlet fever and diphtheria are spreading to an alarming extent in Dubuque. Four cases were reported this morning by Sanitary Officer Starr to the city health physician and cards tacked upon the infected houses. These diseases are confined to children between the ages of 5 and 16 years and are becoming so prevalent that the question of dismissing the schools is being seriously considered. There is a great deal of complaint about people who remove cards from their houses before the time provided by the ordinance. The latter provides that a card placed on an infected house shall not be removed for thirty days. A case was reported to the sanitary officer a day or two since where a lady tore a card down from her house that ought not to have been removed until the 18th of this month and another case was reported where a policeman without any authority whatever removed a card. Under the ordinance these persons are liable to arrest and prosecution and they have no more right to remove a card and go unpunished than have the most humble individual in the city. The board of health should order that the cards be replaced. When a card is removed people suppose that there is no further liability to catching the disease placarded, and it can therefore be readily seen what danger children are exposed to who happen to visit such houses or play with the children who have had the disease. It is said that in some cases physicians attending children afflicted with diphtheria and scarlet fever told their parents that it was not necessary to keep the cards out after the children were up again. This is a matter that the public is deeply interested in and the health officer and the board of health will be held reponsible for the strict enforcement of the ordinance. The parties who have removed the cards should be compelled to put them up again and comply with the law. If this is not done, others may contract the disease. There are now about seventy cases of the two diseases in this city."

Health Report of New York State for August, 1896.—The *Bulletin* of the State Board of Health of New York, publishes the following summary of the deaths, and rates of deaths by principal causes, for August. During August was exprienced the disastrous hot wave beginning on the 6th of the month and continuing ten days, and causing an almost unprecedented mortality among adult males, the aged and the infirm. The actual and proportional mortality among children under five years were decidedly lower than in July.

The marked deviation from the ordinary mortality of the month, during which there have been reported 12,475 deaths, which is 1,600 more than in the corresponding month of last year, is attributable mainly to deaths from the direct effects of heat (sun stroke), occurring mostly during the early part of the month, 1,125 deaths from this cause having been reported; 1,040 were reported from New York city and Brooklyn, the recorded deaths occurring mostly in the maritime and Hudson valley districts. These are reported under deaths from accident and violence. There is also, compared with August, 1895, an increase in the reported mortality from diseases of the urinary, nervous and circulatory systems, and also in deaths from old age and from unclassified causes. There was no material variation in the mortality from zymotic diseases and consumption, the number of deaths from diarrheal diseases being about the same as last year. The death rate was 23.25 against 20.40 in August, 1895. Compared with the preceding month there was a daily average mortality of 402 against 408 in July; the zymotic mortality was less by 750 deaths, the decrease being in the deaths from diarrheal diseases, from which there were 2,326 deaths, or nearly 19 per cent. of the total; a large number are reported from dysentery, affecting adults. There was also a decrease in the mortality from diphtheria, from which there were 257 deaths, a smaller number than in any month for the past ten years, August being generally the month of its smallest prevalence. Scarlet fever has almost disappeared from the reported causes of death, but 15 deaths being reported from the maritime district and 4 from the rest of the State. Whooping cough increased to 119 deaths; uniformly more deaths occur from this cause in August than in any other month, the average for the past ten years being 125 against an average of 90 for the other months of the year. There is the customary increase in deaths from typhoid fever, which caused 171 deaths, the average for the month. Of deaths from local diseases, the only material variation is in those of the digestive system, from which there were 200 fewer than in July. From the cause stated the reported mortality from accidents and violence is largely increased. The average mean temperature of the month was 1 degree above the normal, but during the first half there was a remarkably prolonged period of excessive heat; the mean highest temperature was 92 degrees, while the mean lowest was 44 degrees, and there was a mean relative humidity of 72 per cent. and in the

eastern part of the State of 78 per cent. There was an unusual number of cloudless days, the mean barometer was 30.02, and the rain-fall generally deficient.

New French Sanitarium for Tuberculous Children at Saint Trojan.—The President of the Republic recently inaugurated this new institution on the southwest seacoast (Ile d'Oleron), erected at an expense of about $120,000 to the state, under the superintendence of Dr. Bergeron, perpetual secretary of the Académie de Médecine. Its official purpose is to hospitalize scrofulous children for tuberculosis. The drinking water is sterilized by the new Desmaroux system, at an expense of five centimes the cubic meter, and according to experts in bacteriology, "realizes the last word" in sterilization.—*Prog. Méd.*, September 28.

An Island Sanitarium.—According to the *'Tiser*, one of the islands in Boston Bay is to be made a summer sanitarium for sick children, and steps are to be taken immediately to carry out the plan. Dr. W. G. Macdonald, the city physician, is credited with the origin of the plan, and it is said that the City Board of Health and the mayor actively favor it. It is proposed to take the small island, just beyond the iron pier at Marine Park, South Boston. It is 160 feet in diameter and unused at the present time, although it is under the jurisdiction of the park commissioners. It is contemplated to erect tents and place a milk plant in operation. The doctors and nurses will probably be furnished from the City Hospital. The location selected is a most desirable one for many reasons. The island can be reached from any section of the city by electric cars to City Point during the day or evening. There will be an out-door and in-door patients' department, and the chances of saving a baby's life will be much better on the island than at the home. About a week ago Dr. Macdonald called upon Mayor Quincy and unfolded the scheme, which was favorably received by his honor, after learning the facts and figures. The large number of deaths during the two months was astonishing to him. Dr. Macdonald wrote to Conrad Reuter, Secretary of the Boston City Hospital trustees, in relation to the matter, and they will consider the scheme at their next meeting. The letter follows:

"For some time past I have been considering the question of infant mortality in Boston during the summer months, and I have been more and more impressed with the idea that our present means of care and treatment of the little ones are inadequate. During July and August of the current year, there were reported to the Boston Board of Health 2,438 deaths from all causes, and including all ages. Of these 919 were infants less than 1 year old. Four hundred and ninety-two were classed under the head of 'cholera infantum.' If we add to this 492, those which were classified as 'enteritis,' 'gastro-enteritis,' 'diarrhea,' etc., we will have a total of nearly six hundred and fifty deaths directly attributable to the weather conditions of these months. Thus we see that during the heated term more than a third of the total deaths occurred in infants under 1 year, and more than a fourth were due to preventable causes. These figures have a pathetic eloquence of their own. We have at the present time two noble charities engaged particularly in the care of the suffering babies. I mean the floating hospital and the Hospital at Rainsford's Island. Both were inaugurated as private charities although one has become a public charge since. No improvements could be made on the methods of treatment now in vogue in these two institutions, since one is under most careful and intelligent management and the other is under the directorship of Dr. T. M. Rotch, a gentleman who has no superior in the treatment of infantile ailments. Both, however, have the same disadvantage in caring for acute cases, in that boat service is an integral part of both systems. Boat service means a fixed time for reception, and if that time be exceeded there is a delay of twenty-four to forty-eight hours. Every physician knows that a delay of even minutes may mean the life of the infant. Therefore, it seemed to me that if we could procure a site for an infant's summer hospital, which would combine the benefits of the salt water breezes with accessibility at all times, we would be able to reach a large number of cases which are not now treated. We would then not supersede but powerfully assist the work now going on, in the directions which I have specified.

"Such a site does exist in the artificial island at the end of the iron pier at the Marine Park, City Point. We have there a pier extending into the bay for a distance of 2,640 feet, and leading out from a park which is itself almost surrounded by salt water. Beyond the end of the pier an artificial island has been built, which is yet unused, and which will be unused for some time. This island is about 160 feet in diameter, a space ample for our purpose. Having consulted with the secretary of the park commission on the matter I am satisfied that there would be no trouble in securing this place. It is ideally situated, and remains cool during the hottest days in summer. In using this island for hospital purposes, we encroach on no one's rights, since it has been hitherto unused. As it is intended for use only during the summer months, a tent hospital would be all sufficient and Mr. Matthew Sullivan, chief of the architect division of the city of Boston, assures me that a few marquees at this place would not detract from the architectural beauties of the park, but would really add to the general effect by giving the whole place a holiday aspect. Such a hospital would be extremely inexpensive. Its first cost would include simply a few tents and some carpentering. No solid buildings and no costly furnishings would be needed. Then would come the question of supplies, and the assistants, who perhaps could be transferred from the central hospital. As to the management of such an institution I see no way in which it could be done so thoroughly, so scientifically and so economically as through your boards. Your physicians, nurses and attendants have had experience in tent work, and you have already a completeness of organization which could only be effected by any other body at the expense of much time and labor. Besides, the poorer people are acquainted with your work and have confidence in it. Mothers would thus be willing to intrust their babies to your care. Physicians, too, understand the routine by which a patient may be admitted to the Boston City Hospital, and I am satisfied that they would be extremely pleased to have a station to which they might send their infant charges with as little trouble as is now necessary to secure hospital treatment for adults. This communication is sent to you at the suggestion of his honor, Mayor Quincy, with whom I have conferred on the matter."

The trustees will hold a meeting in a short time, and it is expected that they will do all in their power to make the scheme a success.

BOOK NOTICES.

A Text-book for Training Schools for Nurses, including physiology and hygiene and the principles and practice of nursing. By P. M. WISE, M.D. With an introduction by Dr. EDWARD COWLES. In two volumes. Vol. I. New York and London: G. P. Putnam's Sons, 1896.

The purpose of the book as stated by the author is "to provide a text-book that will suffice for all the recitations in a two years' course in training schools for nurses." "The course adopted" in these volumes, says the author, "is based upon the hypothesis that a nurse must understand the fundamental principles of physiology and hygiene before a rational understanding of the principles of nursing is possible." The first volume is therefore preparatory, being intended for the first course, and the second volume for the principles and practice of nursing. The book is dedicated to that veteran hygienist and superintendent, Dr. Edward Cowles.

A System of Surgery, by various authors. Edited by FREDERICK TREVES, F.R.C.S. Vol. II, with two colored plates and 487 illustrations. 8vo, cl., pp. 1120. Philadelphia: Lea Brothers & Co., 1896.

This volume concludes the work, and will add very considerably to the surgical literature of the period. It includes "Injuries and Diseases of Muscles and Tendons," by W. Arbuthnot Lane; "Surgery of Deformities," by H. H. Clutton; "Injuries and Diseases of the Head," by H. P. Dean; "Injuries and Diseases of the Spine," by W. H. Bennett; "Concussion of the Spine," by H. W. Page; "Diseases and Injuries of the Ear," "Diseases of the Nose," by A. Marmaduke Sheild; "Injuries and Diseases of the Neck," by Bernard Pitts; "Surgery of the Chest," by Pearce Gould; "Affections of the Mouth, Palate, Tongue, Tonsil and Pharynx," by H. F. Waterhouse; "Affections of the Esophagus," by W. Bruce

Clarke; "Injuries and Diseases of the Abdomen," and "Hernia," by F. Treves; "Diseases of the Rectum," by Charles B. Ball; "Diseases of the Breast," by W. Watson Cheyne; "Injuries and Diseases of the Urinary Organs," "Injuries and Diseases of Testes, Scrotum and Penis," by Henry Morris, and "Injuries and Diseases of the Female Genital Organs," by J. Bland Sutton. The illustrations are copious but not very well worked out owing to the thin paper. Many of them are original. This system is an excellent exponent of *fin de siecle* British surgery.

Medical and Dental Colleges of the West. Historic and Biographic, Illustrated in photogravure and steel. Edited by H. G. Cutler. Full gilt, quarto, pp. 639. Chicago: Oxford Publishing Company, 1896.

This is the Chicago volume and only one published of a series in which the other western cities are to take their turn. So far as we can judge the work has been committed to trustworthy hands. The history of Rush Medical College was written by Prof. Norman Bridge and Dr. John Edwin Rhodes; the Northwestern Medical College by Prof. S. J. Jones; the Woman's Medical School by Prof. Marie J. Mergler; the College of Physicians and Surgeons by Profs. D. A. K. Steele and William E. Quine; the Chicago College of Dental Surgery by Prof. Truman W. Brophy; the Northwestern University Dental School by Prof. Edgar D. Swain; the Chicago Policlinic by Prof. Truman W. Miller; the Post-Graduate Medical School by Prof. W. Franklin Coleman; Harvey Medical College by Prof. Frances Dickinson, and other schools sectarian in character by those of their own sect. In addition to the school histories, biographies of those connected with the several schools are given and in many instances of prominent alumni. The work is handsomely printed on fine paper and bound in morocco. As an authoritative work on the subject it is not likely to be superseded for many years to come.

Anatomy; Descriptive and Surgical. By Henry Gray, F.R.S. A new edition, thoroughly revised by American authorities, from the thirteenth English edition. Edited by T. Pickering Pick, F.R.C.S., with 772 illustrations, many of which are new. Pp. 1250. Philadelphia and New York: Lea Brothers & Co. 1896.

When a book reaches its thirteenth edition and has become a standard authority in two hemispheres, there is little to say by way of review.

We can only congratulate the editor on the new edition, the publisher for the munificent way in which he has supplied the fine paper, the beautiful illustrations and the superb binding.

The new American edition, however, is something more. Certain sections have been rewritten, viz., those on the brain, the teeth and the abdominal viscera. Dr. B. B. Gallaudet, Dr. Fred. J. Brockaway and Prof. J. Playfair McMurrich have had charge of the American revision.

The Medical and Surgical Uses of Electricity. By A. D. Rockwell A.M., M.D. Illustrated with two hundred engravings. New edition. New York: William Wood & Co.

No praise could be too high to give this standard book, which is essentially the ninth edition of the well-known "Beard and Rockwell." The work has been brought down to date, as one may easily satisfy himself by examining the chapter on electrosurgery, which has included the Roentgen ray and the directions for its use. "Rockwell" will be turned to as a book which has not disappointed its possessor.

A Manual of Pharmacology and Therapeutics. By William Murrell, M.D., F.R.C.P., Physician to and Lecturer on Pharmacology at the Westminster Hospital; late Examiner in Materia Medica in the University of Edinburgh, and Examiner in Materia Medica and Pharmacy to the Conjoint Board of the Royal College of Surgeons of England, and the Royal College of Physicians of London. New York: William Wood & Co. 516 pages.

The friends of Dr. Murrell in this country, and they are many, will be extremely glad to welcome this book, which, although not exhaustive, is yet eminently scientific and practical. The American edition has been revised by Dr. Frederick Caswell of New York. The book includes a very entertaining introduction, in which the general principles are given: Pharmacology of Organic Substances; Pharmacology of Synthetic Compounds; Pharmacology of Drugs of Vegetable Origin; Pharmacology of Drugs of Animal Origin.

Annual Report of the Board of Health and the City and Port of Philadelphia for the year 1895.

The volume is included in a city document containing the first annual message of Mayor Warwick, and the Director of the Department of Public Safety. The Board reports that the death rate, while slightly in excess of 1894, was rather better than the average for the last ten years, being but 20.44 per 1,000. In regard to antitoxin in diphtheria the Board says: "Antitoxin as an immunizing agent has been used so very sparingly that its influence in restricting the disease has not been appreciable. Its use as a curative means has been considerable but far from universal, and while its efficacy may have been demonstrated in many cases, its use has been too limited as yet to exercise a marked limiting effect upon the disease." A laboratory of bacteriology was established at a a cost of $15,000. The report shows a vast amount of excellent sanitary work during the period covered by the report.

The Juggernaut of the Moderns; A novel. By Rosa Hudspeth. The Arena Publishing Company, Boston, Mass. 1896. Price 50 cents.

This book is one that has no place in the modern household, nor should it be placed in the hands of the miscellaneous reader. Those interested in sociology will find the book entertaining. The story is of the ruin of a young woman who goes to a Western town as a typewriter. She is is pictured by the authoress as of surpassing beauty, of course, but owing to the fact that she must wear a corset, and displace the abdominal organs, is subject to attacks of hysteria. Such a condition naturally makes the subject a fit victim for the wiles of the hypnotist, and her struggles against the dominant influence, and final overthrow, form the materials for the book. *Cui bono?*

Kemp & Co.'s Prescribers' Pharmacopeia. A synopsis of the more recent remedies, official and unofficial, with a therapeutic index. Third edition. Bombay: Kemp & Co., Ld. 1896.

We have tested this book for its account of several of the newer remedies and find it quite accurate, so far as our test goes. There is no doubt but it will be found useful in many countries beside India, for which it was originally prepared. The additions to the last revisions of the British and U. S. Pharmacopeias are included in this work. It appears there has been no revision of the Indian Pharmacopeia since the edition of 1868.

The compilation has been well done; the arrangement is systematic and convenient.

Transactions of the Forty-sixth Annual Meeting of the Illinois State Medical Society, held in Ottawa, Ill., May 19, 20 and 21. Chicago, 1896.

This volume is characterized by its directness throughout. The transactions are singularly free from superfluous verbiage, and the authors, as a rule, plunge *in medias res* without any circumlocution. The tendency of the time is shown by the appearance of a Committee on Society History, which, a footnote informs us, is composed of those members who have held continuous membership for forty years. Although several of the papers have been printed in this Journal many of them have not been elsewhere printed. The Society will next year meet at East St. Louis and the Missouri State Medical Society will meet at St. Louis at the same time. We notice that a joint committee has been appointed to act with a similar committee from the Missouri State Society to make arrangements for one day's joint meeting.

An American Text-book of Applied Therapeutics for the Use of Practitioners and Students. Edited by J. C. WILSON, M.D., Philadelphia, assisted by AUGUSTUS A. ESHNER, M.D., Philadelphia. The authors are I. E. Atkinson, Baltimore; Sanger Brown, Chicago; John B. Chapin, Philadelphia; Wm. C. Dabney, Charlottesville, Va. (deceased); John C. Da Costa, Philadelphia; I. N. Danforth, Chicago; John L. Dawson, Charleston, S. C.; F. X. Dercum, Philadelphia; George Dock, Ann Arbor; Robert T. Edes, Boston; Augustus A. Eshner, Philadelphia; J. T. Eskridge, Denver; F. Forchheimer, Cincinnati; Carl Frese, Philadelphia; Edwin E. Graham, Philadelphia; John Guitéras, Philadelphia; Frederick P. Henry, Philadelphia; Guy Hinsdale, Philadelphia; Orville Horwitz, Philadelphia; W. W. Johnston, Washington, D. C.; Ernest Laplace, Philadelphia; A. Laveran, Paris, France; James Hendrie Lloyd, Philadelphia; John Noland Mackenzie, Baltimore; A. Lawrence Mason, Boston; Charles K. Mills, Philadelphia; John K. Mitchell, Philadelphia; W. P. Northrup, New York City; William Osler, Baltimore; Frederick A. Packard, Philadelphia; Theophilus Parvin, Philadelphia; Beaven Rake, London, England; E. O. Shakespeare, Philadelphia; Wharton Sinkler, Philadelphia; Louis Starr, Philadelphia; Henry W. Stelwagon, Philadelphia; James Stewart, Montreal; Charles G. Stockton, Buffalo; James Tyson, Philadelphia; Victor C. Vaughan, Ann Arbor; James T. Whittaker, Cincinnati; J. C. Wilson, Philadelphia. Price, cloth, $7; sheep, $8. Philadelphia: W. B. Saunders.

This is a book about the same size as the text-book on surgery, and the others of the American text-book series.

We note with pleasure that the metric system of dosage has been applied throughout, in addition to the old apothecary doses for those who do not care to employ the modern form. We regret to see that in the article on actinomycosis, the author has failed to notice the work of the Agricultural Department of our Government in this matter, and we believe that the use of potassium iodid was first promulgated by this bureau, and that the foreign authors are not entitled to priority in the matter. We trust that Dr. Salmon will be a little more liberal in the distribution of the valuable documents of the Department of Agriculture, Bureau of Animal Industry; they may in time reach the book-writers.

The Tonic Treatment of Syphilis. By E. L. KEYES, A.M., M.D. Revised edition; 8vo, cl., pp. 78. New York: D. Appleton & Co. 1896.

The author holds in this essay that "mercury in small doses is a tonic, because under it the general vitality is improved and the number of red blood cells increased."

Twenty years have passed since Professor Keyes gave his views on this subject, and we think he has a right to claim that his position has been fully sustained, and to him more than to to any other one man has been due the disappearance of professional prejudice against the use of mercury, in many forms of the disease.

The Transactions of the State Medical Society of Wisconsin, for the year 1896, with the Constitution and By-laws and list of members. Cloth, 8vo, pp. 593. Madison, Wis.: Tracy, Gibbs & Co. 1896.

This meeting of the Society being the semi-centennial anniversary of its foundation it was decided to make it of a popular character and of direct benefit to the people. All papers therefore were upon hygienic topics. The volume thus produced is a very creditable one and shows a high state of learning in the principles of sanitary science by the Wisconsin faculty. We doubt if there are many States in our Union where current topics in hygiene would have received as intelligent treatment. The volume concludes with the obituaries of deceased members and the statistics of local societies. Secretary Sheldon has edited the volume with his usual skill and precision. The next annual meeting will be held at Racine on the first Wednesday in May, 1897.

Transactions of the Medical Society of the State of Pennsylvania at its forty-sixth annual session, held at Harrisburg, 1896. Vol. XXVII. Published by the Society, Philadelphia, 1896.

Beside the usual number of valuable medical and surgical papers in this volume there is a very interesting summary of the proceedings of the Society from its original meeting by Permanent Secretary William B. Atkinson. The volume is well arranged and has an excellent index. Pittsburg was selected as the next place of meeting. The minutes are very full and show the active interest taken in various matters other than pure medical science by the Pennsylvania brethren. This society sets a good example to sister societies by devoting a page in its Transactions to the AMERICAN MEDICAL ASSOCIATION, explaining the method of obtaining membership and giving a favorable notice to the JOURNAL.

Feeding in Early Infancy. By ARTHUR V. MEIGS, M.D. Octavo, flexible cloth, pp. 15. Price 25 cents. Philadelphia: W. B. Saunders. 1896.

This essay was one read at the meeting of the Philadelphia County Medical Society, April, 1896. The article discusses the composition of milk, and gives methods of imitating human milk by proper treatment of cow's milk.

Practical Points in Nursing for Nurses in Private Practice, with an appendix, etc., by EMILY A. M. STONEY, etc.; pp. 456. Philadelphia: W. B. Saunders. 1896. Price $1.75 net.

In this book the author has rather successfully covered the topics of the entire range of private nursing, and how to meet the various emergencies when distant from medical aid, convenient tables, a dose list in old apothecaries' weights, and a glossary conclude this excellent volume.

A Manual of Obstetrics. By W. A. NEWMAN DORLAND, A.M., M.D., with 168 illustrations in the text and 6 full-page plates. Philadelphia: W. B. Saunders. 1896. Price $2.50 net.

This is a well-written text book, containing the essential knowledge of the art. The illustrations are numerous and clear, and the work will be found sufficiently comprehensive to meet ordinary wants.

Peroxid of Hydrogen (Medicinal) Glycozone, Hydrozone and Eye Balsam. By CHARLES MARCHAND. Treatment of diseases caused by germs, bacteria and microbes. Eleventh Edition, pp. 216; Paper. New York, 1896. Sent free on application.

This book contains direction for using the above preparations, and a number of articles by medical writers based upon their experiences with these drugs, which have appeared in the various medical journals.

ASSOCIATION NEWS.

The Rush Monument.—The Rush Monument Committee has sent the following circular to the Regular profession, which we hope will be heeded:

My Dear Doctor:—The remarkable success of the relatively small body of homeopaths in the United States, in collecting $75,000 for their monument to Hahnemann to be erected in the city of Washington, ought to make every reputable regular physician in the country keenly alive to the necessity for promptly subscribing to the fund for the long-delayed monument to Benjamin Rush.

The model for the monument to Hahnemann, which has been on exhibition in New York city, has attracted general admiration on account of its great beauty and artistic excellence, which will make it unrivaled as a work of this kind.

The regular medical profession, numbering over one hundred thousand more than the entire body of homeopaths, has thus far subscribed less than $4,000 toward the projected monument to Dr. Rush, for which the Navy Department has already generously designated a commanding site in the park fronting the U. S. Naval Museum of Hygiene, where it will be one of the most conspicuous features of the National capital.

Are the regular physicians of the United States willing that this illustrious signer of the Declaration of Independence and the distinguished medical hero of the Revolution, shall be

commemorated by an insignificant bust or a mediocre statue, in pitiable contrast with the splendid testimonial at their capital city to a foreign theorist by a comparatively small body of his misguided followers? The crowds of visitors to Washington can not fail to attach a disparaging significance to the spectacle of these two monuments; and we appeal to you to aid the Committee in its endeavor to do justice to the memory of this great father of American medicine pure and undefiled, by sending *by return mail* to either of the undersigned as large a contribution as you may be able to make.

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GEORGE H. ROHE, M.D., Sec. and Treas., R. M. C., Sykesville, Md.

W. MURRAY WEIDMAN, M.D., Chairman of R. M. C. for Pennsylvania, Reading, Pa.

HENRY D. HOLTON, M.D., Treas. Am. Public Health Association, Brattleboro, Vermont.

CHARLES MCINTIRE, M.D., Sec. and Treas., Am. Academy of Medicine, Easton, Pa.

PRACTICAL NOTES.

Artificial Respiration for Infants.—Laborde's method of artificial respiration by rhythmic traction of the tongue is recommended in the *Cbl. f. Gineck.* No. 28, as especially adapted for newborn infants. There is none of the painful impression produced on the witnesses by balancing the infant, and it can even be treated while in a warm bath. In one case traction repeated forty times recalled the babe to life after 600 oscillations had failed to produce any effect. The infant died eight hours later, and numerous cutaneous and subcutaneous lesions were found, evidently caused by the balancing. The traction had only caused ecchymosis at the tip of the tongue, in the palatine arch, in the cellular tissue back of the esophagus and in its mucosa. These lesions should be known as they might have a medico-legal bearing in cases of suspected suffocation—*Bulletin Méd.*, September 9.

Transverse Resection of Tuberculous Kidney.—Bardenheuer, some years ago, proved experimentally the possibility of this operation, and Czerny, Kummell, D'Antona also have affirmed that it could be performed on man. Bardenheuer has recently applied it to a couple of patients found on investigation to have the lower part of the kidney affected with tuberculosis. He made a transverse section and cut off section after section until absolutely healthy tissue was reached. The first case was much enfeebled from traumatic suppuration in the region four months previously, with intermittent fever, and the patient succumbed five hours after resection of the kidney, although the operation had been completed in twenty-five minutes, and had been attended with scarcely any loss of blood. The other case recovered with no complications. For a month urine oozed into the dressing, which was changed every day. After this period the wound healed and the patient recovered rapidly. The indications for resection in such a case are strict limitation of the lesion to a part of one kidney and no traces of infection in the ureters or small pelvis.—*Deutsch. Zeitschrift f. Chir.* No. 6.

The Surgical Treatment of Focal Epilepsy.—From a critical analysis of the results in nineteen cases Drs. B. Sachs and A. G. Gerster draw the following conclusions:

1. Surgical interference is advisable in those cases of partial epilepsy in which not more than one, or at the utmost two years, have elapsed since the traumatic injury or the beginning of the disease which has given rise to the convulsive seizures.

2. In cases of depression or other injury of the skull surgical interference is warranted even though a number of years have elapsed; but the prospect of recovery is brighter the shorter the period of time since the injury.

3. Simple trephining may prove sufficient in a number of cases, and particularly in those in which there is an injury to the skull, or in which a cystic condition is the main cause of the epilepsy.

4. Excision of cortical tissue is advisable if the epilepsy has lasted but a short time, and if the symptoms point to a strictly circumscribed focus of disease.

5. Since such cortical lesions are often of a microscopic character, excision should be practiced even if the tissue appears to be perfectly normal at the time of operation; but the greatest caution should be exercised in order to make sure that the proper area is removed.

6. Surgical interference for the cure of epilepsy associated with infantile cerebral palsies may be attempted, particularly if too long an interval has not elapsed since the beginning of the palsy.

7. In cases of epilepsy of long standing, in which there is in all probability a widespread degeneration of the association fibers, every surgical procedure is useless.—*Am. Jour. Med. Sciences*, October.

Albuminuria in Pregnancy and Parturition and Its Relations to Eclampsia.—The *British Medical Journal* quotes Saft, in the *Archiv für Gynäcologie*, as saying that albuminuria occurs during the latter half of gestation in 5.41 per cent. of all cases, more frequently toward the end of pregnancy and oftener in primiparæ (5.9 per cent.) than in in multiparæ (4.1 per cent.); it is more common also in the former (32.08 per cent.) than in the latter (22.6 per cent.) during labor. As a rule it disappears within a few days after delivery, but is more likely to persist in primiparæ, in whom the effects of gestation upon the kidneys are altogether much more serious than in multiparæ. White and red corpuscles in non-albuminous urine of pregnant women come from the bladder, but neither during pregnancy nor labor are cylinders found without albumin, though their presence does not seem to depend on the degree of albuminuria, nor to influence its duration. Twins and hydramnion are predisposing factors, contraction of the pelvis also, but in multiparæ only during labor. Premature labor is a frequent result. There is an affection of the kidney due solely to the condition of pregnancy, the pathologic changes in which are merely degenerative; this affection is quite different from nephritis; when not complicated it is of favorable prognosis and not likely to terminate in chronic inflammation; but when accompanied by actual nephritis, or disease of the heart, is of very doubtful issue. The cause of this affection is probably the auto-intoxication of the system by some product of tissue change, such as is the origin of the molimina graviditatis and of the nervous disturbances of the pregnant state. The muscular exertion during labor throws extra work on the kidneys, and it is the overloading of the system by this poisonous product that causes eclampsia and the secondary changes in the kidneys, liver and other organs. There is thus an intimate, if not a causal connection between albuminuria and eclampsia, and the only proper way to solve the mystery surroundiug the latter is to try to determine the nature of the active poison by observations made during gestation. In the same journal, Schreiber analyzes a large number of cases that have come under treatment since Schauta's report, June, 1880. Of 42,607 confinement cases 137, equal 0.321 per cent., suffered from eclampsia, 19 being already unconscious and many others having had many fits before being admitted to the clinic. Of the mothers 109, 79.5 per cent., were primiparæ; 113 (97 1-paræ) were not more than 30 years old. One only had had eclampsia in a previous (first) confinement (4-para sect. Caes.) Twins are noted 12 times, hydrocephalus, hydramnion and low lateral placenta one each, abnormal rotation twice, abnormal pelvis 9

times, 3 breech cases. The attacks commenced before labor in 16.78 per cent., during it in 62.04 per cent., and after delivery in 21.16 per cent of the cases, and while 53.17 per cent. had less than 5 fits, the average number of fits in 126 was 8. Omitting the 34 children of 29 postpartum cases, of the remaining 115, 37, equal 32.1 per cent., were stillborn, and 56, equal 48.6 per cent., were premature. The fetus in 4 antepartum cases was macerated, but the mothers recovered; nor did prolonged duration of the eclamptic state imply a fatal termination. The central nervous system was affected in 7 women, 6 had puerperal mania. After delivery 62 had no more fits, 5 had only 1, 37 had more than 1, 3 died from Cæsarean section, 29 were puerperal cases. In 50.7 per cent. of the whole, or 64.7 per cent. of the cases before delivery, emptying the uterus had a good effect. In 78 cases operated on (5 induction only) the proportion was 62.7 per cent.; in 27 delivered spontaneously 70.3 per cent. Of 27 deaths (19.7 per cent.) 17 only were due to eclampsia alone (12.4 per cent.). Four fatal cases only were more than 30 years old, but the mortality of multiparæ (6, equal 21.4 per cent.) was greater than that of primiparæ (21, equal 19.2 per cent.). The relative mortality of cases commencing before, during, or after childbirth was 30.43 per cent., 18.82 per cent. and 13.79 per cent. The proportion of deaths is comparatively low, and with the fact shown that delivery without too active interference tends to stop the fits is sufficient to warrant the adoption of conservative treatment for eclampsia, the rather as the woman is spared the dangers inseparable from forced labor. The practice of the Vienna clinic for many years has been a prophylactic milk diet for all albuminuric pregnant women; if this fail, the induction of labor by bougie or colpeurynter. On the outbreak of eclampsia, hot baths, linden tea, wet packing, chloroform and delivery as soon as may be without incisions.

NECROLOGY.

ELISHA GRISWOLD, M.D. (Jefferson Medical College) at Pittsburgh, October 7, aged 68. He was born in Chester, Pa., March 14, 1828. He was appointed in 1861 by Governor Curtin surgeon of the One Hundred and Twelfth Pennsylvania Volunteers, but afterward became acting division surgeon. July 30, 1864, he resigned to accept an appointment by President Lincoln in the corps of United States surgeons. Dec. 14, 1864, he was transferred to the charge of Judiciary Square Hospital, afterward being sent to New Orleans as chief medical examiner of the Freedmen's bureau for the State of Louisiana. In 1867 he was commissioned as lieutenant-colonel. He was a member of the Mercer County Medical Society, the Trumbull Medical Society of Ohio, and other societies. He leaves a wife and two sons.

J. v. KERCHENSTEINER, M.D., Bavaria, aged 65 years. The distinguished hygienist and promoter of medical, pharmaceutic and sanitary progress. His death is a great loss to his country.

JOHN SEIUERT, M.D. (University of Pennsylvania, 1857) Chicago, October 9, aged 78.——George Bonbright Anderson, M.D. (Jefferson Medical College, Philadelphia, 1877) at Latrobe, Pa., October 5.——William Eaton, M.D., Lloydsville, Ohio, October 6.

MISCELLANY.

Foundation of Medico-surgical Urological Society.—This new association recently formed in France, welcomes foreign correspondents, who are requested to apply to Dr. Desnos, 31 Rue de Rome, Paris.

Inefficient Telephone Service in Columbus.—At a recent meeting of the Academy of Medicine of Columbus, Ohio, resolutions were passed reflecting on the telephone service of that town, and a committee was appointed to take proper action in the matter.

Pawtucket (R. I.) Medical Association.—The Pawtucket (R. I.) Medical Association petitioned the city council for the establishment of a modern board of health, without which that city at present languishes.

Dr. B. Mead Bolton, bacteriologist of the Board of Health at Baltimore, Md., has been appointed professor in bacteriology and pathology by the board of curators of the Missouri State University.

Chicago Day was observed thoughout the city October 9. The vast processions required medical attention and the Health Department established stations and furnished ambulance service. It is under existing ordinances clearly the duty of the city physician to attend to the service of this character, but no appropritions have been given the city physician for these purposes.

Dean of the Profession.—Since the death of Dr. Salomon of England, at the age of 106, Dr. Bossy of Havre, France, is now, we believe, the dean of the profession. Dr. Salomon retired at an early age after his marriage to an heiress, but Dr. Bossy has practiced all his life.

Robbed Doctors' Houses.—Two female sneak thieves were arrested in Chicago, October 5, charged with stealing articles from doctors' offices, which they had visited under various pretences. About fourteen physicians have sustained losses at the hands of this precious pair. Umbrellas, vases, clocks and the like were classes of articles taken.

American Methods of Treating Pelvic Suppurations.—As a supplement to the discussion of this subject at the International Gynecological Congress, the *Bulletin Médical* summarizes the views of several of our American surgeons: Noble, Kelly, McMurtry, Sutton, Stone, Cordier, Marcy, F. H. Martin, Treves, Wiggin, Kelsey and Carpenter, Ashby and Penrose, quoting extensively from the addresses and discussions at the Atlanta Meeting, published in THE JOURNAL, Nos. 4 to 6. As has been seen in the report, Byford, Henrotin, Edebohls, Polk and Kelly took an active and important part in the proceedings.

Form of "Charcot's Crystals."—New light has been thrown on this subject by Cohn's recent investigations. He has found that they are not quadratic octahedrons as supposed, but hexagonal double pyramids. The cleavage of the figures found in dried asthma sputum distinctly revealed that they belonged to the hexagonal system. Crystallographic tests also proved essential differences between these crystals and Böttcher's, whose plane of polarization is not parallel to the long axis of the crystal.—*Deutsch. Med. Woch.* 19, from *Deutsch. Archiv f. k. Medicin*, 4 and 5.

Can Not Interfere with Proceedings in Higher Tribunals. The supreme court of Georgia holds, in the case of Baughn v. Wiley, decided April 27, 1896, that proceedings to obtain a commission de lunatico inquirendo, under Section 1,855 of the Code of that State, for the purpose of having a person imprisoned in the jail of a given county sent to the asylum as a lunatic, can not be maintained when it appears that such person has been convicted of murder in another county, is subject to the sentence of death, and was confined in the jail in question under an order of the superior court in which the conviction was had; and that in such case the writ of mandamus will not lie to compel the ordinary of the county in the jail of which the alleged lunatic is confined to entertain jurisdiction of such proceedings.

Methylene Green for Staining Nerve Terminals in the Muscles.—Corominos in the *Revista de Ciencias Medicas de Barcelona*, 3, states that this substance stains the terminal ramifications of the axis cylinders much better than the blue or chlorid of gold. He uses it in a solution of 100 parts of concentrated

aqueous solution of methylene green in 50 parts of absolute alcohol and 1 part acetic acid. He leaves the sections twenty-four hours in this solution, and then makes his preparation with glycerin and salt solution. The nerve fibers take a fine green while the muscle fibers remain a very light color. If left too long the preparation can be decolorized by soaking a while in salt-free glycerin.

Philadelphia Municipal Home for Consumptives Proposed.—Dr. Lawrence F. Flick, President of the Society for the Prevention of Tuberculosis of Philadelphia, has proposed to the city that some suitable spot for a consumptives' home be selected, whereby those cases to be cared for by themselves in a sanitary way and those already cared for by the municipality, shall be gathered in one institution to be managed under municipal regulation. The plan is said to meet with favor by the municipal authorities. It is evident that additional means must be taken to prevent the spread of the disease. This seems practical and, managed under proper conditions, would be an enormous factor in suppressing the disease in a large city.

Essential of Indictment for Attempting to Procure Abortion.—A Vermont statute renders all acts done and performed upon a woman pregnant, or supposed to be pregnant, with intent to procure her miscarriage, criminal, unless the same be necessary to preserve her life. R. L., sec. 4247. Construing it, the supreme court of the State holds, in the case of State v. Stevenson, decided Aug. 21, 1896, that "the same" here refers to the miscarriage, and not to the means to produce a miscarriage, as it can not be said that the thrusting of an instrument into a pregnant woman, who is otherwise in perfect health, is necessary to preserve her life, or that the employment of any of the means commonly used to procure a miscarriage is necessary to preserve her life. Under the statute, if a miscarriage is necessary to preserve the life of a pregnant woman, all acts done with the intent to procure it are declared lawful, but, if unnecessary, criminal. In order to charge an offense under the statute, it is necessary to negative the exception. And the court further holds that an averment that the means employed to procure the miscarriage were not necessary to preserve the life of the woman is not an equivalent to an averment that the miscarriage was not necessary to preserve her life, and that it does not negative the exception.

False Testimony and Suggestion.—Bérillon found by recent experiments that he was able to secure the testimony in regard to imaginary past occurrences, of over twenty out of every hundred persons tested (all over 15), by verbal suggestion alone, and without any preliminary hypnotic maneuvers. The readiness with which he was able to accomplish this was in direct relation to the intelligence of the subject; by no means confined to the lesser developed, but the reverse. He also found that a personal interest assisted the realization of the occurrence; for instance, the subject remained indifferent to a suggested criminal occurrence until he was made to believe that the person in question had spoken injuriously of him, when his attention was at once aroused and the whole imaginary occurrence impressed upon his memory as if he had actually witnessed it. Bérillon states therefore that large numbers of persons possess such suggestibility in the normal condition that it would be easy by verbal suggestion alone, without any hypnotic maneuvers, to cause them to commit unconscious perjury, and that they should not be considered legally responsible if psychologic examination by a medico-legal expert establishes the fact of the suggestion. Magistrates are therefore warned against the possibility of suggesting false testimony to impressionable witnesses by the questions asked and methods of procedure, which may produce the same effects by psychic constraint as the torture chambers of old. See *Journal de Méd. de Paris* for further particulars, September 27.

Inebriety, Insanity and Suicide.—Inebriety, though long continued and resulting occasionally in temporary insanity, the prerogative court of New Jersey holds, in Koegel v. Egner, decided Aug. 17, 1896, does not require proof of lucid intervals to give validity to the acts of the drunkard, as is required where general insanity is proved. Consequently where habitual intoxication is shown there will be no presumption that incapacitating drunkenness existed, for example, at the time of making a will. And if it be conceded that bona fide attempts to commit suicide and accomplishment of suicide, this court further holds it will not follow that such derangement is inconsistent with the ability to make a will. It may exist with testamentary capacity. The court says that we generally attribute the act of self-destruction to a morbid condition of the mind, which may be either fixed insanity or a temporary surrender of reason. It is regarded as being in the latter condition where the object of the intended suicide is to secure relief from present pains, either in realization of affliction (mental or physical), disgrace or disaster, or the impelling cause is the apprehension of such evils; for we can not believe that a mind can be in normal health, even though it be cowardly and skeptic as to the future, if it accepts the uncertainty of the state after death as a relief from present mental or physical suffering. Proof of mere attempt at suicide and suicide, without more, exhibit at best but a temporary mental affliction, having no reference to antecedent or subsequent periods of time.

The Monument of Paracelsus.—In a chapel in Salzburg, Bavaria, stands Paracelsus's monument. It is a broken pyramid, and a niche contains his picture with a Latin inscription commemorating his skill as universal. It also sets forth that he has cured diseases before considered as past help, and the he had left his property to the poor. His coat-of-arms is engraved on the monument, with the motto: *Pax vivis requies æterna sepultis*, peace to the living, the repose of eternity to those who slumber. Perhaps one of the most brilliant minds of the later centuries was Philipp Theophrastus von Hohenheim, or, as he afterward named himself, Paracelsus. His parents were persons of note; the father was a physician of acknowledged ability and the mother the superintendent of the hospital at the Abbey of Maria-Einsiedeln. At this place their child was born in 1493. He grew up in the mountain region and his early instruction received diligent attention. He learned the medical art from his father; then at 16 he became a student at the university of Basel, but soon left to be a pupil of the distinguished alchemist and philosopher, Trittheim, bishop of Würzburg. He afterward spent a season at the laboratory of Sigismund Fugger, in the Tyrol; then, after the example of the sages of ancient times, he made a tour of the various countries. It is affirmed that he went to Tartary, India and Constantinople. He was a persistent seeker after knowledge, accepting it with equal readiness from the learned and from persons in the humbler walks of life. He held the learning of the universities in low esteem and despised those scholastic discussions which turn more on theories and definitions than on actual knowledge. The skill of Paracelsus as a physician was highly esteemed. He was for some time a surgeon in the imperial army, and when he had taken up his residence at Basel he was consulted by Erasmus. At the recommendation of Œkolampadius, the Protestant reformer, he was made city physician and appointed professor of medicine at the university. It was no easy task that he set himself, the reformation of the art of healing. Luther in Germany, and Zwingli in Switzerland, had no harder task. He delivered his lectures in German instead of Latin, and taught new doctrines in medicine and philosophy. This created implacable hostility on the part of his professional rivals, who accused him of being without a medical degree. He would not prescribe and administer the

drugs sold by the apothecaries and they joined in the attack. He was compelled to leave Basel and led a roving life for several years. At length Duke Ernst of Bavaria, who was a lover of occult knowledge, gave him a home at Salzburg. But the unrelenting hatred of his enemies pursued him to this retreat, and he was treacherously murdered in September, 1541.—Dr. Alexander Wilder, in *Metaphysical Magazine*, September.

Equity Will Protect Incapacitated Persons.—It seems to be the general consensus of judicial opinion, says the court of civil appeals of Texas, in the case of Edwards v. Edwards, where a rehearing was denied September 18, 1896, that equity jurisdiction is maintainable on the petition of a "next friend," in cases where a person of weak mind has not been, or can not be, adjudged a lunatic by the special tribunal provided by law for that purpose, and yet is so far incapacitated by disease, decrepitude, or other infirmity, as to require the protection of a court of equity against the undue influence and fraud of others.

Medical Department Syracuse University.—The formal opening of the new medical college building took place at Syracuse October 5. About four hundred guests were present, and they were received in the lobby on the first floor by Chancellor and Mrs. Day, Dr. and Mrs. H. D. Didama, Dr. and Mrs. Nathan Jacobson, Dr. and Mrs. Alfred Mercer, Dr. and Mrs. John Van Duyn, Dr. and Mrs. H. B. Allen, Dr. and Mrs. A. B. Miller, and Dr. and Mrs. H. B. Elsner. In part Chancellor Day said:

I feel that we have great reason for congratulation to-night, reason to congratulate the city of Syracuse. Some of our citizens may consider us a burden, but were they to understand the merits of the university they would be with us in congratulating Syracuse that she has the university. The university is expending $1,000 per day in Syracuse every day in the week and of a year of 400 days. Have you any other institution in Syracuse that pays as good a dividend as that? Not even the street railway. I measure the influence more that comes from cultured brains. The city has been elevated in character by this institution. The university is contributing many sciences to the city and outlying country. To-night we open a new era. Now we have the best appointed medical college on this continent. We have made it solid and substantial. We have combined things which they have in the metropolis and some things which they had not thought of, and now we have a fine college with a peerless faculty. The college ranks with the best to be found. We are determined to make doctors. We want quality and not quantity. There are doctors everywhere, but the doctors you and I want are not so much in evidence. I ask that the faculty make as good doctors as they are themselves. I introduce to you Dean Didama with profound pleasure.

Dean Didama came forward amid applause and made a brief response to the Chancellor's remarks. In part he said:

Years ago the Geneva College moved to this city and reorganized as the Syracuse Medical College. The system at first in vogue sent out scores of doctors who were not capable to practice. A new system was soon adopted and this drove away many who desired to get a diploma rather than to deserve one. The new plan was a financial failure. Success followed later, however, and now we have facilities for doing work in six departments with the best methods and can furnish a four years' course.

The Dean gave a brief review of the faculty and spoke of the high standard of instruction which has been attained. Dr. D. M. Totman read the following telegram received by Chancellor Day from Andrew V. V. Raymond, president of Union University: "The medical department of Union University sends greeting and congratulation to the College of Medicine of Syracuse on this happy occasion." Another was read by the Doctor from Anson J. Upson, chancellor of the University of New York. Letters of greeting were sent by a number of prominent New York physicians.

Dr. Gaylord P. Clark of the faculty gave an interesting history of the new building. Dr. Clark reviewed the building from its start up to the time of completion. The structure cost $65,000 and two-thirds of that amount has been raised and was acknowledged in Dr. Clark's report. The building committee was composed of Hendrick Holden, J. B. Brooks and J. B. Clark. The old building was torn down early in the summer of 1895, and the present structure was started in July and finished about a fortnight ago. The building is four stories high and has a floor space of 24,000 square feet. It is spacious, well lighted and well equipped. It is heated by steam and the "direct-indirect" method is used for the heating and ventilating. It is lighted by both gas and electric lights. There are several large lecture halls on the first and second floors. On the third floor are the departments of physiology and histology, and on the fourth, anatomy and pathology. The floors are all of hard wood and the ceilings steel. The side walls are of brick and there is little chance for germs to accumulate. It is a modern building and was inspected with pleasure by the large number present last evening.

The address of the evening was made by Dr. Stephen Smith of New York, a former resident of the county. Dr. Smith was introduced by Dean Didama, and during his address he gave a review of the various systems of treating the sick, and contrasted the methods of years ago with those of the present time. "Natural talent is necessary in order to study medicine," said Dr. Smith. "The growth of medical schools in this country has not been entirely healthy. There is now some advance in sciences, and it is gratifying to note this fact. This college was the first to adopt a graded course, and now places itself in the front rank of medical colleges. The new building is well equipped, and the school enters now upon a new era. The school will of course suffer some competition. The best equipped physicians I find are educated in the smaller schools and simply complete their studies in a metropolitan institution. The college is to be congratulated upon having secured everything necessary to insure its future success. This school furnishes pupils ample opportunity to secure a thorough medical education." Dr. Smith's remarks were cordially received. Dr. Smith has enriched the library by the gift of his large private collection.

Hospitals.

St. Luke's Hospital, New York.—When the authorities of St. Luke's Hospital sold the hospital lands at Fifth Avenue and Fifty-fourth Street, they evidently were not aware that their title only conveyed the property for the use and purpose of a hospital and chapel. The matter has now come up in the shape of an unpleasant litigation.

Baptist Hospital of Chicago.—By the will of the late Mrs. Maria M. Foster the sum of $35,000 is bequeathed to this institution, which we believe has been, up to this time, wholly if not exclusively under the management of the medical sect known as "homeopaths."

Change of Address.

Bourns, F. S., from 65 Capitol Av. to 404 Grand Opera House, Atlanta, Ga.
Carroll, C. C., from Poughkeepsie to 509 5th Av., New York.
Heise, E. H., from Bay View, Mich., to 2315 Washington Av., Chicago.
Lundgren, C. E., from Jamestown to 455 Pacific St. Brooklyn, N. Y.
Malone, L. A., from 427 Senate Av. to 119 N. New Jersey St., Indianapolis, Ind.
Moody, H. A., from Bailey Springs to 311 Congress St., Mobile, Ala.
Peck, George, from Cooperstown, N. Y., to 926 N. Broad St., Elizabeth, N. J.
Rosser, J. C., from Grand Rapids to Rosser Hospital, Duluth, Minn.
Yeaman, H. W., from Philadelphia, Pa., to Pier 14 Red Star Line, New York.

LETTERS RECEIVED.

Ayres, S. C., Cincinnati, Ohio; Anderson, Willis S., Detroit, Mich.
Bradner, Henry, Benkelman, Neb.; Berry, J. T., Brandon, Miss.
Demaree, Owen B., Benson, Ky.
Castor, H. C., Indianapolis, Ind.; Cullen, C. R., Gaines Mill, P. O., Va.
Erwin, C. R., Chicago.
Gray, Wm. B., Richmond, Va.
Haag, D. E. Toledo, Ohio; Hummel A. L. Adv. Agency, New York.
Johnson, H. L. E., Washington, D. C.
Kress & Owen Company, New York.
Little, C. H., Detroit, Mich.; Latta, Samuel W., Philadelphia, Pa.
Miles Jacob F., Philadelphia, Pa.
Newton, R. C., Montclair, N. J.
Oliver, Chas. A., Philadelphia, Pa.; Open Court Publishing Co., Chicago, Ill.
Parkinson, James H., Sacramento, Cal.; Payne, Geo. F., Atlanta, Ga.; Parke, Davis & Co., Detroit, Mich.; Pope Mfg. Co., Hartford, Conn.
Riley, W. H., Boulder, Colo.; Rohé, Geo. H., Sykesville, Md.
Staples, Franklin, Winona, Minn.
Thayer, Chas. P., Boston, Mass.

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ADDRESS.

THE EVOLUTION OF MEDICINE AND NEW METHODS OF MEDICAL TEACHING.

An address delivered at the ninth annual opening of the Department of Medicine, University of Minnesota.

BY R. O. BEARD, M.D.

PROFESSOR OF PHYSIOLOGY, DEPARTMENT OF MEDICINE, UNIVERSITY OF MINNESOTA, MINNEAPOLIS.

The time was, and but recently, when the history of medicine was regarded as the classic introduction to a text book upon medical practice. It was the subject of a regular course of lectures in many institutions of medical learning and, in some, it was even assigned to the guardianship of a distinct chair. With the rapid growth of the medical sciences and with the multiplication of essential branches of instruction, it has been crowded out of the curriculum. Whether wisely or unwisely, in but a very few schools is its study still maintained.

This is a loss certainly, and one to be deplored, if the student of medicine does not acquire that loving reverence for his calling which will lead him to investigate its past; if he has not sufficient taste for the literature of his profession to win him to make its history a voluntary part of his education.

For this history of medicine—a curious and entertaining story, centering itself in three great facts of character—the passion for self-knowledge, the imminence of human need dependent upon self-ignorance, and the sentiment of human devotion in the sight of suffering, this history of medicine is as complete and chromographic a picture of the evolution of intellect as the records of the race afford.

Deeply into its attractive pages I can not venture this evening, but I commend their study to your leisure hours as a recreation from the more arduous duties of your college course. From this history I desire only to draw sufficient evidence of the fact that the medicine of to-day is the still evolving product of an evolutional process through which it has passed and still is passing to the position not merely of an art, but of a true science. And, as the first item of this evidence, observe that medicine, in its development, has always been most quickly responsive to the favorable environment of physical integrity. It has always languished in the atmosphere of physical degradation. The worship of the body has been an inspiration to the study of its conditions. The stalwart races have been the leaders in medical lore. The Arabs, the Greeks, the Moors, the Magyars, the Anglo-Saxons and the Teutons have given the world, at once, its best types of physical perfection and its pioneers in the science of medicine.

Again, observe, that the medicine of each period has been in closest harmony with its intellectual surroundings. It has possessed the general qualities of each phase in the evolution of the human mind. And itself a creature of human necessity, it has, in turn, created for itself in the public mind an atmosphere luminous in direct proportion to the measure of its own light. In an age of barbarism we see medicine as a species of savage sorcery and the popular attitude toward it is one of fear. In an age of superstition medicine is the mystery of the alchemist and the popular attitude toward it is that of wonder. In an age of ecclesiastic authority medicine becomes oracular and the popular attitude toward it is one of absolute credulty. In an age of metaphysics medicine is speculative and the popular attitude toward it is that of dogmatism. In an age of experience and superficial observation medicine is empiric and the popular attitude toward it is that which seeks after a sign and demands a specific. In an age of science medicine slowly becomes scientific and the popular attitude toward it is that of scepticism of its traditional formulæ and inquiry into the reasons for its faith.

Only in the perspective of history can we see these periods outlined sufficiently for the recognition of their essential and separate qualities. Since no lines of demarcation lie between them, since insensibly they shade into one another, since the phases of this evolution have not been of coincident development in all communities and through all levels of society, it is not surprising to find the peculiar characteristics of one period invading the next and often exhibiting a remarkable viability. It is one of the difficulties with which the philosophy of evolution has to deal, that while the fittest ultimately survives, the unfit makes a desperate struggle for existence. Thus we find relics of savagery in the torture of the sick, long outliving the advancement of society into semi-civilization. We find the grave cloths of superstition in long-continued use as the swaddling clothes of authoritative medicine. We are not so far removed ourselves from the speculative era but that "isms" and "pathies" still persist, and that "systems" of human cures or "divine healings" still are born and "have their day and cease to be," proving themselves, in their premature decline, to be but the "broken lights" of scientific truth. We are not yet so far beyond the age of empiricism in medicine, but that we feel the force of the dangerous argument from experience alone and that the multitude of us still prescribe remedies which have a mere reputation of cure; which, in the vulgar tongue, are good for the ills which ail our patients. We are not yet so far advanced into the period of scientific medicine that we trace a cause for every pathologic effect, that we demand to know the physiologic action of every therapeutic agent we employ, that we question our daily practice till it gives a satisfactory reason for every custom that we traditionally follow. So great and so widely distributed has been the mass of the

medical profession necessary to meet the growing needs of society that it has sometimes visibly suffered the consequences of its own inertia, rendering it now conservatively slow in response to a moving impulse and again subject to the excesses of its own momental force.

Nevertheless, scientific medicine is, I repeat, the still evolving product of an evolutional process which has kept proportional pace with the intellectual development of the race.

The evolution of medicine, in common with other subjects of natural development, has not always been a continuous process. Occasionally it has suffered a seeming temporary paralysis, and for almost a generation perhaps no important fact of discovery, no new achievement of practice breaks the dead level along which it drags its indifferent way. But this apparent arrest of progress proves ultimately to be due merely to some obstacle of error which has barred its upward course, before which it pauses until it gathers sufficient energy to roll the barrier from its path or which now and then, perchance, seems to force it back upon itself and start a retrograde movement which leads about in the end to some broader and better way.

And not infrequently does the history of medicine show us that in this, as along other lines of evolutionary force, development has sometimes proceeded by sudden and surprising movements, by the unexpected discovery of some new and widely illuminating truth, by the appearance, as it were, of some massive points of projection in human events or in human life which have given to the few, like Moses, among the mass of men, a glimpse from Pisgah into the land of promise. Some of those events and some of those individuals who form these projection-points in the history of the evolution of medicine have only been justly measured or even tardily recognized by the search light of later development. Born out of time, they were the abortive products of a false generation in the eyes of their contemporaries, but they were the archetypes of a new era in the judgment of the future. Some of them are still unknown, and yet their deeds, which passed unrecognized and are even yet untold, were prophetic of many a modern "new departure." We do not know the names, even, of those obscure professors who conducted a single annual dissection of the human body at Ingolstadt and Heidelberg in the early years of the sixteenth century and who considered it necessary to conduct religious ceremonies after each demonstration before their classes, but it was their spirit which inspired Vesalius, the traveling anatomist of Brussels, and Fallopio of Modena and Eustacchi of Rome, whose discoveries have been christened with and have immortalized their names.

The simple sow-gelder of a German province, who, in 1517, successfully removed the ovaries of his daughter, had little surgical or even veterinary skill to bring to his task, but he deserves recognition, nevertheless, as the nameless author of an operation which has become fashionable, to the weal of many and the woe of some, in these latter days of the nineteenth century.

Small honor in his day was accorded to Felix Platter, who, in 1557, insisted upon the psychic treatment instead of the incarceration of the insane, but he it was who led Pinel, in 1801, to remove the fetters from the demented and to teach that mental disease should be looked upon as a brain lesion. Prophet he was of a deliverance of the defective classes of society which he anticipated by two centuries and a half of time! Bright projection rising out of the gloom of the professional ignorance of his own times into the clear atmosphere of scientific medicine, his name is deserving of the unconscious worship of the thousands of the hopeless and the helpless who have profited by the evangel he proclaimed!

And among the men whose discoveries have made them famous, many there were "of whom the world was not worthy" and who were compelled to wait upon posterity for the recognition they merited. As we look back upon their history it seems to us that "there were giants in those days," but they were giants only by comparison with the mass of their fellows among whom they stood. They would stand shoulder to shoulder among the scientists of to-day. They were simply great projection points upon the medical progress of their time; men who laid down the new lines along which progress was made, or from which new departures could come. They were not only opportune discoverers, but pioneers, who opened the door to future and sometimes very much postponed research.

When Harvey announced the circulation of the blood in 1628, and Malpighi in 1661, discovered the capillary circulation, the facts were viewed as wonder tales by their associates, and not even the discoverers themselves knew what a wonder-world they had opened up to future investigation. When Haller, in the eighteenth century, laid down the doctrine of the functional irritability of the nerve-tissues, his colleagues received the new theory with mingled curiosity and suspicion, but they did not know that by virtue of that demonstration, Haller was destined to be called, a century later, "the Harvey of the nervous mechanism."

When Bichat conducted his brilliant anatomic dissections a hundred years ago, his contemporaries rightly honored him as being the founder of the study of general anatomy, but they did not recognize in him, also, the founder of realism in his profession; they did not see that his scalpel was uncovering facts that were to be used for the overthrow of speculative medicine; they did not read the prophecy of the coming of clinical and laboratory methods in the teaching of the students of to-day in his pregnant words: "Books are merely the memoranda of facts. We have living books before us in the living and the dead."

When Jenner discovered the principle of vaccination he was like a miner who has stumbled upon an unexpected gem, whose practical value he puts to a sufficient test, but neither he nor the men who long debated the value of the "find," nor the thousands who have since adopted the practice of vaccination and have minimized the terrors of smallpox thereby, could foresee that his virus might prove, in generations to come, to be the type of many antitoxins, the suggestion of a possibly large field of serotherapy, the forerunner of the gospel of preventive medicine, the faint promise of the proof of the doctrine of immunity from disease.

Like all other products of mental evolution, medicine has always been responsive to the influence of two forces, the force of attraction from above, incident to the progress of the related sciences, and the force of propulsion from below, incident to the rise of popular intelligence. With the beginning of the

present century these two forces became active to an extraordinary degree. The energy of general scientific development was strongly nascent in the early years of this period. It burst finally into a flame which has been burning with increasing and unparalleled brilliancy as the century advanced. At the same time were maturing those social and political forces which gave impulse to the magic ideas of Pestalozzi, the father of general education. The intelligence which, in earlier ages, had been the heritage of the high-born, began to penetrate downward and leaven the lower strata of society, until it broke forth again, at all levels, in the energy of a popular demand for knowledge. The influence of this general rise of intelligence upon the education of the so-called learned professions – learned, hitherto, only by comparision with the masses – who can measure?

These twin forces found the profession of medicine steeped in the atmosphere of speculation and apparently unstirred by the touch of that spirit of practical realism which had its birth in the labors of Bichat. But, buried as it was in the schools and systems of speculative thought, it had in it the living germs of scientific development which could not but respond to the quickening influences of the times. Not to attempt a general survey of these influences of nineteenth century science, we may just pause to note, by way of illustration, the wide range and varied character of the attractive forces by the aid of which medicine has been lifted to a scientific plane. It needs but to mention the labors of Schwann and Lamarck and Schleiden in microscopic botany; of Berthollet and Pasteur in chemistry; of Darwin, Haeckel and Wallace in the philosophy of development; of Faraday, Ohm, Ampère, Seebeck, Edison and Bell in electricity; of Malus in polarization; of Kirchhoff in spectrum analysis; of Fox Talbot and others in photography; of Dutrochet in physiologic chemistry—it needs but to note the names and works of these to see whence sprung the irresistible influences which are helping to make of medicine a science and which have given birth and opportunity to a generation of medical scientists whose names and number and achievements bid fair to rival in brilliancy those of their fathers in general scientific research.

With the history of these masters in scientific medicine you will become familiar as you profit by the conquests and discoveries they have made. Into this history even of the moderns in medicine it is not a part of my purpose to enter. Suffice it that medicine, through their labors, is a science. It has been difficult for the profession to get away from the speculative tendencies of an earlier day; those hereditary habits still crop out with the persistency of tares among the wheat. It has been difficult to outgrow the love for our traditional position of authority in the community, but the day of the oracular in medicine has gone by; the oracle has been found out and it is works, not words, which can win allegiance from the people of to-day. It has been difficult to abandon the practice of empiricism, to learn that the argument from experience is a most dangerous one in medicine when all its conclusions rest upon a "variable" quantity in the person of the patient. It has been difficult to substitute for these, through the great body of the profession, the exercise of a scientific spirit. Even to-day that spirit moves but feebly in the minds of many. It has not been easy to learn the unaccustomed lesson of putting "the why" before "the therefore," of distrusting the effect until the cause is clear, of doubting "symptoms" and seeking "signs," of making conclusion wait upon investigation; of applying to the human body the instruments of demonstration, rather than the intuitions of the doctor; of accepting the verdict of the thermometer, the stethoscope, the battery, the microscope, the chemic reagent, the bacteriologic test, aye, even the knife of the autopsy—the testimony in a word, of eye and ear and touch, rather than the feelings of the patient or the suppositious effects of an empiric formula. The transition period through which medicine has had to pass has been a slow and tedious phase in its evolution; so large a body, of necessity, moves slowly, but nevertheless it moves. No longer the physician is compelled to walk in the half-light of variable experience or in the gloom of metaphysic theories; no longer he treads softly upon the velvet of popular reverence, woven out of his fancied possession of occult truths; he stands out in the light of a new day; his hypotheses are useful but they must be proven; his theories may outrun his practice but they must be supported by facts; he must be able to give to every man the reasons for his faith. For the medicine of to-day is a science.

But, at first, and for a comparatively long period, considering the rapid movement of its later evolution, medicine was, as I have intimated, the science of the masters. Indeed, this perhaps is to be accounted for by the very rapidity of its progress. Only the master-mind, the mind of exceptional opportunities could keep pace with its league-long steps. Slowly the scientific spirit permeated the profession; but old and young were compelled, at first, if they received it at all, to receive it at the feet of some medical Gamaliel. The masters have slowly multiplied, but, until very recently, facts have been acquired of necessity, at second hand; we have learned the scientific methods of medicine by proxy. We of the generation you follow, grew up in a period of pupilage, during which the few were trained in the seats of scientific learning and went out to preach the gospel to the many. Students heard with the ear, but did not see with the eye, the structural secrets of the human body; if they saw, they did not do the experiments which proved the problems they studied or the operations upon which, in practice, they must soon put untrained hands. Their practical work was confined to the use of the scalpel in a single dissection of "an upper" and "a lower," and to the trial of a few chemic reactions in the test-tube for a few short weeks. Occasionally they listened to a clinic talk at the bedside of a typical case, or viewed from the distant benches the white aprons of the surgeons and the instruments in the hands of assistants at the operating table; or, far less often they gathered, with hungry eyes, about the postmortem table in search of a few living facts to be discovered from the dead. Some of these imperfect methods, for want of better, we still pursue. But the age of the masters in medicine, as in other fields, is passing by. A period of individualism in medicine, as in everything else, is upon us. There are not fewer intellectual giants than of old, but the medicine of to-day demands that all its members shall be of larger mold. The many are growing to the stature of the few. Science is becoming more available. Its instruments are more accessible. Its methods are easier of attainment. Its results are more easily measured by improved means. Its adaptations to

daily practice are more numerous and indispensable. Personal practical training is more necessary than of old. Each must do in the medical science of the future, to a very great degree, what any other has done. It is not enough, students in medicine of to-day, that you shall see through others' eyes, you must also see with your own; it is not enough that demonstrations shall be made and tests done for you, you must do them for yourselves; it is not enough that shall know the names of drugs, you must be able to recognize them; you must not only learn their action, but you should *see* it; you must not only be able to tell the constituents of the body fluids and tissues, but you must be able to analyze them; you must not only learn by ear the structural peculiarities of the tissues, you must be able to differentiate lung and liver and nerve tissue, under the microscope; you must not only be able to count a pulse, you must be able to study its qualities; you must not only know the meaning of heart sounds, you must be able to discover them and read them aright; you must not only be able to take temperature, but you must understand its production, its regulation and its means of loss; you must not only understand the principles of dietetics and food-preparation, you should be able to put them into personal practice; you must not only learn the principles of obstetrics, but you must practice them individually under the guidance of your teachers; you must not only witness operations, you must *do* them on the patient or on the cadaver; you must not not only know the peculiarities of pathologic products, you must be able to make their differential diagnosis under the glass; you must not only know the names of disease-germs, you must be able to recognize their forms; you must see them not only in the persons of their victims, you must rear them in the culture-tube; you must not only master the details of physical diagnosis, you must be able to apply them to disease at the bedside or in the clinic. The opportunity to accomplish these things is enlarging with every passing year. It is the heritage which the masters of the past have bequeathed to the students of the present.

Ladies and Gentlemen: I have heard these things called the adornments of medical teaching. A student informed me but a few days ago that her preceptor had advised her that these accessories were "nice but not necessary." They *are* embellishments, it is true, of the medical practice of fifteen or twenty years ago, but they constitute the warp and woof of the scientific medicine of to-day. For the attainment of this ideal education, it is necessary for the teacher to come as closely as possible into contact with the individual student. The didactic instruction of large classes is a means of time-saving, but for recitations and reviews, for laboratory exercises, for demonstrations, for purposes of bedside and clinic diagnosis, for obstetric attendance, for the witness or the performance of operations, in short, for all forms of practical work, these classes should be divided into small sections. Upon the adoption of such a recitation system and upon the initiation of such section work in several clinic branches this college is to be congratulated. Its fuller extension to the entire laboratory and clinic system and even to the surgical operating room is to be desired. It is possible for a class of ten or fifteen students to witness an operation with profit, but the hours spent by large crowds of students in a surgical amphitheater are largely wasted and could be spent by the majority of students more profitably over a text-book descriptive of the operation they are seeking to witness. A multiplication of laboratory assistants and clinic instructors is involved in this plea for a more elaborate system of sectional work; it means a larger equipment and a larger expenditure of material, but its adoption is in the path of progress in our professional schools. As a step in the same satisfactory direction we welcome the partial abandonment of the final examination system and the substitution for it of oral recitations throughout the term and at the close of the college year.

In a word, medical education is to be conducted, so far as possible, in the individual rather than in the mass. It is to be less didactic and more practical. It is to be less in the lecture room and more in the laboratory, in the hospital, in the dispensary and in the clinic. Leaders in medical science, teachers in medical thought there must always be, but each man and woman who essays to study medicine must be a master of his or her profession. A new relationship exists between the leader and his followers, between the teacher and the taught, a relationship of companionship. History is repeating itself in a return to the more conversational methods of the Socratic system. The spirit of mastery which put into the mouth of the teacher that voice of dogmatic authority which became the old prophets of tradition, "Thus said the Lord," is passing away and in its place we hear the voice of more philosophic, more reasonable invitation "Come now and let us reason together." To such a companionship of science, to such an intimate association of research, to such a leadership upon the part of the teacher and to such a following upon the part of the pupil, to the immediate possession of a place, at the very outset of your college career, in the profession of scientific medicine, on behalf of my colleagues, I welcome you. Personally, I do not care to what school of medicine you belong. You may attach yourselves to any or to all schools; you will be safe, and your future patients will be safe, under any banner, if only you are scientists in medicine. If you are not, it matters nothing to what school you claim allegiance, you will be an eventual failure. If you have come here prepared to work with us and for us, as well as for yourselves, determined to make yourselves, not merely practitioners of medicine but medical scientists, I extend to you, in the name of this University, the right hand of scientific fellowship. If one of you has come here to purchase a diploma and to gain it by the shortest and easiest route to its attainment, I want to bid you, in the name of medical science, to find a less exacting and more lucrative calling; or, if you must seek it upon this commercial basis, to go where diplomas are for sale.

But, believing as I do, in the sincerity with which you seek admission to this honorable and scientific profession, let me ask you to begin your career with a clear recognition, not only of the demands which it will put upon you at the end of your college course, but also of the demands which it puts upon you, as men and women, as physicians in the making, now. If you are to be a medical scientist you must be equipped to become one. If you are to be a master among men you must have a due preparation for the mastery of your science. A pyramid can not be reared upon the dimensions of its apex. A new education in medicine is before you. A new standard of requirements measures you. If you are to survive in the

fierce struggle which awaits the competitors of to-day in this calling of ours, you must be fit to survive. If you are not, that struggle will surely crowd the unfit eventually to the wall. The success of our sowing will depend upon the quality of the soil you offer to the seed. The character of the harvest you yield, will reflect upon the prior preparation of the brain soil you bring to the seeder. You will join with me, I know, in congratulating this college and the university to which it belongs, that it has already planned to safeguard, still further than it now does, these portals to the profession by demanding of its matriculants a higher measure of preliminary culture than they have been required to possess in the past. The higher evolution of the science of medicine must depend upon the quality of the men and women who gather in its institutions of learning and graduate from their halls. The medical science of the future will be the product of the labors of the profession, not merely among its masters, but in its mass.

ORIGINAL ARTICLES.

REPORT OF ONE HUNDRED CASES OF EXTRACTION OF HARD CATARACT.

Read in the Section on Ophthalmology, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5–8, 1896.

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It is not unusual for a surgeon, whether East or West, at home or abroad, to consider his special method of extraction of cataract superior to that of any other. Certainly, when one's cases are somewhat limited, it is infinitely better to become perfectly familiar with a special method and adhere to it as closely as possible, and whenever changes are made in order to accomplish some definite object, they should be gradual. The operation to be chosen should be the simplest and easiest of execution.

The loss of an eye means much to a patient, whether he be rich or poor. Relatively speaking, it is as unfortunate for an oculist to lose an eye as for a surgeon to lose a life. From Daniel's time to the present it has ever been sought to simplify the operation. I may be considered too conservative, but the results I have obtained will, I am sure, compare favorably with those of any other method, and I think that in the future they will be better than in the past, for the simple reason that "practice and care make perfect."

When there is no complication, that is, no disease of the eye aside from the cataract, and when the patient is reasonably tractable, every operation ought to be a success. A number of years ago I reported (in the *Chicago Medical Ex.*) Von Jager's method of operating, which impressed me most favorably. Many of you can recall the grace and ease with which he operated: seated, after the manner of Daniel, on a stool directly in front of, and somewhat higher than the patient, who faced a large window, he considered it play to remove cataracts. His methods seemed to me ideal. The first twenty-five cases operated upon, I attempted to follow them in most respects. I used his concavo-convex knives, and cystitome, but instead of facing, I found it easier to stand behind the patient, who either lay upon a table near or sat in a chair facing a window. A single and simple obstacle caused me to substitute Von Graefe's for Von Jager's knives. However simple it may seem, it was almost impossible to get Jager's knives sharpened in this country. After trying a number of instrument makers in Chicago and New York, I finally became discouraged and wholly discontinued their use. No knife, in my experience, makes so clean and even an incision as Von Jager's when in perfect condition, and no wound heals so quickly.

The cases here reported were charity patients. Preliminary iridectomy was done in most of the cases; in those where the cataract was fully ripe and the patients came from a distance, the extraction was done within a week or ten days after the preliminary operation. When the cataract was *not* fully ripe, or the patient lived near, a longer interval was allowed between the two operations. Usually only a small portion of the iris was excised, and as it was always under the upper lid, there was no deformity, nor was there, after the lapse of a few weeks, any complaint of dazzling or glaring light. The subsequent appearance of the eye was that of a very moderate coloboma. But should some deformity exist, what is that compared to useful vision? Truly, more time is required of both operator and patient, but what is time to the doctor when an eye is at stake, or to the patient who may have groped in darkness for years? Then, too, by a preliminary iridectomy at least two important questions may be solved—how the patient, and how the eye is going to behave. One is warranted in stating that the first operation will be the more severe, and consequently if the patient is tractable and quiet during the first, there is little doubt that he will be equally so during the second. If there is any predisposition to conjunctivitis or inflammation of any form, the preliminary iridectomy and subsequent treatment will most probably develop it, in which case the extraction would be deferred until the disease was completely cured. Patients were not operated upon until they became somewhat familiar with the surroundings, that is, one or two days after their admission. The preparatory treatment consisted in giving a slight mercurial laxative and bath the day before the operation, and thoroughly washing the head. The immediate treatment consisted in irritating the cul-de-sac with a solution of mercury bichlorid, 1 to 5,000, and then with a saturated solution of boric acid, followed by the instillation of a few drops of a 4 per cent. solution of cocain every three or four minutes until the anesthesia of the cornea was complete. As a rule, but three instruments were used—fixation forceps, knife and cystitome. An assistant lightly raised the upper lid while the corneal section was being made, which usually included the upper two-fifths, and was made in the cornea at the sclero-corneal junction. In cases where the lens was very large and hard the section was made even larger, including nearly one-half of the cornea, as was originally advised. I am sure that a small section is a most serious mistake, and probably causes more complications and the loss of more eyes than all others combined. The capsule was uniformly opened in the periphery after Knapp's method, except in those cases of hypermature cataract, and where the capsule appeared tough or showed calcareous deposits, when the lens was removed with the capsule by means of Föster's capsule forceps. It is to be regretted that it is not always possible to determine in advance when a lens can be removed in its capsule, as the result is so much better than when the capsule is incised and

NO.	NAME.	AGE.	CATARACT.	CONDITION.	OPERATION.	VISION.	REMARKS.
1	Grabb, J. . .	58	Senile, bilateral, 20 years.	Mature, perception and projection good	Left ext. 1 mo. after irid. . .	20-70	Iritis followed irid., which necessitated postponement of extraction 1 month.
2—3	Ferindall, A.S.	68	Senile, bilateral .	Mature, P. & P. good.	Ext. 2 weeks after irid. . . .	L. 20-50, R. 20-20 .	
4—5	Goldburg, N .	69	Senile, right eye..	Mature, P. & P. good.	Ext. 12 days after irid. . . .	L. 20-50, R. 20-80 .	
6	Brook, H.. . .	73	Senile	Mature, P. & P. good.	Left ext. 10 days after irid. .	20-20	
7—8	Goodaker, L .	60	Senile, 6 years . .	Mature, P. & P. good.	Right ext. 7 weeks after irid., left ext. 2 weeks after irid..	20-30, 20-40 . . .	
9	Keenan, J. . .	53	Senile, double . .	Right mature, P. & P. poor.	Ext. 2 weeks after irid. . . .	. . . . .	Floating bodies, vitreous.
10—11	Key, S.	74	Senile, double, 10 years.	P. & P. good	Left ext. 10 days after irid., right ext. 1 mo. after irid. .	20-200, 20-100 . . .	
12—13	Benson, A. . .	77	Senile, double, 7 years.	P. & P. good	Left ext. 11 days after irid., right ext. 1 mo. after irid .	20-40, 20-40	
14—15	Peterson. C. .	65	Senile	Right, calcareous corneal opacities, left mature 3 years, chr. conj. dacryocystitis left.	Right ext. 1 week after irid. left ext. 2 weeks after irid.	R. no improvement, L. 20-200 .	Six weeks later returned for discission left eye. Panophthal. & phthisis bulbi.
16	Bergeron, E. .	43	Senile, double . .	Mature, P. & P. poor .	Left ext. 10 days after irid. .	Slight improvm't.	Chr. chorioiditis, floating bodies in the vitreous.
17	Hurley, B. . .	46	Senile, left eye, 2 years.	Mature, P. & P. poor .	Ext. 10 days after irid	No improvement.	Chorioidal disease.
18—19	Wymn, M. . .	53	Senile, double, 7 years.	Mature, P. & P. good.	Left ext. 9 days after irid., right 1 mo. after irid. . . .	20-40, 20-60	
20—21	Hanson, C . .	72	Senile, double, 2 years.	Mature, P. & P. good.	Left ext. 2 weeks after irid., right ext. 4 weeks after irid.	20-100, 20-200 . . .	
22	O'Malley, K. .	14	Anterior pyramidal cataract.	Right P. & P. poor . .	Right ext. 2 weeks after irid.	No improvement.	
23	Shodd, C. . . .	47	Senile, double, 2 years.	Mature, P. & P. good.	Left ext. 3 weeks after irid. Fifth day after extraction patient hit her eye; iridocyclitis followed and eye enucleated.	. . . . .	
24	Cameron, E.C.	42	Senile, left eye, 5 years.	Calcar., P. & P. fair only.	Ext. 18 days after irid	No record	
25	Welch, C . . .	45	Senile, right eye, 3 years.	Mature, P. & P. good.	Ext. 2 weeks after irid. . .	No record	Good recovery.
26	Hoeveh, F . .	65	Senile, left eye, 1 year.	Mature, P. & P. good.	Ext. 2 weeks after irid. . . .	No record.	Good recovery.
27—28	Walker, M . .	52	Senile, double, 3 years.	Mature, P. & P. good.	Left ext. 2 weeks after irid., right ext. 3 weeks after irid.	20-40, 20-30	
29	Johnson, C. . .	58	Senile, double, 3 years.	Mature, P. & P. good.	Left ext. 1 mo. after irid Small incision, hard unyielding lens which required some force to press out, and some vitreous was lost.	. . . . .	Five days after operation was hurt when dressings were being changed. Chronic irido-cyclitis. Eye removed 4 years later.
30	Tindall, M . .	62	Senile, right . . .	Mature, P. & P. only fair.	Ext. 2 weeks after irid. Small incision, some vitreous lost.	. . . . .	Occlusion of pupil.
31—32	Johnson, H. A	63	Senile, double . .	Mature, P. & P. good.	Left ext 2 weeks after irid., right ext. 3 weeks after irid.	20-30, 20-40	
33	Price, S.	67	Senile, right, 6 years.	Mature, P. & P. good.	Ext. 2 weeks after irid. . . .	20-100	
34	Modalna, J. . .	80	Senile, left eye, 10 years.	Mature, P. & P. good.	Ext. 2 weeks after irid. Discission 4 weeks after extraction.	20-60	
35—36	Beigen, Eliz..	65	Senile, double . .	Mature, P. & P. good.	Left ext. 10 days after irid., right ext. 3 weeks after irid.	L. 20-40, R. 20-50 .	
37	McNamara, H.	59	Senile, right eye, 1 year.	Mature, P. & P. good.	Ext. 5 days after irid.	No record.	Good recovery.
38	Brown, Eliz. .	78	Senile, double, several years.	Mature, P. & P. good.	Left ext. 9 days after irid . .	No record	Good recovery.
39—40	Linkin, L. . .	45	Perception cap. .	Left P. & P. bad, right P. & P. fair.	Irid. both eyes and capsule slightly. Scratched with cystitome. Left ext. 2 wks. after irid., right ext. 1 mo. after irid.	Slight improvm't.	Retinitis pigmentosa.
41—42	Henbrogen, E	65	Senile, double . .	Hyperm. P. & P. poor.	Right ext. 2 weeks after irid., left extraction attempted 3 weeks after irid. on account of liquid vitreous was not successful.	No improvement.	Chorioidal atrophy.
43—44	Jones, S. . . .	44	Senile, double . .	Right mature, P. & P. good; left imm., P. & P. good.	Right ext. 14 days after irid., left ext. 6 weeks after irid.	No record	
45	Carmody, M .	58	Senile, right eye, 1 year.	Mature, P. & P. good.	Right ext. 14 days after irid.	20-200	Subsequently needled. No record.
46	Travis, C. G. .	62	Senile, right eye, 4 years.	P. & P. good	Ext. 21 days after irid	No record.	Subsequently needled. No record.
47	Welch, Cath .	43	Senile, right eye .	P. & P. good	Ext. 12 days after irid., followed by much pain and ecchymosis; good recovery.	20-80	Small incision. Wk. necessitated pressure to force out lens. Some vitreous lost.
48	Islander, J. . .	44	Senile, left eye, 3 years.	Mature, P. & P. good.	Ext. 18 days after irid	20-40	
49	Leutfer, A. . .	55	Senile, bilateral .	Left mature, right imm., P. & P. good .	Ext. 21 days after irid. Capsule needled 1 mo. later.	20-30	
50—51	Remney, Eliz.	85	Senile, bilateral, right 10 years, left 3 years.	Mature, P. & P. good.	Left ext. 14 days after irid., right ext. 18 days after irid	20-80, 20-100. . . .	
52—53	Herverton, T..	19	Cong. post. polar, bilateral.	P. & P. bad.	Right ext. 10 days after irid., left ext. 3 weeks after irid.	. . . . .	Slightly improved only.
54	Higby, M. B .	78	Senile, bilateral, 1 year.	Mature, P. & P. good.	Ext. 1 mo. after irid	20-80	
55—56	Bell, M	72	Senile, bilateral, 5 years.	Mature, P. & P. good.	Left ext. 10 days after irid., right ext. 3 weeks after irid.	20-80, 20-40, . . .	
57—58	Malin, A. E. .	41	Senile, double, 7 years.	Left calc., right mature.	Right ext. 7 days after irid., left cap. cal. and adhered to lens. Removal with cap. forceps.	20-40, 20-40	
59	Call, M. . . .	53	Senile, right eye, left, aphakial.	Mature, P. & P. good.	Ext. 1 week after irid	20-40	Some reaction. Too small incision. Good recovery.
60	Mederlone, U.	58	Senile, double . .	Right mature, left imm., P. & P. good.	Right ext. 2 weeks after irid.	20-100	One week after ext. patient removed dressing at night; reopened wound and caused some prolapse of iris, which was excised. Good recovery.
61	Kemphe, M. .	52	Senile, bilateral, 1 year.	Mature, P. & P. good.	Pterygium removed from right, left ext. 2 weeks after irid.	20-60	
62	Maxwell, K. .	48	Senile, right eye .	Mature, P. & P. good.	Ext. 13 days after irid	20-80	Cap. adh. removed with lens.

NO.	NAME.	AGE.	CATARACT.	CONDITION.	OPERATION.	VISION.	REMARKS.
63—64	Conty, J. . . .	58	Senile, bilateral .	Mature, P. & P. good.	Left ext. 1 week after irid., right ext. 2 weeks after irid.	20-40, 20-40	
65	Karsteen, M,.	68	Senile, bilateral, left, 10 years.	Left mature, P. & P. fair only, right imm.	Left ext. 7 weeks after irid .	No record	Considerable reaction followed irid. Cap. adh. lens removed with hook, some vitreous lost. Good rec'ry.
66	Sanders, E. . .	78	Senile, double . .	Right mature, left imm.	Right ext. 3 weeks after irid.	20-50	
67	Weinburg, Y..	50	Senile, right eye .	Mature, P. & P. good.	Ext. 2 mos. after irid.	20-30.	
68	Doolittle, B..	77	Senile left, right aphakial.	Mature, P. & P. good.	Ext. 10 days after irid	20-80	
69	Baum, M.. . .	62	Senile, left eye, 1 year.	Mature, P. & P. good.	Ext. 14 days after irid	20-30	
70—71	Danforth, L. .	72	Senile, bilateral, 5 years.	Mature, P. & P. good.	Left ext. 1 mo. after irid., right ext. 5 weeks after irid.	20-80, 20-100. . . .	Cap. needled 2 mos. after ext. No record.
72	Karstens, M .	68	Senile, right eye, 6 years.	Mature, P. & P. fair only.	Ext. 2 weeks after irid. . . .	. . . . .	Good recovery.
73	Sterling, E.. .	32	Traumatic, 8 years	P. & P. fair only . . .	Ext. 1 week after irid	. . . . .	Good recovery.
74	Salem, S . . .	84	Senile, left eye, 15 years.	Hypermature, P. & P. fair only.	Ext. 11 days after irid	. . . . .	Slow recovery, counts fingers 5 feet.
75	Amsler, M....	47	Senile, bilateral .	Right mature, P. & P. good; left incip.	Right ext. 11 days after irid.	20-40	
76	Underwood, M	61	Senile, double . .	Left mature, right incip.	Ext. 12 days after irid	20-40	
77	Conman, A.. .	65	Senile, left eye, 10 years.	Mature, P. & P. good.	Ext. 2 weeks after irid. . . .	20-80	
78—79	Jewell, R. . .	73	Senile, bilateral .	Left mature, P. & P. Right incip.	Left ext. 7 days after irid., right ext. 6 mos. after irid.	20-40, 20-60. . . .	
80—81	Ryerson, E.. .	58	Senile, bilateral, 1 year.	Mature, P. & P. good.	Left ext. 1 week after irid., right ext. 2 weeks after irid.	20-40, 20-60. . . .	
82—83	McFarland.. .	50	Senile, bilateral .	Incip., P. & P. good .	Left ext. 1 mo. after irid., right ext. 6 weeks after irid.	20-40, 20-80. . . .	
84	Gralish, K . .	40	Senile, left eye...	Mature, P. & P. good.	Ext. 16 days after irid	20-80	
86	Brew, M.. . .	51	Senile, right eye .	Mature, P. & P. good.	Ext. 10 days after irid. Needled 1 mo. later.	20-40	
87—88	T. M. A.. . . .	46	Hard, 2 years. . .	P. & P. fair only . . .	Left ext. 1 week after irid., right ext. 2 weeks after irid. Cap. needled 1 mo. after extraction.	20-80, 20-60. . . .	
89	Appel, L. . . .	65	Senile, double . .	Left malure, right incip., P. & P. good.	Left ext. 1 week after irid. Cap. needled 1 mo. after extraction.	20-80	
90	Jager, J. . . .	49	Senile, left eye...	Mature, P. & P. good, right aphakial 3 yrs.	Left ext. 1 week after irid. .	20-40	
91—92	Hans, Jos. . .	80	Senile, bilateral .	Bilateral mature, P. & P.	Left ext. 1 week after irid., right ext. 3 weeks after irid.	20-200, 20-100 . . .	
93—94	Karsten, C . .	62	Senile, bilateral .	Bilateral mature, P. & P. good.	Left ext. 2 weeks after irid., right ext. 4 weeks after irid.	20-80, 20-80. . . .	
95	Conners. . . .	66	Senile, right eye .	Mature, P. & P. good.	Ext. 1 week after irid	20-60	
96	Sweany, S.. .	64	Senile, bilateral .	Mature, P. & P. good.	Right ext. 1 week after irid.	20-40	
97	Meinen, B.. .	64	Senile, right eye .	Mature, P. & P. good.	Ext. 1 mo. after irid	20-80.	
98	Steele, A.. . .	76	Senile, right eye .	Mature, P. & P. good.	Ext. 12 days after irid	20-60	
99	McMaher, M.	65	Senile, bilateral .	Mature, P. & P. good.	Right ext. 10 days after irid.	20-100	Slight amount vitreous lost. Slow recovery.
100	Buckley, J.. .	65	Senile, right eye .	Mature, P. & P. good.	Ext. 14 days after irid	20-60	

the lens only extracted. After the completion of the corneal incision, the fixation forceps are removed and the further aid of an assistant is hardly necessary. Slight pressure is made upon the peripheral lips of the wound, then, in many cases, the natural contraction of the lower lid will expel the lens; but should it not, gentle counter-pressure by means of the thumb applied upon the lid will be amply sufficient. The eye is then thoroughly washed with a warm saturated solution of boric acid, and should there be any lens matter remaining, it is generally coaxed out in the same manner. A small pledget of lint or cotton is saturated with the boric solution and laid upon the eye, over which absorbent cotton is placed, just sufficient to keep the lids well closed, and feel comfortable to the patient. After the gauze or woolen bandage is applied, the patient is allowed to walk to his room, and is put immediately to bed, where under ordinary circumstances he remains for twenty-four, or preferably forty-eight hours. The room is not darkened, but bright or glaring light excluded. Should the dressing of the eye be uncomfortable, it is changed and applied more lightly. Eighteen or twenty hours after the operation the bandage is removed, the dressing carefully inspected, and should there be no unfavorable indications the eye, unopened, is well bathed with the saturated boric or bichlorid solution, and a few drops of a 1 per cent. solution of atropia is dropped into the inner canthus of the eye. Should there be no complications the eye is similarly dressed every twenty-four hours until the third or fourth day, when the bandage is removed and a single muslin strip tied over the eye for a day or two, when a shade is substituted and worn as long as the light is unpleasant. The average length of time in the hospital was one month, which may seem rather long, but as many lived at a distance, it was deemed expedient to keep them as long as possible, in order to perform discission should it be necessary; this was done in about 25 per cent. of the cases. Patients were not confined to bed longer than twenty-four hours if they wished to sit up, nor to their rooms more than three or four days. It was, however, generally found that patients recovered more rapidly if kept reasonably quiet the first few days or week. Patients living in the city were frequently discharged ten days or two weeks after the operation.

Discission, which was usually done with Knapp's needle knife, was performed usually from three to six weeks after the extraction, and uniformly improved vision.

I would especially desire to call attention to the unfavorable cases, as the consideration of such is sometimes more profitable than that of the successful ones.

Case 15.—Mrs. C. Peterson, age 65, senile cataract, blind ten years, chronic conjunctivitis of both eyes for several years and dacryocystitis of the left for three or four years; general condition feeble. She was placed at once upon tonics and a generous diet. The conjunctivitis was treated with astringents—mild sulphates and weak solution of nitrate of silver—the dacryocystitis by Bowman's method and injections of solution of bichlorid of mercury, 1 to 4,000, and bougies of iodoform and zinc. After a month of such treatment the general and local conditions fully warranted the cataract operation, which was performed on each eye, one week intervening between the operations. She made a good recovery without an untoward symptom—V.=20-100 in left; right, in which there were corneal

opacities and calcareous lens, no improvement. Two weeks after the last extraction she was allowed to go to her home, with the understanding that she would return in a month or six weeks. On her return there was a slight discharge as a result of the chronic dacryocystitis, but so slight I did not think it possible, after a thorough irrigation of the sac and duct with the bichlorid solution, to cause any trouble; consequently I did the operation of discission on left eye, hoping to improve her vision. The operation was performed in the usual manner and gave every promise of success, yet within twenty-four hours distinct symptoms of panophthalmitis appeared, and the patient lost her eye and almost her life. Subsequently the operator was confronted with a suit for damages. Previously I had considered the operation of discission so simple and free from accidents as hardly to give it a thought.

Case 29.—Mrs. M. Johnson, age 64, senile cataract both eyes, left fully, right partially mature. After preliminary iridectomy of the left, the lens was easily extracted without any complication, and until the fifth day there was not an unfavorable indication. On that day she complained of considerable pain in the eye and temple. On examination the eye was found to be much injected, the anterior chamber very shallow and the wound reopened. In explanation of the greatly changed condition she stated that the resident physician, in changing the dressing the evening before, had in some manner hit the eye, which had immediately caused excruciating pain. Chronic irido cyclitis developed, and as the opposite eye was endangered by sympathetic inflammation, the diseased eye was advised removed.

Case 23.—Shodd C., aged 47, extracted left eye three weeks after iridectomy. Operation normal except incision somewhat small for the hard, unyielding lens, requiring more than the usual pressure to force it out. Five days after the operation the patient struck her own eye. Irido-cyclitis followed and the eye was enucleated one month later. Although the patient distinctly stated that she hit her eye, it is possible that the pressure and consequent injury to the iris at the time of the operation may have been the principal or sole cause or the trouble.

Case 30.—Tindall M., aged 62, senile right eye; motion, perception and projection fair. Extracted two weeks after iridectomy. Lens adherent; removed with hook, some vitreous was lost. Plastic iritis and occlusion of the pupil followed.

Case 60.—M., aged 58. Senile bilateral R. M. One week after operation dressings were removed by patient during the night. The wound reopened and caused some prolapsus, which was excised. Good recovery resulted with fair vision.

I much regret that in my notes of cases more details are not given. When I began to operate I was guided and much influenced by V. Arlt's teaching, that vision was the *one* object, and he said (Knapp's Archives, Vol. x), "Were I to be operated on for cataract I would rely on that method which, on the whole, assures the greatest chances for recovering vision—more or less good vision, and all that sort of thing, is secondary so far as concerns the choice of method." Certainly with the majority of those operated upon and here reported, vision of any kind was the great object. Yet I am confident, if care and time be taken to avoid complications, and the patient is kept under observation for a few weeks to determine whether discission may be necessary or not, good vision can be secured just as easily as moderate. In reviewing the cases, two weeks was the average time intervening between the preliminary iridectomy and the extraction. I have omitted in this calculation those cases where iridectomy was done to hasten the ripening of the cataract. The average time of each patient in hospital was about one month. Many were kept longer than absolutely necessary, as they came from a distance and it was considered best to keep them long enough to fit them with glasses, and also to perform discission, should it be advisable. A few living in the city were discharged from the hospital from two to three weeks after the extraction. The average age was 60, varying from 14, pyramidal cataract, to 85, of which latter there were several. The cases 14, 23, 29 and 30, four in all, were failures, and failures much to be regretted, as they were all preventable. Cases 9, 15, 16, 17, 22, 24, 40, 39, 41, 42, 52 and 53, total 12, were complicated with choroidal trouble or corneal opacities, and little hope was given that vision would be improved, so that in estimating the number of those who were benefited by operation, these should be excluded. In brief, we have in the hundred cases four complete failures. One only counts fingers at five feet, partial failure, which would be five failures, 5 per cent. Twelve complicated cases, abnormal condition, 12 per cent. Twelve cases in which there was no record as to vision, but noted that they made a good recovery, which would mean 20-200 or better, so that we have:

12	cases,	1-10 or better	13 per cent.
4	"	1-10	4 " "
9	"	1-5	11 " "
16	"	1-4 or better	19 " "
12	"	1-3 or better	14 " "
21	"	1-2	24 " "
7	"	2-3	8 " "
2	"	1-1	2 " "

I desire to express thanks to Dr. L. Weber, resident physician, who kindly aided me in arranging the above cases.

DISCUSSION.

Dr. W. T. MONTGOMERY, Chicago.—It is only in very exceptional cases that I make a preliminary iridectomy. I do not perform extraction under two weeks from the time of the first operation. If the conjunctiva is healthy I do not use the bi-chlorid solution, 1-5000, because it so frequently produces decided irritation. Instead I irrigate freely with boric acid solution before and after operation. I prefer the speculum to any assistant to keep the lids separated during an operation. I do not make the corneal section so large as recommended by Dr. Ware, but it is better to make it too large than too small. If the patient has useful vision in one eye I only bandage the eye operated upon and allow the patient to sit or recline in a darkened room. If the eye is comfortable the first dressing is not disturbed until the second or third day and as a rule I substitute a shade for the bandage on the sixth day.

Dr. A. C. CORR, Carlinville, Ill.—I am of opinion that in all operations in which an iridectomy is to be made that it should be preliminary from the fact that it is not complicated with the dangers of the manipulation of the extraction, and on the other hand when the extraction is made it is not complicated with the dangers of an iridectomy. I regard the preliminary iridectomy as very important and necessary to an ideal operation. The teachings by professors and the books is almost all against the preliminary iridectomy, and it should not be so.

Dr. J. A. WHITE, Richmond If you are working only to secure to the patient every possible chance of vision, it is advisable to do a preliminary iridectomy in every case. It is not always practicable for the reason that the longer you extend the time of treatment the more trouble you will have from the patient, who wants to get through the case as soon as possible. You should have as large a section as possible so as to have an easy extraction of the lens. It should be as large as can be, even to the extent of one-half of the cornea. I always make mine two-fifths of the cornea, keeping entirely within the corneal tissues. As to antiseptics, my method is to prepare the patient the day before I intend to operate. I first have the face thoroughly washed with soap and water, then sterilize the skin about the eye with solution of bichlorid 1-2000. It is impossible to thoroughly sterilize the conjunctiva, but we are not afraid of producing irritation with bichlorid. After the washing we introduce into the conjunctival sac a 1-3000 salve of bichlorid, and then sealing up the eye leave it until the next day. If there is any secretion present when the eye is opened we do not operate. During the operation we use the instru-

ments sterilized with bi-chlorid. It has been my experience occasionally to remove the whole lens with the forceps on catching the capsule. If I find any difficulty in delivering the lens I give the patient the benefit of an iridectomy so as to make the delivery free and easy. I have found the cortex remaining was not so dangerous as supposed. It is nearly always absorbed and I would rather take the chances of a secondary operation than to prolong the time and subject the patient to extra danger. Since using the forceps I have had better results and have done fewer secondary operations. I do not approve of permitting the patient to walk about.

Dr. H. B. Young, Burlington, Iowa—As a result of iridectomy, either preliminary or at the extraction, is it not possible that the stump of the iris is more often incarcerated in the wound than we commonly suppose? As one of the complications of cataract extraction I would ask for information as to the occurrence of acute glaucoma. In one of my cases where atropia was used as suggested by Noyes, acute pain appeared twelve hours later with the usual symptoms of acute glaucoma. Instillations of eserin were used and a good recovery made.

Dr. A. W. Sterling, Atlanta—I have had under my care one case of glaucoma secondary to cataract extraction. One dozen or more of these cases recorded have been investigated by Nordenson, and he found the causes to be chiefly prolapse of the capsule or the vitreous. When they appear suddenly they are usually due to the healing in the wound of a bit of capsule which blocks the flow of the fluid. The case I had was due to secondary needling after extraction. When the needles are pulled out too rapidly a little vitreous may escape with the fluid and, becoming fixed, pulls forward the contents of the eye and blocks the angle.

Dr. G. C. Savage—The ideal operation has not yet been perfected, that is, the extraction of the lens in its capsule without iridectomy. If some man will devise means of separating the lens in its capsule from the suspensory ligament, the operation will be complete. I always commence with the intention of doing a simple extraction, and regret to have to perform the combined operation. I have the things ready, and often have to do the combined operation. I want a large incision to include as much as one-half of the circumference.

Dr. A. W. Calhoun, Atlanta—I do not know that we have cataract in this country more than in other portions of the world, but we certainly operate more. I have operated upon 1,300 cases within the last twenty years. I formerly commenced with the intention of doing a simple extraction, but I now prefer an iridectomy. I very rarely have occasion to do a secondary operation. I take a great deal of trouble to get out all the cortical substance and usually have a very clear pupil. Previous to the use of bichlorid I thought I was doing very well if I had 95 per cent. of successes, but with its use I rarely have any trouble whatever. I use it in the strength of 1 to 10,000, washing out the sac before, during and after the operation; in fact, keeping the field perfectly flooded with the solution. I see my patients twice a day for the first week. I keep them in their rooms longer than is the custom. I have lost probably not more than one case in the last two or three hundred. I do not always get 20 20 vision, but 20-200 is very good vision and enables the individual to do ordinary work. I used to think that a little loss of vitreous was a serious thing, but I have found that a slight loss amounts to nothing. The only danger is that when once started, you can not predict where it will end. In some cases I have imagined that it proved of service, for it broke up the posterior capsule and left a window there. I always endeavor to avoid such a thing. I use a very weak solution of cocain, ½ per cent., and it is just as satisfactory as the 4 per cent. solution.

Dr. R. L. Randolph, Baltimore—It has been shown that the weak solutions of bichlorid have no effect upon the organisms. The action of these solutions is not killing but getting rid of them mechanically, and we will have just as good results, if we boil the solution, whether it is bichlorid, salt solution or plain water. I boil my instruments, except the knife, which is kept in absolute alcohol until ready for use, then washed in boiling water. A solution strong enough to kill germs will produce irritation. I have operated on 160 or more cases, and my best results as regards vision have been those in which preliminary iridectomy was performed.

A NEW KNIFE FOR SECONDARY CATARACT.

Read in the Section on Ophthalmology, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

BY A. J. ERWIN, M.D.

MANSFIELD, OHIO.



In presenting a new instrument to the American Medical Association it becomes necessary to show that such an invention is needed to fill a want. It seems to me that heretofore we have not had an implement for the convenient removal of the opaque capsule, or so-called secondary cataract. Often, on account of its flaccidity or toughness, the ordinary needling of the capsule will not clear the pupil. We are frequently obliged to open the eye and remove the capsule with the forceps. The knife that I herewith present is about the size of the smallest discission needle. It is curved about 50 degrees on both the edge and the flat, with both edges and point sharp. Its action is somewhat corkscrew-like. By a rotary motion of this knife one can tear the capsule into fragments if necessary, or draw it to the corneal margin and extract it. I have found it a very useful instrument. It was made for me by George Tiemann & Co., New York.

ACUTE NON-SYPHILITIC CHOROIDITIS IN YOUNG ADULTS.

Read in the Section on Ophthalmology, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

BY HIRAM WOODS, Jr., M.D.

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It has frequently been noted that of all eye structures the uvea is most apt to show systematic disease. The iritis, cyclitis and choroiditis of syphilis and rheumatism are matters of daily observation. The liability of the iris to become inflamed, in gouty subjects, after such slight trauma as simple cataract extraction, makes one chary in pressing operation upon such persons. The choroid is the favorite place for ocular tuberculosis. Metastatic infection from sepsis, typhus, typhoid and, more rarely, remittent fevers, from cerebro-spinal meningitis, most commonly appear in the choroid. Now and then one reads of functional disturbances in the iris or ciliary structures, attributed to digestive or sexual disorders. Again, it is from primary choroidal growths that metastasis is most apt to result. When one examines treatises upon diseases of the eye for the etiology of choroiditis, he finds comparatively little. As a rule, after a more or less thorough description of the appearance of the exudate, clouding of the vitreous, floating opacities, absorption of inflammatory material with restoration of function, or gradual develop-

ment of atrophic areas with heaped-up pigment, producing scotomata, one reads: "The most common cause is syphilis, inherited or acquired. Sometimes no definite cause can be assigned. Exceptionally, choroiditis is associated with malnutrition, scrofula, chlorosis and anemia." This is copied from the recent edition of Juler's book and is a fair index of others. That routine office examinations reveal old choroiditis not due, so far as can be discovered, to any of the commonly accepted causes, can not, I think, be denied. Exclusion of syphilis, inherited or acquired, is not always easy. Lesions, characteristic of the disease, excite doubt concerning the history rather than stimulate search for less common or doubtful causes. All of the cases narrated below are open to this objection. Careful inquiry was made; and the presence of an eye disease, thought to be usually due to syphilis, but not essentially characteristic of it, was the only reason for suspecting its presence.

During the past eighteen months I have seen in private practice five cases in the acute stage of the first attack, and two undergoing relapses of old choroiditis. Five were in females, two in males. Their clinical history is appended:

RELAPSING CASES.

Case 1.—Miss D., 27 years of age, seamstress, was referred to me in February, 1896. For six weeks the right eye had been defective with constant floating clouds. Vision was 10–200. Ophthalmoscopic examination revealed muddy vitreous with floating specks, an area of choroido-retinal exudate, to the temporal side of the fovea, while more externally was a mass of pigment suggestive of a former attack. She had fair health save in one respect, menstruation. Since its commencement at the age of 15, this function had been irregular. Sometimes six or eight weeks would elapse between periods. About Christmas after several days hard work and on the third or fourth of menstruation, she noted the eye symptoms. Improvement has been steady and distant vision on April 24 was 20–40. There is still some vitreous clouding.

Case 2.—Miss E. D., 21. In 1888, when this young lady was in her 13th year, I attended her for left purulent ophthalmia. How the child contracted this disease was difficult to explain, though later her family physician attributed it to infection from a servant, who, he had reason to believe, had gonorrhea at the time. The eye recovered with a small peripheral corneal scar. If there was any choroidal disease, acute or chronic, my ophthalmoscopic examination did not reveal it. In 1892 she consulted me again for asthenopia. Correcting H. As she obtained 20–15 vision in each eye. At this time when she was 16 years old, I found in the upper and inner quadrant of the left eye a patch of choroidal atrophy. The family history was good, the girl's health perfect, and had been since 1888. Menstruation had, in the meantime, been established. Later, in 1892, Miss D. consulted me for "floating specks" and dim vision in the left eye. The vitreous was found slightly cloudy and vision 20–40. This attack had come on suddenly during a menstrual period. She soon recovered. This past winter she has had a similar experience. At neither time was there a fresh exudate; but vitreous clouding and floating opacities were unmistakable.

PRIMARY CASES.

Case 3.—Miss G., 21 years old, a robust, athletic young lady, called April 14. On March 14, she suddenly lost the sight of the left eye. Vision was 20–200 on April 14. The vitreous was cloudy, and examination difficult. I was able, however, to see the retinal vessels, hidden in part of their course, with a grayish yellow choroido-retinal exudate at the temporal side of the fovea. There was no hemorrhage. I learned that on the morning of March 14 menstruation had appeared. Miss G. had never remained indoors at such times and took an unusual amount of exercise that day. During that evening she had a severe headache, and found that her sickness had ceased. Shortly afterward the dimness of vision was noticed. Menstruation reappeared the following day, and she had expected the eye would soon get better. To-day (April 29) vision is 20–100.

Case 4.—I am somewhat doubtful about the diagnosis of this case, but its history, and the ophthalmoscopic picture justify its narration.

A lady, 22 years of age, apparently in perfect health, was brought to me in March, for an explanation of blurred vision in the right eye. Visual acuity was 20–50 right, 20–15 left, the former unimproved by glasses. A week previous, toward the close of menstruation, this had been noticed. Slight haziness of the vitreous with a blurred appearance of the fovea, a small deep red, sub-retinal spot; apparently a hemorrhage. It slowly disappeared, and in three weeks vision was 20–20.

Case 5.—Mr. E., 25 years of age, lost sight in right eye suddenly in September, 1894. Vision was barely perception of the moving hand. Densely clouded vitreous, blurred retinal vessels and an area of foveal choroido-retinal exudation were easily seen. The case has resulted in a central atrophy with scotoma. Eccentric vision now is 20–70. Mr. E. is an active man. He is entirely free from any of the recognized causes of choroiditis. The only associated condition I could discover was a tapeworm. He said that several ineffectual attempts had been made to dislodge this tenant. Except at these repeated therapeutic onslaughts, his intestinal possession had not worried him. He has, I believe, recently gotten rid of it.

Case 6.—Mr. R., 33 years of age, was sent me February, 1896. For two weeks right vision was blurred. It was 20–50. A choroido-retinal exudate in the upper and inner quadrant with hazy vitreous explain his symptoms. This is slowly undergoing absorption. On April 30, distant vision was 20–30. Mr. R. is in active business involving large responsibilities. He enjoys good health, but has recently suffered from what he terms "nervous dyspepsia," occasionally washing out the stomach. I could find no other disturbance. Tuberculosis and syphilis seemed positively excluded.

Case 7.—J. J., 27 years of age, was sent to me in September, 1895. Vision in the right eye had become suddenly blurred ten days previously. Mr. J. was an engraver by profession and in robust health. In the lower nasal quadrant there was a yellowish white exudate, associated with muddy vitreous and floating opacities. Vision was 20–60. A scotoma was easily located in upper temporal field. This has remained, corresponding with the atrophy in lower nasal fundus. Central vision now is 20–20.

Treatment in all of these cases followed the usual lines. Purgation and diaphoresis in the early stage, with leeches in one: Case 5. Later tonic, alterative remedies were administered, as iron, corrosive chlorid.

There is a more or less general recognition of functional relation between the eye and the female pelvic organs. That affections of one can influence the functions of the other is seen in the eye symptoms, sometimes occurring at the menopause, and less frequently at menstruation. Some gynecologists recognize the need of correcting "eyestrain" when refraction error exists, if certain forms of uterine disease are to be cured. Dr. Moseley has recently called my attention to a paper by Dr. Matthew D. Mann of Buffalo, read at the Baltimore meeting of the American Gynecological Society in 1895, setting forth this necessity. These reflex disturbances, interesting as they are, do not, however, belong to my subject.

Less generally an inflammatory condition of the eye caused by pelvic disease is recognized. The following from Soelberg Wells (p. 329), presents it better than I have found elsewhere.

"An important exciting cause of idiopathic cyclitis, especially of the serous form, is found in disease of the uterus accompanied by disturbance of the menstrual function. DeWecker thinks this is the reason why spontaneous irido-cyclitis occurs with so much greater frequency among women than men. The restoration of the menstrual flow in these cases exerts a beneficial influence upon the ciliary inflammation. Pregnancy often causes relapses in cases of old chronic cyclitis. In girls from 16 to 20 years of age, a mixed form of serous and plastic irido-cyclitis or choroiditis is frequently encountered, almost constantly associated with either amenorrhea or irregular menstruation and chlorosis. This form of inflammation is also not an uncommon complication of the menopause, especially

in those women in whom the climacteric period comes on unusually early."

Trophic changes through reflex nerve influence, metastasis, or a third trouble acting as common cause suggest themselves as possible explanations. Dr. Mann (loc. cit.) speaks of insufficient urinary secretion and lithemia as possible causes of pelvic disease. He traces this not infrequently to intestinal troubles. In all of my cases urinary examination was negative; but considering the liability of the uveal tract to inflammation in gouty or rheumatic subjects, one thinks of the possibility of the same cause producing both eye and pelvic disorder. The frequency with which we find evidences of old choroidal inflammation, of which the patient can often recall nothing, and the identity of the ophthalmoscopic picture resulting in cases we treat, with that found in untreated cases, suggests the question of the value of therapeusis. Vitreous clouding causes visual defect. When this clears, the patient has recovered or been cured just in proportion to the absorption of the exudate, or the distance of the resulting atrophy from the fovea. Syphilitic cases, it is recognized, promise best from a therapeutic standpoint; but even here it is from relapses that we aim to save our patient, rather than from the natural result of the lesion present. In so-called idiopathic cases, if associated troubles of any kind can be found in a considerable number, etiologic relation is suggested. To find and remove this factor, if possible, should be the aim of treatment.

816 Park Avenue.

IDIOPATHIC CHOROIDITIS.

Read in the Section on Ophthalmology at the Forty-seventh Annual Meeting of the American Medical Association held at Atlanta, Ga., May 5-8, 1896.

BY ADELINE E. PORTMAN, M.D.

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WASHINGTON, D. C.

Idiopathic choroiditis is a subject on which we find, in text-books, almost nothing to aid in diagnosis of the disease which has had so little investigation by the busy oculists of the present time.

As you know, the choroid consists of the vascular parenchyma, an exterior coat of endothelium upon its scleral surface, and the *lamina vitrea*. Upon the latter lies the pigmented epithelium which is assigned to the retina, though it always suffers when the choroid is affected. The blood supply of the choroid is from two groups. The capillary vessels, which lie nearer the inner surface, and the venous to the outer. The chief blood supply is from the short, posterior ciliary arteries. After entering near the optic nerve and piercing the sclerotic they pass into the choroid, then branch, forming the capillary network of the choroid, ending in the indented margin of the *ora serrata*. Long posterior and anterior ciliary arteries send small branches to meet these vessels. The venous blood, collected from the capillaries into the *venæ vorticosæ*, leaves the eye through the sclerotic. The parenchyma has an abundant nerve supply from the long and short ciliary nerves and a network of pale nerve fibers in the choroid which accompany the blood vessels and have many ganglionic cells. They end in the capillary layer. From the abundant nerve and blood supply we understand how rapidly an inflammation can extend, and why it must always be considered a grave condition.

It is doubtful if hyperemia of the choroid can be demonstrated or diagnosed by the ophthalmoscope, for in long neglected ametropia uncorrected, and in prolonged eye strain we observe a flannel-red appearance. Idiopathic choroiditis has no subjective symptoms, there being pain only in the purulent forms, or where there is iritic complications. The disturbance of vision is in direct relation to the situation of the lesion and amount of atrophy. In the period of progression all stages, from the first yellowish spot of exudation to complete atrophy, may be seen.

The ophthalmoscopic signs which distinguish choroidal opacities from those of the retina, are that the retinal exudation spots have a more brilliant color, their opacity denser and their contour is defined by very fine radiating striæ, which correspond with the direction of the nerve fibers, the vessels are tortuous and partially disappear under the opacities. The vessels pass freely above choroidal opacities, without change of appearance, the exudations show a dull yellowish reflection, the atrophic spots are brilliant, marbled, bluish, due to the denuded sclerotic. Instead of a dull red ground, large vessels may be manifest as reddish and yellowish-red stripes, forming a lace-work, between which are dark, intervascular spaces, lozenge-shaped, caused by absorption of the pigment and capillary layers. In certain instances this condition is physiologic and is commonly seen in the space downward and inward from the disk. The large vessels of the choroid stroma pass in a sinuous manner across the eye ground, bringing into distinct relief the pigment connective tissue cells of the choroid proper, which lies beneath them. We also find this condition in myopia and in the so-called stretching eye, where hyperopia is becoming myopia in glaucoma, and is at times associated with pigmentary degeneration in retinal diseases. This atrophy of idiopathic choroiditis does not disturb the vision necessarily, at first, to any appreciable extent, though complete loss of visual acuteness is the ultimate result. Usually the gradual diminution of visual power creeps on so insiduously, that the patient only becomes aware of it after it begins to interfere with their usual vocation, and by an attempt to have glasses fitted to improve failing vision. Nettleship gives accounts of what he calls "generalized choroidal disease," in persons who have not had or inherited syphilis, but believes it due to scattered hemorrhages into the choroid, occurring repeatedly at different dates, leading to patches of atrophy with pigmentation, which he has found mostly in young males. Hutchinson claims that a disseminated choroiditis affecting both eyes is found occasionally, as a family disease, independent of syphilis, and connected with diseases of the nervous system. To this class of cases, of nervous origin perhaps, belong the cases found among the overworked, the physically enervated man, the slaves of the everlasting day-book and ledger in large business houses, where long years of close, hard application added to the ever growing demands of a family that brings an ever increasing worry, where little exercise and less fresh air combine to sap the failing strength and low vitality; also that class of overburdened women who have spent their lives in the hardest work, the mothers of large families, who from rapidly repeated pregnancies and overstrained system, in vainly trying to bear the endless burdens their lives impose, have exhausted all reserve of physical and nervous force they may have had and find themselves at the menopause with constitution ruined and

a mental balance trembling on the verge of insanity.

Again, among the old, who have been exceptionally healthy and strong during a long life, find the vision growing strangely dim, in whom there is no cataract, who go from one oculist to another in a vain attempt to get glasses to improve their sight, we find the large patch of choroidal atrophy, usually near or partially including the disk, a condition of old age apparently. But not only in the old and middle-aged do we find this sad enemy, for Magnus in 1886 made a report giving the results of his investigation of sixty-four institutions for total blindness. The number of those affected with idiopathic choroidal disease under 20 years of age in the 1,060 examined was 75, while in the 551 cases of congenital amaurosis were 48 due to the same cause. It also appears frequently in the 2,528 cases reported by Schmidt-Rimpler, Hirshberg, Magnus, Landesberg, Seidelman and Katz, 276 were of idiopathic choroidal disease, showing it to be an enemy of all ages. May it not be possible by a careful investigation into the cases that are met with before much destruction has taken place, to arrest its progress and thus save the few who can be benefited? Let us remember that all choroidal diseases are not specific and should not be treated as such. May not continued attention and watchfulness save the most valuable faculty we have, to some few at least? And though this form of choroiditis may be the result of a dyscrasia, so is trachoma, but that does not make trachoma any less a disease.

DISCUSSION.

Dr. Herbert Harlan, Baltimore—I have seen quite a number of cases, and have now one under treatment in a very healthy young woman, who, while there is no suspicion of syphilis, has taken one-sixth of a grain of bichlorid of mercury three times a day for several months, and her vision has improved from light perception to 15-100. A great deal of good can be gained from treatment, but the prognosis must be guarded until the fundus can be made out.

Dr. H. B. Young, Burlington—I have recently seen two cases. One was benefited by potassium iodid, the other was not. My impression was that the origin of the disease was ancestral.

Dr. D. S. Reynolds, Louisville—If there is any cause for disseminated choroiditis other than syphilis, I am entirely unacquainted with it.

Dr. B. A. Randall, Philadelphia, Pa.—We are generally correct in contrasting clinically the minor conditions of choroidal irritation with those of unmistakable choroiditis that leaves permanent scars, but no absolute pathologic line can be drawn between them.

Dr. A. E. Portman—Many cases have been reported by Drs. Argyle-Robertson, Hutchinson and others, believed by them to have no specific connection. Research, however, in this line can do no harm.

THE OCCURRENCE OF OPTIC NERVE ATROPHY IN GENERAL DISEASE.

BY H. V. WÜRDEMANN, M.D.

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MILWAUKEE, WIS.

Being Report of the Chairman of the Special Committee appointed to report upon "Optic Nerve Atrophy of Obscure Origin" for the Section on Ophthalmology of the American Medical Association, Forty-seventh Annual Meeting, held at Atlanta, Ga., May 5–8, 1896.

The origin of most cases of optic nerve atrophy is certainly obscure. There can be no doubt, when the amblyopia and characteristic disk changes follow traumatism, peripheral disease, or there is positive diagnosis of cerebral disease, or following the continued action of some virus or poison in the system, that is known to affect the optic nerve. The occurrence of optic nerve atrophy in general disease always brings with it doubt as to the causative relation. The statements of patients are unreliable especially as regards nature, duration and severity of preëxisting diseases and an element of doubt is always attached to the relation of such a chronic process as nerve atrophy which may have begun months or years after an apparently well authenticated cause.

The atrophy may involve the whole structure of the optic nerve for its whole length, or may be complete in only a portion; it may effect a part of the nerve fibers, in their whole length or only such a portion as the maculo-papillar bundle. Signs of degeneration may come on so quickly that the disease may be deemed acute; the majority of cases, however, are characterized by slow changes and do not tend to recovery and hence are truly chronic. The latter class shows few signs of inflammation, although I believe, in the beginning, that it may be generally possible to demonstrate inflammatory changes at the disk, in the shape of slight haziness and blurring of the nerve head, especially its edges, and of increase in the size, tortuosity and number of its small blood vessels. A large number of cases follow high grades of inflammatory conditions of the nerve and retina, such as occur in neuro-retinitis and choked disk.

It is difficult to decide whether some cases are due to or simply coincidental with the preceding trauma, local, cerebral, spinal, toxemic or general affection, which may be followed by atrophy of any part of the nerve from the visual centers to the disk, but the result in any case is eventually seen as a wasting away of the nerve elements. The disk loses its normal rosy tinge, the circulation is reduced in amount, in advanced cases is marked by a cupping of the nerve end, especially on the temporal side. In all cases the first symptom is loss of visual acuity followed by more or less concentric contraction of the visual field, with perhaps defects and disturbances of color perception. Where blanching of the macular fibers only appears, as in axial or partial atrophy, central or ring scotomata are seen. The color of the disk may vary from a pure white, as in primary or simple progressive atrophy, to grayish as is seen after neuritis. Bluish or greenish shades commonly appear after spinal lesions and sometimes pigment deposits occur in the nerve. Glaucomatous disease results in atrophy of the fibers and here the discoloration is frequently marked.

In addition to considering optic nerve atrophy with constitutional and infectious diseases I shall discuss affections of the digestive, respiratory, circulatory, urinary and sexual organs with diseases of the skin and those cases which are supposed to be congenital and those which for want of a sufficient apparent cause will be termed idiopathic.

1. *Diseases of the Digestive Organs.*—Disordered digestion and assimilation with attendant defective nutrition are factors in many general and local diseases. Infectious diseases may leave in their train such conditions of the digestive tract, which act apart from their toxins in producing effects on the trophic centers and nerves. I have observed simple white atrophy for which I could give no other cause than chronic catarrhal gastritis and the uric acid diathesis. Blindness and subsequent atrophy has been noticed after profuse diarrhea. Intestinal hemorrhage has

been followed by white atrophy. In retinitis pigmentosa and hemeralopia secondary atrophy of the optic nerve follows. This condition has been ascribed to co-incident liver disease, but in no case has there been a sufficient warrant for ascription of a definite connection between the two. It is certainly more probable that hereditary syphilis is the cause of these conditions.

2. *Diseases of the Sexual Organs.*—Excessive sexual indulgence and masturbation have been reported as causes of this change in the optic nerve. Amenorrhea and sudden suppression of the menses with vicarious hemorrhage into the nerve sheath is a probable cause of several personally observed and other reported cases. The disturbances attending the menopause in a subject inclined to arterio-sclerosis, have developed the condition. Pregnancy may develop a preëxisting tendency to eye or general disease. Although uremic blindness is usually temporary, repeated attacks occurring in the same or successive pregnancies have been known to result in permanent atrophy. Nephritis of pregnancy with accompanying, so called albuminuric retinitis has been followed by the same result. Parturition and childbed offer peripheral causes, such as hemorrhage into the nerve sheaths or centers. The mother is exposed to local and general infection and the child to direct injuries which, in the case of the latter, may be the cause of some of the congenital cases. Auto-intoxication from lactation has been reported as a cause of optic neuritis followed by partial atrophy.

3. *Diseases of the Respiratory Organs.*—The adjacent nerve, chiasm or tracts may be implicated in diseases of the sphenoidal sinuses following disease of the nose, causing blindness or diminished vision with defective fields. Optic atrophy has followed pneumonia and repeated operations for empyema.

4. *Diseases of the Circulatory System.*—In anemia and plethora the eye is seldom directly affected, for the amount of blood in the eye may often be the reverse of that in other parts. The quality of the blood, however, is certainly a factor in nutrition of the eye and nerve. Thus, vascular affections may become harmful through the chronicity of their course and produce optic atrophy long after the cure of the original disease. We sometimes see cases of anemia and chlorosis with heart lesions, which may be a sufficient cause for the nerve disease, either through the results of embolism or hemorrhage or through malnutrition. Hemophilia, epistaxis, hematemesis and general hemorrhage have been followed by atrophy.

Arterio-sclerosis, atheroma and fatty degeneration of the blood vessels occur in certain general and specific diseases and are directly responsible for defective nutrition or hemorrhage into the nerve or sheaths, which results in atrophy. Vascular diseases which cause embolism or thrombosis may give rise to atrophic patches in the choroid or the retina with secondary partial degeneration of the optic nerve.

5. *Diseases of the Urinary Organs.*—Twenty per cent. of all cases of Bright's disease suffer from albuminuric retinitis, which, after resolution, will be marked by more or less atrophic changes. Double optic neuritis followed by partial atrophy has resulted from retention of the urine in a case of acute nephritis.

6. *Infectious Diseases.*—Both the acute and chronic infections act mainly upon the blood vessels, which, in many cases, are indirectly changed a long time after the first infection has passed away. Such lesions are of a simple atrophic and not of an inflammatory character and may occur in the brain, spinal cord or peripheral nerves. When the course is acute and the eye is soon affected, inflammatory changes or hemorrhages occur in other parts of the eye as well as in the nerve. Some of these are purely mechanical, as in the case of violent coughing or vomiting. When the course is less acute the virus is expended, apart from the vessels, upon the interstitial connective tissue, while the parenchyma remains healthy or is involved only in the stage of reaction of the interstitial process.

In rheumatism the deficient action of the kidneys and defective elimination of uric acid produce changes in the blood vessels which affect the nutrition of the optic nerve. So also in arthritis deformans, podagra and muscular rheumatism, atrophy may result. These conditions cause glaucomatous disease which eventuates in optic atrophy. Measles and scarlet fever aside from nephritis, typhoid fever, cholera, pertussis, parotitis, diphtheria, beri-beri and pellagra are occasionally responsible for optic nerve atrophy, while influenza is a fruitful source of blindness. Malaria is a cause of atrophy, though some of the cases reported may have been due to quinin. Syphilis is one of the commonest causes of optic nerve disease. It either affects the nerve directly by the lesions it produces in the nerve or its sheaths, in the chiasm or the tracts, in the brain or spinal cord; or by disturbances of nutrition; these conditions give rise to neuritis, retrobulbar neuritis, thrombosis or degenerative changes in the nerve; or indirectly through the changes which occur in tabes and allied diseases resulting from syphilis.

The tertiary stage of syphilis causes interstitial changes in the peripheral nerves including those of sight. Gummata of the brain may produce peculiar defects of the visual fields with atrophy. I have noticed monocular hemorrhage and retinitis followed by optic atrophy in congenital syphilis.

Epidemic and other cerebro-spinal meningitis has been followed by atrophy of the nerves of sight.

7. *Constitutional Affections.*—Although we may find atrophy of the optic nerve in some cases of tuberculosis and scrofula and despite the fact that these conditions are extremely common, no proof has yet been adduced that they are capable of causing atrophy in other ways than by affecting the general condition. Diabetes may set up retinitis, neuro-retinitis or retrobulbar neuritis with secondary atrophy of the optic nerve. Exophthalmic goiter, myxedema and leukemia have been accompanied or followed by atrophy of the optic nerves. One of the most constant symptoms of acromegaly and megalocephalia is optic atrophy.

8. *Congenital Optic Nerve Atrophy.*—Many cases of hereditary atrophy have been reported. The blindness usually commences at puberty or during early adult life. The actual exciting causes of the amaurosis may lie in some of the foregoing diseases or in alcohol or other toxins. They are certainly of doubtful origin, although we are inclined to believe that the original cause of some of them is due to anatomic changes in the sphenoid bone which produce pressure on the optic nerve or to the mechanical influence of dilated and calcified vessels which ensue later in life and are associated with certain forms of atrophy in old people.

9. *Diseases of the Skin.*—We may readily under-

stand how diseases of the skin give rise to conjunctival and corneal disease from extension by continuity and similarity of structure. A case of neuritis with resultant atrophy has been seen after extensive eruptions on the scalp. Erysipelas may affect the optic nerve when attended by orbital cellulitis, with atrophy following. Enormous thickening of the chiasm and nerve has been found at the autopsy in a case of elephantiasis.

10. *Miscellaneous.*—Exposure to cold is a common cause given by patients to almost every affection. It is possible that this may be the exciting cause of an acute exacerbation of previously existing disease, which may determine optic atrophy. Sunstroke, exposure to continuous heat, light and high altitude or climatic conditions are certainly very rare causes. We sometimes see cases of well pronounced atrophy in which in neither the history nor in the examination are we able to find a sufficient, apparent original or exciting cause.

Conclusions.—Optic nerve atrophy occurs in general diseases usually as a result of direct irritation from their toxins, causing inflammation with resultant interstitial changes or through necro-biotic changes in the blood vessels affecting the nutrition of the nerve and retina. A certain proportion of cases are due to trauma and to actual lesions which cause pressure on the nerve or interfere with its nutrition through ambolic processes. Although many cases are of apparently obscure origin, in the majority it is possible to demonstrate a sufficient exciting cause.

NOTE.—This paper is but preliminary to another in which about one hundred case histories will be reported.

The thanks of the author are due to Drs. Risley, Hotz, Hobby, Foucher, Wilder, Zimmermann, Wheelock, Gould, White, Spalding and others who so kindly sent examples from their own observation. In the foregoing no authorities are credited; for literature see complete paper.

H. V. WÜRDEMANN.

TREATMENT OF THE INSANE.

Read by title in the Section on State Medicine at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

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CHICAGO, ILL.

Treatment of the insane by our prehistoric ancestry can be inferred from fragmentary early literature and from conditions among existing races that have preserved the ideas and customs of remote periods. No precise chronologic statement could be made that would be true for all countries at any particular time, for civilization is a relative matter.

In India, a thousand to three hundred years before Christ, the causes of insanity were recorded as due to improper food, overwork, poisons, powerful emotions, etc., deranging the "wind, bile and phlegm," and six kinds of insanity were described, and in attempts at cure chastisement alternated with persuasion and gentleness. Elsewhere, at the same time, possession by evil spirits was the generally accepted explanation of insanity, and the afflicted were beaten to rid them of their devils, while priests were presumed to have some power of exorcism.

The custom of destroying the weak and defective was very prevalent. The early Romans threw their monstrosities from the Tarpeian rock, American savages often abandoned their aged and crippled to the wolves, and promptly destroyed idiots and the otherwise congenitally deformed.

Lunatics have been considered by the Mussulmans and some other barbarians and semi-civilized as entitled to special privileges, through a superstitious regard for them, and epilepsy was inconsistently looked upon as both a diabolical and a divine affliction, *morbus sacer*, or sacred sickness, being the term often applied to it. The epilepsy of Mohammed added to his religious influence.

Egyptian papyri indicate that drunkenness was recognized as a cause of insanity five thousand years ago; senile decay was also described and evil spirits were blamed as causing insanity. The Coptic descendant of the Egyptian language has words to express insanity, stupor and mental loss.

The Bible refers to the feigned dementia of David, Saul's madness and Nebuchadnezzar's mental affliction. Herodotus mentions the madness of the Persian king, Cambyses; Sophocles tells of the insane fury of Ajax, and Euripides describes mania and epileptic insanity. Plato suggests fines for those who do not properly provide for insane relatives, indicating that such patients were allowed to run at large and were neglected, as was the case in England down to a recent period.

Babylonian inscriptions invoked the gods for aid to sufferers from "sickness of the head." Plautus describes senile dementia in a comedy and narrates an instance of madness caused by "black bile." Hippocrates, 500 B. C., combated the popular idea of epilepsy being a divine disorder and recognized it, as well as mania, melancholia and dementia as due to bodily ailments. He prescribed hellebore for insanity. Asclepiades sought to induce sleep in the insane by gentle friction. At the beginning of the Christian era Celsus advocated "hunger, chains and stripes" for madmen, though there were occasional attempts at cure by music and reading aloud to them. Cælius Aurelianus opposed violence to patients, and Galen gave rules for treating insanity as sickness. Plutarch describes melancholia of the religious kind, and Horace gave rules for determining the sort of insane who needed interdiction and restraint.

It was the custom among Roman ladies to have idiots and imbeciles among their servants, though occasional protests were made against so doing. Court jesters were frequently selected from among the deformed or mentally unsound in medieval periods.

Early in the world's history organization for other than defensive and offensive purposes was comparatively crude and cruelty abounded on every side. Not only were the insane the victims of brutalities to a greater extent than at present, but degeneracy often ran riot among rulers, affording the "insanity of power" mentioned by Italian writers, which raged in connection with epilepsy, imbecility, paranoia and even chronic mania in the imperial families of Rome, Russia, India and other countries, afflicting Julian, Tiberius, Caligula, Claudius, Nero, Heliogabalus, Peter the Great, Ivan the Terrible and Mohammed Toglak, the sultan of India, as well as the founders of the Mohammedan and other sects in Asia and Europe.

Through the restraints of his environments and fellows, man is more accustomed to be controlled than he is fitted for the exercise of unlimited power, which favors the development of latent mental and moral imperfections. The abominable cruelties perpetrated by some of these insane rulers are equaled only by

the sufferings which the insane in all countries and ages have been forced to endure. Probably when merely neglected and permitted to run at large these defectives endured less from the peltings and derision of villagers, with occasional burnings at the stake as witches, than after the commonwealth began to make laws concerning them.

The earliest provision made for the custody of lunatics in England was under the vagrant act of 1744, and the constable of Great Staughton, Huntingdonshire, records an official charge of 8 shillings 6 pence "for watching and whipping a distracted woman." Shakespeare mentions in "Rosalind" the "dark house and the whip" with which madmen were punished.

The sequestration of lunatics as a public necessity had as little reference to the possible cure of such persons as, until recently, the idea that drunkenness was due to a diseased state obtained credence. And the superstitions of the ages found in the gathering together of the insane better opportunities for practicing theories of casting out devils by reducing the patient to extremities through starvation and beatings. Willis, who had charge of the insane George III, advocated fear in the treatment of patients. This royal sufferer's legs were duly blistered and he was dosed with Peruvian bark after the fashion of the day, and the king complained of the severity of his attendant, who is reported at times to have "knocked his majesty as flat as a flounder." Public discussion of this case led to some general amelioration of the insane in England, which was built upon later by Dr. Conolly and the compassionate Earl of Shaftesbury, but not without encountering ignorant opposition, for Conolly and Gardner Hill were denounced by the English clergy for imperiling the community by unchaining lunatics.

Riel, among others, described the horrors of German asylums in 1803. Before a parliamentary committee in 1808 it was testified that the insane in Ireland were tied by the arm to a cart and were thus dragged to the asylum, walking the entire distance, however far, and that mortification from tightness of the ligatures caused one in five to lose an arm. The communal and ecclesiastic control of the insane at Gheel, in Belgium, was hideous enough until the State took charge.

Some of the appliances used in restraining and "treating" the insane were the "Belgian" and other cages, wicker baskets, rotary machines, suspended boxes and seats or hanging mats, swings, hollow wheels, the crib, gags and head frames. The douche was used as a means of punishment and sudden plunging into "surprise baths" were in favor at one time to arouse depressed and discourage refractory patients. Most of them, however, were penned up in filthy, close rooms, sometimes of stone with wet floors, freezing in winter and stifling with heat and offensive odors in summer, fed on scanty and coarse food, often sleeping naked on straw and several in one bed. Frequently the poor creatures were devoured by rats if they survived the thirst, hunger and pestilential diseases that carried off many of them. Added to this there was usually brutal supervision. Sometimes convicts were employed to treat them as they pleased, and Esquirol relates how the madmen, goaded by ill-treatment, would watch an opportunity to kill their attendants with their chains.

By very slow degrees the care of the mentally afflicted has been improved. The inertia of governments and the merely temporary influence of exposures with want of general concerted action accounts for much of this slowness. There was fierce opposition roused in 1855 against the investigations in Scotland that were instigated by Miss Dix, and it was by effort out of proportion to results that finally secured a royal commission which occupied two years in examining into and finally reporting upon the cruelties to which the insane were subjected in that country.

In 1788 a Florentine named Vincenzio Chiarugi instituted the renowned asylum of Bonifazio in Italy, as a distinct departure from the inhumanities of the time. Cleanliness, gentle treatment, medical care and the fullest liberty supplanted the universal brutalities in managing the insane. It was ten years later when the chains were struck off the patients at the French Bicêtre through the long pleading of Pinel. He outlined a reform which was improved upon by his successors. Esquirol, in 1818, wrote to the Minister of the Interior: "Nude were the lunatics I saw, covered with rags, stretched on the pavement, a little straw to defend them from the damp cold. I saw them grossly fed, deprived of air to breathe, of water to slake their thirst and of things necessary to life. I saw them committed into the hands of whippers, a prey to their brutality. I saw them in narrow, dirty, fetid receptacles, without light or air, chained in certain dens and as wild beasts are penned in and kept secure." Pinel was suspected by the revolutionists of having a sinister design in asking permission to unchain his lunatics, and a deputy of Robespierre wrote: "Citizen Pinel, to-morrow I come to pay you a visit at the Bicêtre, woe to you if you lodge among your lunatics any enemy of the people."

Passing to our own times we find that an advance has been made toward a *pretense* of care. Formerly it was not necessary to even pretend that humanity was practicable in the management of the insane.

Home treatment of patients is usually difficult or impossible, and as the laws concerning supervision of the insane became more stringent most astounding instances of cruelty and neglect of insane by their relatives were discovered. Imbeciles, idiots and dements were found here and there through the country confined in dismal, small cells, scantily fed and clothed, and their bodily needs otherwise disregarded. On the other hand there are families who are making daily sacrifices in many ways to such unfortunates in their affectionate care.

Small places are not fit for troublesome cases. The long corridors of the State hospitals and the expanse of gardens furnish room for exercise and air, where the privations of a dwelling act prejudicially and compels resort to confinement and mechanical restraint, when all possible and reasonable liberty is everything in the treatment of insanity.

Attendants of the insane as a class are misunderstood and often unjustly blamed for what is most frequently due to the system of management of the institution. Even in the most degraded political asylum several really worthy persons have by some accident managed to be present, but too frequently their lives are made wretched by the perverse element, and through their inability to prevent the abuse of patients by others.

In caring for the insane great forbearance has to be constantly used, for patients are often insulting and abusive to an exasperating degree, and there is

an all too universal disposition to hold them to account for what they do or say. "They are not responsible," is daily mentioned by one kind-hearted attendant to another, and in positions calling for so much self-restraint and forgiveness under extreme provocation it is really surprising how well attendants acquit themselves. But helplessness and opportunity are sufficient to tempt the brutes that low-grade politicians appoint to asylums.

If political control can be minimized and attendants be secured on their merits and promoted as they deserve for efficient service, salaries should be large enough to induce those possessing more than average ability to enter the service, but where the salary is the only inducement to the ruffians who demand reward for political work it is far better to make the salary low; for a better class of attendants in those politically dominated places is thus secured, from among medical students or other persons of good character who seek temporary means of study.

The great strain to which attendants are subjected when on duty makes it but just that they should have reasonable opportunities for relaxation and recreation.

If the political teaching prevails that it is not wrong to steal public property, employes can not be expected to be diferent from those over them, and while trustees or a business management may felicitate themselves upon their methods of "addition, division and silence," as conducted in safety and secrecy, their workmen claim also political spoils and extend the system to a practical looting of the placé, carrying off everything portable at times. At Dunning there were "fence houses" and all-night saloons surrounding the county asylum where blankets, clothing of patients, tableware, food. etc., were taken from attendants in payment for drink and gambling losses.

Great differences exist, due to personal excellence of attendants, as to the treatment patients receive. In every institution there are instances of life-long friendships springing up between the recovered patients and those who cared for him or her, and the mere presence of a well-intentioned, considerate attendant has often been sufficient to calm the fury that had been caused by the harshness of others.

On the other hand, the greatest cruelties were practiced upon the insane at the county asylum by the criminals who were selected to fill the place of attendants, as appears from the Report of the Board of Public Charities, State of Illinois, 1886, page 119, and years later the asylum was worse than ever, and several murders of patients were brought to light judicially.

If the medical superintendent were not hampered by demands of politicians for positions to be filled by unworthy persons the decent care of the insane would be greatly simplified. As an example of the selections politicians often make it suffices to state that Peter Kelly, a Chicago policeman, was shot by a burglar and became insane from the neck wound inflicted; the assailant served out his time in the Joliet Penitentiary and was appointed as an attendant at the county asylum and was actually put in charge of the ward within which was Peter Kelly, his victim.

Dr. Joseph Lalor of the Dublin, Ireland, asylum, founded schools for the insane, and he was also an enthusiast on the subject of keeping the patients employed. Farm labor is beneficial to both curable and incurable cases, beside being an economic source of supply to the asylum. Almost every conceivable occupation is represented in the best managed institutions, and the daily labor of the patients contributes greatly to their welfare and happiness. But there are opportunities for abuse of employment in overworking or unsuitable occupations. A contractor at the county asylum was allowed to appropriate the patients' labor, and the warden (who later served a term in the penitentiary for robbery) compelled the insane to hard labor against their inclination. A patient died of typhoid fever while digging a trench for the warden and contractor mentioned, both of whom resented any medical interference with their control of the insane.

Visitors to insane patients often do much harm unintentionally. Friends and relatives exert an irritating effect upon the insane in unexpected ways, and calmness has frequently been succeeded by weeks of disturbance after the visit of a well-meaning relative. There are times, which the physicians are prompt to recognize, when the patient is made better by seeing his friends, and they are usually notified to come at once upon such occasions. Several thousand visitors and pleasure seekers have been known to throng and race through public asylum grounds, especially on Sundays, and the attendants on such days had their hardest work in controlling the patients who were thus improperly disturbed.

Several hundred members of the legislature with ladies, children and friends, "visited for inspection" some of the State institutions, taking possession of the place, converting attendants into nurses for infants, holding a banquet in the dining room of the hospital, drinking the dispensary liquors, rioting through the grounds and actually taunting some of the patients into fury. The effects of such a visit were observable for months afterward in many injurious ways. A small committee of inspection could accomplish all the legitimate work necessary where a rabble did nothing but harm.

Attempts to regulate Sunday visiting at a State institution brought a storm of opposition, as the diversion of travel threatened to break up some saloons in the vicinity in which one of the trustees was interested.

No institution of the kind should contain more than 300 insane is the universal declaration of alienists and others experienced in the treatment of these patients, but large and still larger asylums are built, as they afford better and still better opportunities for the management of great amounts of money after the political fashion. The impossibility of a medical superintendent overseeing so large a place as the average asylum, with one or two thousand patients, affords a pretext to politicians for putting in a "business agent," but invariably the double-headed arrangement proves to be a monstrosity, for no layman, even under honest coöperative endeavor, can possibly be aware of the needs of the patients and the place so well as the medical director. The insane are sick, and every moment demand the consideration due to sickness that only a physician can give.

Every ounce of supplies purchased, every turn of a wheel has reference to the care of patients, not mere boarders or cattle who require nothing but housing, feeding and grooming. When a layman has free control of a hospital he is more than liable to ignore medical requirements, as he knows nothing of them, and the medical head is humiliated and common

decency is outraged by the necessity of constant appeals to ignorance. Even when a steward is under the medical management, the latter is often defeated by intrigues of the former. What then is to be expected of divided authority; or, worse than all, the medical under lay supremacy? Imagine a judge being dictated to, by anyone, as to what legal books of reference he should purchase, particularly by a politician who, while preaching "economy," pocketed the public appropriations for legal book purchases. Most of the lay superintendents of county asylums are purely business agents of politicians in the worst sense of the term. Neglect, abuse and even murder of patients flow from such administration as naturally as foul water from a sewer.

It is often the case that the purely professional man is a poor business manager, but that is merely because of his devotion to his work; let the same professional man fully realize that in assuming charge of an institution for the sick that he must become a business man and his professional knowledge is be merely a part of intelligent training as to requirements, and the same ability that made him a good physician will also convert him into the efficient business medical administrator. for special ability is nothing more than general ability. There will occur differences among individuals as to whether relinquishment of lifelong habits are possible, and with this in view superintendents should always have had previous hospital experience, but there can never be any excuse on the ground of pretended "lack of executive ability" by medical men for the foisting of brutal, rapacious, uneducated politicians into control, however disguised as gentlemen they may be.

The "business manager" in some institutions has claimed the right to make purchases of medicines and very inferior stocks of drugs at high prices are pretty sure to result, against which physicians dare not complain at the cost of falling under politicians' disfavor. Inert quinin pills containing a little quassia to impart a bitter taste have been found in such stocks, fluid extracts as valuable as so much cold tea, but billed as Squibb's at his 20 per cent. advance over usual prices. Calomel which required a teaspoonful to equal ten grains, and other evidences of business enterprise in purchasing abound when the "executive ability" of a layman is placed over professional desire to have pure medicines.

At the county asylum the warden refused to buy a few dollars' worth of needed medicines on account of their expense, but the next drug account itemized 48 cases of beer, 10 barrels of whisky, 20,000 cigars, and much wine, brandy and fancy liquors were also covered by the item "sundry drugs." The periodical celebrations of the county commissioners and their friends in the dance-hall and dining-room of the asylum necessitated rapid and constant replenishing of that portion of the dispensary stock. Five dollars per capita would have covered the amount of meat eaten by 600 insane at the county asylum, yet in 1884 the bills were $15,763.04, and in 1885 amounted to $18,934.11, averaging $26 and $31 per patient, while 9 cents per pound was charged for hogs' heads in a filthy condition, some of which held iron rings in the noses. Mike Wasserman, one of the convicted boodle commissioners of unsavory memory, when once shown the iron ring in a pig's snout found in the soup of a patient, remarked: "Well, what would you have; gold watches?"

The bookkeeping of a large asylum can be made so elaborate as to be meaningless: Voluminous ledgers and auxiliary books and records have been known to be pure shams. Requisitions supposed to be sent to the storekeeper by attendants were not approved by supervisors or anyone else, and the storekeeper had every chance of misappropriating goods, and under the loose system of issue no proof could be secured of his guilt. Small quantities of butterine issued have been charged up as butter in large quantities; the actual ration of some of the dements consisting in forty grains of butterine, one five-hundredth of a pound of inferior tea and a small plate of corn-meal mush, and patients have fought over their scanty fare, the most helpless being often wholly deprived of food.

Sixty per cent. of the English asylums are maintained at 8 shillings 7½ pence for county and 9 shillings 7½ pence for borough asylums, which cost includes provisions, medicines, clothing, salaries, wages, furniture, and in some borough asylums, repairs. At Leavesdon, in 1887, the weekly cost was 7 shillings 5 pence. In Scotland the cost ranged from 5 shillings 10 pence to 10 shillings ¾ pence, the extremes per annum through England and Scotland being $72.80 and $125.58, with an average of 8 shillings 7½ pence per week or $107.64 per year.

In 1894 the lowest per capita in the United States was $104 at the Tuscaloosa, Ala., asylum, the Southern per capita average of all institutions being $129.23, the Western $166.58, the Northern $173.60 and Eastern $173.42. The average of fifty-two asylums in the United States being $169.15, which is considerably above the cost of maintenance of the English asylums.

While the average cost of American asylum maintenance was about three-fourths greater than in England, at the Chicago asylum the per capita in 1885 reached the sum of $270.39 under county commissioners who were subsequently indicted for conspiracy and fraud. The Illinois per capita of that year was $174.21. The succeeding year $243,262.33 was expended for about 700 patients, raising the per capita to $347.51. The total county charity expenditures for 1886 was $906,478.34, at least two-thirds of which must have been misdirected on the safe assumption that the asylum per capita was about thrice what it should have been.

During the years of the boodle gang control some $10,000,000 of public funds were disbursed; one saloonkeeper was awarded a contract of $150,000 for covering the court-house with a mixture of clay and paint, the cost of which was about $500. The robbery of the insane asylum fund was a small portion of the political division of spoils. In 1886 the poorhouse per capita was $200 and the county hospital $373.57, while in all the public charity departments the greatest privations were experienced by the inmates in spite of the vast sums appropriated. "Economy" was the excuse of the politicians for the miserable provision made for the sick and paupers.

It is with the greatest difficulty that the expense account of county institutions can be approximated. Concealment is the rule and in the words of a county commissioner, "the county expenditures is nobody's business." Collusion among all asylum officers is not to be presumed, for many of them are kept in ignorance of financial matters and can only see results in a general way against which they can not protest.

Estimating possibilities in the State institutions, it is practicable for $150,000 to be abstracted from

$500,000 biennially appropriated for a single institution, through perquisites of $30,000 to the one who heads the division of offices, sometimes a member of the legislature who has controlled a large number of votes for the State election; one trustee, who acts without salary and merely for the honor of the appointment, by diligently attending to the hospital business can secure $50,000; a less influential trustee can save $20,000 by coöperating with his companion in the matter of auditing accounts, while the one whose vote is not needed can be placated with $5,000. The storekeeper has opportunities to earn $10,000 on his $75 per month salary. An industrious business manager can net $25,000; the bookkeeper, through occasional opportunities can add $1,500 to his savings, and $8,500 can be secured by others in various ways from the wastage and shrinkage fields of the place. The treasurer is openly known to receive the interest on the asylum funds, though there is no legal provision for so doing. Probably $3,000 per annum is thus earned, and if in the meanwhile the State is in need of funds it can readily borrow by paying interest.

From $2,000,000 annually appropriated by a State for maintenance of its charitable institutions, one-fourth can be abstracted without the knowledge of the State board of charities or the medical superintendents, and without causing much privation among patients, the different funds affording dissimilar chances for discounts.

The "stuffing" of pay rolls is not so likely in the State hospitals, particularly when the pay list is published, but in county and city offices of all kinds great sums have been made by placing fictitious or false names or rates of pay on pay rolls of employes. An 1896 instance was unearthed by a civil service commission investigation, conducted by attorney Luther Laflin Mills. The clothing account can be profitably manipulated, in county asylums especially. At Dunning 100 suits would be issued to a ward full of patients, and the next day the same suits were reissued to another ward. The friends of patients incessantly complained that the patients were not wearing the clothing brought to them, and the destructiveness of a few patients was made to do duty as an excuse for the disappearance of hundreds of suits.

Fuel purchase in some places enables incredible sums to be charged. A very superficial examination would result in astonishing disclosures in this field, unless baffled by the opposition usually raised against exposure of any kind.

Trustees are ostensibly selected for their business aptitude, public spirit and philanthropy; they receive no pay, and are presumed to regard the honor of the appointment as sufficient recompense. Occasionally it happens, after a political overturn, that prominent political workers, for services in securing votes, are rewarded by such trusteeship appointments, and while it is not invariably the case, it too often happens that a four years' term as trustee enables a poverty stricken politician to blossom out as a banker, real estate owner or man of wealth generally.

Combinations are sometimes formed among them in such a way as to control matters, and the resentment of the minority rises to threats at times, with the compromise that ensures silence. When an indignant trustee resigns and calls his former comrades hard names, you may rest assured he is not satisfied with his share of the profits. A $60 a month clerk has been known to spend his entire time at an asylum while acting as trustee without salary, and the loss of his clerkship was taken quite philosophically. One of the sixteen county commissioners who were subsequently indicted under what was known as the "omnibus boodle" finding, neglected his small saloon in Chicago to reside at the county asylum altogether. He escaped to Canada too soon in his career to have saved much money. An Indiana asylum trustee displayed more "executive ability" than the rest by placing $100,000 of asylum funds in his carpet sack and traveling northward, without the preliminary bother of obtaining percentages for asylum supplies from bribing merchants.

All asylum trustees are not dishonest, but the system is sufficient to develop whatever dishonesty may be latent in some, through the opportunities afforded.

Under the New York State Care Act of 1890, separate institutions for the chronic insane were abolished as pernicious, and Illinois in 1896 erects just such an institution.

The death rate in New York asylums has of late years been remarkably decreased by regulations that restricted the chances of political stealing.

Dr. Carlos F. MacDonald, the president of the New York State Commission in Lunacy (*Alienist and Neurologist*, July, 1896) relates that the changed system in that State enabled a saving to the tax payers of $300,000 over the previous year. The cost of maintenance for the fiscal year 1892–3 was $216.12, and in 1894 the per capita cost dropped to $184.84, a reduction of $31.28. The supervision of all expenses by a thorough system of scrutinizing public asylum expenditures in a business-like manner cut off nearly $500,000 a year from what formerly went to politicians, and the patients now have some of the remainder.

All per capitas in the United States are too high in the aggregate, and the insane could live as well on one-half of what is appropriated for them, were the politicians' hands taken out of the treasury.

A State board of public charities without pay, except for its secretary, has ostensible supervision of accounts in Illinois, but the members have not the time to spare for anything like careful supervision, and are thwarted in every way possible in attempts to thoroughly understand the expenditures. In no one of the biennial reports of this board is there evidence that proper access to Cook County public charity expenditures was afforded the board. Immediately before the celebrated "boodle trial," which showed the most reckless plundering of the public funds by the county commissioners, the State board reported that the county accounts were correct.

The intriguery, waste, extravagance, plotting, rioting, neglect of duty, insolence of employes, disregard of the needs of patients and of medical care, the "doping" of patients by attendants, and frequent instances of personal abuse, the insufficient cooking of insufficient food, with the thorough "cooking" of statistics and accounts, the high death rate and low recovery rate, the crowding of several violent patients in one room, and multitudes of other discreditable affairs, must be witnessed to understand how deep-rooted and arrogant a hold the political spoils system has upon the country.

And there would be no bribed were there no bribers. The merchants who divide public plunder with politicians, and the citizens who look complacently on, are equally guilty.

A physician seeking an appointment to insane asylum service asked a veteran alienist what steps were necessary, and was advised in all seriousness to make the acquaintance of the nearest saloon-keeper.

The number of gamblers and liquor sellers who hold offices of all kinds in connection with public charity disbursements indicates the influences at work in American politics. When surprise is expressed that such selections should be made, it is claimed that such persons are as honest, capable and deserving as merchants and board of trade dealers, many of whom evade tax paying and seek nefariously profitable combinations with politicians to furnish supplies to asylums, hospitals and poorhouses.

The fact remains, however, that there is nothing in the occupations of the liquor dealer and gambler that specially fits them for caring for the public insane and their funds, beyond the mere superior ability to control such appointments afforded by the faulty primary election laws, which legislators would speedily remedy, were it not that their own places would be jeopardized by such changes.

But asylum management by such classes is merely a legitimate outcome of the general spoils system operation: the helplessness of the sick and insane affording the best opportunities for brutality and rapacity. The privations, sufferings and frequent murders of insane patients are strictly logical outcomes of the pernicious system which fills our legislatures, State, county and city offices with gamblers and saloon-keepers, who swagger about in vulgar jewelry and attire, openly congratulating one another upon some recent success in prostituting public and private interests. All such matters are familiar to citizens who have the power to make reformations, but do not intelligently combine to make them.

Reports of the State Board of Public Charities for Illinois are filled with accounts of the insane in various counties being treated more as animals than as men and women, neglected, abused, chained, locked up in nakedness and filth, no medical or personal attendance, packed in rooms too small for their numbers, with poor ventilation and foul odors, no separation of the sexes, insufficient food, and myriad other such matters are officially mentioned in these reports to the governor and legislature, without influencing the least improvement.

The charges sustained in the 1886 investigation of the Cook County asylum were:

1. Cruelly insufficient provision for the insane in the county asylum in all respects, when more than ample funds are alleged to have been used by the management of said asylum for the care of the insane.

2. Abuse of said insane by said management, said abuse being direct and indirect, by personal violence and neglect.

Subsequent to this report to the governor, a county court investigation on the petition of Julia Willard. May 13, 1889, was made in which witnesses detailed murders and abuse of patients, their starvation and the brutal nature of the management. Patients were made to work for the profit of attendants, their clothing was stolen and sold to saloon-keepers; fighting, rioting, feasting and drunkenness of politicians were narrated, with no apparent difference in the conditions since the State board report of 1878, except in enlarged opportunities for brutality. In that document the county farm was characterized as full of instances of neglect and ill treatment and that "party politics, trading votes and speculating" contributed the chief employment of employes.

After the 1889 investigation it was considered safer to give no physician an opportunity to bring matters to light, so a lay warden hires the doctors and keeps them under sufficient control to prevent complaints getting to the public.

In 1895, as a sample of many instances, two attendants were on trial in Chicago for kicking a patient to death; an "investigation" was made by the commissioners, who duly whitewashed themselves, and by publishing hundreds of columns of newspaper interviews, and vaporings generally, managed to confuse everyone and tire out the public. A New York legislative inquiry into the killing of a patient came to nothing through the report of the committee being stolen.

Physicians alone are competent to understand the real wrongs of asylums and even they must reside the greater part of a year in such places before they can fathom the real condition of things, which every ingenuity of political intriguery is invoked to conceal.

A favorite resource of politicians when attacked for malfeasance or inhuman violation of trust is in diverting public attention from themselves by personal onslaughts made upon their accuser.

Nothing seemingly could be further apart than discussions of gambling and the care of the insane, but the most amazing incongruities are seen in the results of political control of offices. The successful manager of politics, "the boss of the machine" in a great city, is often the head of a large gambling resort with a saloon and other immoral accompaniments attached, affording rendezvous for his lieutenants in plundering schemes. These "bosses" are great organizers, and exert as complete control over primaries, nominations, elections and office conferring, as though they actually owned the State and its revenues. Adepts in manipulating election machinery and playing upon the passions, ignorances, and prejudices of the populace, they have defied attempts at their overthrow and continue to divide municipal and other governmental funds and places among themselves. Opposition is crushed in every way by corruption, or discomfiture of whoever is rash enough to attempt reform in a practical way, even to the destruction of individuals. Windy addresses on reform measures do not disturb them in the least; they can even make such demonstrations themselves, and in the name of reform increase their power for evil. It is when actual interference with their robberies are made whether through interposition in behalf of the sick, insane and paupers whose funds they control, or otherwise, that the hand of the "gang" falls heaviest, and the motives and character of the reformer are assailed. Nor is there hesitation over a mere matter of assassinating too troublesome an opponent. Political murders have been numerous and successfully concealed, the party who makes exposures is adroitly made to appear in the wrong so as to alienate public sympathy from him if his murder comes to light.

In the *Chicago Inter Ocean*, Nov. 4, 1884, appeared an appeal from a physician at the county asylum stating the atrocities there and asking "all respectable men to be sure that the county commissioners for whom they voted owed no allegiance to gamblers and thieves."

The doctor was promptly shot at and several other attempts were made upon his life and as he kept up

the fight ten years he was finally pronounced to be insane by politicians in general, and certainly from the standpoint of a community which condones robbery of the helpless, the one who refuses opportunities to steal from them must be out of his environment and practically a crank.

The mental construction of most of these politicians is such that they can not conceive of mere professional devotion and enthusiasm. A physician who would lay claim to being actuated by a desire to scientifically advance humane measures is looked upon as a brother hypocrite and demagogue. Honesty is inconceivable except as defective intelligence. The refraining from stealing public funds is considered as mere want of smartness enough to know how to do so.

It often befalls that an ousted administration busies itself in inventing occasions for spitework with a view to possible restoration to power, so it is not all accusations against the ins by the outs that can be believed.

Deaths of patients by violence afford chances, about election periods, for exposures. In such investigations the mode of appointment of all officers and employes should be inquired into as affording ideas of the animus and discipline of the place. The incentives of charges and the inevitable counter charges need deep probing, as well as does the construction of the investigating body, its interest in the investigation and liability to bring out the truth or cover it up. Deposed administrations have been active in arraigning their successors for real or imaginary misdeeds, and upon rare occasions some one has instituted charges from genuine reform motives, but even these reformers are apt to be jealous of one another and instead of supporting, detract from and disparage each other's efforts.

Brutal natures are common enough and it is not remarkable that many of their possessors find their way into asylums as attendants in reward for services performed at the polls for those who appointed them. When a murder occurs at an asylum the first question should be: *Who appointed the murderer* to his position? and full light should be thrown upon the character of the office giver, to disclose the entire responsibility for the commission of the crime.

These weakest and most helpless of humanity are not only liable to be neglected through their filthiness, repulsiveness and burdensomeness, but their irresponsible aggressiveness has often aroused the brutal retaliation of the none too patient or considerate savage, who, all too often, happened to be in charge.

The influence of the saloon-keeper and gambler in placing these characters where they can safely exercise their low instincts, is easily seen. Many liquor dealers and gamblers are, as they claim to be, as good as many in other occupations that are regarded more respectable, but from their numbers in official life it would seem that they are considered to be even better.

When the liquor business is responsible for so vast an amount of crime, insanity and pauperism, does it not seem cruel that liquor dealers should thus be permitted to chase their victims to the grave?

A phase of the wrongs endured by the insane occurs in the blunted conscience of the people in accepting the misappropriation of public funds as a matter of course and even furthering by their votes a determination of which particular band of plunderers shall have charge of the spoils.

The merchant who connives with political spoilsmen to sell inferior materials at extravagant prices to public institutions may carouse with the business agent of an asylum and both find happiness in their divided gains, and the thought that life, health, sanity, has been taken from patients through depriving them of what was intended for their care, apparently does not disturb their commercial minds, but the physician who sees patients dying from drinking sour milk and eating rotten meat and vegetables, and from the want of a few simple remedies, or from insufficient warmth because the clothing and fuel accounts had been manipulated with political "executive ability;" the physician who witnesses such things sees clearly who is to blame for the privations, deaths and horrors all about him, while observing the flashy dress and jewelry of the vulgar feasting politicians who have divided almost openly the money lavishly appropriated by the people for maintenance of the unfortunates.

The cohesion of the spoils system in its immense ramifications is almost incredible. Its beneficiaries surround public hospitals and branch out into commercial and social life in all directions. The demagogue relies upon the true condition of things not being understood by the people at large.

All the asylums of America are not badly managed, but the present political system does not encourage humane care of the unfortunates. An occasional hospital for the insane is well managed in spite of the prevalent bad system, but there is constant danger of a political change driving out the honest and capable from such places.

With civil service reform there should be the greatest publicity demanded for all asylum affairs. A visiting staff of specialists should be appointed in spite of the fears of some trustees that the world would thus be too readily informed of asylum shortcomings. There should be strict scrutiny of the accounts and a check system adopted that would discourage dishonesty. Banks overhaul the books of their clerks and railways multiply checks upon their agents, but with all such precautions the ordinary mercantile and manufacturing organization is occasionally robbed. Were the defective accounting system in use in State and county affairs to be allowed by all business men and private corporations failures and industrial wreckage would be universal.

Civil service laws properly enforced would be directly instrumental in restoring thousands of the insane to sanity, who, under the present faulty system, are doomed, and further murders of patients by politically appointed brutes would cease. When the politicians' profits were reduced by $30 per capita in New York State the death rate in asylums fell greatly and the recovery rate rose.

Reforms, as well as institutions, evolve and a more scientific treatment of the insane will come with other advances in the world's affairs. But, for the present, we can look for no radical improvements in asylum matters until civil service rules are firmly established therein, which can scarcely be hoped for until the primary election methods admit of honest candidates being secured for all public offices, an achievement which means no more or less than the destruction of the power for evil now defiantly exercised by the gambler and dram-seller.

Herbert Spencer says: "Any system that confers the rewards for merit upon the undeserving is demoralizing and destructive of social advance," and, "though all efforts for reform are out of proportion to the

results, the reformer may take comfort in the knowledge that the little that is accomplished will endure."

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PERTUSSIS AS A NEUROSIS.

Read in the Section on Diseases of Children, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5-8, 1896.

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The pathology of pertussis has long been in doubt; this is well shown by its varied and uncertain therapeutics. The definition of the malady is usually based upon its most prominent symptoms—the characteristic paroxysmal cough and consecutive whoop. The cause of this characteristic cough and whoop has never been positively located. It is said by some to be a local irritation involving the pharyngo-laryngeal space, set up by some external influence, possibly bacterial; some, that in addition the morbid irritant is absorbed through the lymphatics and blood vessels and produce a systemic febrile state, and some that it is a vague commingling of various elements, local and general, physical and nervous, and still others that its phenomena are entirely reflex. There is no doubt regarding its infectious nature, but the peculiar mode of this infection is still veiled in uncertainty. It may be from exhalations from the vomited matter or expectorations, the breath, the cutaneous surface, or from all.

Whooping cough may be, or may not be of bacterial origin. It is not yet proven that it is. Certainly no bacillus of pertussis has yet been isolated, and therefore no diagnosis can be based upon a bacillus as a factor in the etiology of the disease.

Negatively, and practically, no treatment of a purely bacterial nature has been of any avail. Whatever benefit that has been derived from germicides has been by abtunding the terminal branches of the nerves supplying the parts involved, or the parts treated, and have only a local effect, without reaching the source of the nerve energy, its prominent feature.

On the other hand, the only remedies beneficially affecting the disease are those that have been considered of a constitutional nature, those that have been directed to the nervous element upon which it is believed to be grounded.

The subjects of whooping cough are notably those coming from neurotic families. They have descended on one side or the other, or sometimes from both of the parental lines, from generation to generation, from neurotic ancestry, through children and children's children, the concentration varying in individual cases.

By careful inquiry it will be found that full 75 per cent. of the subjects of this trouble are neurotics in the more or less strict sense of the term, by heredity especially, or it may be by occasionally from acquired habit; and when we consider that as many or more escape the disease than contract it, more are naturally immune than susceptible to it, this view of the subject comes out in strong relief and merits our closest attention. No stronger proof is necessary to negative its local origin, or illustrate the resisting power inherent in those exposed to its attacks. Those who escape are made of different stuff, but those attacked exhibit the nervous characteristics and conditions of typical neurotics in every phase of life—are easily alarmed, are easily depressed, or impressed for good or ill, are easily moved to tears or excited to anger; their sleep is most always disturbed; they suffer from enuresis, impaired or arrested digestion from shock or fright, are easily agitated and prone to convulsions, which are often produced by very slight causes.

If pulmonary symptoms are associated with the disorder, death is apt to occur from interference with the respiratory act, through the dominating nervous element. It may cause, during a paroxysm, inhibitory spasm, and, compressing the chest walls, induce asphyxial convulsions and death, or by violent action of the heart muscles increase the hyperemia, overfullness, congestion, or cause the complete arrest of the pulmonary circulation, and by sequence the respiration, and death by apnea.

Another very important feature of the disease is the possibility that it is sometimes associated with or may lead to glycosuria. It is contended at present that this reference is merely one of suspicion rather than one of fact; yet if we survey the whole field of investigation, and the peculiar symptoms of some of the cases we have had under treatment, where the issues were not plainly developed, our suspicions may be more than verified, by a close comparison of the results of such cases with those symptoms referable to glycosuria. It certainly does not conflict with the theory of Pavy, that it (glycosuria) is due to want of assimilation, for want of assimilation is due to nervous influences.

This feature of the malady has been very largely neglected, overlooked, or possibly ignored as of little utility in the examination of cases presented for treatment. But you will be surprised to find, if careful and proper examination or inquiry is made, how frequently glycosuria is present in given cases, especially in the severer types of the disease. It is not claimed that this condition is constant or permanent. It may be transient, and frequently a very delicate test is required to detect it. Though the literature of the subject is at present meager, indeed there is none to be relied on, the indications are so apparent that it may be confidently suggested that investigation on this line would lead to profitable and important results.

I doubt if one physician in a hundred has had his attention called to this particular aspect of the matter, or if he thinks it worth while to examine the urine of a child under his care, suffering from pertussis. He usually takes it for granted that it is a child's disease, has its period of incubation, onset, acme and decline, and watches to see it pass from one condition to the other, rather as an interesting pathologic process, than as a disease to be combatted at every step, from center to periphery. He is therefore apt or inclined to ignore or disregard all symptoms except those in sight, and limit his therapeutics to the local manifestations, as if they were all of the affection.

We do wrong if, in framing our diagnosis, we leave out of view other organs which may be involved, either primarily, or in the course of the disease, especially such vital organs as the kidneys and their function and products, if we fail to discover or decide as to the appearance of sugar in the urine, and its possible occasion of diabetic conditions, as coma, dyspnea, or pulmonary edema, which are generally looked upon as the result of the inflammatory process.

Glycosuric phenomena in whooping cough are usually slight, and as a general thing play a very

unimportant part in the complications, or, I might say, in the development of the affection, and on that account may be easily overlooked. It is usually temporary, as desquamative nephritis is in scarlatina. Yet that it may and does occur to a greater or less extent, this is quite sufficient, as said, to emphasize the suggestion and point attention to it, that we may in the future properly consider its probable immediate or remote tendencies and results.

Glycosuria is not properly a complication any more than endo- or peri-carditis are complications in inflammatory or articular rheumatism, or, as now taught, rheumatic fever. It is a part of the disease, as nephritis in scarlet fever, and pulmonary extension in pertussis and measles, and originates from the same cause, so that in treating a case of whooping cough, it is well to have in mind all the symptomatic manifestations which may be developed in its course—those that are so far well known and appreciated, as well as the possibilities of some others, not perhaps in the category of direct symptoms, but which may be elicited by careful inquiry pursued in the right direction.

It may be, therefore, worthy of renewed emphasis that, if glycosuria is eminently and correctly of nervous origin, affecting primarily the nerve cell and its proliferations, no discussion of pertussis with this accompanying symptom of glycosuria can be complete without including the nervous element, at least, as one of its factors.

Another consideration worthy of notice is in regard to its therapeutics, that is, that all the best remedies or treatments heretofore instituted for the relief of pertussis, have been those known to have beneficial influence in all diseases of a nervous type, as neurasthenia, hysteria and the like. The remedies, therefore, that do the most good are those that are directed to this end, and the nearer we come to correcting the condition at the seat of action, the nervous centers, whether it be from impaired nutrition, imperfect cell proliferation, antagonism of nerve elements or forces, or retrograde metamorphosis, the nearer we will come to perfecting our therapeutics of pertussis.

Those therapeutic agents recognized as anti-spasmodics are the ones mostly relied on in treatment and management of pertussis—all those medicinal agents which act primarily on the nervous system, either immediately or remotely, that deaden the sensibilities, have an inhibitory and quieting effect either locally or generally. Local applications relieve, not by destroying germs, but by lessening the irritation and distress of the sensitive parts. They have no continued or permanent effect upon the course of the affection, they only temporarily obtund the sensible terminal nervous filamants distributed to the immediate seat of the mucosa to which they are applied. They constringe the capillaries, lessen the blood supply, quiet the irritation, diminish the tendency to paroxysmal cough, to closure of the glottis, and the characteristic whoop. So soon as the local effects wear off the symptoms and paroxysms are the same as before. Local treatment can only have a tentative result, unless persisted in without interruption during quickly repeated intervals. Only permanent benefit can proceed, and cure result from constitutional treatment.

It would be useless and profit but little to enumerate all the remedies prescribed in the treatment of pertussis; there are legions of them. It will suffice to mention a few of the most recent and popular, or those which seem to have given the best results, namely, bromoform by inhalation; antispasmin, narcein sodium, and sodium salicylate one-sixth to one-fourth grain three or four times daily; phenyl-glycollate of antipyrin, formaldehyd, quinin in large doses; cocain in doses of one-sixth to one-third grain three times daily, and vaccination, which is said to have no effect on those who have been vaccinated. Some others are still employed, as antipyrin in laurel water, belladonna, atropia, potassium and sodium bromid in decided doses, assefetida, valerianate of ammonium, valerian, infusion of red clover blossom, and chestnut leaves and extract. Most of these are administered internally and have a general effect. Some are applied locally for immediate results. It is agreed they are all of about the same nature, and we have the same object in view in their employment. Those that have a constitutional bearing reach the nervous centers, and indirectly medicate locally through the blood current and the nerve supply, and by this means set up an equilibrium or healthy action throughout the system.

Spraying the throat and fauces with cocain, antipyrin, potassium, bromid, carbolic acid and the like, aid materially in the treatment, but as said, have only a temporary action, and are not relied on as would be the case if the disease was simply and only of local or bacillary origin. Spraying with peroxid of hydrogen, as recommended, could hardly be placed on the list of successful remedies, unless there were pus germs present. Spending time in a gas house, at one time in vogue, has been abandoned as not favorably affecting the disorder.

The main point to have before us in the treatment of pertussis is the general health of the patient. This will be most undoubtedly aided, and the cure facilitated, by the patient living as much as possible in pure, open air, by diversions of any kind, and by all means that have a tendency to elevate the standard of health.

The object of this paper is more suggestive than argumentative, with no pretense to completeness, and with no effort at detail. Its symptomatology, and course and deviation from a typical standard, are too well known to be rehearsed, and statistic information is too uncertain a quantity to be of any relative value.

SPINAL INJURIES IN INFANTS.

Read in the Section on Diseases of Children, at the Forty-seventh Annual Meeting of the American Medical Association at Atlanta, Georgia, May 5-8, 1896.

BY JAMES PORTER FISKE, M.D.

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The subject of spinal injuries in infants is presented to you in order that a discussion by this body of these injuries will determine their relation to the faulty development of the spine in the young, and to determine the relation between trauma and spinal caries.

The "traumatic spine" may be defined as any injury to the spinal column. Injuries to the spine in the very young are not infrequent, though the great majority of such injuries are slight. A simple sprain, muscular or bony contusion, sometimes combined with slight shock, is the usual condition following a

slight fall as from a cot or sofa. Again a very slight fall or sudden contact with a sharp corner of an object, may produce a true fracture of the spine, usually a fracture of a spinous process. If a child falls and strikes sideways we may have a green-stick fracture of one or more ribs with twisting of the bodies of the vertebræ, presenting a clinic picture of "acute rotato-lateral curvature" or scoliosis.

While many of these injuries are more or less quickly recovered from, a certain proportion will continue to give symptoms of pain, irritability and malaise. A slight jar or wrench may so injure ligamentous structures that symptoms persist for a long period of time, both in adults and children, and such injuries in children may be an etiologic factor as regards the faulty development frequently seen in this region, as in curvature of the spine. To the surgeon who persists in making an exact diagnosis, these cases are trying and unsatisfactory, as every injury to the spine, whether severe or slight, must of necessity be somewhat obscure. The name "traumatic spine" is particularly applicable, as it is frequently impossible to classify spinal injuries as sprains, muscular contusions, rupture of ligaments or even fracture, unless the case reaches the operating table or the autopsy room.

The results of an injury, mild or severe, to the spinal column can never be foretold, but to the rapidly growing infant such an injury may be most disastrous. We obtain a history of traumatism in about 50 per cent. of Pott's disease, and when we remember that many children apparently in perfect health are the offspring of tuberculous parents, and that such a child has an innate susceptibility for tuberculosis, or more probably has a latent tuberculosis waiting simply for a traumatism at a suitable site before firing up—these considerations should lead us to treat such cases not by observation, as is so frequently done, but by fixation and protection. A previous injury is often, I believe, the predisposing factor in the production of spinal caries.

Though it is not generally recognized, I believe that traumatism is an important etiologic factor in certain cases of rotato-lateral curvature, and if we could obtain a clear early history, many so-called idiopathic scolioses in children could be shown to follow the traumatic spine. Unilateral muscular rigidity, an attempt by the patient to assume the position of greatest ease, a slight bending of one or more ribs, are in themselves sufficient to stimulate a faulty development of the spine in the rapidly growing infant.

The examination of an infant suffering from a supposed traumatism of the spine should be as though we were trying to detect early Pott's disease. The child is undressed and the posture noted, placed on the table face downward, and spine examined to detect any point of tenderness, ribs each side examined to detect any contusion or bending, feet and pelvis carefully raised to note any rigidity or diminished flexion. Pain on pressure, rigidity of the spine and increased irritability of the patient, point to the diagnosis of "traumatic spine," and as such demands treatment by fixation and protection.

The necessary fixation and protection in infants is most readily, efficiently and cheaply obtained by a starch-jacket. It gives absolutely no discomfort, is not heavy, and it can be applied by any one in a few minutes. The material used is wide-meshed, well-starched bandage about four inches wide. The body of the infant is enveloped in seamless shirting from the axilla to well below the pelvis. The starched bandages, after being soaked in water, should be squeezed as dry as possible and then applied. The starch-jacket may be applied by the hammock method and should be in the more serious injuries, but as a rule I have extension and counter-extension made by having the child held in the horizontal position, face downward, one assistant making traction at the axilla, a second pulling the thighs at the great trochanters. Every jacket should extend from the axilla down to the great trochanters. After a sufficient thickness of the starch bandage has been applied, the ends of the seamless shirting are turned toward and over the jacket, thus insuring a smooth and soft border to the jacket. The child is now lowered on a soft pillow and the jacket allowed to set. It will take some time for the starch bandages to harden, but as a rule the child will rest quietly for a few hours. The starch-jacket is quite elastic, firm and considerably tighter than plaster of paris, and is admirably adapted to the traumatic spine in infants. As a matter of cleanliness, and for the proper care of the skin, the starch-jacket should be removed at the end of a week, and if indicated another applied, though I have kept one continuously applied for three weeks. This jacket is not to be cut down the front, but is intended to stay on as applied.

The following case is reported as it represents some of the points brought out in these notes:

W., age 26 months, traumatic spine, green-stick fracture of fifth and sixth ribs, near the angle, acute scoliosis, fine healthy boy, fell from nurse's arms. First saw case on third day of injury. Pain and swelling over and to the left of spine over fifth to seventh ribs. Carcful examination revealed a green-stick fracture of two ribs in this region, as well as a contusion to the spine. The child in assuming the position of greatest case, showed a lateral curvature. The child was held in horizontal position, considerable extension made, and a starch jacket applied. Before application of the jacket the child was in constant pain and distress; after application the child was very quiet. The treatment was continued for six weeks. At the end of this period all symptoms had disappeared, but at the site of fracture of the ribs some thickening remained. The mother wrote me some months later, stating that the child was well in every respect. Sufficient extension was made in this case, so that the spine was absolutely straight before application of the jacket.

I shall refrain from reporting any other cases as I expect later to exhibit some statistic tables and these notes are presented to you in this form simply as a preliminary to your discussion.

In speaking of the prognosis of any injury, several factors are of importance in determining the probable outcome. The condition of the child before the injury, the existence of a cachexia, a possible latent strumous diathesis, the hygienic surroundings, are in themselves sufficient to turn the chances in one direction or another, whether we shall have an early recovery or a tedious and prolonged convalescence.

The relation between injuries and tubercular processes in joints is of great interest. Modern pathology, coupled with careful clinic observation, seems to have established pretty thoroughly that many tubercular processes have their birth in a previous traumatism, it being assumed that a tubercular taint was a concomitant condition. The relation between prolonged muscular spasm or irritability following a traumatism and faulty development of the spine in the rapidly growing infant has already been referred to.

My observations have led me to adopt the follow-

ing rule: Any injury to the spine in an infant which requires treatment, requires the starch-jacket. Lotions should never be countenanced until the symptoms have subsided by the proper use of fixation and protection.

ANGIO-NEUROTIC EDEMA.

Read in the Section on Neurology and Medical Jurisprudence, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5–8, 1896.

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Though the pathology of angio-neurotic edema is still a mere theory and its treatment a source of continual disappointment, the affection itself is of sufficient importance and its occurrence of sufficient frequency to warrant further study. In the *American Journal of Medical Sciences* for December 1892, is an account of the disease, by Collins of New York, which is the most complete of the more recent descriptions. Dr. Collins' paper is based upon some seventy-five cases gathered from literature and personal observation; to which I can add two more, one having been under my care for about two years. The history of this case is as follows:

A married woman, 64 years of age, white, the mother of one child living. I was consulted by her in July, 1893. Her family history revealed nothing of special note. Her own general health had always been fairly good except for a certain nervousness and mental depression brought on by financial losses and worry. The climacteric had come and gone without producing unusual distress. She was not naturally a neurotic, though her nervous organization was an active one. There were no cardiac or pulmonary manifestations. The special senses were all unaffected. There was no pelvic trouble; no signs of disease of any of the abdominal organs. Urinary analysis revealed nothing abnormal. And yet in spite of all this negative testimony, for a year or more before I saw her, she had had frequent peculiar attacks of dyspnea, "distress" in the stomach, followed by violent eructations of gas, cyanosis of the extremities, chilliness, great mental anxiety and a horrible fear of sudden dissolution. These attacks would appear without the slightest premonition. Day and night were alike favorable to them, though the majority of them came on toward early morning. So often did they awaken her out of sleep toward daybreak that she dreaded going to bed, and tried the expedient of having her husband arouse her if he were awake at about the time they usually came on. Conjointly with these spells appeared sometimes, large, circumscribed, edematous spots in various parts of the body, mostly on the arms and legs, occasionally on the face and epigastrium. They resembled giant hives, itched slightly, caused no pain or other sensation than that of slight tension, were raised above the surrounding skin and were of the same color, pitted feebly upon pressure, and were devoid of all signs of an inflammatory nature. Sometimes they would disappear from one part of the body to reappear a few hours later at another. They have lasted at times from several hours to several days. Their disappearance was generally as abrupt as their appearance. Singularly enough when these edematous swellings would appear, the abdominal distress and depression of spirits seemed to be somewhat relieved; and later on the patient would walk violently up and down the floor or pass into another room with a different temperature, in the hope of provoking the swellings and thus ameliorating the nervous distress of the attack. I have seen her try this several times and though I am at a loss for an explanation, I have been an eye-witness of the relief striven for. When the edematous spots had finally vanished and the attack had come to an end, the patient would seem to be almost overcome with extreme exhaustion. She would sigh heavily and lie for a long time perfectly motionless. Even conversation seemed to be an effort and if left alone she would soon fall into a sound slumber. During this period of exhaustion I could not detect any actual difference in the number or strength of respirations or heart beats. The patient constantly denied all aurae such as globus hystericus, etc.

For her trouble the woman had consulted a number of physicians in the United States and in Canada; had received many opinions, but had never been afforded any permanent benefit. Her appetite was good; her tongue clean; her bowels regular. There were no indications of gastric catarrh. She was a sound sleeper and not much of a dreamer; when she did dream, however, her dreams were decidedly of the distressing, morbid sort. Latterly she became very melancholy and much depressed in spirit, especially about the apparent incurability of her disease. She suffered no paresthesia save the slight itching of the edematous enlargements. There was no spinal tenderness; no abnormality of any of the reflexes. After one of her attacks there would be an abundant discharge of urine. Under my direction she patiently and faithfully tried a long list of nervins, antispasmodics, general tonics, and methods of general treatment such as electricity, hydrotherapy, etc. There was no permanent benefit from anything. A change of environment and a short trip into the country seemed several times to keep off the attacks for awhile. Of all the drugs and chemicals tried, salol and the salicylates, especially the salicylate of soda, appeared to lessen the number and shorten the duration of the attacks. While taking these remedies the spells only came on in the morning and lasted but a few hours. Though the most effective of all the remedies used, even these ultimately lost their power.

Recognizing the hysteric semblance of the trouble, I informed the husband of the same and we tried every possible means to divert the patient's mind from herself, such as forcing her into a regular occupation and congenial companionship. For a time this promised a happy result, the patient being for awhile less melancholy and depressed; but ere long we were discouraged to see a return of the old attacks, especially the shortness of breath, the gastric distress and the occasional swelling about the feet, hands and chest. I warned the family of the possibility of a fatal suffocation from sudden edema of the glottis. By and by the attacks became so frequent that the woman refused to lie down at all at night but insisted upon sleeping in a chair. At the same time the most careful examination showed no disease of the heart or of the kidneys. The patella reflexes seemed to be slightly diminished. She complained of much weakness, coughed a trifle without expectoration, said her throat was very dry and exhibited a flushed countenance and red tongue. She revived and for several weeks seemed almost well again. On Oct. 12, 1894, she became much excited from some unknown cause. The pulse rose to 100, the temperature remained at normal.

Respirations were rapid and shallow. There was loud complaining of distress or fullness in the stomach. She paced the floor vigorously to bring on, as she said, "one of her old spells," as they at least gave her relief from the nervous distress. At odd moments she would try to remove a ring which she supposed was on her finger or to brush invisible objects out of her lap, thus revealing slight visual hallucinations. On Nov. 29, 1894, I learned that the woman had been seized one night with one of her old attacks and had died of suffocation before the physician who was summoned in the neighborhood was able to do anything. There was no autopsy. I think the diagnosis of angio-neurotic edema was perfectly justifiable in this case.

Angio-neurotic edema, first definitely described by Quincke and his pupil, Dinkelacker, is chiefly remarkable for the circumscribed swellings that appear on the face, neck and extremities, without apparent cause or previous warning. For this reason it has sometimes been called *periodic swelling, urticaria tuberosa, giant swelling.* There is almost always present gastro-intestinal disturbance, which is probably of an edematous nature like that of the exterior of the body. The mucous membrane of the larynx may be the seat of the sudden edema and so cause an alarming dyspnea or even death by suffocation.

The etiology of the disease takes cognizance of the early adult age of the patient, its more common occurrence in the male sex, the occupations which tend to excessive fatigue of mind and body, and a certain natural or acquired neurotic state of the constitution. Heredity seems to play a not unimportant rôle as shown by the surprising series of cases, all in one family reported by Osler. In five generations of this family twenty individuals were the victims. Krieger's[1] case was a young man 25 years of age, whose mother was similarly affected. Cold and traumatism are frequent exciting causes of the attacks. The former in conjunction with lowered vitality, may explain to a certain extent why, as in my own case, the trouble is so prone to appear toward the early morning before the patient awakens. Unusual muscular exercise will sometimes precipitate an attack. I have seen a hard day's shopping, the patient passing from one store to another through the cold wintry air and climbing flights of stairs, do it.

Jamieson's case, reported by Collins, affords a good picture of the symptom-group presented by my own. The patient would be perfectly well apparently, and perhaps remain indoors all day. Then going out into the open air toward evening, or taking a longer walk than usual, she would experience, without any premonition, a sudden attack of dyspnea, which would frighten and completely unnerve her. Her extremities would become cold, the perspiration cease, a slight cough arise and a feeling come on as though the stomach were suddenly distended. Generally these symptoms would be quickly followed by the characteristic edematous enlargements upon the arms and face. In a few hours the attack would pass off as abruptly as it came, leaving the patient completely exhausted. The disease is often associated with hysteria, if indeed it is not itself a hysteric manifestation. For a long time I regarded my case as one of pure hysteria, for many of the usual stigmata were present. In some cases, as in the first one reported by Collins, hysteric attacks preceded for some years the outbreaks of the edematous trouble. Irregularities of the menstrual function seem to perform as much a part in the disease under consideration as they do in true hysteria. Collins, Lewin and Quincke cite instances in which the onset and disappearance of the migratory edematous swellings bore a certain relationship to menstruation. Amenorrhea was sometimes accompanied by a monthly swelling of the ankles, lips or eyelids.

The diagnosis of angio-neurotic edema is not difficult if the characteristic symptoms are present. These symptoms are especially the local swelling of the skin, the gastro-intestinal disturbance and the nervous depression. The circumscribed edema of the skin is to be differentiated in this disease by the abruptness of its onset, its brief duration and its rapid disappearance. Any part of the body may become its site, especially the face and extremities; and in a migratory sort of a way, it may vanish from one part to quickly reappear at another. There may or may not be itching. It is strictly non-inflammatory, is always more or less sharply circumscribed and sometimes is of a slightly reddish hue. It does not pit upon pressure like ordinary dropsical effusion, but if firmly pressed with the tip of the finger it quickly rises to its former level. As a rule, it gives rise to no annoyance, though some patients complain of a local sense of burning or scalding when it begins to appear.

It is probably true that the alarming dyspnea and associated gastro-intestinal trouble are the result of the same edematous process going on within the mucous membrane. Krieger's case, a typical one, was found dead in bed one morning and an autopsy showed that death was caused by sudden edema of the glottis. Collins finds that out of seventy-two cases three showed their initial symptoms to be located in the stomach and in 34 per cent. of them all, gastro-intestinal manifestations were of sufficient importance to attract notice. The throat was involved in about 21 per cent. of all cases, a fact which should be carefully remarked as death has more than once resulted from edema of the larynx. The stomach symptoms are generally a sense of uneasiness and extreme tension, loss of appetite, enlargement of the epigastrium, colic, and sometimes profuse vomiting and intolerable thirst. Osler says the pains may become so severe at times as to require the administration of morphia. In my case there was at no time any marked pain, but an intolerable sense of fullness and of retained undigested matter, and a bloated appearance of the epigastrium. The patient was generally constipated. A colliquative diarrhea sometimes follows the disappearance of an attack. The urine is often voided in large amount, but frequent examination of it reveals nothing out of the ordinary. Complete exhaustion and nervous anxiety often terminate an attack. It was with great difficulty that my patient could be persuaded that her heart action was normal, so weak and prostrated did she feel when recovering. Between the attacks the general health is good.

Angio-neurotic edema is probably related to hysteria but the suddenness with which it comes and goes, the absence of the usual, well-known stigmata of the latter and other symptoms, all tend to prove that it is not hysteria itself. It is a functional trouble of the sympathetic and central nervous systems; but the cause and character of this trouble are, up to the present time, entirely unknown. Plausible theories

[1] Meditzinskvie Obozrenie, 1889. Sajous' Annual.

and shrewd guesses have been made but nothing of a positive nature has yet been actually discovered. The disease is rarely fatal and autopsies have been exceedingly rare. It is most decidedly a chronic affection, lasting now and then a whole lifetime. It is happily only fatal in those rare cases where the edematous process attacks the mucous membrane of the larynx.

No remedy has yet been suggested for its relief. Neither the disease itself nor the attacks are amenable to any known treatment. The salicylates, especially the salicylate of soda, have given the best results in the hands of others as well as in my own. By them the intervals between the attacks appeared to be lengthened, but as for lessening the severity of the attacks or in any way actually producing anything like a permanent cure I could not see that this or any other of the long list of remedies which I experimented with, was of the least avail. Angio-neurotic edema is a unique affection which needs a great deal more study for its complete elucidation.

4544 Lake Avenue.

INTRALIGAMENTOUS FIBROMYOMA COMPLICATING PREGNANCY AT FULL TERM; HYSTEROMYOMECTOMY; RECOVERY.

BY RICHARD DOUGLAS, M.D.
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As the records do not abound with cases of complete hysterectomy for fibroid complicating pregnancy, I presume a detailed report of the following case will bear some interest:

Mrs. N., 33 years of age, a multipara; her youngest child was born five years ago. All labors normal with uncomplicated convalescence. During the year 1894 there had been some menstrual disorder, irregularity and at times profuse flow. In May, 1895, she consulted Dr. J. W. McCall for her uterine trouble; the result of the examination I report in his words. "I made a digital and specular examination, was unable to find the os uteri. The right vaginal vault and iliac region were filled with a hard tumor." The case passed from under Dr. McCall's observation and was not seen by him again until March 8, 1896, when he was called in consultation with Dr. Howard. The patient had then been in labor sixty hours, supposed to be at full term. Her physicians recognized that the pelvis was encroached upon by a hard tumor. This tumor seemed to lie entirely in front of the os uteri, completely blocking the natural channel. Recognizing the impossibility of delivering the child *per vias naturales*, I was telegraphed for, and with my assistant, Dr. Barr, and nurse reached the patient about two o'clock on the morning of March 9, seventy-two hours after the onset of labor.

That my readers may have some appreciation of the difficulties encountered in a country practice, I will say that my patient lived in a little box cabin about 12 x 20 feet, divided by a rude partition into two small rooms provided with none of the comforts and scarcely the necessities of life. Amid these surroundings her noble self-sacrificing physicians had been in constant attendance, doing all in their power for the relief of the suffering woman, with no thought of pecuniary reward and with little hope of being able to save the patient.

Labor had been most violent and exhausting, but for the last twelve hours uterine contractions had almost ceased.

Notwithstanding the protracted labor the patient appeared in very good general condition. Her pulse was regular and about 120, temperature 101 degrees; patient remarkably quiet and composed. Physical examination of the abdomen revealed rather an unusual morphology. The abdomen was asymmetrically distended, unusually broad in its transverse diameter, widely bulging in the flanks, somewhat flat or depressed in the middle line. The greatest enlargement appeared on the left side and above the umbilicus. On palpation a round and very hard swelling about the size of an adult head could be detected in the right side. The center portion of the abdomen was soft, elastic and compressible. In the left side we could easily determine by manipulation a vertex presentation, the head resting in the left iliac fossa, occiput to the left, dorsum of child to mother's left side, a first position if in axis of pelvis. There was no uterine contraction in response to our manipulation. Fetal heart sounds could not be detected upon auscultation; the patient had not felt fetal movements for twelve hours.

Vaginal examination revealed a capacious vagina; the entire pelvis was filled by a smooth, hard, inelastic tumor which was firmly fixed in the pelvis. Every effort to raise it upward was ineffectual. The os uteri was reached with the greatest difficulty; it lay very high up out of the true pelvis and to the extreme left side; could not reach the os sufficiently well to pass the finger beyond the margin of the right border of the cervix.

Diagnosis.—Uterine fibromyoma springing from the supravaginal cervix and the right side of the body of the womb firmly wedged in the pelvis, filling that cavity, displacing the uterus and occupying the hypogastric right inguinal and lumbar regions of the abdomen; pregnancy at full term, amniotic fluid escaped and the child in all probability dead. Complete uterine inertia from exhaustion and inefficient contraction due to presence of the growth.

After consultation with my associates it was determined that an operation was immediately demanded and that that operation should be in all probability a complete hysterectomy. We discussed the propriety of Cæsarean section, but the idea of leaving so large a tumor with the dangers incident to the operation and puerperal state, were against such an incomplete procedure. Furthermore, knowing the uterus to be in a state of inertia, hemorrhage after Cæsarean section appeared to our minds a danger of great moment. Therefore determining upon hysterectomy as the only means of saving our patient's life, and gaining her consent to anything that we might deem best, we prepared with such poor accommodations as the place afforded for the undertaking.

Preparation.—An ordinary kitchen bench with the filth of ages upon it, covered however by a clean sheet, was the improvised operating table. The bed served as a table for my instrument trays, one bowl and pitcher for sponge basins, and two dimly burning lamps gave us all the light we had. Fortunately, my instruments, ligatures, sponges and towels had all been thoroughly sterilized and we managed to protect them from contamination. Boiled water in abundance was supplied. Notwithstanding the urgency of the case, much time was spent in careful aseptic pre-



FIBRO-MYOMA COMPLICATING PREGNANCY AT FULL TERM. DR. RICHARD DOUGLAS' CASE.

A, Cervical canal, 4 inches long. B, Os uteri. Reduced one-third.

paration of the patient, and after asepticizing ourselves as thoroughly as conditions would admit, the patient was anesthetized with ether by Dr. J. H. McCall.

Operation.—The abdomen was opened by free incision from well above the umbilicus to the pubes. The distended uterus was raised up and as well as its tumor would permit, out of the abdomen. A hot towel was placed over the intestines and four provisional sutures were placed in the upper portion of the wound, crossed and given a half turn so as to draw the wound together and still further protect the intestines. The uterus was observed to be somewhat rotated upon its axis, that is, the right border presented to the center. A large rubber dam was now placed around the uterus and made to hug it very closely and fixed with a safety pin to protect the cavity from blood or escaping fluid. From the location of the tumor it was impossible for us to encircle the uterus with a tourniquet. Therefore my first assistant, Dr. Barr, grasped the cervix as low down as he could with both hands making firm pressure so as to control hemorrhage. The uterus was opened as in Cæsarean section, the child was seized by its breech and removed. It was observed to gasp once. Waiting a few moments the cord was severed between catch forceps and the child intrusted to a physician who made unsuccessful efforts to resuscitate it. The uterus remained perfectly flabby, no contraction whatsoever, and yet the hemorrhage was not very profuse, a few hot sponges placed in the line of the wound controlled it. As we comtemplated removing the uterus, the placenta was not disturbed. The assistant still holding the uterus to control bleeding, I now proceeded with the hysterectomy. The tumor was found to be an intra-ligamentous fibroid and it lifted the peritoneum entirely from the floor of the pelvis. Ligating the right infundibulo-pelvic ligament, catching the tube and ovary with pressure forceps, I cut between. With separate ligature the right round ligament was secured. The Fallopian tube and round ligament were at least four inches apart, that is, the broad ligament was expanded to this extent by the tumor. I next split open the broad ligament on the top of the tumor by an incision parallel to the tube and without difficulty peeled down the peritoneum before and behind and enucleated the tumor, which involved the right side of the body of the cervix of the uterus. Lifting the tumor up I felt distinctly pulsating the uterine artery just as it ascended to the cervix. Isolating it fairly well its deligation was securely effected. Up to this point in the operation I had not come in contact with the bladder. With the tumor now enucleated, attached only to the uterus and all vessels upon that side secured, I proceeded in the usual way with the left side. Here I encountered the greatest difficulty. After ligating the ovarian vessels the tissues were so hypertrophied, the veins so enormously distended and everything distorted, I was not quite sure of my anatomy; but dissecting the bladder from the anterior surface of the uterus and carefully avoiding the ureter I finally succeeded in ligating *en masse* a lump of parametric tissue in which was concealed the uterine artery. I now separated the uterus from its vaginal attachments and quickly removed the entire organ with its attached tumor and contained placenta. The bleeding was very profuse from numerous points, particularly from the anterior vaginal artery, and all of these were grasped with forceps and then securely ligated. All these ligatures and those upon the uterine artery were left long and pushed into the vagina; the others were cut short. The open broad ligaments were closed with silk sutures, the pelvis thoroughly cleansed and packed with gauze, the free end of which was carried into the vagina. The abdominal wound was closed in the usual way. The shock from the operation was comparatively slight considering the time, one hour and fifteen minutes, and the many difficulties we had to contend with. The patient had reacted thoroughly in two hours after the operation and expressed herself as comfortable and determined to get well. There is little to relate of the after-treatment of the case. Thanks to the assiduous attention of her physicians, Drs. Howard, McCall and Cox, and her excellent constitution, she made a quick recovery and is now a perfectly well woman.

CATARRHAL DISEASES OF THE NOSE AND THROAT.

BY J. D. ALBRIGHT, M.D.
AKRON, PA.

To any careful observer, and all physicians should be such, it must have become apparent that catarrhal diseases of the nose and throat are becoming more and more frequent and play a most important part in the practice of every physician who gives more than passing attention to their treatment.

There seems to be a prevailing opinion in the minds of many of our profession that the correct treatment of these diseases involve the use of special and expensive instruments and require a more than ordinary degree of skill to use them properly, so that these cases are allowed to drift to the specialist, who, by the way, is often no more than a physician who keeps posted and has the courage to apply his knowledge.

By a moderate amount of study and diligent practice, by perseverance in the use of the methods at hand the general practitioner may overcome imaginary difficulties that seem to stand between him and success and he will be richly rewarded for his time and labor so spent. The instruments that may be called necessary are: A good light, a head mirror, a nasal speculum, a tongue depressor and a laryngeal mirror. With these as aids in diagnosis, if the examination is conducted carefully, we are certainly in a position to diagnosticate the existing conditions and therefore treat them intelligently. Among the laity there is much termed "catarrh" that bears no relation whatever to it, and in this disease more than in any other these people glory in making their own diagnosis, so that the physician is often taken off his guard and is led to treat catarrh on the strength of his patient's words instead of a careful examination. We have different forms of this trouble: 1, simple chronic rhinitis; 2, hypertrophic rhinitis, and 3, atrophic rhinitis.

Simple chronic rhinitis.—This is a simple inflammation of the mucous membrane of the nasal cavity, without any structural changes. Its only symptom is a discharge of mucus or sometimes, when of long standing, muco-pus. On examination you will find a congested membrane, with here and there yellowish or whitish spots of mucus. In the vault of the pharynx where there is much glandular tissue there will be a swelling, giving them a turgid appearance, and the secretion which covers them will be found to be more tenacious. When these cases seek a physician, he can with a certainty predict a perfect cure, as it is

only in the first stage, simple rhinitis, although of perhaps quite a long standing, getting no worse nor yet any better. The treatment for this condition is as follows: Cleanse the mucous membrane thoroughly with warm water, applied by means of a douche, such as the Bermingham, after which by means of the same douche or an atomizer, make an application of the following: Glyco-thymolin (Kress) one part, water distilled, three to six parts. This mixture should be used twice daily. It will be found best to use six parts of water for a beginning and gradually strengthen until only three parts are used. As before stated, there will very seldom be more than this treatment required in this form of nasal catarrh, as they at once proceed to recovery.

Hypertrophic rhinitis.—A certain number of cases suffering with simple rhinitis will neglect taking treatment until they have developed our second class, chronic hypertrophic rhinitis, and will then consult the physician. Here, on examination, a different aspect presents itself, as we have first, marked structural changes, a proliferation of all the normal mucous membrane, making it of increased size, therefore called hypertrophic, enlarged. The glands in the vault of the pharynx are also enlarged, subject to the same influence as the membrane of the nose. The secretions are now thick and tenacious, which with the enlarged membrane occludes the air passages, causing difficult breathing, causing the voice to be nasal in character and causing the patient to become concerned about himself, perhaps for the first time. In the treatment of this condition, all that I have said on the previous stage applies to this one, with more added. Do not forget to cleanse the passages; this is the fundamental principle of successful treatment, and as such a saline solution, such as glyco-thymolin (Kress), is practically the best remedy for the purpose. It cleanses and it heals, it causes a proper degree of healthy stimulation, it acts as an antiseptic and is a most efficient deodorizer. As the comfort of the patient is a desideratum, the use of a 5 per cent. solution of cocain applied to the turgescent membrane is often advisable, covering the membrane which covers the inferior turbinated bones, in order to allow more freedom in breathing. This may be done once or twice daily by the patient, at different times as occasion demands. The action of cocain on these tissues is well known. The cleansing solution and the cocain applications the patient can well himself apply, but the following application should be made in the office of the physician, as it can be more thoroughly accomplished, and I am of the opinion that the mind influence over the patient is better when he must daily visit the physician; it reminds him that he is under treatment and thus prevents his neglecting the home treatment. For the following remedy a good atomizer should be used, with a nasal tube, and a long tube for the pharynx, and an application should be made once daily, while necessary. This will cure. Iodin 3 grs., potass. iodid 10 grs., zinc sulpho-carb. 15 grs., glyco-thymolin (Kress) 1 oz., aqua q. s., ad 4 ozs. Mix. Sig.: Use as above stated. This treatment kept up for a month, or perhaps longer if a serious case, will do its work well.

Atrophic rhinitis.—This form is caused at times by neglecting the disease when in the hypertrophic stage, and is essentially a death of the tissues. The tissues were crowded to death by the enlargement. Here there is plenty of room in the nasal cavity, there is no interference with the voice or breathing, the secretions are hard and in the form of crusts, the posterior wall of the pharynx will be seen to be dry and shiny, the sense of smell is interfered with, sometimes destroyed, there is at times pain in the frontal sinuses, or in other parts of the head, the patient is irritable and very sensitive to atmospheric changes.

These cases are very often afflicted with a fearful odor, very often on this account do they consult you. Our words of encouragement to the patients suffering with the two varieties preceding must now cease, for unfortunately the cure of atrophic rhinitis is in most cases beyond us; be careful then what you promise your patient. Promise nothing but relief, and if occasionally one case or another leaves you satisfied that you have cured him, restored his sense of smell or hearing do not become elated, for if you thus set up your standard you will very often meet with bitter disappointment.

The indications we wish to meet in these cases to afford our patients relief are two-fold, cleansing and disinfecting. and I may add keeping them thus and attempting to regenerate the atrophied membrane, which as before said can be but very seldom hoped for. The first indication of cleansing and disinfecting is met by daily washings with the solution before given of water and glyco-thymolin, three of the former to one of the latter, so as to remove all offending secretions. Occasionally these crusts must be removed by means of a forceps, which if necessary must not be neglected. A spray of liquid vaselin to which a little camphor has been added, after these washings, will be agreeable to the patient, as it will prevent the annoying dryness of the air passages, and I doubt not but that it is of some remedial value.

For the purpose of stimulating and regenerating the atrophied mucous membrane there are recommended, salicylic acid. galangal root, nitrate of silver, etc., blown into the nose by an insufflator, but I can not but repeat myself and say that this will very seldom be accomplished, and he who is careful will never promise nor yet expect it. Regarding the internal treatment of catarrh, I have never seen any good result from its use and I think the consensus of opinion of the entire profession, the regular, hold that it is a local disease and as such requires only local treatment. Constitutional defects must be recognized and treated, but the remedies employed have no effect on the catarrh, *per se*.

THE STATISTIC EVIDENCES OF THE VALUE OF VACCINATION TO THE HUMAN RACE, PAST, PRESENT AND FUTURE.

Read before the American Medical Association at the Jenner Centennial Celebration, held at Atlanta, Ga., May, 1896.

BY EUGENE FOSTER, M.D.

PROFESSOR OF PRINCIPLES AND PRACTICE OF MEDICINE AND STATE MEDICINE AND DEAN OF THE FACULTY OF THE MEDICAL DEPARTMENT UNIVERSITY OF GEORGIA, AUGUSTA, GA.

(*Continued from page 862.*)

Proposition 10.

If the operation of vaccination be done with due regard to the rules of modern aseptic surgery, with due regard to the health of the individual vaccinated, and proper precautions be observed in obtaining and using vaccine lymph, there need be no apprehension that vaccination will injure health or communicate any disease other than vaccinia.

Antivaccinists seriously contend that: "Vaccination propagates syphilis, consumption and hereditary diseases, which appear years afterward at their appointed time. It produces immediately erysipelas, and aggravates the disorders of childhood, destroying the germs of the teeth during teething. It

is especially productive of mesenteric and glandular diseases, and lies at the foundation of the shameful mortality of whooping cough."

Mr. P. A. Siljestrom (who the *Vaccination Enquirer*, the journal of the antivaccinists, says is "one who has mastered the vaccination question") states, "It has been proved that disease (especially erysipelas and syphilis) and death have not infrequently been observed to result from vaccination."

Mr. P. A. Taylor, M. P., of England (another leader of the antivaccinists) says, "Not tens but hundreds of thousands of persons in this country (England) have mourned the death or ruined health of their children through the results of vaccination."

The above are fair samples of objections raised against vaccination by antivaccinists, and if it can be shown that either or all of the above assertions be true, then the medical profession of the civilized world has for the past century been most grossly careless and ignorant in accepting and recommending vaccination as a prophylactic against smallpox.

Let us, then, once again carefully examine these objections, and decide if or not they be well founded.

As preliminary to a full consideration of these points I submit, and endorse, the following from John Simon of England, one of the ablest, most renowned and conscientious sanitarians and medical philosophers of this century—a man who has more exhaustively, ably and impartially investigated the vaccination question than any other physician living or dead. Simon says:

"Is properly performed vaccination, then, an absolutely inoffensive proceeding? Not at all, nor does it pretend to be so. The very meaning of the thing is, that it shall artificially and designedly produce a transient and trifling indisposition; that for some days the infant shall be uncomfortable with a sore arm and a slight irritation of the adjacent axillary glands, and a perceptible amount of general feverishness. Within the limits of this description, one child may be a little more, another a little less, inconvenienced; but those limits are rarely exceeded. And if it can not strictly be said that the immediate effects of well-performed vaccination never exceed the intentions of the vaccinator, at least it may be affirmed that any permanent injury resulting from it is an accident barely known in the practice of surgery.

"Persons hostile to vaccination allege against it, that it produces eruptions on the skin and glandular swellings; and others, not unfavorable to the practice, doubt whether this to some extent may not (and especially as regards unhealthy predisposed scrofulous children) be a true allegation.

"Vaccination might afford to bear these imputations. For, to what do they amount? Were they ever so true, the alleged evil, even to the sufferer, would be little in comparison with his gain; and the total amount of such evils, compared to the social advantages of vaccination, would, literally speaking, be too small to appreciate.

"But in fact, the imputation is—at least generally—erroneous. There is in it again that common fallacy of calling whatever happens after an event its effect. Propter, quia post. The infant is commonly vaccinated at three or four months of age. Thus whatever physical or moral evils belong to human life are very likely to have been preceded by vaccination; and it is not extraordinary that, especially by ignorant persons, this operation should often be charged with producing incredible results. When you consider, too, that the few months after vaccination include events which are very critical to infant life, you will see what frequent room there must be for misconception. Even to the healthiest and best cared for of children, weaning and teething are not perfectly safe and comfortable processes; to delicate and ill-nurtured children they are often fatal; to vast numbers they occasion, sometimes during many months, distressing or alarming symptoms. Such symptoms, I need hardly tell you, affect both vaccinated and unvaccinated. They have been known as incidental to infancy from periods long anterior to Jenner's existence. Now, an extremely frequent one of such symptoms is an inflammation of skin (known by the technical name of eczema infantile) producing on the child's face and head, or on other, perhaps many or most parts of the body a dense eruption of little pimples, which presently convert into an itching and discharging surface so much of the skin as they occupy; and since irritations of the skin are peculiarly apt to propagate themselves in the direction of the return current of the circulation of the blood to certian organs, the so-called lymphatic or absorbent glands which are subsidiary to this circulation, so it very commonly happens that more or less irritation and swelling of these glands will accompany that eczematous eruption; and that, for instance, the child who has the eruption about its head and face (which are among the most usual seats of the unsightly disease) will often be still further disfigured by glandular swellings in the neck. Though I have spoken of this infantile complaint as incident to the time of teething and weaning, yet in fact it may arise at earlier periods of life, even within a few weeks of birth, and, of course, before vaccination as well as after it. Indeed, frequently it is a reason for which vaccination is postponed; and perhaps I give you no readier means of estimating how little vaccination has to do with its occurrence, than by telling you, first, that before the discovery of vaccination smallpox inoculation was charged with producing it; and, secondly, that in 1714, when smallpox inoculation was yet unknown in England, Dr. Daniel Turner expressed himself in the following terms: 'Among diseases of infants and young children scarce any attends more frequently that pustulary or scabby eruptions in several parts of their bodies, as in the breech, but more especially their foreheads, brows and other parts of the face, which we find oftentimes overrun with dry and crusty scabs.'

"The circumstances under which both infantile eczema and glandular swellings arise are familiarly known to the medical profession. To say that properly performed vaccination can have directly to do with them, that it can directly cause general eczema, or directly affect any glands but those which it is intended and expected to affect, would be an assertion not warranted either by practical experience or by any pathologic probability. To say that indirectly it may do so, that in the very few instances where it produces excessive results, the disturbance that, under such very exceptional circumstances, it may for the time of its operation predispose the child to this complaint and to that, may excite the scrofulous child to show its scrofula, and the eczematous child to show eczema, these are assertions which may or may not be true; which are more easily made than either established or refuted; but which, if admitted in their utmost scope, really allege against a cold in the head, a cut finger, an undigested meal, or any other one of the thousand minor accidents of everyday life.

"So much for what has been alleged against properly performed vaccination, against such vaccination as alone ought to prevail in any country where the State requires its performance. So much for the drawbacks which have falsely been said to detract from its inestimable advantages, and the dangers which, with almost equal falsehood, have been said to attend its performance.

"It is less easy and less necessary to dispose of what may be said against ill-performed vaccination; understanding in this phrase not merely such vaccination as is done with an unskilful hand, for commonly the worst effects of clumsiness is only that the operation fails; but especially referring to such vaccinnation as is done without due inquiry into the health of the child to be vaccinated, or without due care for the quality of the lymph to be employed.

"If local scandals have arisen against vaccination, and if some prejudices against it seem to have in them a show of reason, those are the sources from which such serious evils have come. All that belongs to the mere manual trick of vaccination is learnt from a minute's teaching and an hour's practice; but not so easily the philosophy of the procedure, or the precautions which are requisite to make it harmless and useful. From Jenner onward, all great masters of vaccination have urged that its merits will always appear proportionate to the merits of the performers; that if sickly children are vaccinated without due regard to their actual condition of health, children teething, and the like; or if children, healthy or unhealthy, are vaccinated with improper material, the results must be at least unsatisfactory, and possibly dangerous. And all competent persons accordingly recognize that one who would vaccinate must thoroughly study these things.

"Especially as regards the quality of vaccine lymph, the careless or uneducated vaccinator is using a dangerous weapon. It is only during part of the course of a vaccine vesicle that its lymph is suitable for further vaccinations; for after a given moment, at which the contents of the vesicle possess their maximum of simple contagiousness they tend more and more toward the quality of common inflammatory products; and matter now taken from the vesicle is no longer the simple agent of a specific infection, but both has less efficiency for its real purpose, and is specially able to produce other undesired results. A danger of somewhat similar kind is that of taking lymph from vesicles which already have been accidentally ruptured, or where from any other cause, local or constitutional, their specific fluid is likely to have been modified by common irritative processes. Still more critical changes occur in lymph when removed from the body, unless appropriate means be taken to preserve it; for under the influence of air and moisture it tends, like other dead organic matter to putrid decomposition; and inoculation with it, when thus changing,

can hardly be more useful or less dangerous than a casual scratch inflicted in the dissecting room. According to the usual practice of vaccination, error is less likely to be committed in this particular than in the one first mentioned; for, when the operation is not performed from arm to arm, use is very generally made of lancets or ivory points on which lymph has been allowed to dry. Under this system (at least in our climate) the matter is almost secure from change; and there is little room for such accidents as might arise from failure in those delicate procedures by which lymph is sometimes kept moist for use. But the danger of taking matter from irritated vesicles, and and from vesicles at too advanced a period in their course, is one which circumstances render frequent; and there is reason to believe that, in at least a very large proportion of those cases where abnormal effects have resulted from so-called vaccination, it has been the employment of this ambiguous irritative matter which has occasioned the mischief and scandal.

"Suspicions are sometimes expressed that a slovenly vaccinator, careless in his choice of lymph, may thus cammunicate to one child the constitutional or local disease of another. If this be true it were nothing against vaccination. It is no argument against bread that alum constipates the bowels; still less is it an argument against quinin that some drunken shop-boy may give one strychnin instead of it. And, without intending disrespect to gentlemen whose opinions on this point may be less decided than my own, I must say that I believe it to be utterly impossible, except under circumetances of gross and punishable misconduct, for any other infection than that of cowpox to be communicated in what pretends to be the performance of vaccination. A vaccinator must forget his duty in more than one particular; he must be indifferent both to the feelings of others and to the social progress of the great good which he claims to administer, if he affronts the natural antipathies of those who bring their children to be vaccinated by drawing the lymph for vaccination from the vesicles of diseased subjects. And, practically speaking, I can conceive of no circumstances in this country which justify a departure from the rule (recognized by the medical profession as unreservedly as it is desired by the public) that lymph be taken only from healthy subjects.

"But, supposing that, in breach of this rule, lymph be taken from Jennerian vesicles on the arm of a subject suffering constitutional disease, what then? On the assumption only that it be a true Jennerian vesicle at the proper period of its development, there are cogent reasons for believing that such vaccination can produce none but normal results.

"There is one simple mass of experience, which, to my mind, seems conclusive. It has been proved on a large scale that vaccin lymph, taken from persons actually suffering from smallpox, conveys to those who are vaccinated with it no other than the vaccin infection. This most remarkable truth has been established, I say, on a large scale; for, not once or twice, but at least hundreds of times, something to the following effect has occurred. A patient has been vaccinated a little too late for protection. Warned of his danger he has had recourse to vaccination when already smallpox was in his system; and (under a law which expresses the intimate affinity of these two agents) the operation of the inhaled variolous contagion, and the opperation of the inoculated vaccin contagion, have proceeded simultaneously on his person; the former producing the general eruption of smallpox, the latter producing at the vaccination spots characteristic Jennerian vesicles. And with the lymph of these vesicles, again and again, successful vaccination has been performed. Again and again it has been shown that such lymph is capable only of communicating the Jennerian infection.

"Since then it is a quite unquestionable certainty that, even the system is drenched with that subtlest infection of smallpox, the Jennerian vesicle preserves its own contagion pure and isolated, the argument may reasonably be extended. And, even if there were no evidence in relation to other diseases, this analogy would have rendered it eminently improbable that any, the most infectious, of their number could admix its contagion with the specific products of cowpox. Indeed, so definitely and so constantly characterized are those local changes which different morbid poisons severally and specifically produce, that to say of a given phenomenon 'this is a typical Jennerian vesicle' is, I believe, tantamount to saying this is a vesicle, which only one modified influence can produce, which no second influence can concur in producing, and in the contagion of which no second principle of infection can possibly reside.

"Turning, however, from these general considerations, I may inform you that the diseases which it has been suspected that vaccination might communicate have chiefly been scrofulous and syphilitic complaints, and various eruptions of the skin. In all but a very limited number of these cases it may be conclusively answered that the suspected mischief is physically impossible. Scrofula, for instance, and most skin diseases, even when for experiment their specific discharges and other products are deliberately inoculated on the healthy, are absolutely incommunicable by contagion; and it is inconceivable that the vaccin lymph, even if it could include these products, would alter the essential condition of their nature. Of some others among the diseases referred to, it may no doubt be admitted that certain of their products are infectious; but then again comes the question (which is already by anticipation almost disposed of) whether the constitutional existence of such diseases can qualify the contents without modifying the characteristic development of a true Jennerian vesicle.

"Experiment, where it has been deliberately addressed to the solution of this question, has invariably answered, no; and such experiment is worth many arguments."

After quoting from M. Taupin, Simon says:

"I am not aware of any counter experiments suggesting different conclusions to those which are expressed and justified in the preceding passage. They assert for vaccin lymph the principle which Dr. Mead a century ago asserted for the virus of smallpox inoculation: It is more material into what kind of body it be infused, than out of what it be taken. Indeed, in the whole list of diseases syphilis is the only one to which serious suspicion will attach; and, in regard to its communicability by the lymph of a true Jennerian vesicle, various other observers confirm the accuracy of M. Taupin's result.

"Moreover, Professor Sigmund of Vienna (whose researches on everything relating to the inoculation of syphilis have been on a very large scale) has added to M. Taupin's results, one which quite in a different manner, is equally against the possible invaccination of syphilis. In an official report on the division of the hospital over which he presides (Aertzlicher Bericht des Allgem. Krankenhauses; Wien, 1855) he relates experiments to show that syphilis in its inoculable form prevents, within the sphere of its infection the simultaneous formation of a vaccin vesicle. The discharge of chancre (in which form alone syphilis is universally recognized to be inocuable) has been designedly mixed, as by nature it never could be mixed, with ordinary vaccin lymph; and insertion of this compound poison in the skin has been followed only by the ordinary local results of syphilitic infection. No Jennerian vesicle had been formed. No signs have existed of any possible combination of the two infections. Dr. Friedinger, who conducted these important experiments in Professor Sigmund's wards and under his observation, has also communicated their result to the society of surgeons at Vienna.

"It is unquestionable, however, that cases are recorded in which the lookers-on (sometimes including a medical practitioner) have believed syphilis to have been communicated by vaccination. A moment's reflection suggests that in such cases there must generally be sources of fallacy, which render them, in contrast with experimental results, almost valueless for instruction. When a child is born with a heritage of syphilis (a very frequent incident, if the parents have been suffering from that disease) the characteristic symptoms commonly do not appear till some weeks after birth. And then the scandal discloses itself. Now, among persons with any sense of shame, the knowledge that one had transmitted syphilis to one's child would always be a sore subject. There would be strong temptations to employ false pretense. Not only would parents often conjointly wish to disguise from their medical attendant or from members of their household, the real explanation of the child's ailment, but also, not unfrequently, one parent would wish to conceal from the other that the origin of the disease had been a conjugal infidelity. In respect even of unmarried people, every surgeon knows what utterly false, farfetched and absurd explanations are given of syphilitic symptoms primary and secondary; and it requires little experience to imagine how much more pertinacious will be the demand for excuses, and how much more active the supply of falsehood, under the complicated circumstances of connubial syphilis. Accordingly it is a matter of surprise that vaccination has not almost generally been pitched upon by persons in search of an apology for their syphilitic children. But in truth even such allegations against it have been few; and their paucity (assuming them all to have been made in good faith) would be a strong reason for regarding them with mistrust; for surely if syphilis could be diffused by the vaccin lymph of children with an hereditary taint of that disease, this possibility must long ago have been made evident on a scale far too considerable for question.

"Among the scanty number of recorded cases in which such allegations have been made, there are, however, some in which, so far as I can judge, it seems almost certain that a person

pretending to vaccinate did really effect a syphilitic inoculation. Properly to estimate these grevious instances of malpractice, two considerations must be adverted to: 1. To the already quoted negative results obtained by Taupin and many other observers in their experimental inoculations of lymph from the true Jennerian vesicle of syphilitic children. 2. To the fact that secondary syphilis itself is very possibly not communicable even by direct inoculation of matter from the ulcer and eruptions which it occasions; for many of the ablest experimenters in Europe declare that in hundreds of trials they have never once succeeded in thus conveying from person to person the slightest infection of syphilis. And, regard being had to these considerations, it becomes almost certain that in the cases referred to the matter of chancres, the matter of primary syphilis was used instead of vaccin lymph by the vaccinator, a mistake (however it may have occurred) of so gross and criminal a nature that the medical profession would feel no sympathy for the person through whose neglect or incompetence it happened.

"But in coming to cases of this description there is no longer question of the merit of vaccination. If recorded instances of the kind, instead of being so few that you count them on your fingers, were of innumerable frequency, they would make no argument against vaccination. Only they would, if possible, render more obvious than it is the expediency and duty of providing that this great self-defense of nations against pestilence be not ignorantly and recklessly administered.

"Here, indeed, is the whole gist of the matter. Earlier parts of this letter have shown that by vaccination, properly administered, the once enormous fatality of smallpox may be reduced to nothing. The present section justifies a conclusion that against this vast gain there is no loss account. Of the various alleged drawbacks to such great advantages the present state of medical knowledge recognizes no single trace. Jenner's discovery, properly utilized, has been a pure blessing to mankind, an unmixed addition to the strength and happiness of nations.

"To say of vaccination that it has sometimes been ill-administered; to say that under the pretext of its administration harm has sometimes been given instead of good, poison instead of antidote, is to speak, not against it, but, whether rightly or wrongly, against its administrators. The vaccinations of Europe are now counted annually by millions. It may be vain to hope that every lancet shall be used with equal skill and equal carefulness, or that all populations shall be equally anxious to render the operations successful; but Medicine at least has contributed her share in showing that, subject to these conditions, smallpox need cause no further fear nor its antidote be accepted with mistrust."

So much for the general principles controling the question of objections to vaccination presented by John Simon.

(To be continued.)

Report of the Surgeon-General of the Army for the Year Ending June 30, 1896.

The following is an abstract of Surgeon-General Sternberg's report, omitting financial statements, special reports of medical officers, statistic tables and other matters of detail:

WAR DEPARTMENT, SURGEON-GENERAL'S OFFICE,
WASHINGTON, D. C. Sept. 8, 1896.

Sir: I have the honor to submit the following report of my administration of the duties of this office during the past year. Beside the health of the troops and the sanitary condition of the various military posts, this report relates to certain duties imposed upon the Surgeon-General of the Army by the Revised Statutes of the United States and by Acts of Congress making appropriations to be disbursed under his direction.

Among the expenditures authorized by Congress for the year ended June 30, 1896, were those for artificial limbs and their commutation, for appliances for disabled soldiers, for trusses, for the support and treatment of destitute patients in the city of Washington, D. C., for the Army and Navy General Hospital, Hot Springs, Ark., for the Army Medical Museum and Library of the Surgeon-General's Office, for the construction and repair of hospitals, and for medical and hospital supplies for the use of the Army.

Artificial limbs and their commutation.—During the fiscal year ended June 30, 1896, 21 artificial legs were furnished and commutation was paid in 101 cases of amputated leg, in 69 of amputated arm, and 13 of amputated foot. Commutation was paid also in 2,402 cases in which the use of a limb was lost.

It is believed that the appropriation of $575,000 for the year ending June 30, 1897, will suffice to cover the benefits accruing to the pensioners during the current year.

The amount required for the year ending June 30, 1898, will amount to about $183,000. This estimate is based on the fact that of the appropriation of $194,000 for the fiscal year 1895, $184,192.55 was disbursed during that year, and $7,610.74 during the year 1896, making a total of $191,803.29 disbursed from the appropriation. As these benefits recur every three years, an appropriation will be required for the year ending June 30, 1898, approaching in amount to the sum expended from the appropriation for the year ended June 30, 1895. The actual amount that will be required will depend on the number of those paid in 1895 who are found to have survived the interval of three years. As well as can be learned from the statistics, the death rate is about 1.6 per cent. annually, or 4.8 per cent. for the three years. The estimate for the fiscal year would, therefore, be the amount paid in 1895 lessened by 4.8 per cent., or $183,000.

Appliances.—The number of appliances issued to disabled soldiers during the year was 162, for which was disbursed a total of $1,245.22

Trusses.—There was expended in furnishing and fitting trusses to disabled soldiers under Sections 1,176 to 1,178, Revised Statutes of the United States, and the Act of March 3, 1879, the sum of $7,699.70. The number of trusses issued and fitted during the year was 1,106.

Providence Hospital.—The Act of Congress approved March 2, 1895, appropriated $19,000 for the support and medical treatment of destitute patients in the city of Washington, D. C. The amount of relief afforded under this appropriation was equivalent to the treatment of 114 patients throughout the year.

Army and Navy General Hospital, Hot Springs, Ark.—Twenty-five officers and eighty-five enlisted men were treated during the year. The special advantages afforded by the Government in this General Hospital in the treatment of the diseases mentioned in Circular No. 16, A. G. O., Dec. 8, 1892, do not seem to be appreciated properly by medical officers of the Army. It is equipped with all the latest and best appliances for the treatment of patients by hydrotherapy, electricity, massage and Swedish movements. No sanitarium or private establishment at Hot Springs offers any such advantages. It is believed that if cases suitable for treatment at the Springs were sent earlier in the progress of the disease many serious complications might be prevented and recovery effected in a larger percentage.

Army Medical Museum.—The total number of specimens received during the year was 890; number on hand June 30, 1896, 33,746.

Library.—The total number of books in the Library is now 120,344; of pamphlets and theses 199,600. Volume i, new series, of the Index Catalogue includes the letter "A" and forms a volume of 828 pages. It is now in the hands of the binder and will shortly be ready for distribution. The manuscript of Volume ii, new series, is in the course of preparation for the printer, the usual appropriation having been made for this volume.

Medical and hospital supplies.—The approximate value of the medical supplies actually issued during the fiscal year ended June 30, 1896, is $97,697.38.

Advantage was taken of the preparation of the new Manual for the Medical Department of the Army to revise the Supply Table included therein. Many new remedies were added and the allowance of others was increased where experience had shown this to be advisable. Several recent medical works have been distributed for the use of medical officers. Appliances for operating in accordance with the requirements of aseptic surgery have been issued to sixty-five post hospitals. The facilities for prompt and successful surgical relief are now much more satisfactory than they have been. Portable bath tubs on wheels, adopted to giving a patient a bath at his bedside in cases of fever, have been issued to most of the posts.

The hospital corps.—There were in the service June 30, 1895, 116 hospital stewards, 82 acting hospital stewards and 530 privates, making a total of 728 men. The loss during the year by discharge, transfer, retirement, death and desertion amounted to 270 men and the gain to only 249 men, a net loss of 21 men. There were, therefore, in service at the close of the last fiscal year 707 men, of whom 106 were hospital stewards, 94 acting hospital stewards and 507 privates, the quota under existing regulations being 741.

The appropriation bill provides that no appointment to the grade of hospital steward shall be made until the number of such non-commissioned officers in service is reduced below 100. As there are now 106 in the corps it is not likely that an examination for appointment to this grade will be held for some

time to come. Examinations for the position of acting hospital steward were held in November, 1895, and May, 1896. The successful candidates numbering 31 out of 43 recommended for examination have been detailed to duty in their new positions.

The issue of hospital corps knives and side arms has been discontinued. Members of the corps may, however, by Circular No. 2, Headquarters of the Army, A. G. O., Feb. 6, 1896, be furnished with firearms during Indian wars or when left with sick or wounded under circumstances which justify the expectation that their rights as non-combatants will not be recognized.

The new litter, model of 1895, is now being issued to military posts. A new edition of the Drill Regulations of the Hospital Corps was necessitated by the adoption of this hand litter. The litter slings of the hand litter previously in use were attached to the handles of the litter, and in the drill provision was made for the disposition of the sling in all movements. By detaching the sling and making it a part of the equipment of the bearer to be worn over the shoulders with the ends tucked under the belt in front when not in use the drill has been much simplified. When the litter is to be raised or lowered the bearers have merely to slip the loops at the free ends of their slings on or off the handles. Special instruction in the duties of litter bearers and in the method of rendering first aid to the sick and wounded is now given to all enlisted men of the army by their company officers in accordance with G. O. No. 9, Headquarters of the Army, March 13, 1896.

A change has recently been made in the method by which certain of the recruits for the Corps are to be instructed in their special duties. It consists in the disbandment of the company of instruction at Fort Riley, Kans., and the distribution of the men constituting the company in small detachments at selected posts. Hitherto the expense involved in transporting men to a distance has prevented the posts on the Pacific Coast and on the Northwestern frontier from being supplied with men educated in the company of instruction. By distributing the men and educating them hereafter in small detachments, each department will have its quota of men under instruction from which assignments may be made with less expense for transportation than if Fort Riley continued to be the center of distribution. Emergencies in the East will be met as heretofore, by drawing on the company of instruction at Washington Barracks, D. C.

Since the close of the fiscal year favorable action has been taken on my recommendation that the issue and use of a full dress uniform for the men of the Hospital Corps be discontinued. These men even on parades and occasions of ceremony have always to be in readiness to render service in case of accident and sudden sickness. Fatigue uniform is more suitable for such work than the full dress suit. The change will be of benefit to the men otherwise than by relieving them of an unnecessary uniform, for by drawing the value of the discontinued articles in white cotton duck clothing they will have a sufficient allowance for ward service, which has not hitherto been the case.

Army Medical School.—The report of Colonel Charles H. Alden, President of the Faculty of the Army Medical School shows the course of study pursued and the excellent results attained during the session 1895-96. I heartily concur in his recommendation that the final rank of the student officers in the army should be made to depend on a combination of their marks at the examinations at entrance into the service and at the close of their school work. At present their relative rank is settled by the results of the examination at entrance and their work during the session does not alter it. A very desirable incentive to secure every advantage from the practical courses of the school would be obtained if the class standing of the students were made to influence their future rank.

Recruiting.—The total number of men examined for enlistment was 17,645, of whom 8,643 were accepted, or 489.83 of every thousand examined. The ratio of accepted men was higher among the colored men, 540.57, than among the whites, 486.46.

Of every thousand accepted recruits 727.18 were natives of the United States, 659.38 whites and 67.80 negro. In 1894 the ratio of native born recruits was 679.99, and in 1893 665.95. Of foreign nationalities Germany and Iceland furnished the largest proportionate numbers, 88.97 and 75.44 per thousand recruits.

The average height of these recruits was 67.51 inches, the native born white recruit 67.68 inches, being somewhat taller than the negro 67.37, and fully half an inch taller than the foreign born recruit, whose average was 67.14 inches. The foreign born recruit had the advantage over the native born white in weight, the former averaging 147.18 pounds, the latter 145.68. The negro exceeded both, his average being 149.85 pounds. In chest measurement and expansibility also the advantage appears to have been with the foreign born recruit, his measurement at expiration and inspiration being 34.80 and 37.73 inches, as compared with the native born white who averaged 34.26 and 37.17. The corresponding measurements of the negro were 34.27 and 36.89 inches.

Identification of deserters.—From July 19, 1890 to Aug. 31, 1896, the whole number of identifications made by means of outline figure cards was 759. Of this number 18 were made in the calendar year 1890; 111 in 1891; 215 in 1892; 104 in 1893; 110 in 1894; 121 in 1895; and 80 during the first eight months of 1896.

The 121 identifications made in 1895 represent the "repeating" element of 4,929 recruits whose outline cards were examined; *i.e.*, of every thousand recruits from civil life 24.55 were identified, through the outline cards, as deserters, military convicts or otherwise bad characters. Fraudulent concealment of former service is still practiced extensively; and but for the almost certain detection indicated by them it is reasonable to suppose that the practice would attain its former dimensions.

Uniformity in medico-military statistics.—I have embodied in this report the data concerning the recruiting, sickness and mortality of our army during the calendar year 1895, tabulated in the form suggested by the International Commission of Military Medical Officers which met at Budapest in September, 1894. The Commission recommended that the various army medical departments begin publication with the statistics of the calendar year 1895, but as at this time last year I had at command all the data for 1894 needful to the construction of International tables for that year, I submitted the first set of these tables in my last annual report. Copies of the report were sent to the members of the Committee and to the Chiefs of the Army Medical Departments represented at the Budapest meeting. Reports in exchange are not expected from any of the foreign offices until the publication of their statistic data for 1895.

Medical Department of the National Guard.—The interest taken by medical officers of the Army in the progress and methods of the Medical Department of the National Guard, is well shown by an examination of the program of the sixth annual meeting of the Association of Military Surgeons of the United States, held at Philadelphia, May 12 and 14, 1896. Out of twenty-seven papers announced by the program as to be presented for the consideration of the Association, sixteen were by officers of the medical department of the Army, five by medical officers of the U. S. Navy, and six by officers of the National Guard.

HEALTH OF THE ARMY.

It is with much gratification that I report the health of the Army during the year 1895 as having been excellent. All the rates that are usually considered by statisticians as throwing light on the physical condition of a community have been lower than in any previous year of the recorded history of our army. In 1894 we were fortunate in having all the rates except the death rate lower than ever before. In 1895 all the rates except the admission rate for injuries fell below those of the previous years and the death rate below that of 1889, which was the lowest on record. It is customary to compare the rates of an army with those of the other troops, or the rates of a military department, garrison, city or other civil or military community with those of other similar communities. Such comparisons are of value as indicating insanitary influences at work in one place and not in the other. They lead to inquiry into the causation of excessive rates and to the institution thereafter of remedial measures. But to determine the absolute condition of a community as to health it must be compared, not with other people under other conditions, but with itself under its most favorable conditions. Its proper standard of comparison is, therefore, its own best annual record. The nearer it approaches its best record the higher its standard of health under conditions which usually affect the individuals.

That progress is being made in eliminating insanitary conditions or other causes which tend to affect injuriously the health of our troops is shown by the fact that during the past year the sick rates have been lowered so much that they henceforth become the standard of comparison for future years.

The admission rate to sick report numbered 1,110.22 per 1,000 of strength, as compared with 1,089.73 in 1894, the lowest previous rate, and with 1,329.94, the average annual rate for the preceding decade. The average number of days each case was treated was 11.1, as compared with 11.6 and 11.7 respectively for the previous year and the average of the previous decade. The admission rate for disease was only 837.53, as compared with 845.52 in 1894, while the rate for injury was 272.69, as compared with 244.21.

The number constantly sick was 33.89 per 1,000 of strength,

as compared with 34.49 during 1894 and 41.87 as the average annual rate of the preceding ten years. The number of days lost on account of sickness by each man of the army was 12.4, as compared with 12.6 in 1894 and 15.3 during the preceding ten years.

The rate of discharge for disability per 1,000 of strength was 9.15, as compared with 13.30 in 1894 and 23.77 annually in the preceding ten years. The discharge rate on account of disease was 6.81; on account of injury 2.34. The absolute number of discharges was 250, of which 186 were for disease and 64 for injury.

The mortality rate from all causes was 5.16 per 1,000 of strength, as compared with 6.69 in 1894, 7.85 for the preceding decade, and 6.33 in 1889, the year of lowest record. Deducting the rate for injury, 1.61, the death rate for disease was only 3.55 per 1,000, and compared with 3.95 in 1889 and with 4.76 in 1885, which until now held second place on our records. The absolute number of deaths was 141, of which 44 were occasioned by injury.

The mean strength of the command, officers and men, white and negro, from which medical reports were received during the year amounted to 25,204; white 23,195, negro 2,009. The admission rate for the white troops was 1,127.05, for the colored troops 915.88. The admission rate of the latter was smaller than that of the white troops in 1889, in 1892 and in the years following to the present time. In speaking in my last annual report of their record of sickness, I characterized it as the most favorable yet shown by the statistics. The same remark might be made concerning their record in 1895. Their admission rate for disease was 659.03, as compared with 852.99 among the whites; their rate for injury 256.84, as compared with 247.07, and the duration of each case was 10.5 days, as compared with 11.2. The number of men constantly sick per 1,000 of strength was 26.40 among the colored men, 34.54 among the white, while each colored soldier of the command lost 9.6 days on account of sickness during the year and each white soldier 12.6 days. The rate of discharge for disability was 5.03 among the colored men, 9.51 among the whites, and the deaths 4.12 and 5.25, the deaths from disease being respectively 2.74 and 3.62. The susceptibility of the negro troops to disease was noted as greater than that of the whites only in the instances of rheumatism and neuralgia; although it was equal to or slightly in excess in several other diseases, as tonsillitis, colic and constipation and conjunctivitis.

Health of the military departments.—The admission rate varied 798.32 in the Department of the Columbia to 1,355.63 in Texas. It was above the army average only in the Departments of Texas, the East and the Platte. The rate of constant sickness was highest in Texas. The Departments of the Columbia, Dakota, California and Colorado had low rates; the other departments did not differ much from the army average. The Department of Texas had the worst record; the Department of the Columbia had probably the best, closely followed by the Departments of Dakota and of California.

Four posts during the past year had admissions to sick report in excess of two entries per man. These were Fort Myer, Va., with a rate of 2,800.00 per 1,000 of strength; Washington Barracks, D. C., 2,137.74; Fort Slocum, Davis Island, N. Y., 2,103.45, and Fort Ringgold, Texas, 2,078.21. Malarial infection was the principal cause of these high rates at the first two posts, but not at the other. Five posts had the rate of non-efficiency or constant sickness over 6 per cent. of the strength: Forts Brown, McIntosh and Ringgold, Texas, with rates per 1,000 of strength respectively of 70.69, 64.05 and 63.92; Fort Myer, Va., 63.78, and Columbus Barracks, Ohio, 60.65. Washington Barracks, D. C., although second in sequence of high admission rates, had a constant sickness of only 46.18, standing eleven in point of non-efficiency, while Fort Brown, Texas, although heading the list of non-efficiency stands fourteenth in sequence of admissions.

Six posts gave admission rates of less than 600 per 1,000 of strength: Fort Yellowstone, Wyo., 422.02; Alcatraz Island, Cal., 461.54; Fort Wayne, Mich., 484.62; Fort Porter, N. Y., 515.62; Fort McPherson, Ga., 566.14, and Fort Missoula, Mont., 578.75. Twelve posts reported a constant non-efficiency of less than 2 per cent. of the strength and among them were the posts of Plattsburg Barracks, N. Y.; Fort Wayne, Mich.; Fort Huachuca, Arizona, and Benicia Barracks, Cal. Fort Stanton, N. M., had less than 1 per cent. constantly sick, only 8.26 per 1,000 of strength.

PREVALENCE OF SPECIAL DISEASES.

Influenza prevailed to a somewhat greater extent than in 1894, 1,156 cases as compared with 875. The disease has continued since the close of the calendar year, and it may be expected to form a notable part of the record of 1896.

Diphtheria.—Only a few cases occurred among the troops. Several interesting reports on the use of antitoxin have been received. The opinion of Army medical officers is decidedly favorable to its use as a prophylactic.

Typhoid fever.—One hundred and nine cases, 13 of which were fatal, were reported during the calendar year. This is an improvement on the average annual prevalence and fatality of the preceding ten years, 138.5 cases, of which 19.2 per cent. were fatal. Of the cases during the past year, 12 per cent. were fatal and the mortality per thousand of strength was .48. This latter rate can not be considered high, as it is exceeded by the typhoid mortality rate of most of our cities, notwithstanding the great susceptibility of soldiers on account of the predominance of young men in the ranks.

On account of the uncertainty concerning the nature of the fevers reported from some of our western posts as Texas fever, continued fever, etc., a call was made from this office, Aug. 30, 1895, on the medical officers of certain posts for a special study of the fevers during the season of prevalence. Very excellent reports were rendered; but, as a rule, the assistance afforded by a careful microscopic study of the blood was not fully utilized in the differentiation of the cases.

Malarial diseases.—The admission rate for malarial diseases in 1895 was 82.56 per 1,000 of strength, and the rate of non-efficiency 1.70, the former higher, the latter lower, than the corresponding rates for the previous year, 74.72 and 1.88 respectively, but both considerably lower than the average annual rates of the preceding decade, 103.32 and 2.57. The lowest admission rate on our records was reported in the calendar year 1891, 62.23, with a non-efficiency of 1.58. Although some of the posts in New York, such as Fort Hamilton, Fort Wadsworth, Willets Point and West Point, contributed to the increased rates, the two posts on the Potomac River, Fort Myer, Va., and Washington Barracks, D. C., were the main source of the increased rates, the former having 1,092.59 admissions and a non-efficiency of 14.07 per 1,000 of strength, and the latter 1,079.89 and 13.71. Major Walter Reed, Surgeon U. S. Army, investigated the character, prevalence and probable causation of the malarial fevers at these posts. From a close study of the conditions, he came to the conclusion that in both instances the prevalence of the disease was due to the marsh lands of the Potomac valley.

Diarrheal diseases.—These diseases have been diminishing gradually in prevalence. The admission rate was only 85.14 per 1,000 of strength, as compared with 94.77 during the preceding year, and with 129.26 as the average annual rate of the preceding decade. As a rule, the cases were trivial, the rate of non-efficiency for the year having been only .78 per 1,000 of strength.

Venereal diseases.—The admission rate for venereal diseases, 73.72 during the calendar year 1895, was less than that of the preceding year, 80.43, and less than the average annual rate, 76.32, of the preceding decade. The non-efficiency associated with all these rates did not vary much, being a little over 5 per 1,000 of the strength. The relative prevalence was greater among the whites than among the negroes, the admission rate of the latter having been only 52.26. In 1893 the admission rate of the colored troops fell below that of the white, and it has so continued since then.

Alcoholism.—The admission rate for alcoholism, 30.11 per 1,000 of strength, is a slight improvement on that of the previous year, 30.94, but a great improvement in the average annual rate, 44.20, of the preceding decade. The rate of the colored troops was, as usual, low, 6.47.

Rheumatic affections.—The admission rate was somewhat larger in 1895 than in the previous year, 64.08 per 1,000 of strength, as compared with 63.33, but the discharges for disability numbered only 12 as compared with 24. The improvement in the health of the troops of late years may be seen by comparing these figures with the average annual admission rate of the decade 1884-93, 83.34 with 55.2 discharges for disability.

Tuberculosis of the lungs.—The rates for tuberculosis of the lungs were smaller this year than last. Admission 2.42, discharge 1.06, death .37, as compared with 2.96, 1.59 and .61. They are considerably smaller than those of previous years, for the prevalence of consumption among the members of the Indian companies gave high rates as the average of the previous decade. It is to be noted also that during the past two years the rates for consumption among the colored troops have fallen so as to be much lower than those for the whites, whereas formerly they were much higher.

Injuries.—The rate of admission for injuries, 272.69, is larger than in 1894, when this rate was 244.2; it is larger also than the average annual rate of the previous ten years, 257.37, but although the relative number of cases was increased, there was

no corresponding increase in their severity, for the non-efficiency, 8.46, was somewhat less than that of the decade cited.

Nineteen cases of suicide were reported, as compared with 18 during the previous year.

Radical cure of hernia.—In September, 1895, after considering fully the results attained by surgical treatment in the radical cure of hernia, together with the small amount of risk involved in the operation as now conducted under careful aseptic supervision, I came to the conclusion that the operation might be made available to preserve good soldiers, although ruptured, in the service and to lessen the number of men discharged for disability and subsequently pensioned for hernia. The annual loss of men by rupture has always been considerable. During the six calendar years ending Dec. 31, 1894, 153 men were discharged. I did not consider that the progress of surgery warranted a resort to operative proceedings in all cases, but felt confident that surgical interference would enable many to continue in the military service, or earn their livelihood with comfort in civil life, who are now discharged and pensioned for hernia.

Since September, 1895, twenty-nine cases of hernia have been treated by operation with the most satisfactory results so far as can be determined at this early date. This gives an excellent promise of future benefit in cases that have been hitherto regarded as disqualified permantly for military service.

THE SANITARY CONDITION OF THE ARMY.

Quarters.—In four instances during the course of the year attention was specially invited by medical officers to the insanitary and generally worthless condition of the barrack buildings at their posts. The barracks at Fort Preble, Maine, were characterized as very old and not worth repairing. At Fort Custer, Montana, the barracks with one exception are old and dilapidated, all the floors uneven, worn through in places, and so near the ground that the subfloor space can not be cleaned nor inspected except by taking up the floor. The dilapidated condition of the buildings at Whipple Barracks, Arizona, has been reported on various occasions. They are overcrowded, draughty and poorly ventilated. Estimates for additions to relieve the overcrowding have been disapproved. In July and August, 1895, the improvement of this post was again discussed and urged strongly by the Chief Surgeon, in the hope that early and favorable action would be taken by the War Department.

The marked improvement that has been made during the past few years in the sanitary condition of our military posts, is especially manifest in the fact that during the past year no report was received concerning the crowded condition of prison rooms or guard houses, nor concerning the want of ventilation or repair of the buildings occupied for prison purposes. Formerly unfavorable criticism on the quarters provided for men under guard was as common as it is now infrequent.

Drainage and sewerage.—At the large and important post of Fort Meade, S. D., privy pits are still in use; a suitable sewerage system will no doubt be considered with the reconstruction of this post. The privy pits at Fort Keogh, Montana, also should be filled up, and replaced by the dry earth system until sewers are built.

Concerning the efficiency of the dry earth system there is ample testimony from the experience of many military posts. Where complaint is made there is found on investigation to be some want of the necessary care in carrying out the details of the method. As an instance in point, it was reported of one post during the year that "in only one closet was any dry earth found, and in that no evidence of its systematic use." The action taken by the post commander on this report was to call the attention of company commanders to this negligence and on his next inspection the surgeon found the dry earth closets in satisfactory condition.

Water.—A temporary scarcity of water was reported from several posts, as Fort Canby, Columbus Barracks, Fort Grant and Fort Monroe. The bad quality of the river waters used at certain posts, as Jefferson Barracks, Fort Leavenworth and Fort Custer, was specially noted by medical officers, who recommended filtration for their purification. The Las Moras Spring at Fort Clark appears now to be protected from inflow of surface water. The discovery of a spring at Fort Reno furnishing a water similar to that of Caddo Springs, will greatly benefit that post. There has been much activity during the year in improving the water supplies of military posts. Medical officers take special interest in the subject, and the Quartermaster's Department has carried into effect many suggestions for extension and improvement.

Food.—The food of the men has been reported almost uniformly as ample in quantity, of excellent quality, and well cooked.

Clothing.—In my last annual report I had occasion to invite attention to adverse criticism by certain medical officers on the quality of the leather in the shoes issued to the troops. No such criticism is found in the reports of the present year; yet in one instance a number of men were disabled on a practice march by abrasions and inflammations of the feet, attributed to ill-fitting shoes. The shoe now furnished by the Quartermaster's Department appears to be of excellent quality, make and shape, and there seems to be no reason why men should be disabled on a practice march if proper care is taken in having their shoes adapted to the feet before the march is undertaken. Men who begin a practice march simultaneously with the process of breaking in a pair of new shoes, are likely to suffer from chafings or undue pressure, which may disable them temporarily and unnecessarily.

The various articles of clothing have been of good quality, and suitable to the climate and service.

Habits of the men.—The remarks on sanitary reports concerning the habits of the men are generally satisfactory, and are corroborated by the lessened rates of the past year for venereal diseases and alcoholism.

Facilities for personal cleanliness have been greatly improved at our military posts during the past few years. At present they are rarely referred to as inadequate.

Gymnastic training and athletic sports are held responsible by many medical officers for the increase in the number of injuries during the past year. Their view is no doubt correct, but since the increase was not manifested in the rate of non-efficiency it is evident that the extra cases which raised the admission rate above the average of the preceding decade, were not of a severe character. The accidents of the gymnasium and the athletic field are offset by the benefits derived from the training. Men are drawn away from vicious habits which tend to increase the sick list, and the ability of the system to withstand harmful influences is greatly increased. Hence, although the list of injuries is enlarged by the practice of athletics, the rates of disability from injury and disease are less than in previous year in the history of our Army.

Respectfully submitted,
GEORGE M. STERNBERG,
Surgeon-General, U. S. Army.

HON. D. S. LAMONT,
Secretary of War.

SELECTIONS.

Serum-therapy.—A fermentation has been going on in medicine for the last century, as a sign of which the systems in rotation appear on the surface and after a longer or shorter length of time disappear to, who knows at what future date, start the game anew. The present is the age of serum-therapy. About a hundred years ago the "humores" also reigned, although in a different way. Humoral pathology, which supposed the seat of disease to be in the fluid constituents of the body, was suddenly replaced by cellular pathology. The microscope taught us that the tissues consisted of cells which to a certain degree were independent organisms and upon whose functions depended the fate of the entire organic structure. But as no footing could be found in the cellular pathology, the research was continued in other directions.

On the one hand there developed by the aid of botany and chemistry a modern scientific pharmacology, while on the other side pharmacologic remedies were entirely discredited. This led to the formation of the nihilistic school, which at least had the advantage of making unprejudiced observations.

The development of the physiology of to-day has led us, at the instance of the discovered normal and diseased functions, to judge the therapy of the latter quite different. It was the development of a new physiologic school. But now again the microscope discovered new things, bacteria, bacilli, microbes, and instantly all diseases were ascribed to these microörganisms. The next step was for chemistry to appear on the scene with microbe-killing remedies, and as it at the same time furnished a few new analgesics and febrifuges a temporary armistice was secured. The observation, however, that it was not the microbes as much as their poisonous products that were in question, soon again aroused those who would rest on their laurels. Chemistry was combined with bacteriology to solve the enigma

by isolating the poisonous products and experimenting with these. This led to their inoculation, as it appeared that these products were poisons for the microbes themselves, as for instance alcohol and yeast enzyme. According to this scheme tuberculin was inoculated a few years ago. The danger of this inoculation, however, soon showed the fallacy of the theory, and investigators sought after a perfection of the idea. As the latest result of their efforts we have the serum treatment. Serum-therapy can only be understood when we follow the train of thought which lies at the base of inoculation.

As an original form of vaccinating there was prevalent in China and India direct transmission by injecting pock-virus. In place of this, clothing used by smallpox patients was sometimes worn so that at an opportune time they might also pass through the disease, probably during a light epidemic, as in those days smallpox was considered as measles and scarlet fever are to-day. which according to our mothers and grandmothers every child must have had.

Vaccination also came into practice by reason of its serving as a quietus for those mothers who had to send their sons to India, being thereby enabled to nurse them at home, instead of having them plague-stricken in a foreign clime. But as inoculation of pock-virus demanded too many victims, surgeon Jenner conceived the idea of inoculating cowpox, which he considered transmitted smallpox. As this vaccination in comparison to the former inoculation was comparatively harmless, it soon gained favor and still continues so, although no explanatory theory was then advanced or ever since given, and in spite of being contrary to all modern laws of antisepsis.

One could imagine, and this many an adherent of the vaccination theory does to his own satisfaction, that as a rule a person gets measles and scarlet fever but once, this would be applicable to all infectious diseases and especially to smallpox. In reality this is neither the case in smallpox, diphtheria nor any other disease. However, following this supposition it has been said that, having had smallpox, protects from smallpox, and further that passing through a mild form of pox, that is vaccination, also gives the desired protection. After the word "protects" was unobservedly smuggled in, nothing remained to be proven, and up to the present day the votaries of vaccination have owed us a satisfactory explanation.

In every falsehood there is, however, contained a kernel of truth. If we will, namely, observe more frequently that during the existence of a febrile disease, the afflicted one is not susceptible of other infectious diseases, as owing to the increased vital activity, increased oxidation, etc., a second attack is more easily warded off, we can also admit that an artificially produced febrile reactionary condition as is produced by vaccination will give a certain protection for a short time. This protection can, however, not last longer than a few weeks, it will therefore be seen why sober observers recommend the unusual repetition of vaccination. The principle of vaccination, however, was established and has held its own alongside of all change of theories. In the course of time, all possible kinds of vaccinations patterned after both "inoculation" and the "moderated vaccination" have been tried. But syphilis inoculation as well as cholera, hydrophobia and other vaccinations were soon abandoned. The same fate was shared by the tuberculin inoculation, as they all did notoriously more harm than good.

Research was continued, but this time from the only correct standpoint why certain persons were immune, *i.e.*, proof against contagion. These individuals, whether man or beast, must contain within themselves a protection. This protection could be found only in the fluid tissues, the all permeating blood, as the different tissues are too dissimilar to contain protective matter. The theory was advanced that serum, the blood fluid of an animal which had overcome an infection, as for instance diphtheria inoculation, should be injected into other animals in the supposition that the serum contained a contra poison, an antitoxin. This is Behring's serum-therapy. According to my notion we again have one foot in the too readily discarded humoral pathology, and I can only express my rejoicing at this, as there is more contained in a humoral pathology modified according to our latest physiologic and chemic knowledge than many a one would dream. We will accept as undoubtedly correctly observed the fact that the injected serum of an animal having survived an infection gives a certain protection to another animal or in other words puts it in a better condition to withstand infection. We, however, lack conclusive evidence, whether so large a quantity of serum (about 1 gram to 1 kilo. body weight) of a healthy, unprepared animal is also capable of producing this so-called immunity in an infected one. It can be admitted that the addition of so large a quantity of serum, an excellent nutrient fluid, awakens, that is, strengthens the vital energy to such a degree that the weaker organism acquires the ability of the naturally immunized one to conquer the intoxication. The blood has so many chemic and physical properties, the body so many protective contrivances, such as fever, etc., that one can not make an apodictic assertion as regards antitoxins or counter-poisons. Professor Buchner (Munich) has proven by experiments on animals that antitoxins are altogether out of question, as the chemic quality of the animals experimented on has an important bearing on the case. The originally immune animal can not possess any antitoxin, beside during the course of an infectious disease a number of reactions take place which tend to make the introduced injuriousness harmless. In this regard Buchner's principles may eventually play an important part. But even admitted that Behring's theory is correct, what good is it? They claim the mortality to have dropped from 50 per cent. to 25 per cent. in diphtheria. Admitting the correctness of the statistic observations I still find the rate of mortality so high that I would hardly venture to use it as an argument. Beside it is openly admitted that where, as there usually are in severe cases, streptococci are present these cases are not affected by the serum. Well, in the milder cases I use no other remedies but those I have explained in my treatise[1] years ago and which we more or less all use. In severe cases I really need no assistance either, besides such an assistance is made directly impossible by the antitoxin treatment. We can, therefore, not use this kind of serum-therapy. The contagionists have repeatedly stated: "Live as you please, only be sure to get vaccinated in the opportune moment." This is surely not according to the laws of hygiene. Consequently serum-therapy is no hygienic triumph. Undoubtedly, and we should not be misled by this, the serum-therapy will be longer lived than any previous inoculation method, as it is relatively harmless. But the lack of success will ultimately kill it off.

Those who know what weapons have been employed to conquer diphtheria, will also lend a willing ear to the objections of those skeptics who attribute the lower rate of mortality in diphtheria under the serum treatment, to the absence of the old drug poisons. Add to this, better nursing and the possibility of the serum being a blood nutrient, and why should there not be good results?

We likewise obtained good results during the first period of tuberculin inoculation, because the patient's appetite was no longer impaired by giving creosote, and the "interesting cases" were better nursed. If we start with the principle that the healthy organism contains a protection, probably protection matter and possibly antitoxins, then the only sensible thing to do is to investigate the protective power and by correcting the mode of living and the like and to impart it to those individuals who on account of want of natural protection are in need of it. This is the opinion of the individualists who find within the

[1] Die wichtigsten Kapitel der natürlichen Heilweise. Stuttgart, Zimmer's Verlag.

quality of the individual the riddle which is being tried to be solved without.

I think there are animals and human beings who are relatively immune against all infections. Against certain poisons they are positively proof; others by means of chemic and physiologic protection contrivances, they conquer. We can impossibly vaccinate against all infectious diseases from the beginning; that means to vaccinate the sucklings. Furthermore, we can at the decisive moment, that means in case of sickness, only vaccinate in the culture centers against all possible attack, presupposed we had "antitoxins" for every disease, but so far we only have the diphtheria and tetanus antitoxins, of which the latter has proved itself useless. (Relatively speaking, in the meantime barring other therapeutics, people would have to keep on dying for years, as it would take that long before all the antitoxins would be discovered.) It is moreover uncertain whether great damage is not done the body by inoculating various antitoxins, which according to Buchner are toxin derivatives and related to the toxalbumins.

On one hand we do not care to wait so long, on the other we must go to work with more logic, expecting nothing from uncertain remedies, but aspire to acquaint ourselves with the relatively universal immunity and its conditions. That the universal immunity is not sparingly distributed among human kind is proven by the mere existence and constant increase of humanity, which in spite of thousands of years of aggression by all possible plagues, has held its own and, as it appears, has acquired a natural immunity against pestilence, typhoid and smallpox.

In this field of natural immunity by leading a hygienic life have I and others, in theory and practice, rendered such service that we have therapeutically gained such an ascendancy over the votaries of serum-therapy, who not until now—and that in the wrong light—have taken the individual into consideration, so that a better hygiene and therapy than we have against infectious diseases can not be found anywhere to-day. I do not wish to cite statistics, but on request any physician of our school will stand ready to treat diphtheria cases under control with a smaller resulting mortality rate than can be obtained by means of the so-called serum-therapy. It is our object to make *our own* serum of the best possible kind and quality.

Presupposing that my doctrine of dietetic blood-diathesis[2] is well known, we have in it a lesson which if applied to our diet and mode of living, will bring the protective power of *our* serum to its normal height, *i. e.*, will make us relatively immune. The quintessence of our doctrine is the proof that the reduced alkalinity of the blood of civilized men can by dietetic means be brought back to its normal strength. According to Von Fodor and others the degree of alkalescence of the blood is proportionate to its immunizing power, which experimentally proves the correctness of my views on serum-therapy. While in a case of mixed diphtheria with streptococci the physician applying diphtheria antitoxin is helpless, the organism made relatively immune by means of dietetics is able by way of its innate protective power assisted by appropriate external remedies to successfully combat such cases.

For the forgoing reasons I have no fear in my own behalf in acute diseases such as diphtheria for instance, as I know the quality of my body and its serum. Not so with others whom we know to be filled with autotoxins, as the cause of the disease, be it organized ferment, a microbe or a chemic ferment, an enzyme liberates them. For the body of the majority of the population, who are governed by false dietetics, is overloaded with insufficiently assimilated albumin and insufficiently oxydized substances which by contact are doubtlessly changed into toxalbumins. (Compare Ernest Krauss in *Zeitschrift für physicalische Chemie*, Band xviii, Heft 2 "Über die Ausnutzung der Eiweissstoffe in der Nahrung in ihrer Abhängigkeit von der Zusammensetzung der Nahrungsmittel.") Krauss proves that where albumin is freely taken as nourishment, only part of the albumin is changed into peptone, the other part decaying in the bowels, "by which on account of the presence of a large quantity of decayed matter the body is only injured."

Upon the chemic condition of the body, not upon the amount of infection depends the severity of the case. The microbes do not easily gain access to the inner body, but the toxins do, which doubtless, being relatives of the enzymes, are also capable of developing results like these. They furnish us with new dissecting matter, that is, loosen the vital process (fever and oxydizing), the deposited decayed matter, autotoxins in the real sense of the word. With the autotoxins lies the danger. They injure the heart and the kidneys and do harm, when that little diphtheritic toxin has long been made harmless.

It is interesting to note that Professor Escherich (Graz) in No. 22 of the *Wiener klinische Wochenschrift* presents the following theses covering my views:

1. For the appearance of diphtheritic disease there is necessary, beside the bacillus and the possibility of its invasion, a specific receptiveness of the organism about to be infected.

2. The condition of the local and general disposition, the greater or less degree of virulence of the bacillus, the latter only secondarily considered, are a criterion for the termination of the case.

3. Also other and even saprophytic bacteria, besides their products, may have an effect on the spreading and the clinic termination of the process.

I consider the third thesis a circumlocution of what I understand by autotoxin. My therapy in diphtheria is therefore primarily aimed to put out of the way the autotoxins. The evacuation of the lower gut by means of injections furnishes to us in ninety cases out of one hundred such a terribly smelling stool which differs distinctively from other fever stools, which are usually dry and not so fusty, this being my reason for thinking that diphtheria is a general instead of a local disease, as now supposed.

By these means, at least, dangerous products of decay are prevented from being absorbed. The next thing for us to do is to remove the autotoxins by means of increased perspiration and eventual transpiration, by reason of which long lasting partial or entire packing, eventually sweat-packing, are brought into question. By increasing perspiration and transpiration, the almost constant relative hydremia is done away with.

Finally, for nutrition we will not choose albumins, as these, under the conditions, would be the same as poison. Moreover, we will introduce into the serum the mineral substances, nourishing salts in the shape of readily assimilable fruit juices and lemonades, and keep the body with the sugar and water of them in a sufficiently nourishing condition, without especially burdening the gut.

That is my position toward serum-therapy. Behring's serum-therapy is a very interesting scientific problem. Therapeutically considered it represents a byway which, on having recognized the truth that our own serum should and will solve the problem, as a rule comes too late to be of any service to the patient.—Read before the Congress of Physicians at Nürnberg (Germany), by H. LAHMANN, M.D. Translated by CARL STRUEH, M.D., Chicago.

[2] Die diätetische Blutenmischung als Grundursache aller Krankheiten. Leipzig, Otto Spamer.

Morphin Antidote to Cyanid of Potassium.—Heim discovered recently in the course of some experiments that animals which had received a fatal dose of potassium cyanid were saved by the injection of a non-fatal dose of hydrochlorate of morphin. This effect seems paradoxical, as the two substances combined in the laboratory produce only a precipitate of pure morphin and the elimination of free hydrocyanic acid.—*Semaine Méd.*, September 23.

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SATURDAY, OCTOBER 24, 1896.

COLOR VISION.

The perfectly satisfactory physiologic explanation of color sensation has not yet been made, as is demonstrated by the fact that in nearly all the text-books it is found necessary to state the two leading hypotheses, those of HELMHOLTZ and HERING, side by side, though widely differing in their methods of accounting for the phenomena. One may be more favored than the other, but each has its defects. The latest critic of the HELMHOLTZ theory, TSCHIRIEW, in the *Archives de Physiologie, Normale et Pathologique* for October, asserts that it is defective in that it does not respond satisfactorily to JOHANNES MUELLER'S laws of specific energies, in that it assumes each spectral ray of a determined wave length can at once excite all three elements of the retina in different degrees and thus to give rise to these different sensations. It also fails to account for that type of true color-blindness, consisting in a loss of the sensations of violet, red and purple and their complementary greens; and it does not explain the effect of large doses of santonin in producing a greenish-yellow tint in all white or shining objects. The HERING theory accounts better for the phenomena of color-blindness and the effects of santonin, but its assumption of different chemic processes produced by the rays of different length in the same visual substance of the retina is hard to prove, and its claim that the sensation of black or of darkness is due not to a cutting off of the light, but to what may be called dark rays acting assimilatively or re-integratively upon the visual substance, is against all known chemic or physical laws. It is hard to understand how the diminution of all rays can cause an increase of the "black" rays. There is also difficulty in conceiving the existence in the same space of three different chemic substances that change, not only singly but two or three together, under the influence of the light rays received, and do this in two different ways, assimilatively and disassimilatively.

Finally, neither of the two theories is satisfactory in explaining the union of the different primary color substances into the complex ones, red and yellow or red and blue, for example.

In order to meet these difficulties he points out, TSCHIRIEW offers a theory of his own. In the first place he accepts MUELLER'S law of specific energies in a rather wider sense than has been hitherto admitted, allowing variations in quality in the homogeneous sensations derived from a single excitation of the peripheral termination of sensory nerve fibers. In the second place he assumes in the layer of rods and cones the existence of a special photo-chemic or optic (visual) substance of two kinds, one in the rods, capable only of change according to the quantity of the light rays impinging upon it, and giving rise to the sensations of the different degrees of white or uncolored light; the other in the cones, changing not only to excitations of quantity, but also with those of quality, and producing the conscious sensations of quality or color as well as of quantity, according to the length of the luminous wave. He considers these theoretic assumptions reasonable and in support of the second one he adduces the facts of the lack of the cones in the retinæ of nocturnal animals (owls, bats), and the demonstrations that the retinal purple is decomposed by light so that even optograms have been made with a rabbit's retina exposed before a strong light and fixed with alum. The yellow spot, where only cones exist, changes on the other hand neither in light or darkness.

Admitting these assumptions, which are supported by still further evidences than those suggested above, TSCHIRIEW finds it possible to meet the difficulties where the former hypotheses have failed. In his explanation of the various types of color sense defect he does not limit himself to the peripheral retinal apparatus but supposes a certain "rigidity" of the nerve cells of the visual centers, by which they lose their faculty of receiving impressions of qualitative changes impressed on the retinal cones. In complete achromatopsy, as occasionally observed in hysteria, there may have been, for example, a vaso-motor spasm affecting the nutrition of these cells and rendering them responsive only to quantitative light impressions. This intervention of the cerebral centers is in its way an advance; the optic mechanism has in the past been a stumbling block from its very perfection;

it did not sufficiently suggest the possibility of failures of color perception not dependent directly on its defects. Men have written on the color sense as if consciousness extended down to the peripheral termination of the optic nerve, or perhaps it should be better stated, as if color perception there took place. HELMHOLTZ, HERING, TSCHIRIEW, FICK, or any other theorizers on this subject have really only the task of producing a hypothesis that will account for the phenomena under normal conditions of the higher visual centers; the derangements of these latter afford an unknown, but certainly extensive, range of possibilities of morbid alterations or defects of the color sense.

The theories of the author here quoted may not be altogether new; indeed, it appears possible some of them may have been emitted before, but they are in their way suggestive and noteworthy. His paper contains some other points worthy of mention, such as his statement that white as a sensation is not the result of the blending of all the spectral colors but is simply the effect of the reflection of uncolored light by minute particles under certain special conditions. It is one of the suggestive contributions to the literature of the subject, whatever may be the ultimate estimate of the views it presents.

LAY DISTRUST AND ENMITY OF THE MEDICAL PROFESSION.

For two thousand years or more the medical profession has waged a ceaseless war to obtain the fundamental condition of medical knowledge and progress, *i. e.*, dissection material, and to-day many medical colleges are compelled to import from long distances and at a crippling expense an insufficiency of cadavers.

Ever since the rise of the scientific spirit in modern times the use of animals for experimentation, quite as necessary a prerequisite of medical progress, has been bitterly and violently opposed by the non-medical world, and to-day that opposition is more dogmatic and furious than ever.

The lay world, as regards both private individuals and governments, is so indifferent to or suspicious of us that while endowments, scholarships, etc., running into millions exist for the encouragement of the study of languages, astronomy, theology, etc., yet medical education and medical students are left solely to self-interest, with almost no endowments to help what is the first necessity of human life—health and the eradication of disease.

The one benefit of most proved and patent service to humanity, which medicine has given the world—vaccination—finds everywhere, but especially in England and America, thousands of bitter opponents. One of these in a speech in England as regards the recent Gloucester epidemic, where hundreds sacrificed their lives to the craze, has the audacity to utter the following words: "Gloucester presented circumstances and cases which proved undeniably that vaccination was nothing but a delusion and a snare and that insanitation was the real tap-root of the whole of the sufferings of that poor, miserable, devoted city. During the panic the doctors had been piling on the agony and pocketing the plunder and scattering people through the length and breadth of the country with their arms in slings as if they had just returned from a great European war."

Lastly, the opinion of the lay world is made still more plain by the facts of the oceans of "patent" or secret nostrums eagerly bought and devoured by it; by the long struggle, still going on, to obtain medical practice legislation to root out quackery, and by the avidity with which it supports medical sectarianism and quackery in the regular profession.

Such facts as these might be multiplied indefinitely.

Upon the other hand, every intelligent physician has the sincerest and most well-grounded conviction and consciousness that the profession taken as a whole is more unselfishly and more successfully devoted to the alleviation of suffering—of the very people (and their children) who hate that profession—than any single body of men of so large numbers the world has ever seen.

All this being true, one is almost disheartened at the ingratitude, the stupidity and the brutality of our enemies. Why labor for a united world that scorns the help and hates the helper, blind and ignorant of its own true need and inobservant of its best friend? Beyond a doubt it is the recognition of this very fact of the combination of ignorance and need of the world that sustains the devotion to duty of many physicians and keeps them from joining the ranks of the shrewd self-seekers. The poor victims of their own hate and egotism and ignorance are of course too pitiable to be either duped or detested. They are in truth pathologic specimens of society and history, and a man with any largeness of character can not upbraid or punish or despise a bit of morbid tissue, whether sealed in alcohol or washed up in the world's sewage. The cold-blooded will study it and philosophize about it, the warm-blooded will commiserate, and both will regret the disease and malignity that produced it and smile lukewarmly at the passion which fires the hearts of the monomaniacs.

Two things remain to prevent despair. The first is that we are gaining, slowly perhaps but still surely, in our warfare against disease and ignorance as the lessening death rate certainly shows, and secondly, a progressively increasing number are recognizing that the acceptance of the selfish and personal end would bring no added happiness. We are winning more and better allies in the lay world, and the insatisfaction of a wholly greedy life is becoming always more evident to a larger number of physicians. When

struck by some particularly ugly fact—some triumph of quackery, some victory of a blatant or sly self-advertiser over honesty and modesty—we may be tempted to cry, "It's no use! We might as well give up!" But a large and healthy outlook and overlook will at last convince that there is a decided and clear measure of progress being secured with every generation's passing.

The puzzling fact remains to challenge our ingenuity. Why this persistent opposition? Viewed simply as a psychologic riddle we can not help being struck by the incongruous and egregrious blundering of the lay world in so hating the profession which is seeking only the good of the hater. Why this century-long bitterness and malignity of spirit, reaching even to ludicrousness in the diatribe of the poor fellow who charges the doctors with "pocketing the plunder," the fees for vaccination from the be-pested Gloucester folk. To take another instance, doubtless many anti-vivisectionists are in reality tender-hearted people, but doubtless also many are spurred to their violence not by pity of the "victim," but by hatred of the "vivisectionist." Macaulay said that the Puritans opposed bear-dancing, not out of pity for the animal, but because it gave pleasure to the spectator. In every one of *Life's* cartoons or silly lunges on the subject of vivisection one sees that the bitterness of spirit against physicians is many times stronger than any sentiment aroused by the sufferings of the animal.

After all deductions are made on account of inherited love of magic and miracle-mongering, one is finally driven to believe that the fundamental cause of the hatred of Lord Omnes for us is due to his utter inability to realize that men can have any abiding motive of conduct that is not in its last analysis selfish. He knows in his own heart that if he were a physician he would practice vaccination, not for the good it would do, but because of the fee he should derive from performing the operation. According to his philosophy the preacher makes better wages and with less labor by preaching than he could by business or farming or shoveling; and so with the rest of the "parasites." Feeling that such are his own ethical standards, he must believe they are also those of all others, and the half-hidden consciousness that it is not so with these others arouses in his own heart a tempest of passion to keep the voice of conscience from being heard. Then, too, we have in every city and town self-advertisers, quacks within the profession, whose trickeries are so manifest as to strike the attention of all, and seeing these the profession-hater sticks his tongue in his cheek and gloats over the supposed fact that this particular charlatan, as he thinks, only exposes what the others are more shrewd in hiding, and that at last, if it were known, we are "all alike."

And thus it comes to the moral, that there is no enemy so harmful to the profession as the one within our own ranks who hypocritically pretending acceptance of the higher standards of conduct of the guild, in reality practices the greeds, charlatanism, and self-seeking.

EMPIRICISM VS. WORKING HYPOTHESES IN THERAPEUTICS.

The excuse most strongly advanced by the charlatan for his existence is the specious one that therapeutic discoveries are all the results of chance empiricism. This plea is reiterated by physicians whose mental indolence limits them to what are most absurdly called the "practical" (but more properly the "receipt book") side of medicine, just now exploited at the expense of the profession, by certain advertising Hahnemanniac "free doctors." The shallowness of the scientific foundation of the "receipt book doctrine" contrasts markedly with its wide acceptance. Many physicians fail to recognize the great truth pointed out by CLAUDE BERNARD that, "All natural philosophy is summed up in this: To know the law which governs phenomena. The experimental problem reduces itself to this: To foresee and direct phenomena. It will not satisfy the experimental physician, though it may the merely empirical one, to know that quinin cures ague. The essential thing is to know what ague is and to understand the mechanism by which quinin cures. All this is of the greatest importance to the experimental physician, for as soon as he knows it positively, the fact that quinin cures ague will no longer be an isolated and empirical fact. This fact will be connected then with the conditions which bind it to other phenomena and we shall be thus led to the knowledge of the laws of the organism and to the possibility of regulating their manifestations. A striking example can be quoted in the case of scabies. To-day the cause of this disease is known and determined experimentally; the whole subject has become scientific and empiricism has disappeared. A cure is surely and without exception effected when the patient is placed in the condition known to produce this end. This is the purpose of physiology and medicine, to make oneself master of life, in order to be able to direct it." Even the briefest examination demonstrates that therapeutic discoveries were never made by chance empiricism, but that all result from working hypotheses which though often fetichistic in origin had excellent results. One excellent illustration is the famous doctrine of signatures, which though badly abused from forced interpretation, strongly stimulated research. One most significant evidence of the superiority of even fetichistic working hypotheses to chance empiricism is the pediatric laxative, manna (*fraxinus ornus*). The Aryan races employed birth ceremonies to propitiate evil spirits. In these ceremonies the sacred ash played an important part. The infant ZEUS, accord-

ing to Greek myth, was fed on honey from the sacred ash and from bees. Among the ancient Germans that sacred food was the first put to the lips of the newborn babe. So it was among the Hindus as appears from a passage in one of their sacred books. The father puts his mouth to the right ear of the newborn babe and murmurs three times, "Speech, speech." Then he gives it a name. Then he mixes clotted milk, ash and bee honey and butter, and feeds the babe with it out of pure gold. In the Highlands of Scotland at the birth of an infant the nurse takes a green stick of ash, one end of which she puts into the fire and while it is burning, receives in a spoon the sap that oozes from the other, which she administrates to the child as its first food. Some thousands of years ago the ancestors of this Highland nurse had known the *fraxinus ornus* in Arya (KELLY, Indo-European Folk-lore) and now their descendant, imitating their practice in the cold North but totally ignorant of its true meaning, puts the nauseous sap of her native ash into the mouth of her hapless charge. The old crones who haunt the obstetric chamber often practice these antique methods of warding off evil spirits, or, as the crones would phrase it, preventing bad luck. The laxative quality of ash honey evinced the beneficent fetichistic effect of the drug, since, according to a folk-lore principle (still accepted by certain races), constipation is one of the means "whereby the devil worketh," to quote BAXTER, the seventeenth century Puritan. Because of the tendency of fetichistic explanation to vanish with advance in culture, the original working hypothesis (on which manna was given) disappeared to give place to the purely laxative principle. This slow development of a humble laxative from the awe-inspiring sacred ash (the Ygdrasil of Scandinavian mythology) significantly demonstrates that even the slightest scientific discovery is not suddenly made, but is the product of a long evolution whereby, as SHELLEY sings:

"Thought by thought is piled till some great truth
Is loosened and the nations echo round."

The physician who fails to recognize the great truth here enunciated aids the quack who pretends to discover stolen and distorted ancient therapeusis.

SOCIAL STATUS OF THE BRITISH MEDICAL PROFESSION.

The completion of the sixtieth year of Queen Victoria's reign will doubtless be marked by the usual anniversary creation of peers, baronets, knights, etc. At present it seems probable that, as usual, the British medical profession will compete with fertilizer and sausage manufacturers for baronetcies and knighthood but will not dare to rival the lordly distillers and brewers in the race for peerages. The British medical profession, during the present century, far from occupying a high social status, has always been viewed askance by the present Queen and her uncles. It disproved the foul calumny, unworthy even a village gossip, which the court clique launched against the Queen's unfortunate maid of honor, Lady FLORA HASTINGS, whose sarcomatous uterus was proclaimed by highest authority evidence of unchastity. The bitterness with which most of the WETTINS regard the medical profession was voiced by that master of billingsgate, the Duke of Cambridge, when the British army medical service was given a definite status, a reform struggled for by almost all that is illustrious in nineteenth century British literature and science. The Duke thus addressed the surgeon-general of the army whom he met at a dinner soon after it had been decided by the government to give official rank to members of the medical department:

"Good evening, Surgeon-General, or Field Marshal, or what the —— they call you now, I don't know how to address you, you with your new titles, I don't know what the —— I am myself: I suppose you expect me to take my —— hat off to you; what —— do you —— fellows want."

This view of the British profession is so accepted by the snobocracy that the Duke of Westminster will not let residences on certain London streets to "medical men or other minor tradesmen." The sixtieth anniversary of VICTORIA'S reign seems a good time to raise the social status of British medical men by the creation of medical peers. It should be remembered in this connection that one of the greatest families of the present period traces its recent ancestry to a surgeon-apothecary, HUGH SMITHSON. He, a century ago, on marrying the peeress of the PERCYS, was created Duke of Northumberland in 1766. It was suggested that his ducal coronet bear senna leaves in lieu of the usual strawberry foliage. The English peerage marks social status in Great Britain. There is no reason why, in view of the regard shown physics in the peerage of Lord KELVIN, medical science should not be equally recognized. The House of Lords of the "crowned republic" could with advantage bulwark itself by medical members against the rising tide of democracy.

CORRESPONDENCE.

Paracelsus.

CHICAGO, Oct. 19, 1896.

To the Editor:—On page 879 of THE JOURNAL is a clipping which presents the life and character of Paracelsus in somewhat too roseate a hue. When I was at Salzburg in 1889, admiring the quaint picturesqueness of the town, reviving memories of Mozart and wondering at the modern troglodytes residing in furnished apartments cut cave-like out of the solid rock in the hillside, I naturally, as a physician, hunted up the relics of Paracelsus. The monument and chapel described in the clipping are easily discovered. Of much more interest to me, however, was the home of this curious character. At one end of the Salzach bridge and within hailing distance of the

home of Mozart, stands upon a projecting corner, facing a kind of little square, a plain, flat, unornamental four-storied house, with a large portrait and explanatory plate in regard to Paracelsus on the front of it. This was the last residence of the erratic, wandering, doubtful quack and genius. Even his name is in doubt. Some say it was Aureolus Philip Theophrastus Bombast de Hohenheim; others declare that it was only Philip Aureolus Theophrastus, while the Bombast part of it belonged to his father. Paracelsus, which is an atrocious Greco-Latin rendition of his patronymic, is good enough, I trust, for us. Amidee Latour was fond of giving some such advice as this: Remember always to appear to be doing something—especially when you are doing nothing. Paracelsus understood this principle most effectively, and coming upon a time for which his peculiar talent was most fitted, he enjoyed a tremendous success. He seems, in fact, to have been an intellectual giant, apparently doing everything, when in reality he was doing nothing. Irascible, eccentric, fond of trickery, a liar, a charlatan and a quack, a man of undoubted genius with a few really valuable and practical ideas, a glutton, drunkard and common scold, a visionary, an absurd theorizer and a shiftless wanderer, he nevertheless impressed so forcibly the age in which he lived that, to the present day his renown is considerable. Bombast was not a bad name for him. He was born near Zurich some time time about 1493. He never attended any regular school, but was taught some Latin by his father, who was a physician. Then he began to travel, or rather roam about, probably like Goldsmith, supporting himself doing odd jobs and amusing the people with his necromancy. From the back of a cart he may already have begun doling out his sure cures to a gullible and voracious public. He was somewhat of a chemist and, like many other learned fools of that foolish time, toiled night and day in search of the mythic philosopher's stone. Think of the man at 33, boasting of having cured some thirteen princes, all given up, of course, as incurable by the doctors. The world flocked to him and he waxed rich. When a man lies why shouldn't he do it thoroughly? says the quack. Thoroughness is always commendable. The public, "Dear old Grandam" De Quincey calls it, fairly dotes upon a liar. Well, the boasting of Paracelsus paid him munificently. He was appointed professor of something in the University of Basel, and at once began creating a disturbance. He said "reading never made a physician," and so he publicly burned the books of Galen. "Countries are the leaves of nature's code of laws—patients his only books." About this time medicine was overrun and worm-eaten with theorists, spiritualists, humoralists, materialists and all the rest of that ilk, and the turning of the world's gaze back upon nature was really one notable thing done by this grand charlatan—a thing almost good enough to atone for his outrageous falsehoods and cheats. Even to-day a Paracelsus might do some good work in certain quarters. Finally a climax was reached in Basel. Some grand dignitary whom, as usual, he proclaimed to have cured, refused to settle the little matter of the bill. The dignitary controlled too many wires for the irascible professor, notwithstanding his mythic thirteen princes, and so one cheerless day the latter packed up his alembics, retorts, manuscripts, bones, tobacco pouch and whisky flask and resumed his peregrinations. Like an unwelcome fowl in an old well-regulated farmyard, he created an uproar wherever he went. The "profession" of that day was synonymous with blind conservatism and obstinate unprogressiveness, and naturally it could not have been expected to fondle this noisy upstart who laughed at all its pet notions and burned its ponderous tomes. At last he arrived at Salzburg and was given a most comfortable domicile by one of his admiring dupes. He began quarreling as usual with the local profession, and ended by being "pitched out of the window of an inn by the doctor's servants and had his neck broken by the fall." Thus ended the strange career of this meddler in old established customs. Both his life and his teachings were an incoherent medley. He started medicine upon a new tack when he turned its eyes upon the doings of nature and away from the moth-eaten volumes of useless libraries; but in so doing he intermingled much bosh, nonsense, fraud, miserable deception and falsehood. He is dead, however, and may heaven rest his bones more peacefully there beside the blue Salzach river, than he did those of his poor patients whom he cajoled into swallowing his nauseous decoctions. Like the worthy doctor to whom the immortal Gil Blas once served as assistant, he had one system for all his patients, and was a diligent bookkeeper, so to speak, for the next world.

L. Harrison Mettler, M.D.

Medical Expert Testimony.

Dannemora, N. Y., Oct. 15, 1896.

To the Editor:—I have been very much interested in the papers and discussions published in our Journal relative to medical expert testimony. As chairman of the committee appointed in February, 1895, by the Medical Society of the State of New York, to report upon the most feasible plan for improvement in methods of obtaining medical expert testimony, I presented to the committee two reports in January, 1896, the one which was adopted both by the committee and the society being that practically incorporated in the Bill presented by Dr. Suiter, and already published in our Journal. The one which the committee, while favoring the method, thought inadvisable to present to the Society fearing that it would meet with opposition, was as follows:

Resolved, That the Medical Society of the State of New York would recommend the enactment of a law by the legislature providing for the appointment of experts by the courts, and that only physicians of repute and holding a certificate of qualification as hereinafter defined in the particular branch of medical science to which the question calling for expert opinion relates shall be appointed.

The above named certificate of qualification to be issued by the Board of Regents, and duly filed in the County Clerk's office of the County in which the holder of such certificate is a resident; such certificate to be obtained in the following named manner:

The applicant for a certificate of expert qualification shall furnish reliable evidence to the State Board of Medical Examiners that he is legally qualified to practice in this State (New York), is of good standing in the medical profession, and has not had less than five years experience in the practice of the special branch in which he desires to stand as an expert, and shall also pass a satisfactory examination in the branch or branches in which he is to become an expert.

On the passing of such examination to the satisfaction of said Board, there shall be issued to him, in the same manner as a license to practice is now issued, a certificate of qualification to give expert testimony in the particular branch therein specified, and when properly filed all physicians holding such certificates shall be eligible for appointment by the courts, or may be called by defence as expert witnesses.

The testimony of any medical witness called by either plaintiff or defendant, not holding such certificate shall be restricted to evidence of fact.

My own opinion is that could such a qualification test be set up, it would practically settle the question of obtaining reliable expert testimony, and eliminate most of the objectionable features of the present system. It would seem that such a qualification could be demanded by the State without the infringement of any constitutional feature of the law, or an abridgement in any sense of the rights of the citizen or practitioner.

There could be no question, it seems to me, as to the right of the State insisting upon such a qualification, no more than in its insistance upon a certificate of qualification to practice general medicine. One of the objections raised by some of the committee to this feature was that physicians would not qualify; this, I think is erroneous, for any duly qualified practitioner who cared to become an expert could not object to this

method of examination. It is to be hoped, however, that many who, under our present system, might pose as experts, would not qualify as such. I believe that qualification is the first step in the right direction, and that other remedial legislation would quickly and naturally follow.

Very respectfully, J. B. RANSOM, M.D.

Congress of Leprologists.

NEW YORK, Oct. 14, 1896.

To the Editor:—I have sent the following to the American Public Health Association. Will you kindly publish in your next number?

A Congress of Leprologists and delegates of all civilized governments will in all probability, be convened next year for the suppression and prevention of leprosy. It was at first proposed to hold this congress at Bergen, Norway, out of compliment to Hansen. As the latter has renounced his claim, and left that question to be decided by those who will work for the scheme, and as there is among the present workers a division of opinion as to the comparative merits of London and Moscow, nothing can be said for the present, as to the place where the congress will meet. Invitations will be issued, we hope, by one government to the other governments, to send each an official delegate. These delegates will form a permanent international committee, whose business it will be to formulate laws suitable for each country. The question of the suppression and prevention of leprosy, is of paramount importance to Canada, Mexico and the United States. Lord Aberdeen, President Diaz and President Cleveland have already been appealed to; the first through Dr. Smith, Medical Superintendent of the Leper Asylum of Tracadie, and Inspector of Leprosy for Canada; the second through Dr. Carmona Y. Valle, the President of the Second Pan American Medical Congress to meet in the City of Mexico, next November; and President Cleveland, through the Secretary of State.

There are in Canada three centers of leprosy; a Scotch, Irish and French one in Nova Scotia and New Brunswick; a Chinese center in British Columbia and a possible Norwegian one about Winnepeg, from communication with our States, the Dakotas and Minnesota.

In the United States there is danger from the Chinese invasion on the Pacific coast, and from the Norwegian center above mentioned, but the greatest peril consists in the possible contamination of our southern negro race from the Louisiana and West Indian lepers, and possible contamination from the Hawaiian islands.

Mexico is exposed to Chinese and Japanese invasion and, moreover, the harbors of Mazatlan and Acapulco may receive inoculation from the 27,000 lepers of Colombia, South America, through mercantile intercourse.

Queen Victoria, by her private secretary, Sir Arthur Bigge, has expressed sympathy when informed of this project and the matter has been referred to her responsible advisers.

As this memorial did not reach the Advisory Council of the American Public Health Association in time to be brought before the recent meeting at Buffalo, I take the liberty to bring the matter under the eyes of the Association in an open letter, urging that the influence of the Association, which is known to be great, be brought to bear upon the governments of Canada, Mexico and the United States, so that we may obtain from each of them a delegate to the proposed Congress.

Very Respectfully, ALBERT S. ASHMEAD, M.D.

PUBLIC HEALTH.

Consumption Among the Colored Population.—A writer in the *Medical and Surgical Reporter* for October presents the statistics of eight of the principal cities of the South which prove that the proportion of deaths from consumption among the colored races as compared with the total mortality, is more than 50 per cent. greater than that of the white population, while the death rate per thousand from this disease is nearly three times as great.

The Bubonic Plague.—The *Lancet* states that an outbreak of fever, attended by some of the features of what is alleged to be bubonic plague, has taken place at Bombay and has been attended by many deaths. The occurrence has naturally excited a good deal of alarm among the native population, many of whom have left the city. The troops of the British and native armies have been temporarily prohibited from entering the affected locality, and the government has appointed a committee to inquire into and report upon the subject. Mr. Dutt has arrived at Calcutta with the special object of aiding the committee in their investigation. The outbreak is probably of the same nature as that which occurred lately in China and Hong Kong. The *British Medical Journal* adds: We hope no time will be lost in inviting Dr. Yersin to practice his serum injections for the cure of the plague. His success with it has been reported in this JOURNAL.

Tetanus Antitoxin in Brooklyn.—The Department of Health of Brooklyn, N. Y., has issued under date of October 8, a circular regarding tetanus antitoxin, as follows:

"The health department is now prepared to furnish to physicians and hospitals antitoxic serum for the treatment of tetanus. Each vial will contain 20 c. c. of the serum, but the dose will vary with the age of the patient, the severity of the attack and the time in the disease when the treatment is begun. The remedy is administered in the same way as diphtheria antitoxin, by hypodermic injection, using a large syringe and carefully sterilizing the syringe and the skin before making the injection. Some point on the anterior surface of the body is preferable for the injection. Too much emphasis can not be placed on the vital importance of injecting the serum at the earliest possible moment, as every hour's delay decreases the chances of success and requires larger doses to overcome the amount of toxin produced and absorbed. When the treatment is begun at the first appearance of tetanic symptoms, 20 c. c. should be injected at once, and 10 c. c. at intervals of six hours for the four following days. If the treatment is not begun until three or four days after the onset of tetanic symptoms, 20 c. c. should be used at once, and repeated at short intervals according to the results. The use of the serum does not preclude the employment of other methods of treatment by the use of antispasmodics. The wound should be treated with some strong preparation of iodin, such as strong tincture, to destroy the toxin in it. Carbolic acid and bichlorid of mercury are of little use for this purpose. The exact value of this method of treatment has not been fully determined, and it is very desirable that full reports be sent to the department of each case and the result of the treatment."

Baths for Miners.—On the European continent mining companies have, of late years, devoted much attention to providing facilities for the miners to perform their ablutions and to change their wet and dirty clothes, so as to enable them to return home refreshed in dry and warm clothes. A very elaborate lavatory has been erected at the Hibernia mine, Gelsenkirchen. The plant comprises shower baths for 1,600 miners and private bathrooms for the managers and overseer. The success that has attended the use of lavatories in Westphalia led to the erection of two admirable establishments at the Dudweiler and Kreuzgraeben collieries, in the Saar coal field. At Dudweiler the massively built house, which is in direct communication with the mouth of the adit, has an internal area of 108 by 61 feet. The height of the roof is 16 feet. Two high double walls divide the building into three sections, two of which serve for the married miners and the other for the young unmarried ones. Light is furnished by forty-five windows and three skylights, and, at night, by three arc lamps. The floor is of cement, with a slope of 1 in 40. There are fifty-five shower baths, each in a cell, five of these being supplied with cold water and the others with water heated in summer to 86 degrees F., and in winter to 95 degrees F. Each cell

measures 4 feet 6 inches by 3 feet 3 inches, and is used by two miners at the same time. The cold-water cells are somewhat smaller and are arranged for one person only. In the dressing rooms there are a number of forms, and for each man's clothes there is a hook and line running over pulleys at the ceiling. The clothes hung up at the ceiling dry very rapidly. Each hook is marked with the man's lamp number. The building is heated by steam pipes. For a bath, seven gallons of water are required. Of the 1,900 miners employed in the mine 1,200 bathe regularly. Seven hundred miners, however, live in barracks where ample washing accommodation is provided. The lavatories have been in existence at Dudweiler and Kreuzgraeben colleries since 1891, and have answered their purpose admirably.—*Health*, October 3.

Detention Hospital for Lepers at Honolulu.—Assistant-Surgeon Ammen Farenholt, U. S. N., writes to the *Boston Medical and Surgical Journal*, September 3, the following account of the above institution: "In December last, while at the Hawaiian Islands, on the U. S. S. *Baltimore*, I visited Kalihi, the hospital of detention for lepers, three miles north of Honolulu. The primary object of this institution is to afford shelter for the patients condemned as lepers and awaiting transportation to the Island of Molokai, the government leper settlement, and also to serve as a home for the suspects, those in whom the symptoms of the disease are not sufficiently well marked to admit of a positive diagnosis. There are also 30 little patients here, the children of the lepers at Molokai; 23 are graduated from the institution, that is, having passed six or seven years under observation, and showing no signs of disease, they were allowed to go into the common walks of life. Only one of these has become a leper, and he lived subsequently with an infected family in Honolulu. In about one-third of the cases both the father and mother were lepers. All inmates are carefully watched and made to remain in the quarters assigned to patients in the same condition as themselves. The hospital consists of five or six one-storied whitewashed houses, arranged around a square filled with palm-trees and beautiful beds of flowers. Sisters of Charity from Syracuse, N. Y., have charge of the hospital. Every month the suspects brought in by government spies are examined by a board of five physicians, also appointed by the government. The patients appear in the examining room, and are inspected by each medical officer in turn, who writes his verdict opposite the number of each case on the list before him. The examination being over, the recorder reads off the numbers, and the members in turn give their opinion, the words *leper*, *non-leper* or *suspect* being used. Three votes out of the five are necessary for a decision. The first are held until a sufficient number are waiting, and then they are transferred to Molokai; the second are allowed to return to their homes; and the third are retained for further observation. An examination of suspects was being held at the time of my visit, to which I was kindly invited by the senior physician. Facial paralysis, however slight, absorption of joints and later of the bones themselves and a reddish or a whitish macular eruption, are the most common primary lesions, as the disease is seen in Hawaii. The population of the islands is about 38,000 (native Hawaiian). At Molokai there are 1,100 lepers; and it is said that only one in every four is detected. Thus out of a population of 38,000, 4,000 are lepers, almost 12 per cent.

The Daily Medical Inspection of Schools in a Great City.—We think it is not generally known, even among those who are considered to be sanitary adepts, that Boston has, after years of effort, the benefit of a genuinely systematic school inspection. The August number of the *Archives of Pediatrics* shows how this innovation was secured by the Board of Health as a consequence of a very severe epidemic of diphtheria. The general plan of operations, that has now been in force for a year, and that was, as we believe, devised or matured by Dr. S. H. Durgin, is the following: The city was divided into fifty districts, giving an average of about four school-houses and fourteen hundred pupils to each district. No difficulty was experienced in finding well-qualified and discreet physicians who would undertake the duties prescribed. The Board appointed one physician for each district, with a salary of $200 a year, plus the honor and satisfaction of serving in a good cause. His duty is to make a visit to each master's school daily soon after the beginning of the morning session. The master receives from each of the teachers in his district, early reports as to the appearance of symptoms of illness in any pupil in their charge. These reports are given to the visiting physician, who at once examines the reported children and makes a record of his diagnosis and action in books furnished for this purpose, and kept in the custody of the master. If the visiting physician finds the child too ill to remain in school, he advises the teacher to send the child home for the observation and care of its parents and family physician. If the illness is from a contagious disease, the child is ordered home and the case reported to the Board of Health. The medical inspectors never undertake to give professional treatment in any case. They merely point out the need of professional treatment where the need exists. The treatment itself must be received from the family physician or in the hospitals or in the dispensaries. Incidental to this school inspection the same corps of medical men is also serving as agents of the Board of Health in the control of contagious diseases which are treated at home. The Board of Health sends to each of the school inspectors, every morning, a full list of the cases of diphtheria and scarlet fever which have been reported during the previous twenty-four hours. Each medical officer selects the cases reported in his district, visits them to see if they are properly isolated at home, leaves a card for the attending physician, politely informing him of the official visit and reports his approval or disapproval of the isolation at once to the Board of Health for its action. If the patient is properly isolated, the officer places a card on the door of the room to indicate the official designation of such room for the isolation of the patient. If the case is not properly isolated and such isolation can not be commanded at home, he reports such facts to the Board of Health, and such patient is at once ordered to the hospital. He makes another visit to the patient. This school inspector and agent of the Board of Health is indirectly held responsible for the proper isolation of the patient at home, for causing the patient's removal to the hospital when necessary, and for the patient's release from isolation; in other words, the Board of Health is thus provided with trustworthy information upon which it can act for the best protection of the schools and the public against the spread of contagious diseases.

NECROLOGY.

A. B. Shaw, M.D., St. Louis, aged 49 years. Dr. Shaw died a martyr to duty. Infected in the performance of duty years ago, his knowledge of the clinical course of that infection and its dreadful possibilities placed him often in a frame of mind to which the physical suffering which it entailed bore no proportion, and only those who were made the confidents of his mental agony can faintly realize what suffering there was for years hidden under the pleasant exterior of an apparently healthy body.

Sir George Murray Humphry, aged 76. "Humphrey of Cambridge," one of the greatest medical figures of our time, revered and loved by generations of medical men and honored by individuals and scientific associations at home and abroad. The new School of Medicine at Cambridge is his most lasting monument. The *Lancet* mentions that he treated cases of tetanus by giving nourishment in all possible ways and tobacco

smoking to excess. Good port wine was his favorite internal remedy. This treatment always soothed the patient, and the writer has seen three cases recover under it. He commonly took his holidays abroad, and visited continental hospitals and museums, seldom failing ts bring back safely packed in a portmanteau some fragments of humanity which would enrich the Cambridge collection. Indeed, he looked upon the museum as only second to the hospital in importance. He often said that he turned every moment of his life to some account. Even his severe illnesses were not without their utility, for his dangerous attacks of phlebitis furnished medical literature with one of the best monographs on the subject of venous thrombosis which has ever been written. One of his aphorisms to his pupils was: "Eyes first, fingers next, ears last."

SOCIETY NEWS.

Second International Congress of Charities and the Protection of Children.—Nine governments were officially represented at the Congress: United States, Switzerland, France, Hungary, Portugal, Sweden, Spain, Luxemburg, and the Argentine Republic. The resolutions adopted evidence the modern tendency to a more rational conception of the preponderant importance to the State of the correct physical and moral development of the child, and the responsibility of the community to the children of the poor and degraded. They endorsed the formation of societies to supply medical care and assistance to mothers before and during confinement, with rest for four weeks afterward, and advice and assistance for mother and infant during the entire nursing period, in charge of local committees in every district with over twenty-five infants to be thus protected; crèches near industrial establishments, under strict daily medical supervision, with guarding classes for children after school hours until the parents return from work; more judicious education of the young especially in morality, in view of the increasing juvenile criminality evidenced by statistics produced; complete separation of the young from adult criminals, and closer organization of all charities according to English and American methods. The Congress also voted that the expense of assistance to foreigners should be reimbursed to the community by the State, and that the indigent should in every case be returned to their home by birth or naturalization.

PRACTICAL NOTES.

Pernicious Anemia Cured with Bone Marrow.—A young soldier was brought to the hospital in pernicious anemia consecutive to an attack of dysentery. He was so feeble that he could not rise; there was malleolar edema, ascites and dilatation of the right heart with systolic murmur at the apex. Iron and arsenic produced no effect. Blumenau cured him in two months and a half with the entire disappearance of the complications by giving him 90 grams a day of raw bone marrow, spread on bread or taken in soup, with no other medication.—*Semaine Méd.*, September 23.

Sulphur Baths in Whooping Cough.—Among the many treatments recommended for this disease, the *Journal de Méd. de Paris*, September 20, describes Josset's prolonged baths, with 0.75 gr. sulphureted potassa to the liter, the temperature at 97 degrees, and the duration of the bath from twenty-five to forty-five minutes, according to age, once a day, the head alone exposed above the water. With this treatment all complications were avoided, the sulphur evidently acting on the special whooping cough bacillus, with a beneficial antiphlogistic effect on the bronchial mucosa and a revulsive action on the skin. It is rarely necessary to administer more than fifteen baths as the cure is usually obtained long before this.

Cause of Inefficacy of Sublimate Spray as a Disinfectant.—Chavigny has found that the sublimate simply affects the outer surface of the microbes, producing a superficial layer of coagulated protoplasm, which temporarily destroys their virulence but readily washes off, when they recover all their former virulence. Hydrosulphate of ammonia is one of the substances that promptly restores them to their previous activity. Among other experiments, thin layers of tuberculous sputa exposed for a long while to direct sublimate spray, produced fatal tuberculosis every time when rabbits were inoculated with them.—*Annales de l'Institut Pasteur*, June.

Painless Treatment of Ophthalmia Neonatorum.—Hjort of Christiana states that the same results obtained with the classic treatment of this affection can be secured with much less trouble and inconvenience, by first dropping in oxygenated water at 1 or 1.5 per cent., which causes the pus to effervesce. The eye is then washed out with 2 per cent. boricated water, working the lids slightly until the pus has all been cleaned out, when the solution of nitrate of silver at 1 per cent is gradually instilled. This method does not require the reverting of the eyelids, but it should be repeated four times a day at first. It can be safely intrusted to a well-trained uurse.—*Semaine Médicale*, September 23.

On the Misuse of the Pessaries.—Dr. A. J. C. Skene, *Brooklyn Medical Journal*, September, participated in a discussion of Dr. John Byrne's paper on the needs of minor gynecology, before the Gynecological Society of the city above named. He generally confirmed the opinion of Dr. Byrne that the misuse of pessaries, in the treatment of uterine retroversion, was every day tending to produce conditions, remediable in themselves, that are absolutely incurable; that too many of these implements as sold in the instrument-makers' stores were viciously devised to produce an atrophy of the tissues impinged upon and thereby converting simple retro-displacements into incurable flexions. Dr. Skene's remarke were in part as follows: "With reference to the use of the pessaries, and that is only one thing in which we are apt to go astray in minor gynecology, I have certainly had some experience, though limited no doubt, compared to that of Dr. Byrne. There was a time when I introduced very many pessaries, but now I think I divide my time about evenly between removing those that have been introduced and using others that give relief. It is an unfortunate thing that very few have had practice and patience enough to master the mechanisms of displacements and the mechanic appliances for their relief. I have no doubt there are hundreds of men who do laparotomy and all surgical operations in the domain of gynecology who could not fit a pessary to correct a displacement any more than they could make boots to fit themselves."

Tubercular Meningitis Ending in Recovery.—Dr. Jenssen in the *Deutsche medicinische Wochenschrift* reports a case of the above description. The writer adverts to the rarity of recovery in this disease. In a few cases the diagnosis has been established by finding evidence of a past tuberculous meningitis, the patient having died of some other cause. In Freyhan's case of recovery, tubercle bacilli were found in the fluid drawn off by spinal puncture. The author then records the following case: A man, aged 19, was admitted in May, 1892, with headache, stupor, vomiting and constipation. The temperature was raised and at one time the pulse only numbered forty-two per minute. Later there was ocular paralysis and retraction of the head. Some fourteen days after admission the patient began to improve and he was discharged well a month afterward. Three years later he was again admitted into the hospital with early phthisis. The disease ran a rapid course and he died four months later. At the necropsy a yellow mass, composed of minute tubercles, and measuring four centimeters long and two centimeters wide, was found running along

each side of the longitudinal fissure. The pia mater was of a milk-white color in several places over the convexity of the brain; there minute tubercles were also seen. The first-named tubercles consisted of detritus, fat and a few cells, but no fibrous tissue; and the last-named of fibrous tissue and a few cells. In no instance were tubercle bacilli found. At the base of the brain the same white spots containing tubercles were seen about the chiasma and Sylvanian fissures. In these white areas the pia mater and arachnoid were adherent to the underlying brain tissue. As regard the treatment of this attack of tuberculous meningitis, the head was shaved and iodid of potassium was given in large doses; 8 g. were at first administered in the day, but this quantity was rapidly increased. The patient took as much as 950 g. during the illness. There was a slight coryza, but no other unpleasant symptom. All the secretions and excretions gave a marked iodin reaction. The author thinks that the iodid had undoubtedly a favorable effect on the disease. This treatment is not new, but these large doses of iodid have not within the author's knowledge been used before.

New Operation for Luxation of the Tendons.—Luxation of the tendons does not occur frequently, but is a source of great annoyance when it does happen. An article in the *Revue de Chirurgie* for September reviews the cases on record and the various methods of treatment, concluding with a new operation performed by Kousmine of Kazan. The patient had dislocated the tendons in an accidental fall two years previously, when his foot had slipped out to one side. Bandaging had proved ineffectual, and in spite of every precaution in stepping, the peroneal tendons sprung out of their normal position, especially in supination and flexion, producing great pain and causing the foot to slip, until walking was practically impossible. A half moon incision was made to the bone behind and below the external malleolus, and a trapeze-shaped space on the periosteum cut around, the base of the trapeze corresponding to the lower edge of the malleolus, after which the enclosed small, flat piece of bone was cut out with the scissors and raised perpendicularly to the malleolus. A couple of nickel nails were inserted to hold this little piece of bone up like a trap door, and keep the tendons in place. A plaster cast was then applied. The pain was trifling and soon passed away. There was no fever. In seventeen days the cast was changed, the nails withdrawn, and the tendons found in their normal position, with a considerable elevation thrown up on the outside of the malleolus. Another plaster cast was applied and the patient left the hospital with advice as to slight massage and exercise after removing the cast in twenty-eight days. The results of the operation have proved curative and brilliant. The patient is entirely relieved of his functional troubles. The neoformation of the bone answers its purpose perfectly, while the traumatism was insignificant in the simple operation, as neither the tendons nor the aponeuroses were wounded.

MISCELLANY.

Ammonia in Alcoholism.—Dr. Baratier recommends, in *El Siglo Medico*, the addition of ammonia to wine or liquor in order to produce a distaste for alcoholic beverages. After a few doses the disgust to the mixture becomes so intense that even the sight or smell of wine is unpleasant.—*St. Louis Med. Journal*, October.

The Significance of the Diazo Reaction in Phthisis.—Beck, from investigations carried out in the Institute for Infectious Diseases at Berlin, has come to the conclusion that the appearance of the diazo reaction in the urine of patients suffering from phthisis makes the prognosis unfavorable, while its long continuance forebodes an early death.—*Boston Med. and Surg. Journal.*

Bahia's Participation in the Pan-American Medical Congress not Possible.—The *Gazetta Medica da Bahia*, Brazil, states that the profession at Bahia does not expect to take any part in the Pan-American Congress, either personally or by scientific contributions. The circulars in regard to the Congress have only just been received at Bahia, but this delay is not the cause of the abstention, but the fact that the same date has been appointed for the first medico-surgical congress to meet in that city.

Trained Nurses in California.—The *Medical Record* states that many trained nurses from Philadelphia and Baltimore have recently been induced to go out to San Diego and other places in Southern California on the representation that they could find employment there that would pay them $20 to $25 a week. On arriving there, however, they have found that there was no work for them, and that, even if there were, they could not obtain any such remuneration for their services, and they have in many cases had to send to their friends in the East for money to enable them to return home.

Provision for Baltimore Indigent Lying-in Women.—Recognizing as is stated, that the Maryland Lying-in-Hospital, of Baltimore, a body corporate, is well and firmly established in said city, and particularly well equipped for the treatment of lying-in women, and that it is desirable that the benefits and advantages of such hospital should be extended to the indigent lying-in women of the State of Maryland, so that skilled and humane treatment be afforded them, the General Assembly of the State enacted, in chapter 148 of the Laws of 1896, that the sum of three thousand per annum be appropriated for each of the years 1896 and 1897 for the maintenance of free treatment for indigent lying-in women in said hospital.

Chairs for Maryland Saleslades.—A Maryland statute of 1896 provides that all proprietors or owners of any retail, jobbing or wholesale dry goods store, notions, millinery or any other business where any female help are employed for the purpose of serving the public in the capacity of clerks or saleslades, shall provide a chair or stool for each one of such female help or clerks, in order that during such period as they are not actively engaged in making sales or taking stock they may have an opportunity to rest. The penalty for the first offense is a fine of from $10 to $100; and in the event the owner or proprietor shall continue to disobey, he shall be subjected to a fine at the rate of one dollar a day, daily, for every chair he fails to furnish his said employes.

Alvarenga Prize of the College of Physicians of Philadelphia.—The College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize, being the income for one year of the bsquest of the late Senor Alvarenga, and amounting to about $180, will be made on July 14, 1897, provided that an essay deemed by the committee of award to be worthy of the prize shall have been offered. Essays intended for competition may be upon any subject in medicine, but can not have been published, and must be received by the secretary of the college on or before May 1, 1897. Each essay must be sent without signature, but must be plainly marked with a motto and be accompanied by a sealed envelope having on its outside the motto of the paper and within the name and address of the author. It is a condition of competition that the successful essay or a copy of it shall remain in possession of the College other essays will be returned upon application within three months after the award. The Alvarenga Prize for 1896 was not awarded. THOMAS R. NEILSON, Secretary.

Illinois State Conference of Charities and Corrections.—It has been found necessary to change the date of the proposed State Conference of Charities and Corrections. The conference will take place on Thursday and Friday, Nov. 12 and 13, 1896, at the Capitol in Springfield, and not November 18 and 19, as pre-

viously announced. Among those who it is hoped will take part in the program are H. H. Hart, secretary Minnesota State Board of Charities; Ernest Bicknell, secretary Indiana State Board of Charities; Bishop Spalding, Dr. Julia Holmes Smith, Miss Jane Addams, Judge Carter of Chicago and others. Complete program will be published later. Classes for the State Schools for Blind and for the Deaf and Dumb will give exhibitions. Governor and Mrs. Altgeld will receive the Conference at the Executive Mansion. Excursion rates of a fare and a third will be made by the railroads, and special rates will be obtained at the hotels and boarding houses in Springfield. For any information or services desired, please address GEO. F. MINER, Secretary State Board of Charities, Springfield.

Cause and Prevention of Glaucoma.—The etiology of glaucoma is still disputed, but Schoen of Leipsic, the new professor of ophthalmology, asserts in an article in the *Wien. klin. Rundsch.*, Nos. 26 to 31, that no one need lose his sight from this cause, unless he chooses. It can always be prevented if the eyes are seen in time by an expert and his warnings heeded, as the invariable cause is excessive strain in the effort of accommodation. As the number of the efforts increase with age, the strain increases and glaucoma is the result. The particulars of the last 140 cases he has treated are: 48 per cent. hypermetropic; not one had possessed a distance lens. Astigmatism was present in 33 per cent; in none had the astigmatism been corrected. In 20 per cent. there were no glasses, or they had been utterly inadequate. Nearly twice as many cases of glaucoma occur among women as in men, the former shrinking from wearing glasses until too late. What may be a trifling effort for the eyes at first, becomes in the course of years an exhausting strain, and while this strain of over-exertion in the efforts of accommodation produces anatomic changes which lead directly to glaucoma in time, yet any constitutional morbid tendency, any weakening or depressing cause, violent coughing, night watching, etc., may hasten its appearance.

New Dental Law for Maryland.—Chapter 378 of the Maryland laws of 1896, which was approved April 4, 1896, repeals Article 32 of the Code of Public General Laws, entitled "Dentistry," and reënacts the article with many changes in it. The new law makes it unlawful for any person to practice dentistry in the State unless he shall have obtained a certificate therefor. It then provides that there shall be a State board of dental examiners, which shall consist of six practicing dentists of recognized ability and honor, who have held regular dental diplomas for five years. They are to be appointed by the governor out of a list proposed by the Maryland State Dental Association. Six years is the regular term of office. Any member who shall be absent from two successive regular board meetings shall cease to be a member of it. The regular meetings are to be held in May and November of every year, with special meetings as required. Any person 21 years of age, who has graduated at and holds a diploma from a university or college authorized to grant diplomas in dental surgery by the laws of any one of the United States, may be examined by said board with reference to qualifications, and upon passing an examination satisfactory to said board, his or her name, residence or place of business shall be registered and a certificate shall be issued to such person. Any graduate of a regular college of dentistry may, at the discretion of the examining board, be registered without being subjected to an examination. A temporary certificate for a specified time may be issued by the officers of the board to any applicant holding a regular dental diploma duly registered by a board of dental examiners created by the laws of any one of the United States, but no such certificate shall be issued for any longer time than until the next regular meeting of the board. The fee for this temporary certificate shall be $5. Transcripts from the book of registration, certified by the officer who has the same in keeping, with the seal of the board, shall be evidence in any court of the State. Every person shall be said to be practicing dentistry, within the meaning of this act, who shall for a fee, salary or other compensation, paid either to himself or to some one else for services rendered, perform operations or parts of operations of any kind pertaining to the mouth, treat diseases or lesions of the human teeth or jaws, or correct malpositions thereof. The penalty for a violation of these provisions is a fine of not less than $50 nor more than $300, or confinement in jail not more than six months. But nothing in this article shall be so construed as to interfere with the rights and privileges of resident physicians and surgeons or with persons holding certificates duly issued to them prior to the passage of this act; and dental students operating under the immediate supervisions of their instructors in dental infirmaries or dental schools chartered by the general assembly of Maryland. Money received for examination and registration, the fee therefor being $10, shall be used toward paying the expenses of the board. All fines received are to be paid into the common school fund of the city or county in which conviction takes place.

Recent Additions to the Army Medical Museum.—One of our military papers, the *Army and Navy Journal*, in its issue of October 17, has an article entitled "New Surgical Appliances," which gives the results of an investigation into the additions made to the Army Medical Museum during the past year and particularly with regard to those that relate to the transportation of wounded. The article displays an excellent knowledge of the subject. It is as follows:

The last Congress appropriated $5,000 for use of the Army Medical Museum, at Washington. A portion of this sum has been expended in the purchase of field appliances used by foreign countries for exhibition in the museum side by side with the improved equipments of the hospital corps of the United States Army. Many of the new foreign acquisitions have been received and a place has been found for their permanent display. The countries thus far represented are Prussia, Switzerland, England, France, Austria-Hungary, Norway, Spain and Japan, and the collection includes litters on wheels and for hand bearers, knapsacks, surgical pouches, chests and instruments, and articles for the use of the sanitary and culinary departments of the hospital corps. The litters and general appliances of the European armies, excepting possibly England, are characterized by exceeding bulkiness and weight, though admirable in many other respects. The Prussian and Spanish mattresses, in particular, are remarkable for comfort and hygienic qualities. The Norwegian litter is an unwieldy affair, and is very uncomfortable. The Japanese have a light and easy bamboo bed on wheels, with carriage top, resembling the jinriksha, which has only one undesirable quality—its fragility, the bamboo offering little resistance to great weight and shocks. The Japanese leather-bound medical chests and French pouches and panniers are admirable for completeness of outfit and economy of space. Some tiny surgical pouches of the Austrian army are marvels in this respect. Other notable articles are a Spanish seat for carrying wounded men, and the English and French litter carriages and beds.

The recent additions to the collection of articles used in the United States service are important and compare favorably with the best similar appliances in use abroad. Our new litter is much lighter than any other, except the Japanese, is much more durable than that, and in every respect is considered admirably adapted to the use of our arms. The new regulation adjustable sling, which remains on the bearers, is a great improvement over the old method of bearing the litter, both as regards the comfort of the wounded person and of the bearers. The Quartermaster's Department has adopted this litter, and each company is to receive two litters. The new drill regulations for the Hospital Corps, recently issued, incorporates a revision of the manual of the litter adapted to the new improvements. Some other changes have been made in the regulations, such as the abolition of side arms for Hospital Corps men, and changes in the manner of packing and transporting clothing. The new operating table for field hospital work, which finds a place in the collection, seems as nearly perfect as science and skill can make it. The latest improvement is an arrangement of cranks by which a patient may be lifted or lowered, or his position changed without the interposition of the attendant's hands.

Of late acquisitions the telephonic bullet probe and forceps, made by Tiemann & Co., New York, is a curious mechanism and would be of greater value if the practice of probing were more generally pursued. The instrument consists of a band of metal to be placed around the head of the surgeon, a bell being affixed near the ear. From the bell extends a wire connecting with the probe, both being in communication with an electric battery. The principle is that the bell shall ring when the probe strikes the bullet. It is customary now, however, and has been for some years, to allow gunshot wounds to heal without suppuration, and the probe is not employed unless the ball is pressing upon some vital center, or there appear symptoms of poisoning. If a wound be made by new and clean ammunition there is little or no danger of poisoning. If a cartridge has been carried about a long time in the pocket or other exposed place, it is apt to accumulate foreign matter of a deleterious nature.

Other recent additions to the museum are some English water filters and sterilizers, a litter with disjointing parts and detachable slings, adopted by the Massachusetts Volunteer Militia, and cabinet field desks of the United States Army, which may be folded in the form of chests for transportation.

Souvenir Volume of the Centennial of the Faculte de Medecine.—This large quarto and the accompanying atlas of 130 portraits is a historical sketch of the institution and what it has accomplished, compiled by a special committee and published at the expense of several of the medical publishers of Paris. It is a "publication de grand luxe," as evidenced by the price, 100 francs, or about $20.

Hospitals.

Typographical Union Hospital.—At the sixth day of the convention of the International Typographical Union the subject of providing for the erection of a hospital in connection with the Childs-Drexel Home for Old Printers, which is located in Colorada Springs, came up for discussion. Fifteen thousand dollars was provided by the International Union for the building of the hospital, which amount is to be contributed by the printers all over the land as a popular subscription. The amount is expected to be raised by Christmas.——The soliciting committee of the Augusta, Me., city hospital has reported subscriptions to the amount of $5,500. This amount assures the purchase of a hospital site this fall.——The annual meeting of the Board of Directors of the Kensington Hospital, Philadelphia, for Women was held October 12. During the last year 287 patients have been treated in the wards, and 274 in the dispensary, making an increase of 127 over the previous year. Four hundred and sixty-two operations have been performed and the cost of maintenance for the year was $10,723. An appeal is made for additional funds to erect a new building and also to provide for the care of an additional number of free patients.——The new building erected as an annex to the Flower Hospital of New York was opened for the reception of patients October 2.——The corner stone of the St. John's new hospital at Long Island City, L. I., will be laid November 1.——The executors of the estate of the late Very Rev. Fr. McCabe, who was pastor of St. Charles church, and vicar general of the Providence diocese, who died several years ago, have intimated that $500 will be shortly forthcoming from this estate with which to establish a free bed in the Woonsocket, R. I., hospital. This is in fulfillment of the intention of the deceased rector.

Washington.

Located by the X Rays.—Dr. John Van Rensselaer of the surgical staff of the Garfield Hospital successfully located a bullet by the X rays and removed it on the 8th inst. The bullet was located deep and posterior to the hip joint and had made the woman practically an invalid.

First Medical Examination for Practice in the District.—The first examination of physicians for license under the new medical law, was held on the 8th to 11th inst., in the rooms of the Civil Service Commission. The first three days were devoted to written, and the last day to oral examination.

Changes at the Garfield Hospital.—Dr. A. L. Stavely, who has been the surgeon-in-chief and superintendent of Garfield Hospital for three years past, severed his official connection with that institution on the 1st inst., in order to resume private practice. Dr. Stavely tendered his resignation several weeks ago, and it was accepted in a very complimentary letter from the board of directors. Dr. Stavely for three years was assistant to Dr. Howard Kelly of Johns Hopkins Hospital, Baltimore. Dr. M. D'Arcy Magee will act temporarily at Garfield Hospital in place of Dr. Stavely, while Dr. J. Milton Heller is to serve as senior resident physician.

Changes at the Central Dispensary and Emergency Hospital.—The following is the medical staff of the hospital and the medical assignments for the ensuing year: Health Officer, Dr. W. C. Woodward; Sanitary Officer, John A. Frank. Consulting staff: Drs. N. S. Lincoln, J. Ford Thompson, W. W. Johnston, J. Taber Johnson and G. L. Magruder. Diseases and injuries of the eye and ear: Dr. Swan M. Burnett. Diseases and injuries of the throat and chest: Dr. T. Morris Murray. Diseases and injuries of children and orthopedics: Dr. William H. Hawkes. Diseases peculiar to women and acute venereal of women: Dr. H. L. E. Johnson. Surgical diseases: Dr. James Kerr. General diseases, skin diseases, and venereal of men: Dr. G. B. Harrison. Mental and nervous diseases: Dr. E. L. Tompkins. The emergency department has been placed back in its original position under the executive officer, with assistants in Drs. W. P. Carr, A. A. Snyder and John Van Rensselaer. A total of $15,000 is asked for by the hospital authorities to run the hospital next year, and the suggestion made last year as a means of liquidating their present indebtedness is repeated. The indebtedness of the hospital is $20,000, on which an annual interest is paid. A total of 10,433 new cases were treated in the dispensary during the year, and in the same period 2,828 new cases were cared for in the emergency department, with 1,925 redressings. The number received into the wards of the hospital for treatment and care was 189; deaths 49; autopsies 28; ambulance calls, 421; surgical operations 1,443.

Applicants for Police Surgeon.—Twenty-five young medical men recently took the examination for the position of Police Surgeon. President Kleinschmidt, of the Board of Medical Supervisors, conducted the examination.

Entitled to Licenses.—Physicians who were registered at the health office at the time of the passage of the recently enacted medical practice act are entitled to licenses upon application to the board of medical supervisors. Blank forms for application can be obtained at the health office upon request in person or by letter.

Medical Association Elects New Members.—At the stated meeting of the Medical Association, recently held, the following new members were elected to active membership: Drs. Chas. L. Allen, Hugh C. Duffey, Robt. H. Graham, E. M. Hasbrouck, H. Warfield Howell, G. T. Howland, Francis Leiben, R. F. Mason, Jr., W. L. Masterson, E. D. Perkins, C. V. Petteys, F. M. Phillips, M. S. Patten, A. M. Ray, E. M. Schaeffer and Elmer Satheron.

Medical Society Elects New Members.—At the recent meeting of the society the following new members were elected: Drs. Walter A. Wells, Edwin Gladmon, John H. Metzerott, Abbie C. Tyler, Phoebe R. Norris, Thomas B. Crittenden, W. R. Maddox, Susan J. Squire, A. L. Stavely, Walter D. Cannon, Adeline E. Portman, W. A. Caldwell. At the regular weekly meeting of the society, held on the 14th inst., Dr. J. C. McGuire read a paper entitled "Electrolysis in the Treatment of Diseases of the Skin," and Dr. L. Eliot read a paper on the subject of "Suture-Clamp Operation for Hemorrhoids."

Washington Obstetrical and Gynecological Society.—The 281st meeting of the society was held on the 16th inst. and was followed by the annual banquet. This meeting was the business meeting of the society for the election of officers and

committees for the ensuing year, and resulted in the re-election of all the former officers. President, Dr. G. B. Harrison; Vice-presidents, Drs. S. S. Adams and G. N. Acker; Treasurer, Dr. John Van Renssalaer; Recording Secretary, Dr. G. W. Cook; Corresponding Secretary, W. S. Bowen.

Auxiliary Committee on Transportation for the Second Pan American Medical Congress.—The International Executive Committee has appointed the following physicians as an auxiliary committee on transportation for the Congress: Drs. J. B. Murphy, Chicago; Robt. Sattler, Cincinnati; A. Walter Smith, Herkimer, N. Y.; J. B. Roberts and W. B. Atkinson, Philadelphia; A. W. Calhoun, Atlanta, Ga.; H. C. Eccles, Charlotte, N. C.; I. N. Love, St. Louis, Mo.; Herman Mynter, Buffalo, N. Y.; Robt. T. Morris, New York City; R. Matas, New Orleans, La.; S. Eliot, Washington, D. C.; Hugh Taylor and G. Ben Johnston, Richmond, Va.; A. Morse, Elsora, Iowa; Walter H. White, Boston; Hugh Hamilton, Harrisburg and Bedford Brown, Alexandria, Va.

Pan-American Medical Congress Transportation Arrangements.—Dr. H. L. E. Johnson, to whom the arrangements for transportation were assigned by the International Executive Committee, has made his report which is now printing and will be circulated among the profession during the week. He has arranged for one-fare rate throughout Mexico and the United States except in the New England States and portions of Eastern territory. By single trip from New York city to Mexico and return direct the entire cost will be: Fare, $78.50; Pullman births round trip, $46; meals round trip, $32; total cost, $156.50. Living in Mexico $2.50 per day extra; intermediate points at proportional rates. A special train has been arranged for through the American Tourist Association with Wm. Campbell, manager, to leave Cincinnati on Tuesday, November 10, 9 A.M., via St. Louis and Eagle Pass, and make a twenty-one day tour from there through Mexico and return for $189; from Chicago and return, $190; from St. Louis and return, $183.55. This will include railroad fares, double births, meals in cars and hotels in Mexico and carriage hire and streetcar ride, steamer on Panuco River from Tampico and all necessary expenses of the trip. The Baltimore and Ohio scenic route has been selected to carry the delegates from the North and East to meet the special train at Cincinnati; 300 persons have already signified their intention to make the trip. An ocean route from New York by Ward lines has been arranged for, the total cost of which will be, including meals and stateroom, $78. Ten days required each way to make this trip. The individual trip by rail will take six days each way.

Tribute to Dr. Toner.—The annual report of the Government Hospital for the Insane, makes the following allusion to the late Dr. Toner, President of the Board of Visitors, and includes the resolutions adopted at the time of his death: "It is gratifying to us to know of such good work done in the Toner building. How he who gave his name to that building would have rejoiced in it all, and yet the name comes to us now only to remind us of our loss. Dr. Joseph M. Toner has been taken from us. He had been so long an active member of the board, for so many years its president, that something seems wanting from this annual report without his genial presence and wise counsel in its preparation. There was nothing about St. Elizabeth or its inmates in which he did not feel a lively interest, and as the years went on, with his name on our hospital buildings and his pleasant face looking in so often upon us, to name Dr. Toner was to suggest St. Elizabeth. It leaves a void that will not soon be filled. He died suddenly at Cresson, where he had gone for a brief summer rest. He had gone in the full expectation of returning long before our annual meeting, and looking forward to it as to a coming home. He has found the home that his life had so well deserved, and contemplating the nobility of that life we find an inspiration to go on with the work here which lay so near to his heart."

Dental Inspectors for Schools.—We notice in the *Medical Mirror* that the Ontario Board of Health recently adopted the following resolution: "That dental inspectors be appointed by local boards of school trustees to periodically visit schools and examine children's teeth, and that a dental hospital be started in Toronto for the benefit of poor children; and these recommendations be urged upon the attention of the Minister of Education."

THE PUBLIC SERVICES.

Army Changes. Official List of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from Oct. 2 to Oct. 16, 1896.

Major Henry McElderry, Surgeon, is relieved from duty at Ft. Robinson, Neb., on expiration of his present leave of absence, and is ordered to Ft. Leavenworth, Kan., for duty at that station, to relieve Major Calvin DeWitt, Surgeon U. S. A.

Capt. William P. Kendall, Asst. Surgeon U. S. A., is relieved from duty at Ft. Sam Houston, Texas, and ordered to Ft. Brown, Texas, for duty at that post, to relieve Major Peter J. A. Cleary, Surgeon U. S. A.

Major Calvin DeWitt, Surgeon, upon being relieved from duty at Ft. Leavenworth, Kan., is ordered to Ft. Monroe, Va., for duty at that station, to relieve Major Edward B. Moseley, Surgeon U. S. A.

Capt. Benjamin Munday, Asst. Surgeon, will, in addition to his present duties at Ft. Wayne, Mich., examine recruits enlisted at Detroit, Mich., and will furnish medical attendance at the recruiting station in that city.

Capt. William B. Davis, Asst. Surgeon, now Major and Surgeon, will be relieved from duty as attending surgeon and examiner of recruits in New York city, upon the expiration of the leave of absence granted him in S. O. 23, A. G. O., Sept. 30, 1896, instead of the conclusion of his examination for promotion, as heretofore ordered by Par. 4, S. O. 44, A. G. O., Sept. 4, 1896. By direction of the Secretary of War.

First Lieut. George D. DeShon, Asst. Surgeon, is granted leave of absence for four months, to take effect after he shall have reported for duty at Washington Bks., D. C.

Col. Charles H. Alden, Asst. Surgeon-General, and Major Calvin De Witt, Surgeon, are detailed as delegates to represent the Medical Department of the Army at the Second Pan-American Medical Congress, to be held in the City of Mexico, Nov. 16 to 19, 1896. By direction of the Secretary of War.

Capt. N. S. Jarvis, Asst. Surgeon U. S. A., granted six months' leave of absence with permission to go beyond sea.

Capt. Jefferson D. Poindexter, Asst. Surgeon, will be relieved from duty at Ft. Riley, Kan., and will report in person to the commanding officer, Willets Point, N. Y., for duty at that post.

Major Peter J. A. Cleary, Surgeon, upon being relieved from duty at Ft. Brown, Texas, by Capt. Kendall, Asst. Surgeon, will report in person to the commanding General, Dept. of Texas, for duty as chief surgeon of that Department.

PROMOTIONS.

Lieut.-Col. C. R. Greenleaf, Deputy Surgeon General, to be Asst. Surgeon-General, with rank of Colonel, Oct. 10, 1896, vice Town, retired.

Major William H. Gardner, Surgeon, to be Deputy Surgeon-General, with rank of Lieut.-Colonel, vice Greenleaf, promoted, to date Oct. 10, 1896.

Capt. William W. Gray, Asst. Surgeon, to be Surgeon, with rank of Major, Oct. 10, 1896, vice Gardner, promoted.

Capt. William B. Davis, Asst. Surgeon, to be Surgeon, with the rank of Major, Aug. 11, 1896, vice Worthington, deceased.

RETIREMENT.

Col. Francis L. Town, Asst. Surgeon-General, is at his own request having served over thirty years, retired from active service this date, Oct. 10, 1896.

Change of Address.

Blech, Gustav, from Detroit, Mich., to 728 17th St. N. W., Washington, D. C.

Davis, Geo. E., from Salviso to Lawrenceburg, Ky.

Hamilton, John B., from Rand McNally Building to 100 State St., Chicago, Ill.

De Hart, J. N., from Round Lake to 137 Keap St., Brooklyn, N. Y.

Goelet, A. H., from 350 W. 57th St. to 108 W. 73d St., New York, N. Y.

Gottschalk, F. B., from cor. Clark St. and Chicago Av. to 2030 N. Halsted St., Chicago, Ill.

Hall, Lemuel T., from 910 Vandeventer Av. to 4240 West Belle Place, St. Louis, Mo.

Isbester, R. T., from Chicago, Ill., to Salem, Iowa.

King, Chas. Lee, from Lamanda Park to Pasadena, Cal.

LETTERS RECEIVED.

Adamson, F. W., Milwaukee, Wis.; American Journal Publishing Co., St. Louis, Mo.

Battle & Co., St. Louis, Mo.; Beard, R. O., Minneapolis, Minn.; Bonney, S. G., Denver, Colo.; Bracken, H. M., Minneapolis, Minn.

Dewey, Richard, Wauwatosa, Wis.

Holland, J. M., Philadelphia, Pa.; Hummel, A. L. Adv. Agency, New York, N. Y.

Johnson, J. W., Boston, Mass.

Lincoln, M. H., Philadelphia, Pa.

Macey, Fred Co., Grand Rapids, Mich.; Marks, A. A., New York, N. Y.; Merrick, M. B., Passaic, N. J.; Moore, W. S., Detroit, Mich.; Murphy, T. C., Manitou, Ill.; McNew, H. L., Honey Grove, Texas.

Open Court Pub. Co., Chicago, Ill.

Pasteur Vaccine Co., Chicago, Ill.; Peek, J. H., Hampton, Va.

Ransom, J. B., Dannemora, N. Y.; Robinson, R. E., Frederika, Iowa.

Schering & Glatz, New York, N. Y.; Stearns, F. & Co., Boston, Mass.; Sternberg, Geo. M., Washington, D. C.

Taylor, B. D., Ft. McPherson, Ga.; Tuley, Henry E., Louisville, Ky.

The Journal of the
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ORIGINAL ARTICLES.

ON THE TREATMENT OF FRACTURED SHAFTS OF BONE IN CHILDREN; SIMPLE, COMPLICATED AND COMPOUND.

Read in the Section on Diseases of Children, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5–8, 1896.

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Fracture is, perhaps, the most common type of severe trauma incident to childhood, especially in the male sex.

When the shafts of bones are involved, although union is more rapid than in the adult and repair is more complete, there are several special features of treatment of them, to be observed in the youth, if we would avoid possible dangers to the integrity of the damaged limb and secure the fullest degree of strength and function in it after recovery.

Anatomic Considerations.—It should be always remembered, that the bones of a child are immature structures, neither the epiphyses nor the apophyses have yet fused with the shaft by osseous union; through the absence of full calcification, the bone possesses unusual resiliency and elasticity. Vascular and cartilaginous elements predominate in the osseous structures in infancy; both progressively diminishing as age advances. The cancellous heads are the centers of great vascularity; the periosteum thick and is everywhere ramified by vessels which course through it and penetrate the cortex through Howship's lacunæ. The medullary elements share in the activity of the nutritive forces, as is demonstrated by the bright crimson color of the bone marrow and its great proneness to bleed freely, when lacerated. Nutrition and growth of the bone shafts at this epoch of life are maintained, by *periosteal* and *endosteal* sources; *i. e.*, from the circumference and ends. Layer after layer of the myeloplaxes bud from the true bone roots, the cancellous heads, and are deposited in consecutive layers, on either end, preliminary to fusion and the formation of Haversian systems; while simultaneously from the circumference, the osteo-blastic layer of periosteum is steadily superadding concentric lamellæ, of neoblastic bone corpuscles.

The overlying soft parts are in a high state of nutritive activity; neither the effect of time, nor occupation, nor the degenerative consequences of various local or constitutional disease have made their impress on the structures of the limbs; arterial sclerosis, venous varix, or territorial obliteration of the capillaries have not yet appeared.

Although, in the young, growing limb the sanguinous supply is abundant, it is important to note that the volume of force of the blood-current in the great blood-trunks is not as great as in the adult, and accordingly in a corresponding degree, it is unable to resist the effects of pressure or tension.

Etiology of Fracture in Childhood and Youth.—Traumatic disorganization of bone in children more often results from direct, than indirect force; from the latter, we will more often find, epiphyseal separation or dislocation resulting; Colles' or Pott's fracture in them, is rarely, if ever, witnessed.

It has seemed that the shock attending the average simple fracture of a limb, was less in children than in adults. Muscular action as a conservative factor, plays an unimportant *role* in these fractures. As a rule force must be directly applied; or at all events in close proximity to where the bone sunders. This will explain why we so rarely see the shafts or apophyses shattered, after sudden tortion or twists contiguous to a joint.

I am not familiar with any constitutional disease in a child which predisposes to fracture. There is no doubt, but in the cachectic, rickety, syphilitic, or badly fed the bones are more vulnerable and prone to give way to violence; but then, the effects of malnutrition are widespread, involving equally the soft parts and organs, as well as the osseous structures.

It can not be said, therefore, that as a rule, there are any predisposing causes of fracture during the stage of growth and development; in this respect these fractures being widely at variance with the etiology of the same lesion, in the adult. That there is a strongly marked predisposition to fracture in some adult individuals no one can deny who has treated a large number of fractured shafts; but in my own experience with this traumatism in the child, I have never been able to find evidence to support the probability of predisposition.

It seems, however, that with those who have had a large experience in the treatment of broken bones in modern children's hospitals, a belief prevails, that there are dyscrasia tending to fracture in the young. Thus, Power speaks of osteopsathyrosis, or fragilitas ossium, rickets and even an inherited tendency, leading to fracture in young children. (Surgical Diseases of Children, D. Power, p. 160.) It is well to remember in this connection, that most hospitals for children are filled with unhappy waifs, illegitimate offspring and poor poverty-stricken orphans, with feeble constitutions, forming a class quite distinct from those more fortunately situated in the outside world, and not to be readily contrasted, in their morbid tendencies, with average fairly fed children, at home.

Morbid Anatomy.—In the child the nature and extent of tissue disorganization in fracture are not identical with the adult. As the degree of force necessary to break or crack the bone shaft is less, we will not so frequently find simultaneous laceration of contiguous parts, as the vascular or neural; the osseous elements being more elastic and containing more

organic material there is rarely shattering unless, great crushing force acts over a limited area; the bone being less brittle, the double bladed spurs seen in the oblique fracture of an adult, are not encountered, as the rent through the shaft is generally in a transverse direction. The periosteum being thick, and the muscular power comparatively feeble, marked displacement, over-riding of the fragments or surface deformity are not such prominent characteristics as in the matured man.

Joint implication constitutes one of their most serious features. Fracture through any part invested by the perichondrium on opening through the synovial membrane, or involving the "growing line," the epiphyseal bridge, in spite of what particular line of treatment is followed, may result in marked limitation of joint action, articular deformity, or permanent arrest of growth of the limb. It is probable that in all severe fractures, growth in the limb is in the abeyance, until after repair is complete.

In many cases of femoral fracture, shortening has been noticed by me, when perfect apposition of the fragments was effected, with ultimate solid union, without any deflection or bulging at the point of fracture; thus temporary arrest of growth was the only possible explanation for it. The shortening in some cases was slight, yet clearly apparent on measurement. Similar shortening occurs, after arthritic or osseous disease in children, and reasoning from analogy, we may expect to find it after fracture when there is long confinement in bed.

Fractures, or diastasis, contiguous to the arthritic structure give rise to difficulty in diagnosis and treatment, because of the copious, sanguinous extravasate into the peri-arthritic structures or the capsule and prompt diffusive inflammation, which so generally follows. At the complicated articulation of the elbow, the T. fracture through the head of the humerus is almost certain to leave some impairment in motion. In the process of repair, there is sometimes a hyperostosis, with a pushing forward and outward of the trochlear hollow of the olecranon; resulting in a disturbance of the mechanical relations between the articular surfaces.

Diastasis through the epiphysis, when the extent of displacement is slight, in my experience, unites more quickly than osseous fracture. But, when this occurs under fleshy parts like the shoulder or hip in the delicate or strumous, its recognition is not only difficult, but it may lead to arrest of growth or impairment of joint action. Such results, however, are exceedingly uncommon. None have ever come under my observation.

In connection with this subject of diastases or fracture through joints, in order that judicious treatment may be instituted, an accurate knowledge of the condition existing is necessary; and here is where the difficulty comes, for oftentimes this is practically impossible, as every umbiased, experienced surgeon must admit.

In epiphyseal separation of the humeral head at the shoulder joint, although some writers of fertile imagination and remarkable descriptive power of what does not exist, have laid down *seriatim* the differential features between this and bone luxation. Jonathan Hutchinson states that all, or nearly all so-called shoulder-joint dislocations are but epiphyseal diastases. This is no doubt an exaggeration, though not far from the truth.

In either epiphyseal loosening at the shoulder-joint intra-articular fracture or dislocation in the child, although the anatomic elements involved are dissimular, the reactionary efforts are quite the same in all; hemorrhage, laceration of adjacent soft parts, inflammation, exudation with consecutive fibrosis and extensive adhesions in all or many of the overlying parts, occurs in each equally frequent.

Compound Fracture in Children.—In the present state of our knowledge and the great advances made in the surgery of the extremities, the time has come, when compound, comminuted or complicated fractures in children, should be separately considered and their distinctive etiology, pathology and treatment should be taught in our medical schools. Nevertheless, the antiquated and vicious system of dealing with all types of fracture, in the various epochs of life, on the same principle, is yet adhered to, even in our latest text-books on surgery. It has been noted, that the limbs, during the evolution of growth, are organically, totally, unlike those of middle or advanced age, being less firmly set, highly vascular and elastic. The lower extremities of the child carrying a lighter body are comparatively exempt from those shocks and jars inseparable from advancing years.

The recuperative energy of the osseous system of the child possesses marvelous activity, for it can not only repair, but also reproduce or restore shattered or destroyed segments of a bone-shaft. Therefore, by the aid of antiseptics and by utilizing those osteoplastic procedures so elaborated and graphically described by M. Ollier, we are often enabled to preserve limbs, sometimes so mutilated, as to seem to justify immediate amputation.

Morbid Anatomy and Pathology of Juvenile Compound Fracture.—Compound fracture is less frequent in the young, than in the adult for several reasons. The first is, at this stage of life the occupations of children are not so dangerous. Serious injuries most often befall them, however, through their venturesome tendencies and heedlessness. Proportionally for their volume, the solid elements of their bone shafts are better protected by the enveloping parts, which are highly elastic; as their fractures are mostly transverse, muscular action is weaker and the periosteal investment thicker, displacement after fracture is slight. The younger the living tissues the greater their resistance to the influence of pathogenic germs which may infect their protoplasmic elements, every thing else being equal.

Compound fractures only become grave injuries in a child, when the violence has been so great as to totally destroy the limb, or when large vessels have been opened and a considerable quantity of blood has been lost; as even moderate exsanguination in childhood is often attended with alarming shock.

The loss of a considerable area of integument by primary violence or secondary gangrene is a serious complication. The skin can never be reproduced, but frequently the bone can. The shock succeeding compound fracture in children is usually greater than in the adult, and the depression of the vaso-motor system is so pronounced that a marked pallor and depression of temperature pervade the entire surface of the body. Compound fractures which open into the joints, when sepsis is prevented and the vascular current is intact beyond, often do suprisingly well.

Several such injuries involving the elbow and ankle joints of children have been under my care.

When there had been no loss of bone, whether the fissuring of bone extends into epiphyseal line or not, it is remarkable what a large degree of function is restored. What frequently imparts a serious aspect in these cases is when the patient is strumous, and when inflammatory changes degenerate into widespread, suppurative infiltration, with sloughing.

In all these cases of compound arthritic fracture, as in the simple variety involving joints, more or less inevitable displacement of the fragments, hyperostosis in callous formation and organized or semi-organized tendino-muscular adhesions, for some time after osseous consolidation, more or less lock the joint and induce muscular atrophy. In the youth, all of those pathologic conditions, as a rule so serious and often permanent, in the fully developed individual, are largely minimized in the ultimate effects by appropriate treatment and the innate tendency of the economy to restore adjustment and a large degree of function in an injured part.

Treatment—This brief review of the subject will not permit anything like an extended notice of the subject of diagnosis, something which must always precedes definite specialised treatment, but to omit it altogether would be to vitiate, largely, whatever value the present contributation may possess. It may be said, as a general rule, that fractures in children are most difficult of detection. In fact, in fractures contiguous with joints, it is sometimes quite impossible to recognize them. In this class, the safest course to pursue is to proceed on the assumption that there is a fracture, and apply treatment. It has been pointed out, that immediately after many fractures, tumefaction, sanguinous extravasate and muscular spasm, render examination severely painful, difficult, and sometimes indefinite. More than once, when a case of injury, assumed to be fracture, has come under my care, when by moderate manipulation its detection could not be determined, I have made a show of adjustment and set the limb aside, under soothing dressings until the following day, when the real examination was made. Almost invariably now, crepitus could be detected and the quality of the osseous disorganization ascertained with the infliction of no severe pain.

Incision as an aid in diagnosis of fracture of a bone shaft is a procedure of questionable expediency. Notwithstanding what asepsis may prevent in flesh wounds, when we deliberately open into a fracture of a bone shaft, we introduce fresh complications. We at once make a simple, a compound fracture and expose the parts to the dangers of suppurative infiltration or necrosis. In any other than rare and exceptional cases as a diagnostic resource, the incision should be condemned. A practical knowledge of the general rules of diagnosis will seldom fail us without resorting to this extreme measure. It is only necessary that the examination be made with gentleness and thoroughness; and when the suspected fracture be located contiguously with the shoulder or hip-joint, the patient should be placed in a position of complete muscular relaxation on a table or in bed, on the back. In this connection it may be well to give a warning against the possibilitity of diagnosing fractures which do not exist.

It certainly is no reflection on one's knowledge or skill when in doubt about the existence of fracture to frankly confess it to the patient, his friends or relatives; but it becomes a reprehensive line of conduct to decide alone, on a case and put up the limb in an apparatus or adjustment, for the cure of an imaginary condition. Such mistaken cases have come under my observation in nearly all the long bone shafts, at the wrist and the elbow, the clavicle, scapula and neck of the humerus, the femur, the tibia and fibula.

Pulmonary anesthesia is an invalnable adjuvant in diagnosis of various fractures. It may be laid down however, as a law, *that when detection is only possible by this agent in the case of bone trauma, the extent of damage is not great, and the establishment of definite diagnosis will not materially effect treatment.* It is very seldom necessary in the youth, and is not without its dangers. We usually resort to it, in order to avoid the imputation of ignorance or neglect in complex cases, perhaps also as an aid in reduction or setting.

Treatment—Simple Fracture.—The limb of an infant or youth is more intolerant of protracted restraint or severe pressure than the adult; with him are commonly incomplete fractures, or non-displacement of the fragments, and hence not a few of them, are overlooked, or not discovered, until a large callus or deflexion attracts attention. Although primary union of bone is prompt, the uniting bone slowly calcifies, and the tendency to bowing remains for some time after apparent union, at the sight of fracture.

A mistaken impression prevails, that treatment of fracture should be instituted on the spot, *sur le champ*, as though the limb must perish or fall apart, unless it be at once placed in a rigid adjustment. This view has often led to most disastrous consequences and calls loudly for the voice of a Pott, or of a world-famed luminary, like Senn, to condemn it.

The aim to be sought for *immediately* after simple fracture, is to place the limb in a comfortable position. In none is this more important than in the tender susceptible child. Sometimes, this end is effectively accomplished by immediately setting the bones and splinting the limb, while in others the best splint is a bed, the limb well bolstered and enveloped in soothing dressings, until the following day or such time as the inflammatory disturbance has disappeared, tumefaction has diminished and muscular spasm has passed off. Nothing has been lost by this delay, as the work of repair is impossible until the subsidence of local engorgement.

The treatment of uncomplicated fracture limbs in general embrace but a few broad principles, which apply to all ages; they must, under certain conditions of age and environment be modified.

After all severe fractures the system sustains more or less shock. The body needs rest, no matter whether it be the upper or lower extremity which is involved. The patient should *first* be treated, then his injured limb. This should be comfortably adjusted, for if severe pain persist after the limb has been set, something is wrong.

On Splinting.—As there is seldom much displacement, if any, in several varieties of fractures in children, we will do enough in many cases at the first visit, to simply place the limb at rest without any other investment than a bandage, until after the primary callus is formed, when a support is adjusted to obviate deflexion in the ossifying stage. Osseous apposition of the fragments with retention is desirable in those cases of fracture attended with much displacement.

In order to realize this end or to bring the divided

ends of the bones into as convenient contact as possible and so retain them, we depend mainly on two or three things: the first, the most important and more valuable than all others combined, is *muscular relaxation*, or postural treatment. This permits unfettered liberty of the circulation, and the highest possible activity of the nutritive processes. In the lower extremity, for the leg, the foot may be used as a counter-extending force; in the thigh, both the leg and foot. In the arm, the forearm is the counter-extending weight. With the child we have little to fear from bed-sores, and he bears enforced confinement with less impairment to health than many who after middle life accumulate additional flesh. Desault was the father of the method of fracture treatment now so generally adopted, in which the principles of muscular relaxation is so generally discarded. Long splints are applied and artificial extention is generally employed.

To enter into the comparative value of various methods would involve a large task, which can not be undertaken here, but, after fifteen years experience in a large traumatic surgical service in hospital and a fair share outside, I am convinced that mechanically splinting and confining *all* fractures is an error; that the results are not as satisfactory as they should be and that the time is not far distant when Pott's principles in fracture treatment will again reign supreme.

But even now, in fractures contiguous to or involving the articulations, our sole reliance is muscular relaxation and postural treatment.

Overlaying apparatus in joint fractures are little more than masks, which practically accomplish nothing. They, however, fulfill a psychical affect, something often highly necessary with the fault finding and supercilious.

Early passive motion, in my experience, is highly desirable in all fractures of children which involve the articulations. Not a few distinguished surgeons are opposed to it, in my judgment very much to the disadvantage of the injured.

Marked deflection of long shafts, after treatment is completed, very justly reflects discredit on the attending surgeon, when the child is constitutionally sound. It is most frequently seen in the female.

We may find that the patient has a lump of bone projecting outward where the shaft has the least muscular investment, the limb is very markedly shortened, and the patient walks with a limp. It is not my intention to reflect on the surgeon for this blemish, for as a sequel of fracture treatment it may occur in the hands of anyone; only it should not be allowed to remain if of an aggravated type.

It is surprising how easily it is overcome if taken in hand early. The bone is then pliant and by the use of moderate force can be easily pressed into position, the bowing overcome and length restored. Some of these cases of deflexion are dependent on an organic defect in the osseous elements, a species of malnutrition not well understood; in all instances, however, it is well to favor consolidation of the fragments by close attention to the hygienic surroundings, proper nourishment, tonic and reconstructive medicines.

Massage, bathing, kneading the muscles and frequent changing the position of the patient are helpful aids; and as Championiere has lately demonstrated, entirely innocuous as disturbing agents of the approximate fragments.

On the Treatment of Complicated Fractures or Open Compound Fractures.—Although every fracture not attended with an open wound is designated "simple," under very many circumstances it leads to a wrong inference; hence it would seem both desirable and necessary that in every instance when the arthritic, neural or vascular structure, to a considerable degree, share in the traumatic disorganization of bone, the word *complicated* should be substituted for "simple" and the word *open* for "compound."

To the inexperienced the word "compound fracture" has a most serious significance, while as a matter of fact not a few of the cases embraced under this class recover with better limbs than the "simple." And, of the latter, occasional instances occur, when the damage to the fractured limb is so great, as to, later, demand amputation or lead to a wasting or anchylosis of the limb.

Modern measures, inhibiting germ infection, great advances in osteoplastic science, combined with perfected mechanical adjustment and prothetic devices, under no circumstances justify the sacrifice of a limb or a part of a limb after an injury in a child, unless the parts have suffered *total* death by violence.

In open, compound fractures of the limbs our first concern must be to arrest hemorrhage. This should be done as far as possible by exposure, ligation, torsion or immediate compression of the spouting arteries. When bleeding is venous or parenchymatous, moderate tamponage and bandage pressure will answer for its suppression; but under all circumstances very hot water as a styptic or protracted elastic compression, with Esmarch's bandage, as a hemostatic agent must be condemned; the former for its destructive action on the vital structures and the protoplasm, and the latter, from the danger of gangrene following.

Our next step is cleanliness and all that it implies in a strict surgical sense. Now, we will endeavor to comfortably adjust the fragments and provide them necessary support, under appropriate dressings until general and local reaction is established. In the average case of severe open shattering of bone, with more or less displacement and extensive mangling of the tissues, the safest course of practice to pursue is not to undertake too much at the primary dressing.

From a theoretic standpoint this advice may seem untenable and injudicious.

The parts, it is true, are now more or less benumbed, and may be handled with less pain; yet in all cases in which any tedious manipulation is necessary an anesthetic must be employed. But in all these cases severe constitutional shock is present, muscular spasm drags on the fragments and infection is so constant that primary union seldom follows without suppuration and limited gangrene of the damaged parts.

Better by far, in all very serious cases of this class to be contented with temporary adjustment of the mangled limb, secure against fresh infection and hemorrhage for at least twenty-four or forty-eight hours or longer, unless special indication call for a change.

The question as to what we shall do with the displaced fragments to secure their surfaces in permanent contact, by wiring, pegging or riveting; what fragments we shall return and what detach, how we shall place the osseous structures in position most favorable to regeneration, when there has been much loss of bone substance, belongs to the subject of

osteoplasty, a branch of the healing art which every surgeon must familiarize himself with and master who would perform his whole duty to his patient. As this subject is too large to be considered in this brochure, it is enough to say what my own experience long ago convinced me of, viz., that under no circumstances should any fragments of bone be removed that preserve an intimate attachment with the soft parts. In the upper extremity our every effort should be strained to preserve every possible particle of bone tissue that possesses a cutaneous investment, and no excision or division should be done through any other than parts hopelessly devitalized.

Modern prothetic appliances have done much to substitute a sacrified limb, at least for appearance, though as an appendage for the lower extremity they sometimes support the body and carry it; nevertheless, let no one deceive himself into supposing that any artificial support can ever fulfill the purposes of a natural one, and needlessly sacrifice any part of the lower extremity.

There are several reasons why a severe fracture through any part of the lower extremity is more difficult to treat than in the upper. It is here where fracture is very common, and in railway or other serious accidents the greatest extent of mutilation is inflicted. Yet, when we can provide proper attention to a case it is surprising what results we may realize in many of the frightful cases of bone disorganization.

As an example, I might mention one case of open fracture in a child of 6 years, run over by a street car, in whom the entire tibial shaft was so shattered that it was entirely shelled out through the long breach in the tissues. Only the epiphyseal ends and periosteum remained. In one year this entire shaft was regenerated; there was no shortening and no limping. In another, a young adult, the bones were so smashed that a little more than four inches of the shafts of the tibia and fibula on damaged side had to be removed, and the widely separated ends pressed together. In six months union was complete. By a rise on sole of shoe shortening is compensated for, no crutch or walkingcane is used, and last autumn he won a wager, walking from One Hundred and Twenty-fifth Street, in Harlem, to Coney Island, a distance of about twenty-one miles, leaving Harlem at 6 in the morning and returning before 6 in the evening. This he accomplished with ease.

We can secure surprising results in most any description of fracture in the leg of a child, below the knee, provided the circulation be intact; but when the fleshy parts are torn open in femoral fracture, we have good grounds for the most serious apprehension.

The extent of shock is always very great, in compound, femoral fracture, and in most cases there is considerable loss of blood before efficient surgical care can be rendered. In spite of anything that we can do to prevent it infection will set in and spread, always endangering life through infiltration, resorption and pyemia.

There are several varieties of fracture of common occurrence in the adult, rarely or never seen in the child. In them I have never seen a fractured patella or a Pott's fracture. One instance of intracapsular fracture at the hip has come under my care, in a youth of sixteen years. Subsequent to the injury necroses of the surface of the distal fragment developed and provoked suppuration. On incision, through the anterior plane of muscles, the capsule was opened and the neck was cleared away and the head left. The operation was performed four years ago. The patient is now a full-grown man with a very useful limb, except for about three inches shortening.

I never yet met with a case of Colles' fracture in a child, although some authors speak of it occuring during the stages of growth. I doubt their accuracy of diagnosis. Colles' fracture almost invariably leaves deformity through rupture of the internal lateral ligment and displacement outward of the head of the ulna, impaction and diastasis of the radical head.

Deformities, therefore, should be rarer after juvenile fracture, functional restoration better and restoration of strength greater after treatment than with those approaching or after the meridian of life.

In conclusion, as far as treatment is concerned, it may be said that as applied to so-called "simple" fractures, or the complicated, involving the joints, in the child there has been no special progress made in late years, the mechanical problem is not settled and our best authorities are not in accord on the question of attitude or position of the limb, on immobilization, extension and counter extension. The fact is, that mechanical aids in fracture have but a limited application, as we are dealing with a living machine not subservient to any physical laws in its vital processes.

Enduring progress only has been made with the complicated and open fractures, in which, by adoption of antiseptic methods and osteoplasty, safe conservatism is possible, and now we are enabled to preserve limbs formerly condemned to amputation or a crippled condition, which rendered them little more than useless.

DISCUSSION.

Dr. Ella E. Barnes, Birmingham—I would like to ask Dr. Manley if in the German boy there had been a growth of the other limb sufficient to make the shortness appreciable?

Answer—About an inch.

Dr. Barnes—Will time ever overcome that by the extra use of that limb? Suppose a high sole were put upon the other limb and this limb allowed to swing, will the shortened limb ever become longer?

Answer—I am not able to inform the Doctor. As far as my experience goes, there is no remedy for shortening. We know that the limb would stop growth during the process of repair.

Dr. Daniel H. Cunningham, Chicago—I would like to ask Dr. Manley the manner in which he applies his splint, or what splint he uses to keep the limb quiet and prevent the edges of the bones causing laceration.

Answer—I have nothing special. I adapt treatment to each individual case. Some families can afford splints and others can not. We should not wed ourselves to any particular splint in the adjustment of the limb.

Dr. A. C. Cotton, Chicago—I want to ask Dr. Manley would he make any objection to blanket splints?

Answer—They are excellent.

Dr. Manley—We have to consider the matter of expense. There has been devised a splint made from strawboard which acts admirably in children. It is very light and can be easily cut down with the knife, and by submitting to hot water it softens and you can shape it to the limb. I think it is about fifty cents a sheet and a sheet is enough to make about a dozen splints. If I could not get anything else I would use plaster of Paris, but I do not believe there is anything else has given us so many cases of distortions and deformities. When you remove it you have to give the limb more or less jar to get it off. The chewing with the knife, or whatever it may be, causes

more or less jarring of the limb, and you can not put a plaster on the limb from which the limb will not fall away and the dressing will become loose. Particularly in fractures of the forearm in children it is important to inspect the limb every day. I have known plaster encasements, in which there was no rise in temperature and everything seemed to be going on splendidly, but after ten days when we cut down through the plaster, both bones were found projecting through the skin, and black. So I believe the plaster has a very limited use in children. It is unyielding and you might just as well put the limb in a vise; and after considerable disorganization of the soft parts, in fracture, there is a great deal of tumefaction and it is important there be room for this. The plaster simply puts the patient in torture. When a fracture pains there is something wrong about it, but with the plaster applied, we have to cut down through the hard, rigid plaster, shaking and jarring the limb and causing more pain than ever. I have a positive prejudice against plaster, except in occasional cases.

Dr. J. A. WORK, Elkhart, Ind.—I have had some cases where I did not expect to save the limb, more particularly the fingers and toes, and I am glad to say the results were so good I am ready to attempt to save almost everything. As to splints, I use almost exclusively the binder's board. What do you think of the binder's board, Doctor?

Dr. MANLEY—I like it very well.

Dr. WORK—It is soft and pliable while wet and you can adjust it very well, indeed. You can allow for distention, while the inflammatory process is going on, and after the inflammatory process you can retract the splints to the limb. If you have a perfect cast of the limb, you have your limb in perfect shape. I think the wet splints have a tendency to keep down the first inflammation.

Dr. C. G. SLAGLE, Minneapolis—Dr. Manley has spoken of the shortening, which might sometimes help us out in suits. It appears to me that if the child is confined to bed two or three months, the sound limb would grow rapidly while the growth of the affected limb would be largely suspended. I have been surprised sometimes at the shortening, but this explains it nicely. As to setting the limb, the Doctor is very conservative. But I suppose, Doctor, if you were called immediately you would set the limb, but after the swelling began you would not do so until the swelling subsided.

Dr. MANLEY—As the first principle we should put the limb in a comfortable position, and that would imply setting and leaving the limb in a temporary dressing, not putting the permanent dressing on until the swelling is over.

Dr. A. C. COTTON, Chicago—The remarks have brought out that no absolute rule can be devised or laid down to fit surgical procedures. We should let the limb alone and put it in a comfortable position, if only on a pillow. If we want union by first intention, the ends of the bones must be approximated, nicely coapted. Although we get relief from pain by putting the limb in a comfortable position, unless we approximate the end of the bones we will not get primary union. We might have a dozen cases without that condition, while in the thirteenth it might be found. A whiff of chloroform could be given, the ends approximated and a splint applied. The Doctor expresses my views of those of plaster of Paris dressings. I suppose the orthopedic surgeon, with the necessity for rigid retention apparatuses, could hardly get along without the plaster, but he does not have swelling we have to deal with.

Rhinopharyngolith.—This is the name given by Janatka of Prague to a body removed by him from the naso-pharyngeal cavity of a nine-year old boy. It was found to consist of a tailor's thimble, which the child was supposed to have swallowed when he was one year old, and had thus remained imbedded in the nasal cavity for eight years, considerably disintegrated and coated with calcium carbonate and calcium phosphate. It had caused difficulties in breathing and hearing, and a tumor had been diagnosed.—*Wiener Klin. Rundschau*, September 20.

OBSERVATIONS IN CASES OF EPILEPSY FOLLOWING INJURIES TO THE HEAD IN INFANCY, CHILDHOOD AND EARLY YOUTH.

Read in the Section on Diseases of Children, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

BY W. A. DIXON, M.D.

RIPLEY, OHIO.

In introducing this subject, the purpose is to express my convictions arising from observations in my own practice that great care should be used in rearing children, that the head may not receive injuries, lest epilepsy follow as a result.

During my first years of practice I had no conclusions of my own as to the liability of epilepsy to follow injuries to the head in early youth, and sought to discover in each case presented to me a cause in heredity, reflex irritation and the many other causes given in the text books.

In after years, however, when the child that had received injury to the head was brought under my care on account of epilepsy, the importance of this subject became apparent to me.

I can cite a number of cases whose history I am personally familiar with from the date of the injury received to the development of the epilepsy.

I take no censure to myself in the treatment of the injuries at the time of their occurrence, because epilepsy developed in after-years, and cite the following cases, not to speak of treatment or of the character of the lesion, but of the fact that epilepsy did follow the injury, and in the absence of any other known or suspected cause, must be considered the reasonable source in each case, and therefore that physicians should be under obligations to teach parents and others in charge of children the necessity of guarding against all injuries to the head that epilepsy may not follow as a result in after-years when the brain develops, the sutures unite and expansion or growth of the cranium ceases.

Case 1.—J. R., a boy aged 5 years, was kicked by a horse, fracturing the left parietal bone. There was depression and symptoms of compression. The fragments were removed, the depressed bone elevated. The boy rapidly regained consciousness and made a good recovery with nothing to indicate that he had received so serious an injury. At the age of 24, when he had attained to full growth in body and mind, without any premonitory symptoms he fell to the pavement in a fit of epilepsy. His condition rapidly grew more and more grave, so that in two years' time he consented to an operation of trephining in the hope of finding relief. Dr. P. S. Conner trephined, finding beneath the site of injury within the membranes a cystic tumor large as a medium sized orange.

Case 2.—W. K., aged 6, was kicked by a horse on the frontal bone over the left eyebrow, causing slight depression with symptoms of concussion but not compression. He made a rapid recovery and exhibited no results of the injury, until arriving at the age of 20, he was seized with epilepsy, which continued to become more and more aggravated during the three years following, when he died from exhaustion.

Case 3.—G. M., aged 10, was kicked by a horse in the middle of the forehead, fracturing and depressing the bone, causing deep coma. The fragments of bone were promptly removed, and the depressed portion elevated. The coma was quickly recovered from. Recovery was rapid, with no evidences of the injury remaining. At the age of 20 epilepsy developed. He is still living and the victim of frequent attacks.

Case 4.—L. P., aged 8, was thrown from a horse, striking the crown of the head upon a small stone in the road. There was laceration of the scalp over the left parietal bone, and slight depression but no symptoms of compression, and no line of fracture could be determined. Recovery was prompt. At the age of 28 epilepsy developed. The paroxysms have continued to increase in severity until now the patient is a complete physical wreck.

Case 5.—W. B., a boy aged 12, stopped on the sidewalk to tie his shoestrings. On attempting to set one foot on a step, the other slipped from under him, causing him to fall backward, striking the occiput violently on the pavement. There were symptoms of concussion, lasting several hours. In a short time epilepsy developed and continues to the present in an aggravated form.

Case 6.—J. F., aged 8, fell from a swing, striking the head upon a stone, lacerating the scalp and producing symptoms of shock which lasted several hours. There were no symptoms of compression nor fracture. Recovery was apparently perfect. At the age of 18 epilepsy developed and continued for about three years, becoming more and more violent until death.

Case 7.—J. R., at the age of 5, fell from a fence, receiving a blow upon the head, producing violent shock, and was in a state of stupor for several days. At the age of 16 epilepsy developed and continues to the present.

Without reciting each case similar in most respects to the foregoing, I can call to memory many other cases of injury in whom no history of heredity, specific disease or reflex neuroses of any character whatever can be traced as a cause.

Younger children, in my judgment, are in danger of epilepsy upon meeting with what may be termed every-day casualties, as falling down stairs, out of the high chair, off the bed to the floor, from the porch to the pavement and other similar accidents where the head receives the blow.

I can recall quite a number of epileptics in boys and girls to whom I was called at the time of such accidents as spoken of above at the crawling age of childhood. Some of the worst epileptics I have seen have no history of cause beside the fall and consequent injury to the head of the infant.

Meddlesome midwifery, it is to be feared, must be held responsible for some cases, the most wretched and hopeless we are called upon to witness, the forceps having inflicted injury to the head.

Prof. Chas. D. Meigs in his day, foreseeing the tendency to wantonly use the forceps, charged his pupils to remember that the best obstetrician was he who stood by his patient with his hands folded behind him.

There are dystocias when the forceps must be used, when it would be criminal to not use them, though epilepsy in the child be sure to follow. The point is this, that the utmost skill and care should be used to avoid injury to the fetal head lest epilepsy may develop in the child.

I have seen two cases, not my own, it is reasonably certain resulted from injury in forceps delivery, and two more strongly suspected to owe their origin to the same cause, every other history of cause being absent.

My experience is largely among rural people where the forceps are not often required or resorted to, and where of course epileptic results would be rare from such a cause, but if two cases come under the observation of each city and country physician during a quarter of a century, see what a vast army of epileptics follow in the wake of the forceps. Epilepsy merits the attention of the physician from every standpoint. Large numbers of epileptics are in every locality. They are of all people the most unfortunate. Too much can not be known concerning it. How impotent all physicians confess themselves to be when confronted with it.

In cases from trivial reflex causes treatment may be successful. In confirmed cases medicines avail so little that both physician and patient tire of treatment.

The surgeon on account of so small percentage of favorable results in the most hopeful cases operated upon is held at bay. So the most rational procedure is to adopt preventive measures.

If heredity, insanity, inebriety, specific infection and so on among the ancestors are found to be causes, the gravity of the affection demands that means be employed to curtail the transmission of the disease to posterity. Knowing injuries to the head to be a fruitful source, all should unite every effort to teach and impress upon parents and others in charge of children to use all precautions possible to protect the child's head from every sort of injury, epilepsy having been known to follow what seemed to be a slight injury to the head. It is not the purpose to speak of any theory of pathology or morbid anatomy.

The literature upon the disease is enriched by the observations of eminent men in every age and country. The same views are not long held by any student, for experiments and postmortems are likely to revolutionize any theory previously announced.

Most writers regard traumatism overestimated as an exciting cause. Experiments of any kind that disturb the cardiac or cerebral functions may excite convulsions and establish any theory desired.

In relating cases I selected those in whom a record in the ancestral line, of heredity, insanity, inebriety, tuberculosis or specific infection did not exist, so that the fact of injury alone could remain as the factor, the kind of injury that can be in a great measure avoided by watchful care in the rearing of children.

PETIT MAL IN CHILDREN.

Read in the Section on Diseases of Children, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5–8, 1896.

BY LOUIS FAUGÈRES BISHOP, A.M., M.D.
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Idiopathic epilepsy is eminently a disease of children, occuring in more than three-fourths of the cases before the twentieth year. So much is this true, that in epilepsy in older people, we always institute a special search for a local cause. Of the causes of epilepsy we are not to treat in this place, nor indeed of the typical severe cases, but because we separate petit mal, we must not fall into the error of supposing we have to deal with a different disease. Nor is it always easy from the description of parents, when there is no opportunity of observing the attacks, to be sure into which group the particular case should go.

Though not a common form of manifestation of epilepsy in children still among a large number of cases there will be a certain number in which the disease at least in its onset takes this form. On account of its comparative rarity and because of the proneness of young children to convulsive attacks of various kinds whose etiology is clearly to be found in local irritation, these minor attacks of epilepsy are seldom recognized by those whose attention has not been particularly called to the subject.

There are certain physiologic considerations that must have weight in our diagnosis. Up to about three years it is difficult to make the diagnosis of petit mal because the physiologic irritability of the nervous system is so great that we can not exclude a sufficient cause of irritation. After about the age of three years the nervous system has obtained a degree or stability that makes the frequent recurrence of convulsive seizures an indication of epilepsy. Of course, if there is a family history of a tendency to such

attacks at a later period, which have not proved to be epileptic, this circumstance must be given due weight. As in older people we must exclude kidney disease and injuries to the brain.

In addition to a due appreciation of this period of irritability we need to have a more symmetric comprehension of epilepsy. Petit mal is not one disease and grand mal another, but they are different manifestations of the same disease. It is for the sake of emphasizing petit mal to the dignity of true epilepsy that this study of that particular form of epilepsy in children has been undertaken. The attack of petit mal is a sudden temporary unconsciousness, often accompanied by certain other phenomena. In a large number of cases the eyes become fixed, the face pale, and in a moment the patient assumes his ordinary conditions; in others, the patient talks in a wild manner, often upon some subject entirely disconnected with the surroundings present. The patient may perform some curious automatic action, or go through with some particular act while in the epileptic state.

A very curious case came to the Vanderbilt Clinic, New York City, a few days ago. The child, 7 years old, had frequent attacks in which she suddenly seized her head by the hair on either side, and then there was a jerky motion of the arms and head, at the same time one foot was raised as high as possible and the child would stand for a moment on the other, but if not supported, would fall. This occurred while under observation about every fifteen minutes. The child was unconscious during the early part of the attack, which lasted probably during the fraction of a minute. Another child also seen at the Vanderbilt Clinic recently, suffered a compound fracture of the skull a years ago. A few weeks ago she developed attacks, which come on every night about ten o'clock, after she had been in bed an hour or two. She wakes out of her sleep in a fright, and almost immediately becomes rigid and apparently unconscious.

An attack of petit mal may assume a great variety of forms. A mere momentary blurring and loss of consciousness at frequent but irregular intervals, or sudden sensations of fright without apparent cause, or a feeling of something in the epigastrium and rising in the throat. Thus in a case coming under observation while preparing this paper, a child of five years old had convulsions during the first two or three months of life, and since that time had been subject to attacks at intervals, the mother says "a thousand a day," during which the child's head suddenly drops, the arms are stiffened, and after an attack of momentary unconsciousness the child goes on as before. Such a case is of sufficient severity to attract the attention of a physician, and to make a diagnosis perfectly easy, but it can be seen that attacks of the same nature occurring at infrequent intervals, and of which we have only the account of parents, would nearly always be disregarded. When associated with *grand mal*, or when it has been followed by *grand mal* later on, the diagnosis of true epilepsy is of course very much more certain; still when studied carefully these cases assume a certain definiteness, which it is hard to convey by a written description.

The diagnosis must rest on the recurrence of the attacks irrespective of gastric irritation, the fact that they are not cured by the removal of sources of irritation, the persistence of the type of the attacks and the occasional recurrence even in quite young children of the epileptic equivalent, *i.e.*, periods, during which instead of loss of consciousness, the patient does and says things entirely disconnected with the time and place. The attacks must be distinguished in very young children, first of all from convulsive seizures due to local irritation. As we said before, under three years except in very well marked cases this can hardly be done.

Simple vertigo may resemble petit mal but the affection of consciousness is usually described as somewhat different. In vertigo there is a characteristic feeling as if objects were whirling around. The child says, "the house is going around." In epilepsy there is more the sensation of simple blurring or confusion. Vertigo is preceded by a period of weakness, while the onset of petit mal is always sudden. The patient is stiff for a moment, stares, and there is a momentary loss of consciousness, but the attack passes over as suddenly as it came, and he goes on with the occupation in hand. In vertigo the body is limp and the process is more gradual. In petit mal the pupils are dilated and the eyes immobile. We must distinguish hysteria, which occurs frequently enough in children. This may be done by the tightly closed eyes, the tremulous lids, the persistent rigidity, but especially by the existence of hysteric attacks of other types. Petit mal may occur every few moments for years without changing its form of attack. Of course, this rule is not without exception. Thus in a young person at present under observation attacks of petit mal are sometimes replaced by short outbreaks of ill temper, which are entirely foreign to her ordinary disposition.

While we have begged the question of a certain diagnosis of petit mal during the first three years of age, yet cases from time to time have come under observation in which a study of the particular case has convinced us that it was one of true epilepsy. Its frequency during this period of life is shown by the statistics of Gowers, who found that 12½ per cent. of all epileptics had developed the disease before three years, and of these one-half had developed during the first year of life. In our own histories we find fairly frequent instances of fully developed epilepsy in later life having originated as petit mal in children. This history is brought out more often if, as with us during the last few months, we have inquired particularly for symptoms of petit mal antedating the onset of convulsions. It would seem especially interesting to inquire as to the early existence of petit mal, in those cases in which under treatment, petit mal is substituted for the typical severe convulsions. Some of these cases impress one as if the attack of petit mal was a development of an epileptic aura, which stopped short of the convulsion. In some very rare cases there has been a distinct sensory aura preceding the attack of petit mal.

Petit mal is essentially a chronic disease, and for that reason it is difficult to formulate the best plan of treatment. However, special stress should be laid upon the care of the stomach and all those measures which are included under the name of hygienic management. As to drugs there has been a great variety recognized. Petit mal is more intractable than the severer convulsions, but the same treatment which has been found best in these has on the average given the best results in petit mal. After experimenting with a great variety of drugs it has seemed that bromid in moderate doses has given on the average the best results. Occasionally a case has shown

improvement when under nitro-glycerin. Belladonna in our hands has never given any results, and the same is true of borax, digitalis, and a number of other drugs.

If our conception of epilepsy as a stormy and ungoverned discharge of the motor cells of the brain be a true one, which belief is strengthened by the fact that seizures are more likely to take place in those who have been sleeping, or who habitually sleep too much, why would it not be possible by systematic training of these cells to diminish the liability to such outbreaks? Systematic exercise of such a varied kind as would exercise all the muscles of the body might thus have such an effect beyond that due to the mere improvement of the general physical condition.

The parents of the child should know of the very possible persistence of the affection into adult life, so that everything should be done to render the disease as bearable as possible to the little patient. The friends and attendant should be instructed to speak as seldom as possible of the attacks to the child, and should be thoroughly instructed that attacks of petit mal are entirely beyond the control of the patient. An effort should be made to treat the child as nearly as possible as other children, not restricting it of its liberty, or treating it like an invalid in any way, except as far as is necessary to carry out the proper regimen and treatment.

DISCUSSION ON PAPERS OF DRS. DIXON AND BISHOP.

Dr. Thomas H. Manley, New York—You know how unsatisfactory and discouraging the teaching of obstetrics to the medical student has been. It has often occurred to me it would be better for humanity if we had no such science as the art of midwifery. You will remember it was claimed the mortality from sepsis had been reduced to practically nothing, through the adoption of the antiseptic treatment, washing and flushing the vagina precedent and antecedent to confinement; and then, again, we have been taught later the position we are coming back to, the best thing to do is to do nothing at all in the way of using solutions about those passages. The tendency is, that the ideal man is the one who can make a diagnosis without passing his finger in the vagina. Then we will not have to deal with a sepsis, because pathogenic germs do not normally belong in the vagina. When the forceps are used damage may be done in the way of lacerations and tears of the cervix, vagina and outlet, so far as the woman is concerned, by not allowing nature to gradually open the way and send the child along by slow and natural stages. Next, with reference to the child, I think the effect of the forceps is murderous, perhaps not at first but ultimately. You can not make me believe the strength of a man with the forceps locked on the fetal head, and perhaps a couple of women holding the women in the bed, will not injure the delicate structures of the fetal brain. In my own family, the only one who has manifested any nervousness, and now she is an adult, was the first born, in whom I believe the physicians prematurely applied the forceps and damaged the head. I would not allow the forceps to be used on any of the others and they have no bad symptoms.

Now as to trauma as a cause of epilepsy. That has not been my experience, and for fifteen years, I was connected with a hospital in which traumatisms constituted perhaps four-fifths of the cases. In New York we have thousands of cases of traumatisms, from children falling from the fire-escapes. We have, consequently, many cases of skull injuries, but my experience has not been that trauma in itself is a cause of epilepsy. I have traced quite a number of cases, where it became necessary to trephine and elevate depressed bone; the children had been brought in the ward perhaps unconscious, and I could not find in enough of cases the history pointing to trauma to convince me it was a positive etiologic factor in epilepsy as a general rule.

As to the surgical treatment of epilepsy; I have trephined quite a number, who had come into the hospital for that special purpose. After Professor Horstley's paper, which did great damage from claiming he could do what could not be done, I hoped something might be done for the epileptics and I trephined. In perhaps about a quarter of them I found those gliomatous tumors, the myxomatous substance between the dura mater and pia mater. Not in a single instance was there anything but temporary relief. I believe there is a question whether the relief was from the loss of blood, the opening of the scalp, the anesthesia, the psychic effect of the operation or what. If there is anything we owe to each other it is to be truthful. We can not get the facts unless we get the cases that do badly as well as those that do well, and I have not hesitated to go before my optimistic brethren in New York and ask them to show me one case which showed relief from operation. But if we have evidence of distinct depression of bone, it is very clear what the line of action should be. But otherwise I doubt the expediency of operation. We should not overlook the fact that these operations are not entirely innoxious. I have known more than one patient to lose his life from hemorrhage. When you start a hemorrhage in the brain, which is an extremely vascular organ, you can not stop it readily. You can not apply pressure without pushing a hole through the brain substance.

Dr. J. A. Work, Elkhart, Ind.—One point came to my mind during the reading of the first paper. The author did not say much about etiology in petit mal in children. It seems to me we ought to determine the primary cause of all this trouble. He said we should look well to the condition of the child's stomach, to the development of the child, to its food, its environments. It seems to me there is where the trouble originates in early infancy or childhood, when we consider that one-half of the deaths that occur are in children under 5 years of age. I say the same of the second paper read. We do not go back far enough in etiology. It has been my fortune to see cases of epilepsy that have orignated traumatically. I would like, if the Section would permit the time, to report one or two of these cases. One case was that of a soldier, on his way from Indianapolis to another point, who fell off a flat car and was not found for two or three days. When found, he was suffering from depression, I think in the right parietal region. The history of the case was that the patient was unconscious for probably twenty-four hours. The later history of the case I had from his own lips. After returning from the army, although a molder by trade, he went into the study of law, about fifteen years after the injury, and he said from the time he recovered consciousness until I was in conversation with him he had not been void of pain in the region where the injury was received, except when he was asleep. I was called one morning early. He had gone to the cooking room to build a fire and was later found on the floor. This was the first attack he had had of epilepsy, some fifteen to twenty years after the injury. He seemed to recover as if he had awakened from a sleep, and wanted to know where he was, how he came there, etc. The attacks became more frequent, and he became more imbecile and died about two years after the first attack. A postmortem was held. Under the dura mater, at the base of the brain, we found a tumor about the size of a turkey's egg, flattened out, which we supposed was the cause of the epilepsy and death.

Another case was that of a soldier injured at Chickamauga by a shell. He lay on the field for some hours, and the surgeons pronounced his case hopeless. He finally recovered and served out his term in the army. But he said a stroke upon his forehead in the injured region, would bring on temporary insensibility. After his return home, while employed as a

laborer, he fell down with epilepsy, and found he could not obtain employment because of his attacks, which occurred every two weeks. I saw him have an attack near my office. I thought he never would recover from it. In two weeks, after preparatory treatment, I trephined and removed a three-quarter inch disc. No evidence of fracture of the skull was found. The skull was very thick. In two weeks from that time he had a slight attack and that was the last. He died some ten years afterward of another disease. There was a case of cure, to all intents and purposes, by trephining.

Dr. Harold N. Moyer, Chicago, Ill.—I can not allow the opportunity to pass without making a remark or two upon the papers with reference to epilepsy. This disease is one of the most interesting in our pathology. I think we are apt to forget this is the morbus sacer, the sacred disease of history. I believe epilepsy is the oldest disease existing. I believe it began when the animals began to have nervous systems. Animals have the disease; cats are notoriously affected with it; horses have it under the name of "blind staggers;" elephants have it without a doubt, and how far down the scale it extends it is impossible to say. It probably existed prior to the stone age, even prior to the time when man made his advent upon this earth. We understand it now no better than they did then. We absolutely know nothing about the pathology or the pathologic anatomy of epilepsy. We know nothing as to its etiology, more than the exciting causes which have been mentioned. Head injuries, the importance of which has been well brought out, I consider furnish many cases of epilepsy. There are doubtless many other causes, but it is well to remember these are merely exciting causes. Many children receive injuries who do not develop epilepsy. Why do those who receive these injuries not have epilepsy? The difficulty is that the underlying etiologic factor in epilepsy is absolutely unknown to us. If we understood that, we would know its pathology. When we come to the question of treatment, the same thing applies; not knowing the pathology and etiology, the treatment must necessarily be vague. But I wish to emphasize the statements made by Dr. Manley. Operations for epilepsy undertaken indiscriminately because the patient is epileptic, should be discouraged. I believe it is almost malpractice to operate in these cases, for you thereby add a very severe trauma. I want to be understood in the proper sense, for it would not be malpractice if the operation is demanded by some injury, depressed bone, etc. But otherwise I have never recommended skull operations except in the form known as Jacksonian epilepsy where the center could be well localized. I believe the literature of the subject justifies very strong statements on this question.

The paper by Dr. Bishop is very interesting. The Doctor was kind enough to give us his diagnostic rules. I confess as I listened to him I thought I would be able now to make a diagnosis of epilepsy in childhood with some precision, but I fear I will not be able to apply the lines he has laid down. But there is one good rule, which I shall substitute for those given by the Doctor, and that is if I have brought to me a young child in which I suspect epilepsy, I shall assume it is epilepsy and treat it as such. If it is not epilepsy, such treatment will do no harm; and if it is epilepsy in its incipiency, then is the time to do good with treatment. If there is any one rule in this disease, it is to begin treatment early. After the condition is confirmed, treatment is almost entirely hopeless. The petit mal is then more hopeless than the grand mal, because the petit mal is accompanied by changes in the brain which lead to early dementia and conditions leading to imbecility. Unfortunately, the treatment is not all that could be wished. I desire to emphasize the Doctor's remark, that the hygienic treatment is of the greatest importance. As to the medicinal treatment, I am a firm believer in the bromid of sodium and use no other salt. I do not mean to say that you should simply pour in this remedy and you will secure good results, for one-third will not tolerate it, another third will be benefited, and another third will be indifferent to the treatment. But I believe this bromid is better than any of the others, and it is much better borne than the bromid of potassium. If it is given two hours after meals and well diluted, and the patient is frequently bathed, very considerable doses can be given without producing bromism. The bromid of sodium given within the tolerance of the patient and begun early I believe is the most efficient treatment.

OPTIC NERVE ATROPHY FROM TOXIC AGENTS.

Read in Discussion on Optic Nerve Atrophy in the Section on Ophthalmology, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5–8, 1896.

BY G. E. DE SCHWEINITZ, A.M., M.D.
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Toxic optic nerve atrophy naturally includes, 1, those cases of atrophy which result from a direct action of the poisonous substance, or its systemic results, upon the nerve cells, the nerve fibers or their vascular supply, and, 2, those cases of atrophy which are secondary to retino-choroidal or constitutional changes, which in their turn have been called into existence by toxic agents.

The first class is separable into three subdivisions, namely, *a*, partial atrophy of the optic nerve with special reference to degeneration of its papillo-macular bundle, *b*, scotomatous atrophy of the optic nerve, which is progressive and may become total, and *c*, general atrophy of the optic nerve.

1. Toxic atrophy of the papillo-macular bundle of the optic nerve preceded by inflammation or degenerative changes in this tract and associated with scotoma.—Cases of this class manifest themselves either in the form of a chronic retro-bulbar neuritis, or else as an intoxication-amblyopia, because we may with propriety draw a clinical distinction between these two manifestions, although anatomico-pathologically they are in close accord, the intoxication-amblyopia, as Groenouw puts it, being a special form of retro-bulbar neuritis.

Axial neuritis, a term sometimes employed, according to the same author, should be reserved for those cases characterized by a lesion, confined to the papillo-macular bundle where it is axial in its course.

Following Groenouw[1], the papillo-macular bundle may be described as consisting of those fibers in the optic nerve which supply the retina between the macula lutea and the papilla, and which lie in the temporal portion of the nerve tip, in a wedge-shaped segment. The apex of this triangular portion is directed toward the vessels and occupies about one-third of the surface of the papilla. As it pursues its way through the orbital portion, it gradually approaches the axis of the nerve, which it reaches in the optic canal. At the foot of the chiasm it occupies its upper and inner portion, but in the tractus it sinks to the central portion and remains there until it arrives at the brain.

According to Sachs[2], the papillo-macular bundle in the papilla is a triangle with its apex at the vessels, and the base toward the supero-temporal quadrant. Going backward, the bundle becomes elongated and assumes a crescentic form as it nears the optic canal.

It would not be profitable at present to discuss the

[1] Graefe's Archiv, 1892, xxxviii, Abth. I, pp. 1 70.
[2] Archives of Ophthalmology, 1889, xviii, No. 2. pp 133-162.

differences of opinion as to the disposition of these fibers in the optic nerve trunk, in the region of the vessel-entrance, and their division in the chiasm. For their full consideration the reader is referred to the examinations of Samelsohn,[3] Vossius,[4] Nettleship and Edmunds,[5] Uhthoff,[6] Bunge,[7] Sachs[8] and Stöltzing.[9]

Upon this papillo-macular tract the baleful influence of certain toxic agents falls, and there result an augmentation of nuclei, a hypertrophy of the connective tissue and a wasting of the nerve fibers, the process being most intense, according to Sachs, in one small area, which he calls the "nuclear group." There is, in fact, an interstitial sclerosing inflammation comparable, according to Samelsohn, to the same pathologic process visible in interstitial hepatitis.[10]

Some difference of opinion exists as to the exact nature of the nerve changes. By certain observers the inflammatory nature of the process has been emphasized; by others (Sachs) its degenerative character. To quote from Sachs, the diseased process starts in the interstitial connective tissue and the nerve fibers suffer secondarily from pressure, in the same manner as the hepatic cells are destroyed in cirrhosis of the liver. The vascular changes of the two affections are also analogous, and, according to Sachs, there may be found "not only a proliferating endophlebitis, leading to connective tissue obstruction of the vascular lumen, but a peri-phlebitis, resulting first in a choking of the peripheral capillaries and afterward in small extravasations from them."

The pathologic lesions thus briefly described are based upon the results of about sixteen autopsies. The most important of these are as follows:

1. Samelsohn:[11] The patient suffered from double retro-bulbar neuritis, which began with the clinical picture of an intoxication-amblyopia, the central scotoma being at first relative and later absolute: death resulted from chronic heart disease. The abuse of tobacco and alcohol was not substantiated.

2. Nettleship and Edmunds:[11] The patient was a diabetic and an excessive smoker. The fields of vision were normal and in each there was a nearly central scotoma for red. Death resulted from carbuncle.

3. Vossius:[11] The patient suffered from alcohol-amblyopia, had at one time a central scotoma, and died hemiplegic and aphasic.

4. Bunge:[11] The patient was a tabetic and also probably under the influence of tobacco and alcohol.

5. Uhthoff:[11] (Six cases.) The first patient was a chronic alcoholic, with marked blanching of the temporal halves of the papilla, but without record of scotoma, who died from the effects of alcoholism. The second was a patient with atrophic discoloration of the temporal halves of the papillæ, absolute central scotoma, who died in an attack of delirium tremens from intercurrent pneumonia. The third was a patient with atrophy of the temporal halves of the papillæ, who suffered from delirium tremens succeeded by dementia paranoica and died a lunatic. It was not possible to test the visual fields. The fourth was a chronic alcoholic who died of meningitis during an attack of delirium tremens. No visual fields were obtained, but the temporal halves of the papillæ were atrophic. The fifth was a confirmed drunkard, with atrophic papillæ but without demonstrable color scotoma, who died phthisical, and who suffered also from interstitial hepatitis. The sixth was a drunkard with atrophic temporal halves of the papillæ without defect in the color fields, who died of pulmonary edema supervening on general paralysis of the insane.

6. Wildbrand:[12] The patient suffered from polyarthritis and central scotoma which developed suddenly; death resulted from cardiac failure.

7. Theodore Sachs:[13] The patient was an alcohol-tobacco amblyopic, who had typical central scotomata and who died from intercurrent pneumonia during nephritis.

8. Stöltzing:[14] The patient was a tobacco-alcohol amblyopic, who died from pleurisy, fatty heart and atheroma of the aorta; scotomata are not mentioned or described.

9. Theodore Sachs:[13] The patient was believed to suffer from intoxication-amblyopia, although the abuse of alcohol and tobacco was denied. He had typical scotomata for all colors on both sides; death from pulmonary tuberculosis.

Eight of these fourteen patients had demonstrable central amblyopia and central scotomas. Of the remaining six, in one, although the case is described as an intoxication-amblyopia, the scotoma is not mentioned, and in others either it was not present or the patient's general condition was such that it was not possible to demonstrate it. In all of these, however, the ophthalmoscopic appearances were those usually found with central scotoma.

Alcohol was probably the cause of the optic nerve lesion in seven, alcohol and tobacco combined in two, diabetes and tobacco combined in one, tabes dorsalis associated with the abuse of tobacco and alcohol in one; tobacco was the probable cause in one, although its abuse was denied and the patient died of tuberculosis; in another, although the influence of tobacco and alcohol could not be proved, the clinical symptoms indicated intoxication-amblyopia, and in one the central scotoma existed without such influence. Even in those cases in which alcohol seemed to be the most potent agent, the effect of tobacco could not be entirely excluded. Finally, it will be noted that all of the patients suffered from various types of widespread disease. Therefore we are not actually in possession of the results of an autopsy on a perfectly pure case of intoxication-amblyopia. My endeavors to establish toxic amaurosis in monkeys and dogs were failures, probably because the drug was not continued for a sufficiently long time.

When, however, a definite set of clinical symptoms are taken into consideration, with the results of autopsies thus far recorded, we have reason to believe that

[3] Graefe's Archiv, 1882, xxviii, Abth. I, pp. 1-110
[4] Graefe's Archiv, 1882, xxviii, Abth. III, p. 201.
[5] Trans. of Ophth. Soc. of the U. K. 1881, I, p. 124.
[6] Graefe's Archiv, 1886, xxxii, Abth. IV, 95-108, and Ibid, xxxiii, Abth. I, pp. 257-318.
[7] Ueber die Gesichtsfeld und Faserverlauf im optischen Leistung's Apparat, Halle, 1884.
[8] Archives of Ophthalmology, 1889, xviii, No. 2, pp. 133-162, and Ibid, 1894, xxiii, No. 4, pp. 426-444.
[9] Klinische und Anatomische Beiträge zur Intoxikations Amblyopie. Inaug. Dissert., Marburg, 1893
[10] Recently Nuel (British Medical Journal, Sept. 12, 1896, p. 629) insists that central toxic scotoma is not primarily a neuritis of the macular bundle, but a disease of the macula lutea, causing degeneration of its cells, and that the optic nerve changes are secondary to the destruction of the nerve cells of the macula. Some experimental confirmation of this view may be found in the research of Usher and Dean (Ophthalmic Review, July, 1896), who have observed macular fiber degeneration follow experimentally produced retinal lesions. Clinically, we know that atrophy of the tissue of the macula lutea, e.g. in atrophic central retinochoroiditis, will cause ophthalmoscopic quadrant atrophy of the disc. As long ago as 1874, Schoen, and later Baer and Treitel, advocated the retinal origin of central scotoma, believing that it indicated a functional weakness of the center of the retina, due to toxic agents.
[11] Loc. cit.
[12] Bericht über die Versammlung der Ophthalmolog. Gesellschaft, xxii, Heidelberg, 1892, p. 84.
[13] Loc. cit.
[14] Loc. cit.

the pathologic process which determines an intoxication-amblyopia is situated in the optic nerve, and especially in that portion which is known as the papillo-macular bundle.

These *clinical symptoms* are as follows: Diminution of sight, associated with fogginess in center of field of vision, unimproved by glasses; reduced acuity of vision, which varies from counting fingers to 20–30 (according to Groenouw from 5–200 to 20–30); pallor of the temporal half of the disc, or of a quadrant-shaped portion of the papilla; normal peripheral boundaries of the field of vision; symmetrical central color scotomas, especially for red and green, usually oval in shape, stretching from the fixing point to the blind spot, and rarely passing much to the nasal side of the former; defective light-sense (Berry, Abney), but according to R. Wallace Henry, normal light-perceptive power.

Of these symptoms the most important is the *central scotoma*,[15] and did time permit, it would be profitable to study in detail its development, enlargement and retrogression, which, as Groenouw remarks, represent a characteristic picture—a picture, moreover, according to Wildbrand, which is analogous to that produced by retro-bulbar axial neuritis, except that in the latter the defect is absolute.

The average size of this scotoma, according to Sachs's measurements of fifty-three fields is out 18 degrees, in 5 degrees, up 7 degrees, down 6 degrees. My own average measurements are out 18 degrees, in 3 degrees, up 7 degrees, down 6 degrees. It is thus, as we see, an oval with its pointed end toward the blind spot and its blunt end toward the fixing spot, to the nasal side of which it passes only slightly.

This scotoma represents a red-green-blind area, and commonly the extent of green blindness is greater than that of red, which in its turn may be surrounded by an area of imperfect color-sense. The "culmination spot," or "nuclear spot," to use the phraseology of Sachs, of the scotoma "lies horizontally from 1 degree to 8 degrees in a lateral direction from the fixation point, its breadth, vertically, being mostly below the horizontal line." Sometimes, however, as we know from Groenouw's observations, the beginning is a small, easily overlooked scotoma exactly over the fixing point.

When the typical egg-shaped scotoma is developed which, according to Groenouw, results from the union of the scotoma from the fixing spot with a supplemental scotoma around the blind spot, the process may cease, or there may be a stage of progression, characterized by an increase in the size of the color defect, usually above, until it meets the limit of the red field, *i. e.*, the scotoma has "broken through." If this goes on the patient may eventually resemble a congenitally color-blind person. In severe cases scotomas for blue and yellow form in similar manner to the red-green scotomas, especially, according to Baas,[16] in the period of "breaking through." Finally, small absolute defects may be found, particularly at the "nuclear spot," but also elsewhere, and in neglected cases, or in those not typically toxic, the scotoma becomes absolute.

Instead of the typical egg-shaped or oval scotoma, the visual defect may pass up and out or down and out. Occasionally a circular scotoma surrounding the fixing point has been described, for example, by Nettleship, Nelson and by myself.

In cases supposed to be more purely alcoholic in origin, either in addition to the relative scotoma for red and green, or instead of it there may be, according to Uhthoff, complete or partial peripheral defects for these colors. In rare instances a small central scotoma for blue appears, and exceptionally there are absolute scotomata surrounded by a blue-blind zone and more peripherally by a red-green-blind region, the periphery for white being normal. According to R. Wallace Henry,[17] if the visual field is full, nicotin is the determining cause of the amblyopia; if spirally contracted (a "retinal exhaustion" field), alcohol is the determining factor. A differential diagnosis between alcohol and tobacco cases, based upon the "pericentral" or "paracentral" position of the scotoma, as originally suggested by Hirschberg, has been shown to be inaccurate.

The various drugs and toxic substances which may be responsible for the clinical symptoms which have just been detailed are tobacco, alcohol, either singly or combined, stramonium, cannabis indica, chloroform, opium, cocain (?), bisulphid of carbon, nitrobenzol, arsenic, lead, iodoform, the toxin of diabetes and probably, according to Baas, ioduret and thiuret, two modern antiseptic preparations.

Clinically, at least, tobacco is *facile princeps* of these deleterious agents, although its effect on the system is usually combined with that of alcohol, the relation of alcohol being not only that of an additional poison, but also that of a substance which predisposes the system to the influence of tobacco by depressing nutrition and creating chronic gastritis, because there seems little doubt that the influence of the tobacco is much more potent if the patient is the subject of chronic gastric catarrh. Indeed, Horner at one time believed that this was the sole influence of tobacco. It did not, according to this author, produce the amblyopia, but it created the nutritive disturbances which in their turn were responsible for the visual defects.

Sachs seeks to explain the action of tobacco in relation to toxic amblyopia in the presence of stomachic catarrh by assuming "that certain complex chemic combinations occur chiefly in the stomach and probably result from the transformation of the normal gastric juices into acids of the fatty type, whose compounds with nicotin are either more readily absorbed, or are with greater difficulty eliminated from the system than the simple tobacco bases." There is no doubt that nicotin is neither alone nor chiefly responsible for the deleterious effects of tobacco upon the visual apparatus, or, indeed, upon the nervous centers generally. It is not unlikely that the nicotin of tobacco smoke is almost completely, if not entirely, decomposed during the combustion of the tobacco, and we must probably look to other compounds, pyridin, collodin, carbonic acid, etc., for influences which have usually been solely attributed to nicotin.

The action of alcohol on the optic nerve is no doubt analogous to its influence on nervous tissue generally and on individual organs, for example, the liver and the kidneys; indeed, we have seen that the pathologic processes are similar.

In the absence of microscopic investigations we assume by clinical symptoms that the other drugs in

[15] Sachs objects to the designation "paracentral," or "central," as conveying a false impression and contends, with justice, for the term "papillo macular scotoma."

[16] Das Gesichtfeld; Stuttgart, 1896, p 164.

[17] Ophthalmic Review, xv, No. 172, 1896.

this list produce a papillo-macular scotoma in like manner. Four of them, lead, arsenic, nitro-benzol and bisulphid of carbon, find their chief subjects among workmen who are engaged in handling these substances. Three of them, cannabis indica, chloroform and opium, to which list perhaps stramonium, arsenic and probably cocain should be added, are potent among drug-drunkards. Three of them manifest their deleterious influences chiefly after absorption through the skin, namely, iodoform, ioduret and thiuret, although iodoform may enter the system by stomachic absorption.

With the exception of cannabis indica, stramonium, opium, cocain (?), iodoform and perhaps some of the cases of bisulphid of carbon and nitro-benzol poisoning, the clinical symptoms of the visual defects of this list of substances are more analogous to those of an axial neuritis than of pure intoxication-amblyopia. This is notably the case with lead.

The prognosis of toxic amblyopia is favorable when only a color scotoma exists and recovery is probable as Groenouw points out, even when small absolute defects are present. In the earlier stages, especially of the tobacco cases, the indications are rather of vascular disturbance than of true neuritis, or perhaps, as Sachs points out, the alterations do not at first affect the nerve fibers, but merely the areolar septa. The nervous tissue is temporarily injured, and cure is therefore possible. When optic nerve atrophy ensues, we may assume a real retro-bulbar neuritis. Nevertheless there appears to be a type of optic nerve atrophy in which, as Lawford[18] has said, although tobacco may not be the sole cause, it has some share in originating or aggravating the changes in the optic nerve; or again, as Browne[19] has suggested, "there are cases of retro-bulbar neuritis which begin with the ordinary clinical symptoms of intoxication-amblyopia, but which do not tend to recovery, the progression of the central defect indicating that atrophy of the papillo-macular bundle takes place." What is the rôle played by tobacco and the other agents thus far mentioned in these cases has not been positively determined. No doubt recovery or progression of the visual defect is largely determined by the length of time during which the poisonous substance has maintained its influence, as well as by the type of the lesion which it produces, as we shall see in the subsequent sections.

2. Progressive and scotomatous atrophy of the optic nerve the result of toxic agents.—The class of cases included under this heading, and it is not a large one, comprises those in which the symptoms are an absolute central scotoma of the type seen in retro-bulbar neuritis, that is one not typically oval and lying between the fixing spot and the blind spot; a scotoma, moreover, which increases and tends to "break through," joining the outer limits of the form field, which, at first normal, progressively contracts *pari passu* with the enlargement of the central visual defect.

It will be remembered that cases of this character have been dominated "scotomatous optic nerve atrophy," and are said to occur in young men between the 20th and 25th years, often without discoverable cause and with some hereditary tendency. They are similar to the cases which Edgar A. Browne[20] thus describes: "The affection begins in the central tract, but gradually spreads until the whole nerve is more or less involved and atrophy results. Here a distinct personal proclivity is shown in young persons, members of the same family. Whether there is any ascertainable difference between those cases in which tobacco is the exciting cause and those which occur spontaneously requires investigation." They are probably analogous to the progressive scotomatous atrophy which Jensen[21] has described and which has been regarded by him and by others as a particular form of the development of tabetic atrophy. As has been said before, the relation of toxic substances to this form of optic nerve atrophy is uncertain, but a few cases seem to indicate that they may be at least exciting causes. Of those agents already mentioned, tobacco and alcohol are probably preëminent, lead less certainly. Of the others I am unprepared to speak.

3. General atrophy of the optic nerve the result of toxic agents.—General atrophy of the optic nerve as the result of toxic agents may be divided thus:

1. Those cases in which there is a preceding retro-bulbar neuritis or neuritis papillo-macularis, with central scotoma, and in which the diseased process has spread from the papillo-macular bundle and the axis of the optic nerve until it has involved the peripheral and intermediary fibers. To these cases I have already referred in the two preceding sections, and have pointed out that they probably may be due to tobacco and more certainly to alcohol and lead. To this class I may add bisulphid of carbon and probably arsenic.

2. Those cases in which there is a preëxisting intra-ocular optic neuritis, usually of moderate degree, which is succeeded by an ordinary atrophy, that is, a post-papillitic atrophy. Scotomata are not present in these cases.

The most prominent drugs responsible for this state of affairs are bisulphid of carbon (probably), mercury, iodoform (one case only), and especially lead. Exceptionally subjects of chronic alcoholism exhibit optic neuritis. The same is true of patients who are subjects of the chloral habit. Of all the drugs mentioned the most potent in this relation is lead. For example, in sixty-four cases which I have analyzed there were thirteen with optic neuritis, four with neuro-retinitis and seventeen with optic nerve atrophy, while in seventeen cases the patients were stated to be blind without description of the ophthalmoscopic appearance, and no doubt in many of these atrophy or neuritis was present.[22]

3. Those cases in which there is primary atrophy of the optic nerve, that is, an atrophy due to a primary effect of the poison on the visual apparatus without history or signs of preëxisting intra-ocular or retro-ocular neuritis. It is confessedly difficult to maintain this class with exactness, because while the patient may present himself for treatment with complete optic nerve atrophy, there may have been at an earlier stage of his disease an axial neuritis with scotoma or even a general neuritis, neither of which has left signs of its presence.

Of the various drugs which have been named no doubt it would be proper to include in this list those already recited in connection with the previous classification, and we may with reasonable accuracy state

[18] Trans. Ophth. Soc. of the U. K., 1890, x, p. 166.
[19] Trans. Ophth. Soc. of the U. K., 1888, viii, p. 235.
[20] Loc. cit.
[21] Abstract in Ophthalmic Review, x, No. 3, p. 13.
[22] De Schweinitz: The Toxic Amblyopias; Their Classification, Symptoms, Pathology and Treatment. Philadelphia, 1896, p. 157.

that this visual defect is possible under the influence of chronic mercury, chronic arsenic and especially chronic lead poisoning. Referring to the latter I may say that there is certainly an optic nerve atrophy due to the primary effect to lead on the visual apparatus, an atrophy which has been believed by some observers, for example, Parisotti,[23] to be due to changes which lead causes in the nutrient arteries of the optic nerve, changes which we know it may cause in the general retinal circulation.

It is probable also that atrophy may occur under the influence of nitrate of silver, in a manner analogous to lead and bromid of potassium. It certainly results from the toxic influence of filix mas, although thus far reports of this condition are largely confined to Japanese literature. A few cases, however, have appeared in French and German reports, and recently filix mas atrophy has been attributed to filicic acid, Van Aubel[24] believing that this agent acts upon the central nervous system, the spinal cord and the sympathetic, causing dilatation of the pupil and through the vaso-motor nerves contraction of the retinal arteries. It is interesting to observe that the blindness comes on acutely, generally after the ingestion of the drug for the purpose of driving out intestinal parasites, and that within a few weeks or even shorter time, the arteries shrink and the discs become pallid and atrophic.

In this particular the drug may be classed with two others that are able to produce what I may call an acute *optic-nerve atrophy*, namely, quinin and salicylic acid, or to speak more accurately, various preparations of the cinchona bark, and the salicylates. The last named drugs, namely, quinin and salicylic acid, produce symptoms so exactly alike that they may be classed together, although the effect of quinin is much more potent than that of salicylic acid.

The symptoms are as follows: Blindness, complete or incomplete, usually developed with great suddenness and more absolute than in any other recoverable condition (Mellinger and Browne); dilatation of the pupils, absence of the light reflex, imperfect response to accommodative effort, nystagmus, proptosis, occasionally divergent strabismus and increased intraocular tension (Tiffany); anesthesia of the conjunctiva and cornea (Voorhies); extreme pallor of the optic discs and diminution of the retinal vessels simulating the appearances of progressive atrophy; occasionally retinal haze and the cherry-colored spot in the macula, resembling embolism of the central artery of the retina; gradually partial or complete restoration of the central vision, associated at first with complete or partial color blindness; later slow renewal of the color-sense, which may ultimately return; more often permanent diminution of the light-sense and color-sense and contraction of the field of vision, the contraction usually assuming an elliptical shape; very exceptionally permanent blindness (Claiborne).

As we know from the experiments of H. Brunner[25] and myself,[26] as well as from those of a recent Italian observer, De Bono,[27] the exact picture of quinin blindness may be repeated in animals, so that there is do doubt as to a selective influence of this drug upon the visual apparatus—an influence, as I have shown in dogs, which extends from the intraocular end of the optic nerve throughout the visual tract as far as this can be traced in the brain. But, even now, the mechanism of the blindness is somewhat uncertain. Probably it depends upon an influence of the drug on the peripheral circulation of the visual apparatus, which produces at first a pure ischemia, later an endo-vasculitis, and still later, as I have further shown, thrombosis in the vessels and extensive secondary degenerative changes in the optic nerve fibers.

Parisotti's idea of the mechanism of primary lead atrophy, to which I have already referred, is similar, namely, that it depends upon changes in the nutrient arteries of the optic nerve. Indeed, the analogy does not cease here, because referring to Sachs's observations on intoxication-amblyopia pure and simple, we remember that he suggests, and in fact demonstrates, that vascular changes in the diseased tissues of tobacco-alcohol atrophy, producing proliferating endo-phlebitis and leading to connective tissue obstruction of their vascular lumen, are important factors in the anatomico-pathologic basis of this affection.

4. Atrophy of the optic nerve secondary to retinal and other lesions, in their turn the result of toxic agents.—Thus far we have discussed the visual defects caused by an action of toxic substances falling primarily upon the papillo-macular bundle and ceasing at this point, or spreading and involving other tracts in the nerve, or by an action on the entire optic nerve, preceded or not by an intraocular optic neuritis. In a certain number of instances atrophy of the optic nerve is secondary to lesions either in the retina itself, or elsewhere in the body. The cases may be divided into:

1. Those in which the action of the drug has fallen upon the retinal circulation.

Preëminent among substances of this character quinin and salicylic acid should be placed, that is, they should be thus placed if we accept the theories of certain observers in regard to their action, namely, that it is upon the retinal vessels, causing endo-vasculitis and secondary changes. My own observations indicate that they affect the vessels of the optic nerve apparatus especially—perhaps, however, an extension of the original retinal lesion.

2. Those cases in which the toxic agent has produced tissue change, either in the retina or in the retinal vessels.

Preëminent among drugs of this class is phosporus, which early in its toxemia causes retinal hemorrhages and later a fatty degeneration of the retinal tissue itself, which, should the patient live long, would no doubt produce secondary changes in the optic nerve. Probably other poisons, chiefly irritant in their effects, have an analogous action, notably the bichlorid and other soluble preparations of mercury. The influence of acute poisons upon the retina and the secondary changes in the optic nerve require further investigations. If subsequent investigation substantiate the view that toxic scotoma is caused primarily by degeneration in the macula, tobacco and alcohol would find place in this class.

3. Those cases in which the primary action of the poison falls upon some organ or tissue of the body, causing a disease which in its turn is responsible for a retinal and secondary optic nerve change.

The most notable drug of this class is lead, which, as we know, may produce a nephritis, a neuro-retinitis as

[23] Rec. d'Ophth., 1885, 3 s., vii, p. 350.
[24] Annales d'Oculistique, T. 114, 1895, p. 400.
[25] Ueber Chininamaurose. Inaug. Dissert., Zürich., 1882.
[26] Trans. Amer. Ophthalmological Soc., 1891.
[27] Archiv. di Ottal., 1894, ii, pp. 171, 227.

the result of this nephritis, and finally optic nerve atrophy. Lead, in like manner, may produce an encephalitis, or a meningo-encephalitis and secondary optic nerve changes. The effect of alcohol upon the meninges of the brain, causing optic neuritis and secondary atrophy, has already been described. Whether the optic neuritis of chloral, mercury, arsenic and nitrate of silver may have a similar origin, I do not know. It seems probable that iodoform may cause meningo-encephalitis and optic atrophy.

OPTIC NERVE ATROPHY OF OBSCURE SPINAL ORIGIN.

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The important relationship existing between the optic nerve and other portions of the central nervous system, especially the spinal cord, has long been recognized by both neurologist and ophthalmologist. In fact, most clinical observers will readily agree with Gowers,[1] in considering the optic nerve in its development, nothing more than an extension of the central nervous system and anatomically of the same structure as the brain and spinal cord. The pathologic relationship between the diseases of the optic nerve and cerebrum are not so difficult of demonstration, but when we consider this same relationship in diseases of the spinal cord, pathologists must as yet acknowledge their inability to discover any direct anatomic connection.

The portion of the subject allotted to me is not the discussion of diseases in general of the optic nerve, which are dependent upon, or associated with pathologic conditions of the spinal cord, but the consideration of those cases of optic nerve atrophy, only, which bear this relationship to well recognized lesions of the spinal cord. I say "associated with" because no casual dependence has as yet been anatomically demonstrated, but because we observe clinically an atrophy of the optic nerve, and at the same time certain pathologic lesions of the spinal cord we are in the habit of trying to trace some casual relationship. Clinical facts can not always be explained by theoretical reasoning or absolute anatomic demonstration, yet we learn to class them as truths, because of their frequent occurrence under almost identical conditions.

Most writers divide atrophy of the optic nerve into two classes: *a*, primary, *b*, secondary. In primary atrophy disturbance of vision is usually present with the beginning of the atrophic process, both increasing together, while in the secondary form there may be a disturbance of vision long before there are any appearances of degeneration or atrophy in the nerve substance itself; but it is doubtful whether the final appearance of these disks can differentiate the two classes. Primary atrophy occurs most frequently without any discernible cause, yet sometimes is distinctly traceable to heredity. In this form of atrophy previous inflammatory signs never exist.

By secondary atrophy is meant those cases in which the morbid condition may be traced to distinct causes as for instance those following intrabulbar neuritis or choroiditis; ultro-bulbar neuritis, traumatism and direct extension of the process from the cerebrum itself.

Atrophy of the optic nerve occurring in this connection with simultaneous lesions of the spinal cord presents the clearest example of the so-called primary atrophy.

To aid us more clearly in this discussion, I propose to treat the subject under the following three captions:

1. Optic atrophy associated with lesions of the spinal cord and bulb, as:

a. Meningitis.—Optic nerve atrophies resulting from or following an acute inflammation (meningitis) of the meninges or nerve substance proper (myelitis) of the spinal cord and medulla, must be classed as consecutive, instead of primary. Such could only occur as the extension of the inflammation from the spinal cord to like structures in the brain, with a simultaneous involvement of the optic nerve. Cases of this kind are exceedingly rare.

Gowers[2] mentions a case of the optic atrophy following an attack of sporadic cerebro-spinal meningitis. A boy was brought to him, who after a thorough drenching had suffered from severe headache, delirium, fever and stiff neck. Ten days later he became blind. After the blindness, the other symptoms disappeared, and when examined by Gowers there was present only a small degree of light perception in one eye. The papillæ showed the picture of consecutive atrophy, the centers being filled with new connective tissue; the vessels were narrowed, and the choroid in the neighborhood of the papillæ showed marked changes. This author has mentioned two other cases of the optic atrophy following myelitis of the cord which were reported by Clifford-Allbut. In one there was a slight optic neuritis, with indistinct borders of the papillæ, resulting finally in a gray atrophy, and in the second a partial gray atrophy, the cause of which being, probably, a chronic myelitis of the cord of the dorsal region.

A very interesting case has been reported by Dreschfeld.[3] He had under his care a man 24 years old, who with the simultaneous development of double optic neuritis, which led to complete atrophy, developed symptoms of acute myelitis, from which he died in one month. The autopsy showed acute disseminated inflammation in the dorsal and lumbar region of the spinal cord. The brain appeared perfectly normal.

b. Locomotor ataxia.—The association of optic nerve atropy with tabes dorsalis has been recognized as an early symptom of this latter disease for many years. A new impetus was given to the study of this associated pathologic condition by Smeichler,[4] who in 1893, published the result of his studies in a large number of cases found in Professor Alt's clinic at Vienna, and called attention to optic nerve atrophy as an initial symptom of beginning tabes. Such cases of optic nerve atrophy occurring in this connection must be classed as primary, for the ocular symptoms, as a rule, always precede any final manifestation of the disease, and there is never any history or signs of a previous neuritis. In fact, some observers, especially Charcot, have held that all cases of primary optic nerve atrophy are associated with tabes of the cord, and that, although the spinal symptoms may not be present at the time, they will appear at some period during the patient's life.

On the other hand, Uhthoff,[5] with whom Gowers agrees, holds that in only half of such cases is there ever any affection of the spinal cord. According to

Galezwoski[6] about two-thirds of all optic nerve atrophies are tabetic, while Pelteshon[7] found still higher percentage, namely seventy-eight out of ninety-eight cases.

The converse of this question, namely, in what per cent. of cases of tabes is optic nerve atrophy present, is not so easily answered. Gowers[8] remarks that we are very near the truth when we say that out of every six cases of tabes, one will suffer from optic atrophy. Among seventy cases which he observed in succession, of persons suffering from locomotor ataxy, only nine had optic nerve atrophy. Voights[9] among fifty-two cases found atrophy nine times, while Erb[10] among fifty-six cases, found atrophy seven times.

From the study of this subject, it will be seen that nearly all cases of primary atrophy of the optic nerve are associated with tabes of the spinal cord, and that this association with other sclerotic processes in the cord is very insignificant in comparison. That the one is dependent upon the other is not probable, but my own observation leads me to believe, that since the two processes are degenerative in character, it is simply fortuitous as to which part of the nervous system is first attacked.

Gunn[11] has very thoroughly studied these points and very properly raises the question as to the existence of independent changes in both the spinal cord and the optic nerve.

As Gower says, "the pathologic relationship between optic nerve atrophy and individual lesions of the spinal cord is yet dark. The fact that the atrophy can be very far advanced in tabes when the changes in the cord itself are, as yet, in the very first stages . . . makes it probable that the changes in the optic nerve are associated with, rather than a result of the spinal cord lesions."

That there is a close relationship, all must admit, but no postmortems have shown any direct anatomic connection.

Knies[12] says that the process in the optic nerve begins as a disseminated one, and that the atrophy extends in an ascending or descending direction. The middle fibers of the nerve remain longest intact, and we may, therefore, infer an action starting from the periphery. This may take place most readily at the place where the nerve passes through the unyielding optic foramen.

The gray atrophy is also noticeable in the chiasm, tractus, and as far as the primary optic ganglia, but there is no direct connection with the degeneration of the spinal cord.

Pathologic anatomy has not demonstrated the truth of the statement made by Landois and Stirling[13] that "the discovery of the partial origin of the optic nerve from the spinal cord, explains the occurrence of the amblyopia (with partial atrophy of the optic nerve) in disease of the spinal cord and especially in tabes." The only connection between the eye and spinal cord is found in the sympathetic nerves, which come from the cilio-spinal center in the cervical region of the cord, and whose connection with the iris is such that their stimulation will produce a dilation of the pupil. But this connection is anatomically so slight that it would be a matter of impossibility to imagine a process reaching the optic nerve from the spinal cord by means of this route. A most excellent summary of the views at present held were given by Gowers,[14] in opening a discussion upon "Eye Symptoms in Diseases of the Spinal Cord before the Ophthalmological Society of the United Kingdom."

This writer holds that optic nerve atrophy and internal ocular paralysis must be regarded as associations, not an effect of spinal lesions. Because: 1. Diseases of any nature may exist in any part of the spinal cord without occurrence of ocular symptoms, if we except rare paralysis of the dilators of the pupil in disease of the sympathetic tract in the cervical region. 2. The ocular symptoms which may be absent when the cord disease is advanced, may exist in an extreme degree, when such disease is in a very early stage. 3. With the single exception of the sympathetic symptoms just mentioned we know of no anatomic mechanism by which the spinal cord can produce the ocular symptoms.

What is true of tabes is essentially true of other sclerosing processes in the spinal cord. It matters not whether the atrophic or sclerotic process commences first in the optic nerve or spinal cord, this one fact remains clear that the pathologic processes show some similarity in character. These associated ocular symptoms are the results always of degenerative processes, and their presence shows that the cord disease is essentially degenerative in its nature. This is made evident in the slow progressive character of the spinal symptoms.

The researches of Pierret, confirmed in part by Dejerine and anticipated partly by Westphal, have enlarged and altered our conception in regard to tabes dorsalis, which, in some measure, throws a ray of light upon the association of this malady with optic nerve atrophy.

Pierret has shown that degeneration in the optic nerve is not the only peripheral lesion, and that the same in the cord is not the only central change in the disease. Often there is independent degeneration in the cutaneous nerves, commencing in their extremities, to which the optic nerve change is analogous. There may be degeneration at the central termination of the optic as well as other cranial nerves, analogous to that in the posterior columns of the cord. He terms it "wide sensory neurosis."

What has been said applies not only to tabes in particular, but to all morbid conditions of the spinal cord presenting degenerative changes in the nerve structure.

Ocular symptoms, especially optic nerve atrophy, have long been a diagnostic sign in spinal cord lesions, especially tabes. So frequently is this association present that clinicians are in the habit of associating all primary atrophies of the optic nerve with similar degenerative processes of the cord. From what has been said it is evidently improper to speak of optic nerve atrophy of spinal origin, unless we mean its orgin is from the same source, as is the associated lesions in the spinal cord.

The symptoms of optic nerve atrophy associated with tabetic changes in the cord are said to be very characteristic, which is true when they all exist, but there are many cases of atrophy where only two or even one diagnostic sign is present, as, for instance, in those cases of slow development of the ataxic symptoms, and in such cases one can not positively recognize such associated pathologic changes.

The appearance of the disc in the optic atrophy occurring in connection with tabes, is said always to be of a characteristic gray color instead of white, and this discoloration of the disc has been frequently commented upon by various writers. Especially is the color gray, or pearly white by the indirect oph-

thalmoscopic picture, while by the direct it is gray or mottled, presenting sometimes according to Gowers, "a peculiar gelatinous opacity." Yet he who would make a diagnosis solely through the color characteristics of the disc will often err, for I have seen true cases of tabetic atrophy, where the appearances much more resembled the whitish than a grayish tint, and for that reason I fully agree with Dr. Young, who says that there is always a possibility of inaccuracy since expert ophthalmologists may honestly differ in the question of definite color. Furthermore, Gowers has called attention to the fact that gray atrophies occur under other pathologic conditions, as, for instance, in consequence of the post-orbital pressure upon nerves already atrophic from other causes than tabes.

The histo-pathologic changes in this form of tabetic atrophy have been thoroughly studied by Uhthoff, Gowers and Leber. According to the latter author, the microscopic appearances in the nerve show an increase in the interstitial fibers and sometimes a formation of transparent cell bodies around the vessels and at the same time atrophy of the nerve fibers. Another point which is noted in this form of atrophy is the normal caliber of the blood vessels, especially the arteries, which in other forms of white atrophies are usually smaller in size. This, according to Knies, is due to the fact that the original process is located behind the entrance of the central vessels. But, according to my experience, this picture is not universally present; the conscientious ophthalmologist must be prepared for deviations on this point. The disturbance of vision which occurs in connection with tabetic atrophy, for both form and color, is another important symptom. It has been especially noted that the ophthalmoscopic picture is no criterion for estimating this disturbance of sight. Cases are sometimes seen where the disc is atrophic throughout and yet there is but a slight diminution in the vision, while even in the majority of cases atrophy appears before there is any disturbance of this function whatever.

Yet another symptom, perhaps the first, is the contraction of the field of vision for both color and form, this contraction following in this order, green, red and white, until there is a total achromatopsia. The field of vision for both form and color is a concentrically narrowing one, progressing gradually until there is a very narrowed, central circle remaining, corresponding perhaps to merely the point of fixation and this gradual narrowing may continue for years before there is total loss of vision, and before the patient is aware of the diminution of sight. This loss of vision is very gradual and slow, and such cases as the one reported by Hirschberg,[15] where vision was almost entirely lost in eight weeks, are extremely rare. Knies[16] says that, prognostically, the color disorder is important, because those cases in which the color boundaries are very much narrower than those for white belong to the rapidly progressive cases.

A central scotoma in this form of spinal atrophy is extremely rare and when it does occur should, according to certain writers,[17] excite a suspicion of other spinal lesion than tabes. The "Argyll-Robertson pupil," or one which responds to accommodation but not to light, has to me proven of more value in substantiating the correct diagnosis of this disease than all others, and this symptom will exist even in the very latest stages.

Many writers say that a contraction of the pupil is an early symptom of tabetic atrophy, calling it a "spinal myosis," but my observation leads me to consider this sign as exceedingly transitory, finding, as a rule, mydriasis rather than the opposite. A much more constant symptom is the inequality in size between the two pupils and which is far more pathognomonic than a myotic condition. One question in connection with this subject is whether a primary gray atrophy will always be followed later by the ataxic symptoms of tabes, as is held by some writers. This is a question most difficult to answer, because of the time which may elapse between the appearance of the optic atrophy and the tabetic symptoms. In the majority of cases it is a matter of great difficulty to keep patients under close observation for long periods of time, hence it is that a statistic report is difficult to obtain.

Kahler has reported a case where atrophy existed seven years; Charcot, a case where it existed ten years, and Gowers one of fifteen and twenty years before there was any marked tabetic symptoms. I deem it unnecessary to report here the histories of cases of this affection, because cases of optic nerve atrophy in association with tabes dorsalis are by no means infrequent, and none of those which have come under my observation presented any symptoms which are not common to all such cases. The prognosis in such cases of optic nerve atrophy is bad and we have yet to find the remedy which will benefit them.

c. Multiple sclerosis.—In this affection it is a matter of impossibility to consider the pathologic process as confined exclusively to the spinal cord, for it is well known that the sclerotic process is liable at the same time to involve any portion of the cerebro-spinal system, and rarely is there a limitation to one particular part. Hence, when optic nerve atrophy does occur simultaneously with insular sclerosis in the spinal cord the same sclerotic process will be found also in the brain substance. My colleagues will no doubt call your attention to this point when discussing the brain lesions, for with the majority of writers multiple sclerosis is more frequently spoken of as brain than as spinal lesion.

The observations of Buzzard[18] do not agree with the majority of writers, when he says that atrophy of the optic nerve is most frequently associated with insular or disseminated sclerosis, next frequently in connection with fasciculated sclerosis of the posterior columns (in tabes and general paralysis of the insane), and least often with fasciculated sclerosis of the lateral columns.

According to Knies, pronounced atrophy of the optic nerve in this affection is rare, about 3 per cent., incomplete or partial atrophy about 19 per cent.

Gowers says that atrophy occurring in this connection is very similar to that occurring with tabes, and until the ataxic symptoms appear the diagnosis is somewhat difficult. In pure insular sclerosis of the spinal cord he has never seen optic nerve atrophy occur but three times.

d. Lateral sclerosis.—This pathologic condition constitutes the last of the chronic sclerotic conditions of the spinal cord with which atrophy of the optic nerve is sometimes found associated and likewise the most infrequent.

Gowers has never seen this associated symptom but twice in all his vast experience. Such would naturally be expected, since many cases diagnosed as

lateral sclerosis have been found, postmortem, to be due to some other lesions, hence the nervous organic lesion must be accurately diagnosed first before we can associate it with optic nerve atrophy. The same writer above referred to has reported a case of combined sclerosis of the posterior and lateral columns, with gray atrophy of the optic nerve and bilateral oval central scotoma, especially for red and green. This latter symptom is held by some, as before mentioned, to be a differential sign between optic atrophy associated with tabes and other pathologic lesions of the cord.

e. Injuries of the spinal cord.—As we progress still further into the pathologic changes of the cord with which optic nerve atrophy is associated, we are confronted at every turn by a yet wider obscurity in connecting the two lesions.

There was certainly no necessity for the use of the word "obscure" in connection with this subject under discussion to-day, for as soon as one begins to study the literature of the subject and his own personal experience, he is confronted on all sides by nothing but obscurity. There have been a few cases of optic nerve atrophy reported, which occurred at the same time or some time after an injury to the spinal cord, hence it was natural to consider the atrophy somewhat in the light of a *propter hoc*. Ever since Erichsen gave to the medical world, and now the special property of the legal profession, his brochure upon "Spinal Concussion," this subject of spinal injury or "railway spine" has been a fruitful field for a large amount of medico-legal harangue.

Injuries may occur to the spinal cord without any discoverable injury to the vertebral column (concussion), yet when this latter is involved we can much more readily discover the relationship between the seat of injury and the spinal symptoms. In this, as in all pathologic conditions of the cord, if optic nerve atrophy should arise it must be looked upon simply as an accidental association, not in any causal relation, since, as yet, no anatomic connection has been found to exist.

Wharton Jones states that affections of the optic nerve are frequent after injuries of the spinal cord, but fails to add that atrophy as one of these is exceedingly rare. What changes do occur, especially in cases of concussion, are referable to changes produced in the sympathetic system, which presides over the vaso-motor functions of the body.

Fowler[19] has reported the case of a man who was thrown from a caisson during the war and was run over, the wheel passing over the lower portion of the dorsal region. The lower extremities were paralyzed for a few months. His back rendered weak; he perspires freely and his face flushes easily; no suspicion of syphilis. Sight failed gradually from optic atrophy of both eyes and vision was finally lost altogther.

Caries of the vertebral column is but another form of injury when it involves the cord. Abadie[20] has published a supposed case of caries of the vertebral column at the base of the skull, which was accompanied by atrophy of the optic nerve together with a meningitis. So far, I have been unable to discover in literature any trustworthy cases of optic atrophy where such a casual relationship could be found, as injury to the spinal cord.

f. Trophoneuroses.—Under this head medical literature does not afford us many cases of associated optic atrophy, and I have been unable to find but one authentically published case. This was "A Case of Acromegaly, with Atrophy of both Optic Nerves." reported by Dr. George Carvell:[21]

Male, aged 52; carpenter. Father died of old age and debility, while mother died of pulmonary disease. None of patient's relatives had similar conditions to his own.

History: Up to twenty years ago patient had enjoyed good health, and between the ages of 20 and 30 was able to wear No. 8 glove. When about 30 years old he began to grow stout and suffered from general weakness. He still continued to work until his sight began to fail. Five years ago he was unable to read a newspaper, and from that time has become worse. During the last few years has suffered from shooting pains in the arms and legs, especially in hip, knee and ankle joints; complains of coryza. *Present condition*: Is of medium height, corpulent, and clumsy in movements; pallor of face and lips; nose is large; malar bones prominent; occipital tuberosity and lower jaws are unusually developed, the latter protruding in front of upper jaw; internal organs healthy; urine, orange color; specific gravity 1030; urates in great abundance, no sugar or albumin. Eyes: pupils of equal size and react to light and accommodation; right eye vision=6-60; left eye vision=fingers at one meter; no improvement with glasses. Ophthalmoscope=marked optic atrophy in both eyes; discs milky, edges sharp and defined; fields laterally diminished, especially in right eye. Color: Distinguishes blue and green; calls red and yellow buff.

2. Optic nerve atrophy occurring in connection with diseases of the peripheral nerves.—According to Knies, diseases of the peripheral nerves rarely affect the eye unless they belong to that organ, or are adjacent to it. In multiple neuritis an optic neuritis sometimes occurs, but no cases of optic atrophy have been reported where a causal dependence could be found. In the medulla, cases have been reported where there occurred optic atrophy at the same time or following certain affections of the peripheral nerves, which have their nuclear origin from this source. In chronic bulbar paralysis, changes in the optic nerve, while sometimes occurring, are very rare. Galezwoski has observed and reported a case of one-sided optic atrophy which occurred in connection with a chronic progressive paralysis of the bulbar nerves. Robin cites a very interesting case from Von Dianaux, where a rapid atrophy of both optic nerves appeared in a man 76 years old, who was suffering from a deep affliction. It was also accompanied by a paralysis of the sixth nerve. The vision was entirely lost in two months, yet, when he was again seen some time later, the vision had increased even to one-tenth.

A full history of double optic atrophy in connection with bulbar paralysis is reported by Drs. J. W. Barrett and P. S. Webster of Victoria, Australia:

E. C., aged 30. Symptoms began three years ago with drooping of the left lid and turning outward of the eyeball. When first seen six months ago the following conditions were present: Right eye, pupil 6 millimeters; does not react to either light or accommodation; no external ocular paralysis. Vision=5-60. Emmetropic; optic disc very pale from primary atrophy. Left eye, pupil 7 millimeters; no action to light or accommodation; paralysis of internal and inferior rectus; weakness of superior rectus. Vision=fingers at two feet; contraction and loss of color vision; at present fields are much smaller. Right eye vision=5-60; left eye vision=light perception; paresis extended to internal rectus and superior rectus in right eye and has increased in the muscles of the left supplied by the third nerve.

Patient's general health good and he has no other spinal symptoms. At one time he suffered from headaches and has had a little rheumatism. Seventeen years ago had a chancre and was treated two months. No secondary symptoms.

Diagnosis.—Atrophy of optic nerve and independent specific nuclear affection of the nerves implicated.

Through the kindness of Dr. H. V. Würdemann I am enabled to report another very interesting case:

T. G., aged 38; hack driver. Presented himself on account of a nervous trouble in both eyes.

Examination. Right eye vision=5–12; left eye vision=5–12: total paralysis of third nerves, except the branch going to levator palpebræ sup. The perimeter showed lateral (homonymous) hemianopsia for form and for white, red and blue. There was total achromatopsia for green. By ophthalmoscopic examination the optic discs were white and atrophic, especially the macula fibers. Syptoms of multiple sclerosis were present also in other organs.

Leaving now those pathologic conditions of the spinal cord and medulla, where distinct anatomic changes could be discovered we come to the third division of our subject and that portion enveloped still farther in the domain of obscurity.

3. Optic atrophy associated with functional neuropsychoses such as hysteria, chorea, etc.—It may be questionable whether the discussion of this last division belongs properly to the domain of the spinal cord, but since the symptoms of those diseases classed under the head of "neuropsychoses" manifest themselves most prominently in those portions of the body whose activity are dependent upon their relationship to certain nerve centers in the spinal cord, it seems but proper that the spinal cord should take a more prominent position than any other portion of the cerebro-spinal system.

Most of the functional neuroses are still enveloped in obscurity, and since the etiology of the diseases themselves are still a matter of dispute, it is but natural to suppose that any association of optic nerve atrophy with the same affections should be still further beyond the reach of even theoretic reasoning.

a. Hysteria.—In this disease we all know of its multiform symptoms and of the appearance occasionally of various ocular manifestations. I have been unable to find any authentic case of optic atrophy whereby a relationship of the two diseases could be established, and Gowers says that in one or two cases of hysteria optic atrophy has been observed, but that its presence was probably purely accidental, or there existed at the same time some organic disease, as disseminated cerebro-spinal sclerosis. In fact, in all functional nervous troubles any appearance of optic atrophy can not be regarded as anything but accidental and not causal.

Weir Mitchell,[24] in narrating a case of tabes in a child, calls attention to the fact that in hysteric ataxy, in contradistinction to the congenital forms, both optic discs are gray, the arteries too small, the veins and pupils normal, the red and blue fields typically reversed and fields for form contracted.

Buzzard[18] calls attention to the fact that contracted normal fields should make us hesitate in diagnosing "hysteria," even though there are no appearances of atrophy of the optic nerve, for often in such cases a change in the nerve, which ultimately ends in atrophy, will subsequently show itself.

On the other hand, Leber[25] has found objective changes in the optic nerve in amblyopia with concentric narrowing of the field, which, according to Charcot, is characteristic of hysteria. These changes were found, by postmortem and microscope, to consist in an occasional atrophic process in some bundles of the optic nerve fibers in front of the chiasm, indicating that the process was peripheral, yet, so far, no case has been reported where a complete atrophy of the optic nerve was present. In Leber's case the optic nerve appeared perfectly normal to the naked eye.

b. Chorea.—The pathology of this disease is still a matter of dispute. Various anatomic lesions have been found associated with this disease, but its nature is still a matter of dispute. According to Germain Sée and many others, it has a rheumatic basis, while Joffroy holds it to be in the cerebro-spinal system and is unconnected with rheumatism. The connection between chorea and heart disease has been frequently noted, hence some consider those cases of optic nerve atrophy which are found associated with chorea to be dependent upon emboli of the vessels of the optic nerve.

A few cases of optic nerve atrophy occurring in persons at the same time or previously suffering with chorea have been reported. From one of the assistants in the neurologic department of the Manhattan Eye and Ear Hospital I have ascertained that the percentage of optic atrophies in true cases of chorea is about 1 in 250.

Such cases as have been reported have all been due to an embolus in the central artery of the retina, hence must be traced back to some probable organic disease of the heart. An interesting case is reported by William George Sym.[26]

B. M., boy, aged 17; came to Royal Infirmary complaining of loss of sight in right eye. History: Had perfect vision up to ten years ago; at that age he had an attack of chorea. He made a good recovery from this until one morning, when he felt a sudden mist come over the right eye. At that time he was walking; never received any blow or injury near the eye; nothing unusual in family history; neither parent is rheumatic, but one brother was said to have had articular rheumatism. Examination: Left eye vision=20–20; right eye vision=0; no perception of light; right eye does not converge on fixing a near object; pupil does not contract to light; tension normal. Examination by ophthalmoscope: Right eye presented absolute atrophy of optic nerve, disc being dead white; blood vessels extremely small; no traces of hemorrhage and exudation, and disc, in which cupping of optic atrophy was well marked, was normally regular in outlines; macula normal; choroid coat apparently normal; no staphlyoma. Left eye normal in appearance; evidence of stenosis in mitral valve.

Conclusion: Atrophy of right eye due to embolus plugging arteria centralis retinæ of that side and thus cutting off blood supply to retina, this having occurred during the attack of chorea at the time he felt the mist over his eye.

Atrophy following neuritis almost invariably affects both eyes, though one nerve may be more advanced than the other. Here we have atrophy of one, associated with a normal condition of the other. In children, bilateral simple atrophy is rare and so is neuritis, unless dependent upon some gross brain lesion. Dr. Sym mentions the fact of Gowers having said that there is on record only two cases of embolism of the arteria centralis retinæ occurring in consequence of chorea. However, Argyll-Robertson has mentioned a similar case occurring in a young lady, so that I am confident that there probably exists other cases which have never been reported. In the study of any subject one must be content with such published reports as can be found in the literature, in hopes that by the publication of these and his own personal experience, others may be brought to light which have been resting in obscurity.

In idiopathic epilepsy, where many of the symptoms of this disease show some involvement of the spinal cord, I have been unable to find any reported cases of associated optic nerve atrophy, although other changes, such as hyperemia, anemia, narrowing of the blood vessels, edema, etc., of the optic disc have been noted by various observers. In general paralsis of the insane, which involves the whole cerebro-spinal system, changes in the optic nerve of various kinds have been noted, and among them atrophy. Bullard,[18] in 400 cases of this affection,

found complete blindness only three times. This was due to a gray atrophy of the optic nerve, similar in all respects to that found in tabes, and hence the causative relation bears the marks here as in tabes. In forty-seven cases Jehn[27] found marked atrophy seven times; in three the atrophy was double, while in four it was only on one side. Writers also hold that a slight degree of atrophy with amblyopia is still less frequently observed than complete atrophy.

Galezwoski,[30] in forty-eight cases, has only observed beginning atrophy once, while Boy has observed it four times among eighty cases, which were thoroughly examined.

In this affection, as in tabes, it has been noted that the signs of atrophy may appear some time before the symptoms of general paralysis, and Magnan mentions the fact that he has observed these changes two to four years before the other symptoms appeared.

In conclusion would say that it is entirely unnecessary for us, in considering this subject, to qualify the term "obscure," for with all our advancement in pathologic anatomy we are as yet unable to trace the casual relationship of many cases of optic nerve atrophy, and especially is this true when we recognize that this atrophy is in some mysterious way connected with lesions of the spinal cord.

Experience and the microscope teach us that certain well defined chronic lesions of the spinal cord are more usually associated with atrophic changes in the optic nerve than certain others, but the *raison d'être* is not yet within the confines of our knowledge. Much original investigation can yet be made in trying to extend our knowledge of the subject.

The reports of clinic cases, especially those seemingly of spinal origin or relationship, will add much to a more thorough comprehension of the subject, and especially with minute postmortem examinations will be of much substantial value.

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Loretin versus Iodoform.—The comparative results in the treatment of suppurating surfaces are stated by Dr. W. O. Green as follows: 1. Loretin is without odor. 2. It is slightly more stimulating, and causes more pain perhaps when first applied, but is shortly followed by more permanent analgesic effect. 3. It has greater antiseptic properties, and on this account, limits and then diminishes more rapidly the local inflammatory condition. 4. The process of granulation is more rapid and more perfect. 5. The local alterative effect is greater, and therefore the part requires less supplementary treatment in the way of local applications. 6. The discharge diminishes more rapidly.—*Am. Therapist*, September.

THE ETIOLOGY AND PROPHYLAXIS OF FUNCTIONAL NERVOUS DISEASES.

Read in the Section on Neurology and Medical Jurisprudence, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5–8, 1896.

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In taking a retrospective view of the principal features which characterize the age in which we live, it seems to me none are more conspicuous and striking than the rapid advance of medical science. In the many hundred years of its existence no such triumphs are recorded and no such brilliant results achieved as those which belong to the present generation.

The principal results of such advance afford us the means of rendering finer discriminations in classification and diagnosis of diseased conditions, and consequent enlargement of medical nomenclature, all of which tend to increase the great mass of specific knowledge relevant to each department. In no branch of medicine, perhaps, are the effects of such marvelous changes more visible and potent than those which pertain to the science of neurology.

The vast increase of our knowledge of the anatomy and physiology of the nervous system and the application of this to disease has been found to be most useful in the correction of former erroneous inferences. Hence a complete revolution has taken place in our knowledge of its pathology, which has also been the means of greatly enlarging the range of its organic diseases, at the same time gradually limiting the power and significance of the so-called functional affections.

We find that in connection with the study of the histology of the nervous system many other factors were necessarily implicated. Among the most important of these was the study of their *etiology* and *prevention*, two of the mightiest forces connected with diseases incident to the progress of modern civilization. To trace the intricate change of both structure and function, as well as all the problems connected with the prevention of such obscure neurotic affections is a task which so far has baffled the skill of the brightest intellects of our profession. Nevertheless much has been done in not only discovering the cause, but also preventing their occurence by overcoming many of the agencies which contribute toward their production.

Nervous diseases are increasing and multiplying at a marvelous rate, and there are physiologists who assert that both the European and American races are deteriorating as their civilization becomes crystallized. This is accounted for by the increased demands of modern civilization. Recognizing the extreme importance of the subject it is right that we devote special attention to its consideration.

It would be impossible for me to refer to the many causes, or the theories which have been offered from time to time, to account for the presence of the varied phenomena associated with the more obscure neurotic affections designated as functional. From time immemorial these numerous factors have been recognized to consist of two classes, viz.: Predisposing, and exciting. In the former are included all the conditions pertaining to hereditary neuropathic taints, while the latter embraces all agents which tend to unduly excite the already predisposed, or become the means of creating certain morbid neurotic phenomena.

One of the most important facts, which has been clearly demonstrated of late, proves that the entire nervous system in the normal infant and child is constantly undergoing marked changes in both structure and function, and that the former is much more rapid in its development than the latter, and that these are largely influenced by the conditions of heredity and environment, both in retarding as well as developing their normal conditions. There is a marked disproportion between motor and sensory cell activity in the child and this can be easily explained on physiologic grounds, but it nevertheless renders the child more vulnerable to certain neuroses, such as convulsions, epilepsy and headache.

The highest function of nerve cells is the power of inhibition, and this endowment is the last to be developed in the process of physiologic evolution. Cells are capable of generating or storing up nerve energy, beside the power of distributing it. For this purpose the cell calls to its aid the various nerve fibers, both afferent and efferent, and their peripheral end organs; hence the whole nervous system becomes subservient to the cell.

It is very plain to see that if the generating or discharging functions are not subject to proper control by virtue of their feeble inhibition that nervous instability results, which is highly characteristic of the neurotic diathesis and hence plays a very important rôle in the production of nervous diseases. When this abnormal lack of proper nervous adjustment or balance is again augmented by an already existing neurotic predisposition the individual is rendered even more vulnerable to trivial influences.

The cell in its normal state has been shown, microscopically, to present certain definite characteristics, which when subject to its normal daily activity gradually undergoes definite changes, both in its chemic and morphologic constitution. These changes when the normal stimuli are unduly prolonged are even more pronounced. The normal results of all cell activity is marked fatigue, but if the activity is unduly prolonged the cell becomes exhausted. In the former case the cell still retains the power of its normal reaction during a period of rest, viz., twenty-four hours for every five hours of normal activity (See Rachford on Neuroses of Childhood, p. 98) and becomes regenerated, while in the latter case the cell often becomes unable to further respond and is literally in a state of inanition. Hence it becomes possible to clinically recognize three classes of cells, viz.: 1, those which are normal or in a state of rest; 2, those which are more or less fatigued after their normal activity; 3, those which are thoroughly exhausted by over activity.

In diseases of the nervous system none of us will have much trouble clinically to recognize conditions representing these changes, for it has been shown by Hodge that the cells suffering from fatigue have a close kinship to neurasthenia, and it is only plausible to conclude that in functional diseases we may at first have similar cellular changes of greater or less degree, which may ultimately give rise to degenerate changes. Excessive mental and physical application would therefore seem to be potent factors in the causation of diseases.

In a recent article by L. H. Mettler on "Work and Worry," (New York *Medical Record*, Sept. 7, 1895) the writer says in summing up: "Work and worry, I therefore take it, are not baneful in themselves, not even when carried to excess, but the monotonous unbroken continuation of the excess is exceedingly injurious."

Professor Erb of Heidelberg (See *Medical Record*, March 16, 1895), in a recent address seemed to regard the feverish activity of the age as a symptom of disease. "The over-work, over-crowding, over-stimulation, increased use of tobacco and alcohol, together with excessive railway travel, with all its nerve-jarring motion," he thinks all tend to produce a loss of nerve tone, which ultimately results in neurasthenia, which is a refined expression of hysteria and hypochondriasis. Commenting on this, the *British Medical Journal* says: "While this may be true, there is another side to the picture, in that there is a greater knowledge of the subject, a greater tendency to freedom of exercise, to the freedom from strict conventionality, to the freedom from ailments that come from healthful surroundings, and that worry, not overwork, is the danger of the age, and this danger arises from decreasing and deferred marriage."

Worry is an exceedingly potent factor in the production of nervous diseases and persons suffer far more from the effects of worry of things that never happen than those which actually occur. We live in constant anticipation of danger, and this brings with it a continued and prolonged mental state of anxiety. The effects of such monotonous routine on the nerve cells is self-evident.

The most conspicuous and important cause and that which underlies all the rest in producing and propagating all forms of nervous disease, is the transmission through successive generations of that peculiar bodily condition known as the "neurotic diathesis." This manifests itself by nervous instability and defective innervation of the organic functions, materially influencing the normal development of the nervous system in the offspring and makes itself felt by a constant tendency to degenerative changes in the nerve elements, rendering the subjects of it peculiarly liable to break down under strain that would not affect persons inheriting a different constitution.

Jonathan Hutchinson says (See "The Pedigree of Disease"): "I would define a diathesis to be any bodily condition, however induced, in virtue of which the individual is through a long period, or usually through the whole life, prone to suffer from some peculiar type of disease." With this definition I fully agree. The same author also says: "Some diatheses are inherited, others are acquired. Of some the effects are permanent or constant, of others they are transitory or recurrent after intervals of health. The term should, however, never be applied to any condition of health which is expected to pass away and leave no trace, for the idea of persistence in some sense is always implied. On the other hand, we do not confuse diathesis with dyscrasia, for whilst the latter definitely implies bad health, the former only denotes proclivity and may be used when its subject seems perfectly well." Hence, we learn that the individual diathesis may present itself in every degree from a slight weakness to a very pronounced morbid tendency.

The term temperament is also liable to be confounded with diathesis in its more simple manifestation, hence the term temperament is used to designate the "sum total of the physical peculiarities of an individual exclusive of all definite tendencies to disease." Thus says Hutchinson: "To distinguish between temperament and diathesis we may say that

the former is a matter of physiology and the latter of pathology."

Inherited diathesis is more often, than not, entirely latent at the time of birth and is susceptible of aggravation, or in some cases of cure in after-life. "Such alternations are not possible in the constitutional peculiarities which we name as temperament."

I have thus dwelt at length on these terms in order to overcome a very common source of useless argument on the part of the profession by failure to comprehend the full significance of certain technic terms.

A certain predisposition or tendency to disease is transmitted from parent to child, and often is the only responsible agent for the presence in the offspring of any one of the various neuroses, such as hysteria, chorea, neuralgia, migraine, epilepsy, together with more serious organic spinal and cerebral diseases, including insanity.

We do not presume to explain all the intricate details concerned in their genesis, or even the pathologic changes occurring in the tissues and cells, as the laws which govern the transmission of hereditary traits are generally unknown, but the number of inheritable deviations of structure and function are endless.

These abnormal conditions of inheritance are often the result of imperfect growth, defective nutrition, incorrect habits, injudicious education and modes of life of the parent, the general effects of which tend to lower the normal standard or health and are marked by having a special injurious influence upon the general development of the nervous system, impairing its functions and exhausting its specific energies. The morbid products resulting from such deterioration are readily transmissible from parent to child and furnish the germs which in the offspring establish the neuropathic constitution. They are the seeds which may or may not remain latent for years, but if subject to the stimulating processes of the educational period, or the excesses incident to society life they rapidly mature and strengthen until they manifest themselves in some serious form of nervous disease.

The same causes which produced the deterioration in the parents are often allowed to have full sway in the child, already predisposed, and then a still greater deterioration is liable to occur. Then again, Rachford (See "Neuroses of Childhood") shows conclusively that bacterial products are also important factors in the causation of nervous diseases by their direct poisonous action on the heat centers, thus producing fevers, more especially in children.

The same author also states that arterial anemia and venous congestion produce nervous symptoms by their influence on the vaso-motor system of nerves, thereby weakening the inhibitory centers and rendering more excitable the various reflex functions of the medulla and spinal cord.

This leads to malnutrition of nerve elements, resulting in an impoverished condition of the blood. This morbid blood state presents itself in two forms, viz., innutrition and malnutrition; the former representing a quantitative change or reduction in all the nutritive elements of the blood, while the latter implies a qualitative change in the essential constituents of the blood. Clinically these conditions are recognized as the various forms of anemia. Such conditions are a very common feature of nervous disease, as by far the greater majority of all patients presenting themselves for treatment are found to be below body weight and anemic.

Another common source of nervous diseases is reflex irritations of all kinds. Recent experiments prove that chronic reflex irritation can produce very marked changes in the nerve cells of the spinal ganglia, and this becomes a potent source of nerve instability, more especially in children and young girls by virtue of their special vulnerability.

It is plain that children born of neurotic parentage inherit a weakness, and as growth and development takes place, are peculiarly liable to become victims of nervous disease in the formative periods of their life, especially at the physiologic crises, such as puberty, pregnancy, lactation or menopause.

This neuropathic diathesis may not only be *congenital*, but also *acquired*, and it can be produced in persons born of unhealthy parents by the excessive use and abuse of agents such as alcohol, opium, tobacco, tea, coffee, excessive study and physical strains of all kinds.

Education.—All education should be governed and based upon an intelligent recognition of physiologic laws of growth, and a proper adaptation to them. There exists in every child certain laws of growth and corresponding capacities, the proper development of which depends, to a large extent, upon the general bodily constitution of the individual. The natural law of progressive development is as gradual in its operation as the growth of trees and flowers, and if during its formative period, it unduly exercises or stimulates any organic function, the body will never be brought to the highest state of development of which it is capable.

By thus interfering with the natural sequence of the evolution of the body, we disturb the normal equilibrium of its various parts, and thus seriously mar the harmonious relation which should exist between the mental and physical constitutions. In a well developed organization the normal equilibrium of its every force perfectly balances, and, to use the words of an eminent medical physiologist, "There should be no power in a higher center or ganglia to compel a lower one to do more than it is fitted or is capable of doing."

Clouston says: "The fatigue following their normal use should be absolute, in themselves, to compel periods of *rest*, and yet we all know that it is counted a great power and achievement for any man or woman to possess the power of being able to work, think, feel or wake, not according to their innate capacity, but according to his or her wish, or the imagined necessity of the occasion. The exercise of such a power is really a want of nervous adjustment, and a physical imperfection not to be desired or encouraged; indeed, it is a very dangerous possession to those who inherit a neurotic diathesis." The functional activity of the brain and nervous system is established at different epochs, and perfected at different rates. By cautious stimulation we bring it to its highest development, but by undue haste and excessive use we ruin its normal equilibrium.

In the stimulating process of the educational period the cerebral cortex, which is the seat of all conscious mental action, undergoes a change of function corresponding to its excessive stimulation, and which, if long continued, culminates in a preponderance of nerve action, which is highly characteristic of the neurotic diathesis. The nervous system, with the brain as its controlling center, rigidly obeys the natural law of evolutional precedence, and its functional energies are as gradual in attaining their full force

and capacity as any other special apparatus of the body. Anything, therefore, which has a tendency to force these powers and capacities, interferes with its normal equilibrium.

It has become the custom of the present day for school and college professors to prescribe for their pupils the study of the more intricate problems relating to their special departments, believing this to be the one thing needful to accomplish any and every purpose in life. Thus the ancient Roman law of physical excellence is completely reversed, and with us intellectual superiority and mental achievement take precedence of all aims and duties of life. In the effort to excel, every other part of the organism becomes unduly subservient to the intellect, and the natural physiologic law of evolutional precedence is wholly ignored.

To-day the instruction of children is on purely business principles, without regard to their physiologic strength or capacity. The largest amount of knowledge is to be acquired in the shortest time possible. Rapid progress and intellectual supremacy is the highest test of a desirable school, and the teachers that are most in demand are those who are the most earnest and zealous in their work.

A magnetic power of inspiration is the qualification *par excellence* in a teacher, and that teacher is most in demand who can secure the greatest brain tension during the allotted hours of study.

Intellectual achievement is the goal which all are seeking, irrespective of age, sex, mental or physical strength. The home management of children also contributes its share to this brain tension. Late entertainments, reading exciting works of fiction, social pleasures and strains of all kinds tend to bring about in them morbid growth.

Nervous excitement is at a premium, and therefore prevails in the homes, school, church, and indeed every relation of life.

A recent writer says it is a question whether the competitive examinations, as now carried on in schools and colleges, are not doing more to enervate the mind than to strengthen it. Those who attain the highest honors are generally found to be diseased.

Intellectually speaking, every mind has a track of its own. To place all children on an equal mental footing, when they reach a certain age, is a violence to nature which brings its own equivalent in physical and mental deterioration.

We recognize that certain causes produce certain effects, and we can see how the future generations are influenced by the good health and the proper mode of living of the present, and we must use every means at our disposal toward influencing those with whom we come in contact to study the laws of health, to reform their habits, and instruct in all matters that pertain to hygiene, and further in every way a more complete general knowledge of the human organism, and the laws and forces which govern it. The short duration of life and the habits and modes of living of many persons can be attributed solely to their profound ignorance of themselves. The consequence of their habitual neglect and ignorance entails upon their progeny untold misery, much of which might be prevented by a more intelligent understanding of themselves.

The neurotic diathesis and its baleful influence upon the rising generation is not as well understood by the masses as it should be. The reason for this may be explained to some extent by the prevailing false system of medical ethics which condemns any attempt on the part of the members of the profession to popularize purely medical topics. The relation of the physician to society is not only that of a therapeutist, but also a conservator of the public health. The full mission of a cultured physician is not complete if his educational attainments are solely bestowed upon the medical fraternity, and those coming within his range for treatment. In addition to his strictly professional duties he owes a duty to the public. In the past the attention and efforts of the profession have been too exclusively directed to the solution of problems connected with the cure of disease, and the great importance of its prevention has not been sufficiently recognized.

The duty of every man who deals with his profession as a noble and humane science, is rather to point out the methods of preventing occurrence and eradicating, if possible, latent constitutional defects, than to confine his attention to the treatment of its active manifestations. The vast amount of preventable disease which is filling thousands of premature graves and destroying the hopes and happiness of both the young and the old in every community of our land, certainly demands the earnest attention of the medical profession.

So long as we remain indifferent to this great and growing evil, just so long will nervous disease continue to increase and swell the rate of premature mortality. Several of the more progressive members of our profession both in Europe and America, now recognize the great need of a more general dissemination of medical knowledge among the masses, and are advocating its adoption as one of the most powerful agents in the prevention of the spread of nervous diseases.

"Any work," says Dr. Mann, in his recent work on physiologic medicine, "that we, as physicians, do toward influencing the public to study the laws of health, to reform their habits of living, to promote the use of baths, to encourage temperance, ventilation and due exercise, and to further a more complete knowledge of the human organism and the laws and forces which govern and regulate it, and in diffusing a knowledge of all the means necessary for the preservation of good health, will produce its exact equivalent of results in the prevention of disease. We shall thus develop in the masses an intelligent, self-helping character, tending to robustness of body and robustness of mind."

Another favorable field for a more thorough practical drill in matters pertaining to mental hygiene and the study of physiology is the public school. I am not unmindful that some attempt has been made in this direction; but it is merely an attempt.

Very few pupils (and shall I say principals of schools) realize the full force of one of the first principles of physiology, viz., that within certain limits the growth of an organ is in proportion to its exercise, and that all excessive exercise is followed by a corresponding depression. If this law were thoroughly understood and obeyed there would be less headache and disease attributed to the public school. In cases where the neurotic constitution is inherited, the morbid inheritance is not a mysterious and necessarily fatal doom, certain at some time to overwhelm its victim. It is purely a physical defect, which can be remedied and even cured. We may not be able to

explain fully its intricate pathology, but we know it manifests itself in a great many distressing forms of nervous diseases, and the wise physician, after recognizing the morbid taint, anticipates the pathologic conditions likely to arise, and therefore does not neglect to advise means necessary for its complete removal.

The nervous temperament predominates in American women, which is now recognized to be due to some trophic lesion. This being readily transmissible from parent to child, if we are to avoid its continuance in the young we must resort to such methods as will produce a better type of physical constitution and mental stamina. Hence the great indication in the prevention of nervous diseases, is to harmonize the physical and mental organizations in such a manner that their correlative forces equally balance.

Marriage.—In every individual two streams of ancestry mingle, each furnishing its own specific mental, moral and physical characteristics. As a general law, the stronger character predominates, but never so strongly as to completely overcome the weaker. Pure blood should certainly be the desire and lofty ambition of every individual. The promulgation that "the iniquities of the fathers shall visit the children, unto the third and fourth generation," can not be gainsaid. Our country to-day stands in need of more healthy men and women, and one way to secure these is by wisely regulating matrimony.

Every marriage acts upon society in a fourfold relation, by first affecting the conjugal pair, second their progeny, third their relatives, and fourth the community in which they live.

I believe in certain cases, *marriage should be governed by law*, for in the light of facts, who can truthfully argue that it is nobody's business whom we marry? Habitual governmental regulation of marriage comes with higher grades of civilization.

The Spartans regulated marriage with sole reference to the good of their republic; men were subjected to severe penalties if they married too early or deferred it too late. Unhealthy children were destroyed as unfit to live. (And here allow me to say that such a movement is already projected in this country.) Every care was used by the Spartans to insure the health of infants and children. But instead of studying the interests altogether of the state and nation, we, as a Christian people, should view it from a more humane and philosophic standpoint.

Generally speaking, no special effort is now being made on the part of parents and guardians to choose proper society for their wards. Those easy American habits which permit, unchecked, the free social mingling of the young without regard to the laws of heredity, often result in marriage and intermarriage of consumptives, epileptics and other diseased and defective individuals, while the less demonstrative insane and more demented specimens of humanity have also free access to all classes of society. Even the known vicious and morally perverse often form unions in the more devout families. We know too well the sad import of such thoughtless and ill-assorted marriages; especially, therefore, is it our duty to impress upon the minds of parents the necessity of wisely informing their children on these matters, lest ignorance prove a future source of evil. The responsibility of the medical profession in relation to the coming manhood and womanhood of our race can not be overestimated.

The American, however, is accustomed to regard his individual rights to the exclusion of all others, and the conviction that a man can be what he wills to be, is lodged in the most intimate fiber of his being. Such an idea, however, is erroneous, especially when subject to the laws of heredity, and the results of its misapplication are self-evident.

Physicians who have children growing up under their professional care should endeavor to have them well developed physically, even if it be at the expense of their education. We too often sacrifice the constitution for what is deemed educational necessities.

The prime necessity in our children is to have plenty of bone, blood and muscle, with an accurate balance between the physical and the nervous system, and if something has to be sacrificed let it be their education, and not their physical health.

The children of neurotic constitutions should be kept fat from birth, and when they arrive at the school age their brains should not be forced.

As a general rule, these children are precocious, hypersensitive and possessed of a vivid imagination. Their parents and friends admire their quickness to learn, and urge the teacher to push them forward to the fullest extent, that they may out-distance all competitors. All such precocity should be discouraged and condemned, as it is said by the best authorities to be a sure sign of biologic inferiority.

Dr. Porter of St. Louis, in his studies of school children states "that mental ability is on the average greater in large children than in small children of the same age."

In some recent research in the schools of Kansas City I found, however, that the precocious children were invariably below body weight and poorly nourished.

Our local city authorities are too prone to ignore medical aid in their sanitary and educational legislation. No class of persons are better prepared to give useful advice in such matters than the scientific physician. More especially is this true of education, and a wisely selected medical board should be appointed in every city to inspect the public schools at regular intervals and determine which children should and which should not be allowed to study the more difficult branches.

It is nonsense to regard the child's age as the criterion of its mental strength and capacity. It seems far more logical and scientific to allow the child's *height* and *body* weight to govern this. Definite standards of weight should be fixed for every age and height, and every school boy and girl having a nervous diathesis, whether it be congenital or acquired, should be weighed at regular stated intervals, and if found to be below the fixed standard they should be compelled to forego some or all of their studies and be placed under proper treatment until the loss in body weight, at least, is recovered.

The first evidence of mental deterioration is manifest in a loss of body weight. Children of nervous constitutions should be taught to lead regular and systematic lives, and the necessity of developing fat and muscle, as well as the dangers attending such neglect.

It is outside the province of the responsible duties of a principal of a school to determine which child shall, and which shall not study hard. It needs a skilled physician or neurologist.

Such a plan would also prevent much undeserved

censure of the principals and teachers by the parents complaining that their children had been unnecessarily retarded in their grades.

We must be more active and alert in this direction, and not until we, as a body, take a more decided stand, can we hope to successfully stem the rapidly advancing tide of both organic and functional nervous diseases.

If it be true that the physiologic nerve cell is limited in its capacity, and that its normal activity results in the expenditure of a certain amount of force which, when discharged, presents changes corresponding to fatigue, and that a certain amount of rest is not only capable but necessary to restore or regenerate its normal function, in the absence of which, changes corresponding to its inanition occur; then, clearly, the duty of the physician is to use all possible means to secure the needed *rest* for all morbid conditions of the nervous system in which nervous irritability and instability are the chief clinical criteria, and those which form so great a part or the subjective phenomena of the purely functional neuroses and psychoses.

DEGENERACY; ITS CAUSES AND PREVENTION.

BY ARTHUR ROWLEY REYNOLDS, M.D.

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Practically all recent books and essays upon the subjects quote statistics to prove a startling increase of insanity, of criminals and of pauperism. They either state or intimate that the race will soon be overwhelmed by the number of persons of this character, unless something is done to prevent them from procreating their miserable kind.

Before we accept this gloomy conclusion, we should study the matter and see if the statistics may not be faulty. We may also, with profit, study the conditions that are in the way to prevent those who are normal in their development from continuing so indefinitely through succeeding generations, as well as to recognize and study what influences are at work to counteract degenerating tendencies.

There is ground for hope that some of the apparent increase shown by statistics is not real, but due to the greater care in the census enumeration of later years. Moreover, insanity and other mental defects are now treated as a disease and misfortune, and more frequently come to light while formerly they were too often considered a blemish and disgrace and hidden from view. We may draw some consolation, too, from the fact that latter day segregation of many of this class will prevent their reproduction and favorably impress the figures of the future. Nevertheless, we recognize that whatever arguments there may be against the correctness of the statistics of the question, we yet know that the dependent individual is most numerous and a great and ever increasing burden to the state.

Economic conditions, new to our generation, have arisen with the vast application of steam and electricity and have played a part in the enormous growth of cities. The furious passion for money pervading all classes, and the sway its possession gives in business, in politics, in society, in religion, in courts of law, in legislative bodies, is leading us into danger. Great wealth has led to a desire to still further enhance its power, and giant combinations have been formed, enormous enterprises undertaken, all of which gives a demand for men at wages and destroys the individuality of small concerns, while the fall in the price of produce has made farming unprofitable. These conditions make rural people turn a more willing ear to the promise of shorter hours and regular stipend, and they swell the stream setting toward the cities. The farmer forgets his freedom and his independence and recalls it too late, when he finds himself a mere cog in a great machine in the city, and no hope of relief when his employment is gone. He is then in poverty and hope dies within him. He is tempted or driven to do evil and may never be able to reform. He has not his native trees for company and inspiration. There are no flowers to cheer; no calm for reflection; no quiet for study. Children born and reared under such circumstances start the race of life with a serious handicap.

No argument is needed to prove the power of heredity. It is seen every day in the development of the trotting horse, whose breeding is regulated with such nicety that the height, weight, color, speed and even the cash value of a colt can be told, almost to a certainty, before it is born. The state undoubtedly should make use of this knowledge to perpetuate and upbuild the race, as an offset to the increasing tendency that density of population, through vice and disease, makes toward degeneracy.

In our own country we suffer from the additional burden of imported dependents. Indeed, it has been said that foreigners furnish one-eighth of our population, one-third of our paupers, one-third of our criminals and one-third of our insane. It is true, I believe, that we have a law of Congress to prevent the importation of dependent persons. So long, however, as the conditions of life are easier in our own country, the degenerates of Europe and Asia will find their way to our shores.

A strict medical supervision of all marriages is strongly advocated by some writers, as a safeguard against the increase of this class of persons. It is unquestionably wrong for degenerates of a pronounced type, and those who are dependent, to propagate their kind, and there can be little doubt that the state has a right to step in and restrain the weak or the willful of these classes, through the application of medical knowledge, to the case of every applicant for a marriage license; but whether or not this will cure the evil is a question that should be carefully studied. It is not the purpose of the writer to dampen the ardor of those who would regulate the evil by law, on the contrary to urge it and freely avow belief that steps should at once be taken, beginning at the marriage license windows of our country, to prevent the union of those who, by the almost unerring law of heredity, will reproduce a brood which will be a charge upon the state or a burden to society. Proper laws, intelligently enforced, will directly restrain a great many. It is our belief, however, that their chief use will be to form a focusing point, from which knowledge shall radiate. We believe further that it is only through the proper education of the masses that those unfit to reproduce their kind will be restrained. And we believe, moreover, even though it be true that the race is degenerating from one generation to another, where the conditions of life are unfavorable, it is equally true that there is a constant regeneration going on where the conditions of life are favorable. Laws alone can not cope with the question. Rules and

statutory enactments are of but little value, unless backed by a healthy public opinion. But there are agencies constantly at work to counterect the degenerate tendencies that should be considered before we despair of the race.

While it is necessary to look evils squarely in the face, it seems wrong to enumerate them too often; to discant too loudly upon the ills that beset us, or to see only the dark side of the picture. Human nature is prone to brood over the sorrows and trials of life. The uncanny things are too apt to be kept prominent and we are too likely to forget the cheery, bright and sunny side of affairs. The world contains more sunshine than shadow, more joy than sorrow, more smiles than tears, more righteousness than sin, more good than evil, more charity than theft. Adam's sin is repeated still, but there is an ever-progressive spirit of the Nazarene pervading every day life.

It is well to prevent the degenerates and dependents from procreating, but it is infinitely more important to correct whatever there be in our civilization that drifts toward degeneracy. Human beings crowded together so close that the home loses its individuality, its sanctity and its seclusion; or that vitiates the air that is breathed; that makes artificial feeding of old or young necessary; that pollutes the drinking water or in any way hampers physical growth. Whatever there is that blunts the moral sense, that whets the appetite for alcohol, that excites the passions or gives opportunity for licentiousness must be wrong. All these evils are fostered by too close living in tenements, whether located on the boulevard or in the slums, and just as sure as a cloudy sky portends the coming of the storm, such conditions lead on directly to drunkenness, crime, idiocy and insanity. Whatever is being done, or whatever may be done to make country life profitable and possible is an aid to segregation and must therefore be a step in the right direction. The trend of population toward large cities is not a good omen for the race and calls loudly for legislation that will turn the current back again. The great and rapid growth of our cities, that receives so much admiration and is quoted as such signs of prosperity and greatness, will ultimately result in a plague upon humanity if some wisdom does not appear and set the tide the other way. Can it be that the crowding will go on till the curfew will be necessary to segregate the young in their homes, that the evil of street association, as a school of vice and crime, will be lessened? It is well to pause and inquire where is the profit, in the end, of clustering of industries in large cities, if sweater's dens must be the accompaniment. It may be well to consider whether or not those having knowledge of medical sanitation and sociolgy should not have a larger place in our legislative assemblies. It seems that their valuable knowledge should be used in deciding our laws of immigration and other legislation relating to the welfare of the race, while it would lessen the too common tendency to decide such grave questions upon the sordid demands of barter and exchange.

We have with us now and always have had splendid and powerful agencies, operating with vigor, as a stay to crime and a help to humanity. Chief among these is the church through all her divisions and denominations, for whatever the differences as to church government may be, their teachings are as one on the question of morality and right living.

I wish, however, to speak more particularly of an agency that is paramount to all others in its influence toward the regeneration of the race; an agency that has already done a vast amount of good and that promises, if properly backed and intelligently followed, to solve the problem; an agency that strikes almost at the root of the evil; an agency almost divine indeed—for it is none other than the new woman. I do not refer to the new woman of newspaper creation—not the woman who hopes by copying the follies of man or his wearing apparel, to emancipate herself. Not the woman who would wage a war of strife and contention with men. She is not new—she is as old as civilization itself.

The real new woman understands that there is within her an inherent and natural power to command the actions of man and sway him for good or for evil. She realizes her power; and that hers is the enormous responsibility to shape and control the destiny and perpetuity of the race. She realizes that it is her high and divine privilege to be the mother of mankind. She realizes that it is among her first duties to equip herself, mentally and physically, to graciously bear the joys and responsibilities of maternity. She realizes that there is no loftier mission on earth than to fashion the character and train aright the intellect of the growing child. She realizes that the budding boy is the coming man. She realizes that it is a crime for man to grow so grasping as to enslave his fellow creatures of either sex. She realizes that the good things of this earth are God's bounty and intended for all his children alike. She realizes that the mad race for wealth, with its rapid concentration "makes countless thousands mourn." She realizes that the frenzy for gold is every day enhanced by the demands of some of those of her own sex, as they struggle to reach the summit of fashion and social power. She realizes that the mother is largely responsible for the traits of the child, other than those of heredity; and that it requires no more time to learn and love the ways of purity, than to learn the ways of vice and iniquity. She realizes too that proper training is the best preventive of perversions of every kind. She has established and is all over the country conducting branches of the greatest institution in American history—I refer to the kindergarten.

The kindergarten has reversed the old order of things, when the daughters of the poor and uneducated, and perhaps the vicious, were made the companions, the guardians and instructors of children in the homes of the rich. Now young ladies of good position in the world graduate from universities to take positions in the kindergarten, qualified to mold, fashion and discipline the minds of children of the humblest, beginning with the child at the very dawn of its intellectual development. Devotees of this new cause deem it a privilege to work all day in the creche, caring for children of mothers who must toil for daily bread.

The new woman believes it is a perfectly normal desire to want to wash and dress, to entertain and caress a helpless babe, even though it be of lowly birth, and if the babe should be her own, she counts the moments she is forced to be separated from it. She feels pity toward her married sister who dwarfs her maternal instincts, or denies herself the boon of motherhood, or who shuns the society of the children she has unwillingly borne. The new woman sees in life upon a farm better discipline for the mind than

can be found in the greatest counting room. She sees that the same farm can do more for the physical development of men and women than any manual training school in the land. She sees that the music of the birds inspires deeper thoughts of God and Nature than all the grand organs in the universe; that the sighing of the wind through the trees and the patter of the rain on the roof inspire the loftiest emotions.

The new woman is she who founds homes and settlements among the poor, and successfully conducts them. She consoles the needy in their trouble and feeds them when they are hungry. She encourages the idle to work and helps them to secure it and if necessary she instructs them how to perform it. She founds and conducts useful societies, classes, schools and clubs of every sort among the poor. Her spirit and her genius build fresh-air sanitariums, floating hospitals, and in the summer time sends from the alleys and slums the debilitated weaklings to the green fields, the sylvan groves and the babbling brooks, to drink in the inspiring delights and breathe the pure air of the countryside. I will not attempt to enumerate all the institutions she is working through, for they are well nigh countless and daily multiplying.

When the new woman's hand is sought in marriage, she is likely to have inquiry made as to the young man's health and his morals, rather than inquiry as to his bank account. What his wealth in the great distinguishing characteristic that elevates him above the animal world—his manhood, his judgment, his intelligence? It is through the new woman that society will eventually come to apply the same rule and exact the same standard of morality for men that it does for women and eventually elevate him to her plane.

The new woman has learned the terrible cost in pain and suffering to her sex and her offspring that so frequently comes from a union with dissolute men. She has learned, through the advance of medical science, that the harvest reaped from a sowing of "wild oats" in her husband's youth is too often one of disease and death to herself and a pitiful inheritance to her child.

Higher education through schools, great universities and libraries is not enough. Kindergartens should be founded in sufficient numbers to reach all the young. The new woman will multiply the kindergartens and reach the degenerate or wayward before habits of thought or action are formed and do for the infant mind all that training and example can do.

Through the present work of the new woman and its future development must come the public knowledge and the public sentiment that will lead to the necessary reform to let daylight through the slums; to raze the unsanitary tenement to the ground; to pull down the towering buildings that harbor miasm in their shadow; that will make it possible for human beings even in cities to live on the surface and not be forced either into the air or under the ground.

Through this direction of forces, cottages will be built for all so that man can return to his primal condition. Even the very poor will not be denied free access to God's sunshine, pure air, green grass, the shade of trees or the beauty and fragrance of the flowers.

A vast number of holy influences are constantly at work that realize the necessity of proper care and training of children while they are young. Let us hope it will go on till our philanthropists and our State legislatures will see the economy of laboring more for institutions for the young; for if they be trained aright, it surely means economy in hospitals, asylums and prisons.

36 Washington Street.

THE PSYCHO-NEURAL FACTOR IN SURGERY.

Read at the Meeting of the Mississippi Valley Medical Association at St. Paul, Minn., 1896.

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As a thorough knowledge of general and special pathology is essential to the soundest surgical judgment as to the propriety and necessity of an operative procedure, so is a knowledge of the nervous system of the patient and the relation of his nervous system to the local disease found essential to proper diagnosis and prognosis. The time is coming and now is when the surgeon should have wide neurologic and psychiatric knowledge in order to avoid fatal mistakes and to most successfully practice his art. The manner in which the necessity of a grave operation is announced may to certain psychologically unstable constitutions pre-determine a fatal issue, or it may give to a doubtful issue a possibly favorable result. There are some constitutions so neuropathic and psychopathically predisposed that the shock of such an announcement would precipitate a crisis of mental alienation, and it were better that the proposed operation should be abandoned than insisted upon under such circumstances, or that the patient should be gradually approached and prepared by cautious speech and suitable precursory, reconstructive and tranquilizing neurologic treatment. Some patients before being operated on should be made almost entirely over in the tone of their nervous systems and some should be let alone, tranquilized and made comfortable and allowed to die in happy euthanasia. What, for instance, is the use of exsecting a far-advanced cancerous uterus after the cachexia has long persisted and the nerve centers have become irreparably neuropathic and the neurasthenia has become profoundly irreparable from the prolonged pain and insomnia. The rational process would be to stop the pain and insomnia, correct as much as possible the neuratrophia that exhausts and makes the patient's last days comfortable by neurologic and antiseptic treatment and the best surgical suggestion without the knife. In fatal surgical results the reputation of operative surgery suffers often because overlooked neuropathic conditions were at fault.

In my judgment the previously applied skill of a neurologic clinician would postpone many operations indefinitely which are now fatally performed, and properly prepare other cases for the surgeon's knife and a successful surgical issue, which are now doomed when the operation is decided upon, because conditions of endurance of the operation are not in the nerve centers of the patient.

The cause and effect of psychic shock in different patients are not always considered as they should be by either physician or surgeon. The possible evil effects of words and acts at the bedside or before an operation that tend to paralyze or even produce a paresis of hope are not always duly considered. The

surgeon who bluntly announces to his patient, after revealing the necessity for the knife and having all things ready, "now I am going to operate, the proceeding may kill you, but you would be better off dead than alive as you are, let us hope for the best," must have a strong-nerved, brave subject to not be somewhat depressed by such an announcement, and such a depression before a further depression of vital centers by chloroform or ether, even in the strongest nerved is not good clinical practice. It doeth not "good like a medicine." Such a procedure may have the virtue of candor to commend it, like the candid announcement by the physician that his patient is likely to die. If he is saved it will be "by the skin of his teeth." Recovery is not the rule when such premature prognoses are announced, sometimes because the patient could not have recovered by reason of an incurable malady and sometimes of the vitally depressing effect of the speech that destroys hope and removes its buoyant influence from those vital nerve centers that influence the metabolisms of the organism and the assimilative processes of organic life and reformations of tissues.

In our intercourse with patients, medical or surgical, the untoward and often fatal influence of depressing mental suggestion on the patient should always be avoided. Hope, that springs eternal in the human breast if we do not interfere with it, is itself a buoyant medicine, and faith in the physician or surgeon is therapeutic power that should never be rudely shattered by us. Candor is to be commended, but it can be too bluntly displayed and often is, for the welfare of our patients. Besides, the physician's or surgeon's judgment may be at fault. It often is. There is more vital resistance and power of repair in the patient than the medical or surgical attendant thinks or knows. Vital power is not always a definitely measurable quality, depending as it does, upon ancestral factors in the upbuilding of the constitution—the cerebro-spinal axis and the sympathetic system of the patient—of which we are never fully cognizant. The patient should always have the benefit of this doubt in our prognostications before him or to him.

The little surgeon who pompously displays his tray of instruments before his trembling patient, and to his woful, wondering mind descants upon the operation he is about to perform and the chances of recovery or displays a nonchalant, unfeeling mien, acts in an unprofessional manner and does not increase his patient's chance of getting well quickly. And the great surgeon who takes his patient into the operating room and places him while conscious on the table, himself with instrument in hand, while white-aproned attendants gather around the victim, approaching with sponge and bottle and instruments and appliances of the impending operative procedure, is not so wise a surgeon and does not so fully consider the effect of depressing psychic influences as he who chloroforms the intended subject of an operation in another room or in the same room without these depressingly suggestive influences.

Had I continued the active practice of surgery (of which I once had, as you know, ample clinic experience) I should never vaunt the implements of my art before my patient, at least before he should recover from the operation, nor anesthetize him in the presence of any depressing influences. Where practicable, I would for purely elevating psychic effect, begin the administering of the anesthetic in the most cheerful room I could prepare: I would drape its walls with suggestions of hope and inspirations of courage. I would have nothing about me at that time suggestive of blood. I would cheer him so far as I might without falsity; mention similar cases, if I could, that had undergone his approaching ordeal successfully and let him take his operating couch and anesthetic as "one who lies down to pleasant dreams." I would proceed thus because I am a psychologist and have added something more than operative skill to previously acquired medical knowledge. I would be as tender with him about inflicting the mental pain of dreaded apprehension as "one who would not needlessly set foot upon a worm." I would do thus, not only because it would be the dictate of tender feeling, but because a sound psychology and psychiatry enjoin it.

THE STATISTIC EVIDENCES OF THE VALUE OF VACCINATION TO THE HUMAN RACE, PAST, PRESENT AND FUTURE.

Read before the American Medical Association at the Jenner Centennial Celebration, held at Atlanta, Ga., May, 1896.

BY EUGENE FOSTER, M.D.

PROFESSOR OF PRINCIPLES AND PRACTICE OF MEDICINE AND STATE MEDICINE AND DEAN OF THE FACULTY OF THE MEDICAL DEPARTMENT UNIVERSITY OF GEORGIA, AUGUSTA, GA.

(*Continued from page 911.*)

Now to a circumstantial examination of the charge of transmission of syphilis by vaccination.

The medical literature of every civilized nation has been ransacked for the purpose of substantiating this charge. "The London Society for the Abolition of Compulsory Vaccination," ever active in seeking and disseminating all information detrimental to the cause of vaccination, has put together all cases of alleged vaccinal syphilis which its active investigators could hear of. Here is a copy of the original paper from that society, received by me in 1884.[44]

VACCINO-SYPHILIS.

The following is list of authenticated and published cases[45] of transmission of this one disease alone:

Lancereaux has published the following cases of vaccino-syphilis:

By Cerioli	40	By Lecoq	2	By Chassaignac	1
By Tassani	46	By Galligo	14	By Hérard	1
By Surgeon B.	19	At Rivalta	46	By Adelasio	2
By Hübner	8	By Trousseau	1	By Monell	1
By Marcolini	40	By Maronni	34		
By Viani	2	By Devergie	1	Total	258

To these I have added the following:

By Hutchinson	24	At Lebus	18	By Fuqua	52
By T. Smith	1	By Depaul	59	By Cullimore	1
By Hulke	1	By Sebastian	1	In Algiers	58
By Oldham	8	By Collins	2		
				Total	478

M. Briquet appropriately says: "A competent observer and a complete observation, reported with such details as render the statements capable of being checked by the reader, are ndispensable requisites for establishing the reality of an ordinary fact in medicine; and if for establishing an ordinary fact, how much more when the facts alleged are confessedly so rare, and so contrary to all previous experience, as these must be admitted to be." To correctly investigate the question of vaccinal syphilis, we must first determine the question of inoculation of the lesions of secondary syphilis. Experiments by competent observers have demonstrated that condylomata, ulcerated tubercles, psydracious pustules of ecthyma, pustules of acne, mucous patches and the blood of syphilitic subjects, may be inoculated into the constitution of the person not already infected with syphilis. Now, it is an admitted principle in the teachings of syphilography that the secretions from pathologic lesions, not themselves syphilitic, although occurring upon the bodies of syphilitic persons, do not contain the virus of syphilis, unless admixed with blood. Gonorrhea upon a syphilitic patient reproduces gonorrhea by inoculation, and not syphilis; and the same is true of chancroid. All of these lesions of secondary syphilis, except the blood, may be eliminated from this discussion, for we can not imagine how any other of them could contaminate vaccin matter in its rational propagation.

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[44] From my paper before American Pub. Health Assn.

[45] These cases have been fully examined, and a brief analysis of some of them will be presented later on.

Is the effort to inoculate a healthy person with syphilitic blood invariably successful; and, if not, what proportion of success will attend these efforts? The following presents the results of all such efforts to be found detailed in the most authoritative works upon syphilis:

Name of experimenter.	Number of inoculations.	With success.	Without success.
Anonymous surgeon of the Palatine	9	3	6
Waller	1	1	. . . . .
Gilbert	1	1	. . . . .
Pellizzari	5	1	4
Lindwurm	1	1	. . . . .
Thiry	4	. . . . .	4
Lalagrade	3	. . . . .	3
Diday	20	. . . . .	20
Total	44	7	37

Thus, gentlemen, we see that where intelligent physicians, bold enough to test the matter, after deliberately and carefully endeavoring to produce syphilitic infection by inoculating healthy subjects with syphilitic blood, failed in 84 per cent. of all such efforts, only those efforts were successful where, as by Pellizzari, the anonymous surgeon of the Palatine, Waller and others, large surfaces were denuded and syphilitic blood in large quantities kept for many hours to the denuded spots.

It is, of course, impossible in this discussion to enter into an extended or minute examination of the cases of alleged transmission of syphilis by vaccination. The following embraces nearly if not the entire list of reporters of vaccinal syphilis, as given in the best works upon syphilis:

Name of Reporter.	Number Vaccinated.	Number Infected.	Number not Infected.
Cerioli	46	40	6
Tassini	64	46	18
Surgeon B.	24	19	5
Hübner	13	8	5
Monell	1	1	. . . . .
Marcolini	40	40	. . . . .
Viani	2	2	. . . . .
Lecoq	2	2	. . . . .
Galligo	14	14	. . . . .
At Rivalta	63	46	17
Trousseau	5	4	1
Marone	34	34	. . . . .
Devergie	1	1	. . . . .
Chassaignac	1	1	. . . . .
Hérard	1	1	. . . . .
Adelaslo	2	2	. . . . .
Totals	313	261	52

HUTCHINSON'S CASES.

Series of Cases.	Number Vaccinated.	Number Infected with Syphilis.	Number not Infected with Syphilis.
First	12	10	1
Second	26	9	17
Third	13	1	12
Fourth	Unknown	1	Unknown
Fifth	Unknown	2	Unknown
Sixth	Unknown	1	Unknown

It is absolutely necessary, in an "investigation of alleged cases of vaccinnal syphilis, to ascertain, 1, whether we are really dealing with syphilis: 2, whether, if this be so, the syphilis is not hereditary and a mere coincidence or evolution of vaccination; 3, whether, if it be acquired syphilis, this has not some other origin unconnected with vaccination, or attempt to vaccinate; 4, whether, if the acquisition of syphilis be reasonably traceable to vaccination, or attempted vaccination, there is evidence, direct or presumable, that the so-called vaccination had been done from a genuine vaccin vesicle, and that the products of that vesicle had not been mixed with some of the inoculable products of syphilis. Not till this was settled would any question arise about admixture of blood. The interest and importance, after all, of the cases in which vaccination is alleged to have communicated something beside its own infection, turn entirely upon whether the vaccination had been performed with unmixed lymph of genuine vesicles—vesicles about which no competent person would make a mistake."

Seaton (Handbook of Vaccination) appropriately says: "It must obviously be impossible to discuss at length, within such limits as in a general treatise of this kind could be allowed, all the cases that have been cited as evidences of the communicability of syphilis by vaccination. The most satisfactory course will be to examine carefully three or four cases, typical of the kinds of proof which have been advanced of this occurrence."

The following is an extract from his review of alleged cases of vacinal syphilis: "1. An epidemic of syphilis reported by Cerioli as having occurred in 1821 (inquiry made eight months after its orgin. The account given of this epidemic is of the loosest kind; it was not proved, or even alleged, that the child, from whom the lymph supposed to have been the origin of the outbreak, was taken, had ever had syphilis); 2, another epidemic in 1841, seen also by Cerioli (investigated likewise after a very long lapse of time), the child from whom the lymph was taken never had syphilis; but it was said that the year before his father had had syphilis."

Surgeon B.: "It appears that in a town in Germany twenty-four people belonging to different families, were in February, 1849 (some on the 13th, some on the 14th, and some on the 15th), revaccinated, as they supposed, by him. There is no statement of vaccin vesicles having been produced in one of the cases; but at the end of three or four weeks (*i. e.*, the ordinary period of incubation of syphilis), ulcerations of a syphilitic character began at the points of inoculation in nineteen out of twenty-four persons operated on, and these were followed in due course by constitutional syphilis. Here was syphilis, but no vaccination. What could have been the cause of it? The vaccinator who was inculpated asserted that the operations were all done with lymph from a child who was *fort et sain*, and who, having been vaccinated on the 4th of the month, had regular vaccinia. We shall see immediately how far this statement was borne out; but it must first be noted—and is an illustration of the want of precision generally attending these accounts—that we are nowhere distinctly told whether the so-called vaccinations, or any, or which of them, were done direct from the child, or whether the stuff taken from it might not have been collected on glasses, points, or tubes. For all that appears to the contrary, there was at least the possibility of a mistake (such as has happened many times with regard to the matter of inoculable diseases) of taking lancets, or glasses, or tubes charged with one kind of inoculable matter instead of another. But, assuming that the matter used came from the source indicated, what was the state of this source? Though it was said to be from an infant *fort et sain*, and that this was *surabondamment démontré par plusieurs témoins*, a different account was given by other witnesses; and a doctor, who saw the child on the 21st of February, a week after the lymph was taken off, when of course no suspicion of anything wrong had yet arisen, testified to the existence of some erythematous eruption, which was said to be like syphilitic roseola, and it died on the 24th, three days after his visit, of hydrocephalus. But, more importantly, what was the state of its arm? It turned out that, according to an eye-witness, there was on the eighth day of the child's vaccination not a vestige of vesicles, *aucune trace de boutons*, and yet two days later, the account tells us, several vaccinations were performed from it and lymph continued to be extracted from it for two days."

"In Hübner's case—a case of malpractice—there could be no doubt of some children having been syphilized, but no investigation of the circumstances was made till eight months afterward, and the account of the so-called vaccinations (in most of which it is quite certain, and admitted, there had been no proper vaccine effect), was only what could be got from the statements and recollections at that interval of time, of the mothers."

Trousseau's case: "A young woman was under treatment in the wards of the *hôtel-dieu* for a uterine affection, apparently of a non-specific character, at a time when there were some small-pox cases in the hospital, and wished to be revaccinated. This was done by three punctures on each arm, from a healthy child at the time, and which, for anything that was ever known, never exhibited any taint. Four children who were vaccinated with its lymph at the same time with this young woman, went through vaccinia in its regular way and never had any subsequent syphilitic affection. On the young woman's arm slight papules only arose, and the revaccination was looked upon as having failed. She remained in the hospital a month after vaccination, fully the time necessary for the syphilis, if there had been any imparted by the vaccination to have incubated, and she went out without anything the matter with her arms. At the end of another month she attended at the hospital for treatment of her uterine complaint, and showed them two sores on one of her arms, the character of which was not at first recognized, but which turned out to be undoubtedly syphilitic. It was not known at the time, but was afterward ascertained, that she was a young woman of very loose character. Now, assured by no one who knows in what extraordinary situations chancres have been met with, such as the cheek, the corner of the eye, in every sort of situation in which there could not be any, and never was any, suspicion of vaccination, can say this was a case entirely free from fallacy as to the source of the syphilis."

"The occurrences at Rivalta, to which so much interest has attached, were of a different kind. In 1861 there occurred in this village a very remarkable syphilitic epidemic. Three similar epidemics are said to have been noticed in different places before—in 1814, 1821, and 1841—and if we include an account given (though not till some years after the occurrence took place) by a Dr. Marone, a fourth in 1856. It is certainly very singular that all these epidemics should have occurred in Italy, and none resembling them met with elsewhere. Whatever their origin, the facts are of the deepest interest; a number of children affected at one time with syphilis; these infecting their nurses and mothers; the mothers infecting their husbands; the children infecting one another by the act of kissing, or by the spoons used in feeding; and whole families infecting one another by merely being huddled together in confined and crowded dwellings. For it must not be supposed that only persons who were at the time the subjects of vaccination were the sufferers. Various epidemics of this kind, quite as singular and quite as inexplicable, have occurred under circumstances entirely unconnected with vaccination, and indeed before vaccination was heard of. * * * In the five epidemics specified in the beginning of this paragraph, a vaccinal origin was alleged; and this was made in the Rivalta case the subject of careful inquiry by a scientific commission. Unfortunately, however, the inquiry did not take place till four months after the outbreak; and as in no single case of the children said to have been syphilized by vaccination had any application been made to a medical man on account of the condition of the arm, facts and dates on the exactitude of which everything depends had to be got as they could at such distance of time from the testimony of the villagers, for the most part ignorant and prejudiced. Under these circumstances, it is not surprising that different conclusions were arrived at; and though Dr. Pacchiotti and the other commissioners, after a most careful and painstaking inquiry, reported themselves satisfied of the vaccinal origin of the disease, Sperino, who also went to Rivalta and there investigated the circumstances, and treated some of the cases afterward at Turin, was equally satisfied that their origin was independent of the vaccination. The story, as regards the vaccinal origin, is this: A child (Chiabrera) apparently in good health, but really incubating syphilis, was vaccinated with some lymph obtained in a tube; this child's arm was used on the tenth day for the vaccination of forty-six children, and one of these forty-six children, named Manzone, again on the tenth day furnished lymph for vaccinating seventeen children. Of these sixty-three children, forty-six had within two months a disease considered by the commission to have been syphilis—the syphilitic symptoms having manifested themselves in some cases within ten days, and as a mean at twenty days from the vaccination. Now, in explanation of these events, can we admit that the matter taken from Chiabrera's arm contained the contagion of the constitutional syphilis, which at these intervals of time the children manifested? Not, assuredly, unless we are prepared to give up all we have been taught as to the incubative period of constitutional syphilis. For it would have required from three to five weeks for that disease to manifest its primary symptoms. [Lee gives the period of incubation at from three to seven weeks. Rollett gives a mean of twenty-six days, and out of a large number of cases there was only one case in which it was under fifteen days. In four cases, in which the inoculation was by blood, the minimum was twenty-five days and the maximum thirty-five. As recent testimony on this point, it is proper to state that Hutchinson says, "The period of incubation, prior to the first specific induration, will usually be five weeks."[43]] But if this teaching has been erroneous and true constitutional syphilis can produce its primary symptoms within ten days, then, indeed, we can understand how, if syphilitic matter was mixed with the lymph, either in the original tube or through the lancet employed in Chiabrera's vaccination, an irregular vesicle might result, such as that stated in Sperino's experiment with soft chancre, which Baumés and Viennirs held to contain the two viruses mixed. It must be remembered that we have no reliable account whatever of what was the sort of vesicle or result on Chiabrera's arm, from which the so-called vaccinations were done. From such a result as Sperino's experiment affords, a careless man might, a careful man would not, take what he called lymph; and I have very little faith in the proceedings of any one who evidently habitually used tenth-day cases. We might not really, then (that is, supposing the incubation difficulty got over, which it must be, or else the Rivalta cases as connected with vaccination fall of themselves) have any difficulty in accounting for the propagation of syphilis, for hard and soft chancres would fall in the same category. But we should have more hesitation as to whether vaccinia also might be communicated at the same time; and, in fact, in what degree the Rivalta children who were syphilized were also vaccinated, it is impossible to say. I can quite conceive that if the vesicle on Chiabrera's or Manzone's arm was all like that produced in Sperino's experiment, some spurious vaccin result might follow in some of those vaccinated from them. There is certainly no satisfactory evidence of any of the children ever having had regular vaccinia."

(To be continued.)

[43] Rollett's *Traité des Maladies Vénérienne.*

SOCIETY PROCEEDINGS.

Chicago Academy of Medicine.

The regular meeting of the Academy was held Oct. 15, 1896.

Dr. W. Xavier Sudduth acted as Chairman.

The subject of "Infantile Paralyses" was discussed from various specialistic standpoints. Dr. Rosa Engelmann opened the debate by first exhibiting a a porencephalic brain, obtained from a babe seven months old upon whom a craniectomy was performed by Dr. Alexander Hugh Ferguson. She showed photographs of the asymmetric head, site of the operation and pathologic intracranial cysts, as well as specimens of the brain, spinal cord and vertebral canal, from which the nerve exits and plexuses are demonstrated, for it was at first believed that these were absent, impossible as such a condition seemed. The cord itself presented no cauda equinus and was undeveloped.

Dr. Engelmann then discussed the

CONTAGIOUS AND INFECTIOUS DISEASE ETIOLOGY OF INFANTILE PARALYSIS.

That a relation between the infectious and contagious diseases to cerebral, spinal and terminal palsies does exist is undisputed, but what that relation is, is only explained in general terms. No answer is given as to the reason of such comparatively uniform action upon nervous structures by such widely differing bacterial or noxious agents as syphilis, tuberculosis, smallpox, typhoid fever, scarlatina, purulent affections, pneumonia, measles, diphtheria, etc. Why a poliomyelitis or neuritis should be a sequela to these diseases on the one hand, and, on the other, be an independent entity of a presumably specific origin, is inexplicable. Of course, we recognize the immaturity and consequent instability of infantile nervous structures as a predisposing factor, but a wider and more accurate knowledge is dependent upon future neurologic research and accomplishment. A discussion by the members of this Academy upon a history and specimen of a case of porencephalia in a babe seven months old may throw some light upon this evident congenital condition so often associated with cerebral palsies and acquired infantile cerebral palsies.

The brain was obtained after a craniectomy done for me by Dr. Ferguson. There was a microcephalic state, as shown by the photographs, but I should have recognized other pathologic conditions and known of the uselessness of surgical interference. However, had no operation been done, no postmortem could have been obtained, and a valuable specimen and knowledge of great service to me would have been lost. The history is as follows: Parents Russian; father healthy; no history of nervous diseases, alcoholism or syphilis. Maternal grandparent consumptive; mother undersized, with a pronounced dorso-lumbar kypho-scoliosis and rachitic pelvis. Measurements made by Dr. Rachel Yarros, as follows: bi-iliac, 21 c.c.; anterior superior spine, 20 c.c.; external conjugate, 11 c.c.; anterior conjugate, 9 c.c. The very prominent synchondrosis was found about two inches to the left. Married at 20. Three children born at term and without difficulty, with the assistance of a midwife. No miscarriages. Two children died at the ages of four and eleven months respectively of pneumonia and summer complaint. One living healthy child of 3½ years; subject to fright and hardships while carrying the youngest child; was sick in bed three months; complained of pain in the side; could not walk. She also gives a description of sudden and copious white discharge, in the nature of a flooding, possibly the breaking of an abscess during this state. Labor was prolonged, and the physician told the husband it was a cross presentation. Instrumental delivery. Child asphyxiated for twenty minutes and to all appearances dead. The father said the baby's left arm was broken, because the physician put it in a splint. At the seventh month the child was brought to me, showing marked asymmetry of head with a deep left parietal depression, occipital depressions and elevations—in fact, great irregularities and absolute cranial synostosis. Some facial asymmetry, but no observable facial or general paralysis. History of convulsions since its second

week, increasing in frequency and severity until almost constant, beginning with the ocular and facial muscles and becoming general. Strabismus; blind and seemingly deaf; idiotic. Perfect body development without other anomalies. The child came to me with a history of cranial deformity from forceps injury, but upon noticing the synostosis, I said that the condition was congenital, and there was a conformation of the skull cap due to intra-uterine pathologic cerebral conditions. The operation and postmortem proved the correctness of this view. On chiseling, the bone was found much hardened and thickened, especially at the sutures. A cyst was noticed and thought to be hemorrhagic by the operator, but the child was so collapsed that the opening of it was left for a second operation. The child died two hours after the operation. The brain was removed, and I now present it to you for inspection. The cord pulled up from the canal was at first thought to be without spinal nerves. A postmortem was made later which demonstrated their presence. The organs were found normal. The only demonstrable pathologic condition was enlarged mesenteric glands, which looked tubercular. There were adhesions of the coverings to the brain, and these and the cerebral tissue when fresh showed decided inflammatory changes, and pointed markedly to a fresh meningo-encephalitis. The sclerosis and atrophy were doubtless due to previous intra-uterine lesions.

As to the cause, the question of pressure during pregnancy can be excluded by reason of the transverse position. It does not seem plausible that labor or forceps pressure produced this condition of sclerosis and atrophy that must have been preceded by intra-uterine acute inflammatory conditions of long standing, and due possibly to a pus infection in the mother previously mentioned, instead of developmental reversion. The future may show that teratologic conditions have their origin in active fetal disease.

Were there prenatal circulatory disturbances, hemorrhages or inflammatory disease of the middle cerebral artery, or obliteration early in fetal life, or an intra-uterine polio-encephalitis producing this terminal condition of sclerosis and atrophy? Was the synostosis due to the agenesis or vice versa? Ziegler inclines to the former view. He says: "In partial defects the skull cap is most often closed, giving rise to free spaces filled by fluid." Was this agenesis due to active intra-uterine disease or to developmental arrest or perversions, or both?

SYPHILITIC ASPECT OF INFANTILE PARALYSIS.

Dr. Wm. L. Baum—The syphilographer is not frequently called upon to see cases of infantile paralysis. When it is considered that between 75 and 80 per cent. of the children suffering from hereditary syphilis are born dead, or die before the end of the third month, we can readily see how few cases of hereditary syphilis there are in comparison with the supposed number. The lesions of the nervous system in these cases differ but slightly from those in the acquired type, and many of the so-called pathognomonic signs of syphilis are not, strictly speaking, syphilitic manifestations, but symptoms of a dyscrasiæ which may differ widely from syphilis. The specific lesions most frequently met with in infantile paralysis are most often confined to the cortical substance and meninges of the brain. However, occasionally there are lesions occurring in the bony capsule which indirectly affect the nervous manifestations, and then the lesions also found in the medulla and cord. The specific disease itself gives rise to congested conditions which are subsequently followed by atheromatous conditions of the cerebral arteries. These are frequently followed by the development of smaller thrombi or miliary aneurysms. The formation of these thrombi or aneurysms, especially the rupture of the latter, gives rise to various paralyses which are met with in children. In those cases which are due to the formation of a thrombus the paralysis is gradual in its onset. Where it is due to a rupture of a small miliary aneurysm, the paralysis is more sudden. In both classes we have excellent results from treatment—rapid resorption and retrogressive changes to the normal. In the cases, however, where there is a true sclerosis, also accompanied at times with the formation of a thrombus or rupture of a miliary aneurysm, there is softening and a true destruction of nerve tissue. These cases show no improvement from treatment.

The general practitioners and syphilographers are frequently misled into an erroneous diagnosis of the syphilitic origin of infantile paralysis upon the strength of the results obtained by therapeutic measures. It is too frequently forgotten that iodids and mercurials are of great benefit in a great many diseases of non-specific character, and when these individuals recover as a result of the administration of these anti-syphilitic remedies a diagnosis of syphilitic disease is made. This is certainly a mistake, for if there are no other corroborative evidences of a syphilttic disease present, we are not justified in calling the symptoms, which may have a widely divergent origin, syphilitic.

Fournier has reported a number of cases of syphilitic paralysis, in one of which there was enlargement of the lumbar vertebrn, followed by paralysis of both legs. This condition subsided rapidly upon the internal administration of anti-syphilitic remedies. While syphilis as an etiologic factor in infantile paralysis occupies an important place, care should be taken not to put too much reliance upon such a diagnosis without more apparent corroborative evidences of the disease being present.

OBSTETRIC ASPECTS OF INFANTILE PARALYSIS.

Dr. C. E. Paddock—There are only two forms of paralytic affections occurring in childhood which are common: one of these is known as spastic infantile paralysis and the other as infantile paralysis or essential paralysis of children, or scientifically as antero-poliomyelitis. One lesion is in the brain, the other is in the cord. Of the cerebral palsy we have probably more to do in so-called birth palsies. Injury to the newborn during parturition with subsequent paralysis is more frequent than one is led to believe without referring to the literature upon the subject. Rupture of a blood vessel in the brain or the meninges in a child results from different causes, but in the obstetric sense by the application of some extraneous force. A contracted pelvis, protracted labor, or instrumental delivery is equivalent to a traumatic injury to the skull and brain, that is, the result is the same, leading to a hemorrhage, usually into the meninges. Protracted labor and not the forceps is the cause of greatest danger to the child's brain. First-born children are most apt to suffer, owing to the fact that first labors are, as a rule, harder and longer. Gowers found that in twenty-four cases of meningeal hemorrhage seventeen were first-born.

The apoplexy of the newborn is, according to Osler, McNutt and others, one of the chief causes of the bilateral hemiplegia or paraplegia occurring at birth. The fact that protracted labor is often the cause of paresis in the newborn is now generally acknowledged. Whatever may be the cause of the delay the head is being compressed upon in all its circumference, the vessels become engorged and a rupture of some of the smaller vessels of the meninges necessarily follows with their consequent result. What percentage of cases of paralysis in the newborn is the result of injury at birth I am unable to say, but I honestly believe that many cases which are referred to other causes are really birth palsies. We have been taught in former days to delay the use of the forceps until such a time as danger is imminent to either mother or child, and here is where a great mistake has been made when the labor has been so protracted that the heart indicates impending asphyxia; then, as rule, we are too late, for the child will either be born dead or born asphyxiated, resuscitated only to live a few days or a few weeks. One should not wait until such a time has arrived, but be able to know just the proper time to apply the forceps, and this can only be accomplished, unfortunately, through a great amount of clinic experience. The forceps is in the most skilled hand a dangerous instrument, but its dangers decrease with the skill which is acquired in its use. A student goes out into the world to practice never having applied the instrument, and in his ignorance he does an incalculable amount of mischief. The principal danger in the use of the forceps is in the high operations. Thanks to Tarnier, we have the axis-traction forceps, which has reduced the terrors of a forceps operation to one of extreme simplicity. The neglect in the treatment of breech presentation affords us many examples of infantile paralysis. The traction which is often resorted to to terminate a breech results in an injury to the cord with the subsequent poliomyelitis. Too much traction upon the over-congested cord and compression upon the after-coming head with hemorrhage at the base of the brain into the cavity of the arachnoid causes an effusion into the same cavity lower down, resulting in a spinal paralysis.

What is the treatment of these conditions? A more thorough knowledge of obstetrics is necessary. No branch of medicine requires such a thorough knowledge of medicine as obstetrics. Emergencies are continually arising which call for prompt action. Most any physician considers himself capable of conducting an obstetric case, and why? Because he has been taught that 96 per cent. of the cases terminate favorably. In this 96 per cent. however, cases of infantile paresis are not considered that can often be traced to his negligence. I have a fair idea of the operation for inguinal hernia, still I do not consider that I am justified in operating upon such a case; neither do I consider that every man simply because he has an M.D., to his name is justified in conducting an obstetric case. So soon as physicians realize that obstetrics is a science; that pro-

tracted labors are dangerous; that the forceps is an instrument of traction, not compression, so soon will the cases of infantile paresis due to mismanagement of obstetric cases be diminished.

CLINICAL ASPECTS OF INFANTILE PARALYSIS.

Dr. Daniel R. Brower—The clinic-aspects of the several forms of infantile paralysis are so familiar to every Fellow of this Academy, that I will not reiterate them on this occasion. I have here a series of photographs which I think will supplement very well the admirable paper and specimens presented by Dr. Engelmann. These photographs are those of a family of infantile cerebral palsies. The mother of these children is a very robust woman, who does her own work and takes care of these helpless children. She is 31 years old and never had a miscarriage. The parturitions of these several children were all normal. The father is 49 years of age, thin, and very anemic. He has been a painter since the age of 14; has had no attacks of lead colic or other evidence of lead poisoning; has no history of syphilis, but has had numerous attacks of malarial fever, and has some stigmata of degeneration. There are four children, all boys, three of them are diplegics, the other one is well with at least the ordinary intellectual and physical capacity of a boy of three and a half years. The three children show the classical symptoms of mental defect—rigidity, contracture, exaggeration of reflexes and clonus, choreic and athetoid movements, and a slight amount of atrophy. The oldest child is 10 years old. The two photographs, one front and the other back view, show the characteristic attitude of the disease. This child became diplegic at about two years. The next child is 5½ years old and became diplegic about the same time. The next child is 3½ years old and is well. The youngest child was 15 months old when this picture was taken about one year ago, and has since become diplegic. There has been no convulsion in any of the cases and the development of the paralytic symptoms has been gradual. I am watching the cases with great interest, hoping after a while to be able to unravel the mystery that thus rendered helpless three out of four children, the offspring of parentage fully equal to the average of their station.

EYE SYMPTOMS IN INFANTILE PARALYSIS.

Dr. Wm. H. Wilder—There are so many conditions of the brain in children that may give rise to paralysis of the muscles of the eye or to paralysis of the optic nerve, if I may so term it, that one can only touch upon them briefly. I shall first speak of congenital defects of the muscles of the eye. We are all familiar with cases of ptosis in children, but we are not so familiar with congenital paralysis of one of the extrinsic muscles of the eye. A short time ago I presented such a case to the Chicago Medical Society, in which there was congenital paralysis of the external rectus. The girl was 22 years of age. There was no abductive power of the right eye, and this, according to the statements of the mother, had been the condition since birth. Such cases are rather infrequent. It can not be positively said however, that the paralysis is always due to some central lesion, such as defective growth of the nucleus. We have just as much right to assume that it is due to defective development of the muscle. Two cases are on record, reported by Seiler in which, on examination, he found absence of the superior rectus and the inferior oblique muscle of the right eye, and of the inferior oblique of the left eye. In the second case there was absence of both oblique muscles in the right eye, and in the left eye absence of both oblique muscles and the superior rectus. It is possible that the difficulty is due either to total absence or to defective development of the muscle. However, in most cases of congenital ptosis that we see there is probably some defective growth of the nuclei in the fourth ventricle that innervate these muscles. In other words, they should be considered nuclear palsies of congenital origin.

When we come to acquired infantile paralyses we reach a large field. Almost any disease that will bring about paralysis of the extrinsic or intrinsic muscles of the eye in adults may occasion it also in infants. Trauma may be the cause of paralysis of any of the muscles of the eyeball either directly or because of a blood clot pressing upon some of the nerves. A tumor in the orbit or immediately back of it would give a similar result.

One of the most common causes of paralysis of the ocular muscles in children is either pachymeningitis or leptomeningitis; and naturally we should expect such paralyses to be more frequent with inflammations affecting the meninges of the base of the brain than with those confined to the convexity. Consequently ocular paralysis is a common occurrence in tubercular meningitis, and may be one of the early signs of the same. The child may show a pronounced squint, and if old enough may complain of diplopia. This is not necessarily due to loss of power of any one muscle, but may be caused by a spastic contraction of one or more of them, a condition that may subsequently disappear. Pressure upon the nerves either by tubercle masses or exudate may be accountable for this, although in some cases the cause must lie in a neuritis set up by the irritation. The same cause may bring about partial or total loss of sight if the optic nerve become involved as it frequently does. But the physician should be cautious about attaching too much importance to amblyopia in a case of suspected meningeal or brain disease, for such amblyopia may be congenital or caused by a high refractive error, and only to be detected by a careful ophthalmoscopic examination or some other objective test. In children the chronic form of nuclear palsy of the ocular muscles is not so frequently seen as in adults, in whom syphilis so often acts to bring about the condition. Dr. Baum has correctly stated that congenital syphilis plays an insignificant rôle or no rôle at all in this disease. Hutchinson in his famous memoir does not cite a case of congenital syphilis having caused paralysis of the eye muscles in children and his opinion is also held by Mauthner and other observers. But closely allied to the nuclear palsy of adults is the condition described by Gowers by the name infantile oculo-facial palsy. To this class probably belong many of the cases of ptosis and paralysis of individual ocular muscles that are congenital or that appear in early life. In this condition there will be associated with palsy of one or more muscles of the eye a paralysis of one of the facial muscles or jaw muscles. There seems to be a peculiar connection in some persons between the center that innervates the levator palpebrarum and the center that innervates some of the muscles of the jaw. Cases are not altogether infrequent in which patients having a ptosis are unable to raise the lid unless they make a corresponding effort to open the mouth. It seems as if the impulse that is sent to the levator palpebrarum is, at the same time, sent to the depressors of the lower jaw. This would seem to explain why in some cases of oculo-facial paralysis we have a simultaneous or coincident paralysis of one of the maxillary muscles together with the muscles of the eyeball.

It is singular that in conditions of intra-cranial hemorrhage or spastic paraplegia of infants that we should not have more trouble on the part of the eye, because we have a blood clot in some cases pressing upon the convexity of the brain, sometimes reaching back and pressing upon the occipital lobe. Gowers mentions having seen but one case of complete blindness in such condition. Little mentions no eye symptoms in connection with it. Unless a clot should be on the occipital lobes and press upon the sight center, we should hardly expect any manifestation on part of the eye. We have in some febrile diseases serious disturbance of the ocular muscles. In diphtheria we are all familiar with the paralysis of accommodation that occurs, usually following the paralysis of the muscles of the palate. This may occur in connection with paralysis of some of the extrinsic ocular muscles. For instance, a case was reported in 1885 by Uhthoff in *Neurologisches Centralblatt*, in which there was complete external as well as internal ophthalmoplegia, and a short time after Mendel reported one very similar. In these cases we must suppose that some poison acts directly upon the centers in the fourth ventricle. In Mendel's case, which went to autopsy, there was found considerable congestion around the nuclei of the nerves, the capillaries were much ingested, and there was a tendency to softening of some of the nerve centers.

(To be continued.)

PRACTICAL NOTES.

Infection from Circumcision.—The *Semaine Médicale* describes a case of tuberculous infection of the testes in an otherwise healthy child of healthy Jewish parents. The infection was traced by a physician to the priest, who was found to be a confirmed consumptive, and who performed the rite of circumcision.

The Use of Dry Heat of High Temperature in the Treatment of Chronic Joint Affections.—Dr. Wirt's apparatus consists of a copper drum twelve inches long and nine inches in diameter, fitted at each end with a wooden ring and a hood of thick rubber. Having protected the back of the knee with cotton, it is enclosed in the apparatus and heat applied to the outside by means of a Bunsen burner. Most patients will tolerate a temperature between 250 degrees and 300 degrees F., provided

three holes were made in the drum to secure proper ventilation and keep the air dry. This treatment gives an immediate relief to pain and increases temporarily the mobility of the joint.—*St. Louis Med. Journal*, October.

Improved Method of Fastening Plaster Corsets.—Gendron recommends the use of strips of zinc, one mm. thick, three wide and as long as the corset. Two are cut at intervals of two cm. in oblong spaces across the strip, and the oblong piece cut out on three sides, but left connected by one of the small ends, and raised up like a trapdoor. An unperforated strip is placed on the median line of the thorax and the layers of the plaster bandage applied. On each side of this strip and at a distance of several centimeters the perforated strips are sunk in the plaster in the center of its thickness, the projecting raised pieces standing up out of the plaster. After the corset is thus applied, the projecting pieces are bent down to form hooks, which enable the corset to be laced up firm and tight.—*Semaine Méd.*, September 30.

Injection of Iodoform-camphorated Salol in Chancrous Bubo.—The *Gazette Méd. de Liège*, October 1, describes the prompt cicatrization of eighteen cases of chancrous bubo treated by a French army surgeon with an injection into its depths of ⅓ to ⅔ Pravaz syringe of 1-5 per cent. iodoform-camphorated salol. After the needle is withdrawn the hole should be stopped with the finger to prevent the escape of the fluid, and afterward painted with collodion. The incision is postponed until the following day, when all the gelatinous pus is forced out by pressure. A little mercurialized water at 1 to 1,000 helps to empty the pocket, which is then plugged with gauze dipped in the salol. The pus is removed again the next day and a second plug inserted. After this the bubo heals rapidly; the pain, swellings, etc., gradually disappear and the cicatrization proceeds regularly. The fifth day collodion is applied and the cure is complete by the eighth day, leaving a scarcely visible scar with the skin loose.

Diagnosis of the Possibility of Resuming Growth in Cases of Arrested Development.—Dr. Hertoghe of Antwerp, announces that growth can be resumed in all cases where the skeleton is not completely ossified, or as long as the bones retain their original cartilaginous character. He has been studying three classes of arrested or delayed development: Myxedema, hyperazoturia and rachitis, simultaneously with the administration of thyroidin. The most interesting part of his tests is that he diagnoses the cases first by means of radiography, which accurately determines the progress of ossification, and his diagnoses have been confirmed in every instance by the results of the treatment. In myxedema the ossification is tardy, and patients with this disease resume therefore their growth upon the administration of thyroidin. One of his cases was a young man of 27, who measured 1.37 meters in April, 1895, and has gained 1⅓ inches (33 mm.) since then, and is still growing. The radiograph clearly showed in this case the distinct light zones in the phalanges, revealing thus their incomplete ossification and the possibility of a resumption of growth in spite of his advanced age. Cases of hyperazoturia also present a marked lack of ossification, and therefore are able to resume growing; but in rachitis, on the contrary, the bones ossify very early and no further growth is to be expected.—*Semaine Méd.*, September 30.

Treatment of Yellow Fever.—The editor of the *Tribuna Médica* of Rio de Janeiro, No. 10, announces that he has found that the tincture of eucalyptus, administered promptly and in large quantities, has a marked effect in attenuating the severer symptoms of yellow fever. He reports thirty-one cases treated with it, and only three deaths, which were each probably due to the ignorant and careless attendance the cases received. Very large doses can be borne, as much as 30 to 40 grams in twenty-four hours, with frequent enemas of 30 grams in a liter of water. It seems to have an especially powerful effect on the kidneys, and prevents the usual anuria. *O Brazil Médico* of August 1, also states that it has been the experience of Da Costa, who has been at the head of a hospital in Brazil for twenty-four years, that few if any cases of yellow fever were fatal that were accompanied by suppurated parotitis. The suggestion is made that this might be produced artificially, and Fochier produces abscesses with turpentine, to prevent or modify purulent transformation of pneumonic exudates.

The Dangers of the Operative Treatment of Enlarged Prostate.—Dumstrey, in *Centralblatt für Chirurgie*, records a case of enlarged prostate treated by ligature and resection of the vas deferens, which shows that this operation can not be regarded as a simple one and free from risk. A man, aged 65, in all other respects strong and healthy, came under the author's care with complete urinary retention and severe cystitis due to considerable prostatic enlargement. Partial resection of the vas deferens on both sides was followed in the course of a few days by decided relief of the local symptoms, the man being able to pass urine spontaneously and the urine becoming much less turbid and containing day by day less pus and blood. The prostate, which just before the operation had been as large as a fist, was reduced in size by about one-half. These good results, however, were associated with serious impairment of both the physical strength and the mental condition of the patient. He speedily presented the appearance of a very old and feeble person. His movements became slow and clumsy, and he was unable to comprehend what was said to him and also to express his own thoughts. After an interval of about a fortnight his condition commenced to improve, but the change for the better was very slow and gradual.

Location of Foreign Bodies in the Eye with Roentgen Rays.—Dr. Clark, Columbus, reported at the recent meeting of the American Ophthalmological Society at New London, a case in which the presence of a small fragment of metal in the extreme angle of the anterior chamber and the iris, where it could not be seen, had been determined by radiography. The sensitive plate had been introduced into the adjoining nostril, the patient being put under ether, and the rays directed upon it through the eye from the temporal side. He also suggested that the plate could be placed in the cocainized conjunctival sac, or an opening could be made in the conjunctiva and the small plate slipped behind it. He believed that this method of locating a foreign body in the eyeball was perfectly practicable, especially if the particle were lodged anteriorly, as in the ciliary region, where it could not be seen with the ophthalmoscope. Dr. Williams, Boston, reported a case in which a fragment of the copper case of a cartridge had passed through the cornea and lens. Nothing could be seen of it and it was not certain that it was in the eye. The use of the *X* rays showed the presence of the fragment, and it was removed. The radiograph was obtained with ten minutes' exposure by laying the patient's head with the side of the injured eye upon the plate, and placing the Crookes' tube above and rather in front of the patient's head.—*Ophthalmic Review*, August.

Chronic Membranous Bronchitis.—Claisse says that the nature of chronic membranous bronchitis has been but little studied, and gives the results of a bacteriologic examination of the membrane from a patient who had expectorated bronchial casts for several years. Cultures showed an inconstant and small number of staphylococci and various forms of bacilli, but the only microörganisms found in abundance and in all tubes which did not prove sterile, were streptococci. Cut sections showed the presence of various microbes on the surface of the false membrane, probably through contamination by the saliva, but in its center only streptococci were met with. Fragments of the membrane introduced into the bronchi of

animals or beneath their skin, produced practically no reaction, while inoculation experiments made with cultures of the germs were equally negative, yet, in spite of their lack of virulence, their constant presence shows that they were not a mere accidental coincidence, but that the disease was due to a chronic infection by them. Anti-streptococcic serum was tried with apparent success, the patient leaving the hospital in better condition than she had been for years.—*Boston Med. Journal*, October 8; from *Comp. Rend. Soc. de Biologie*, April 3.

Intra-cervical Injection of Glycerin; a Modification of Pelzer's Method of Inducing Premature Labor.—Helme improves on Pelzer's intra-uterine injections by introducing the nozzle of the syringe into the cervix alone, and describes with enthusiasm in the *Lancet* of October 3, the success of this treatment in two cases. The important points are: 1, that the intra-cervical injection of glycerin produces a rapid and progressive dilatation of the cervical canal; 2, that at the same time the lower pole of the ovum becomes detached from the lower uterine segment; 3, that the intra-uterine injection of glycerin between the detached portion of the membranes and the uterine wall may be carried out without fear of puncturing the membranes or of interfering with the placental attachment: and 4, that labor is effectually induced. As to the manner in which glycerin acts Pelzer offers the three following suggestions: 1, it acts as a direct irritant of the uterine surface, setting up muscular contractions; 2, it acts through a mechanical separation of the membranes; and 3, its hygroscopic action causes a transudation of the liquor amnii; the ovum becomes smaller and is detached from the uterine wall; there is at the same time a contraction of the uterus upon its diminished contents. But in addition to this power of setting up uterine contraction careful observation shows that glycerin possesses the power of causing dilatation of the cervical canal before contractions of the uterus, which are appreciable to the patient or the physician, are set up. The injection of pure glycerin into the cervical canal is followed by immediate softening and relaxation of the cervical tissues with dilatation of the cervical canal, and this result seems to be too rapid to be the result of muscular action. In one case of rachitic pelvis, four injections of 1½ ounces glycerin were made in eight hours with a fifth of three ounces the next morning. Labor was shorter and recovery more rapid than ever before.

Surgical Treatment of Tuberculosis of the Bladder.—Greiffenhagen describes in the *D. Zts. f. Chir.* 3, a case of tumefaction of the bladder in a man of 47, whose urine contained blood and numerous Koch bacilli. There was great pain and emaciation, with incontinence of the urine. Clinical examination showed a tumor the size of a nut, a little above the symphysis pubis, which ascended or descended according to the quantity of urine in the bladder. A similar tumor was situated also on the anterior surface of the bladder, and the external orifice of the urethra was also the seat of another, the size of a cherry. There was also a hard swelling in the membranous part of the urethra. The prostate was large but not painful, while the lower part of the bladder was intensely painful to pressure. After several weeks of creosote medication—local treatment being impossible on account of the sensitiveness of the patient and the smallness of the urethra—a vast tumefaction formed in the perineal region, combined with complete retention of urine, which demanded surgical intervention. After opening the abdomen on the median line, a multitude of small cavities were encountered, filled with a cheesy pus, and communicating with the urethra. An opening was made into the fundus of the bladder and a large drainage tube inserted, after which the peri-urethral abscesses were curetted out and iodoform gauze applied. Five weeks after the operation the Koch bacilli had entirely disappeared from the urine. A permanent catheter was introduced into the urethra after dilation. The perineal wound healed; the tumors in the vesical wall and at the orifice of the urethra retroceded, and the general health continued to improve. A year has passed since of perfect health for the patient, a farmer, who has pursued his usual occupations. Greiffenhagen adds that such cases should more frequently be handed over to the surgeon, whenever instillations of sublimate and injections of iodoform fail to relieve.—*Sem. Méd.*, September 30.

Serum Diagnosis of Typhoid Fever.—It has been shown by Pfeiffer of Berlin, and Widal of Paris, that the serum obtained from the blood of a patient suffering from typhoid fever is capable of so acting upon pure bouillon cultures of the typhoid bacillus mixed with it as to abolish the active motion characteristic of that organism in fluid culture media and cause an agglutination of the individual bacilli into large groups or clumps. This change is easily recognizable under the microscope, or in culture tubes, and usually occurs within a few minutes. It has since been shown by Dr. Wyatt Johnston, bacteriologist of the Provincial Board of Health of Ontario, that the fluid obtained by moistening with water a dried blood drop gives the reaction in a prompt and satisfactory manner, even after it has been dried for several days. This modification of the process makes it suitable for a system of free public laboratory diagnosis, similar to that in the case of diphtheria, as a drop of dried blood can be readily sent to a laboratory for examination. Dr. Johnston was able to diagnose the presence or absence of the disease correctly by means of dried blood drops sent by mail from Montreal, Canada, to Buffalo, N. Y., during the recent meeting of the American Public Health Association. To test the practical utility of the method the Board of Health of Ontario has issued a circular in which it offers to examine and report upon any samples of blood sent by physicians of the province. The blood is to be taken from the finger tip or lobe of the ear, after thorough cleansing of the skin, by pricking with a needle previously sterilized by heating over a lamp or gas flame. The drop is to be absorbed by a piece of sterilized paper which is furnished in an envelope by the board, with directions for its return. A report is promised by 2 P.M. of the day following that on which the sample is received and will be communicated by telephone when the number is given. By this systematic investigation the board wishes and expects to obtain data on, 1, the proportion of cases in which a correct diagnosis can be made by the serum test, and the relative efficiency of the method of employing dried samples; 2, the earliest period in typhoid fever at which this method can be expected to give indications; 3, the length of time for which it persists after convalescence; 4, the existence of any relation between the intensity of the reaction with the test and the course of the disease; 5, the study of the nature of the obscure febrile conditions, clinically termed gastric fever, continued fever, abortive typhoid, bilious fever, typho-malarial fever, etc., about which our present knowledge is very meager and unsatisfactory. The board is especially desirious of hearing promptly of and re-examining any genuine typhoid cases in which the method is not successful. In case of negative results, it is desired that after a few days an additional sample should also be sent consisting of a few drops of blood collected in a glass tube which will be furnished on application. With reference to the effect of drying the samples it is observed that while this may lessen slightly the delicacy of the reaction it has the practical advantage of obviating a serious source of error, namely the contamination of the sample and the subsequent growth of putrefactive bacteria. This is of special importance in the care of samples having to be sent long distances. No doubt other boards of health will take up this subject and aid in the advance of our knowledge of typhoid fever and other febrile conditions.

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SATURDAY, OCTOBER 31, 1896.

PHYSIOLOGIC TREATMENT OF NEURASTHENIA.

Dr. DAVID RIESMAN, of Philadelphia, closes up a well considered article on neurasthenia in the *University Medical Magazine*, September, by a scheme of treatment that embraces medicinal, hygienic and dietetic recommendations.

1. Medicinal treatment can not be a matter of routine, but there are few remedies that are of benefit in a large number of cases.

At the head stand the bromids, of which he generally employs the sodium or potassium salt in doses of fifteen grains two or three times a day; strontium bromid, in thirty grain doses, has also given good results, particularly in lithemic cases.

The coal tar products, either alone or combined with the bromids, are often of value. A remedy, for which much has been claimed but which he has not used, is spermin. The animal extracts have been employed, but it is questionable whether the results achieved are not due to suggestion.

Special conditions will naturally demand a modification of our treatment. Insomnia needs often to be combated; frequently a hot sponge-bath before retiring, or the application of hot towels to the face, is sufficient to encourage sleep. When drugs must be employed, we resort to bromids, sulphonal, trional or hyoscin; never, if possible, to morphin. Marked lithemic conditions are corrected by the use of alkaline mineral waters, the lithia salts, or by piperazin and its congeners.

In nervous dyspepsia, in addition to regulation of diet, suitable remedies may be administered. The mineral acids are of value in some cases; antiseptics and sedatives, such as bismuth subgallate, in others. The constipation is treated by the customary methods.

2. Dietetics.—The diet in neurasthenia should be nutritious; it has no special limitations except when the rest-cure is employed or when distinct indications are present. The patient's idiosyncrasies must be considered. If anemia exists, beef, eggs and milk are given in abundance; in lithemic cases the meats are restricted, and alcoholic beverages as well as rich articles of food are excluded from the dietary.

For nearly all cases coffee and tea seem to be harmful, and he has been in the habit, perhaps with too strict an adherence to routine, of always forbidding their use.

If symptoms of nervous dyspepsia are present, the sugars and starches should be as much as possible eliminated from the diet; the patients often do well when placed on rare meat, stale bread or gluten bread and milk. Milk is especially valuable in cases suffering from gastralgic attacks.

3. Among hygienic measures the most important is rest; prolonged rest is to the neurasthenic patient what the nightly sleep is to the healthy man. In severe cases it is necessary to adopt the so-called rest cure, or Weir Mitchell treatment, consisting of rest in bed, massage, electricity and liberal feeding. This may bring about a cure in an apparently hopeless case. During the rest cure the patient is not permitted to see his or her friends, is not allowed to read, and is in constant charge of an intelligent, strong-minded nurse.

As important as any of the measures adopted, indeed, deserving to be ranked the foremost factor in treatment, is the personality of the physician. In no disease is it so essential to inspire the patient with confidence, and in none is so much good accomplished by suggestion alone as in neurasthenia. The physician should listen patiently to the almost interminable recital of fanciful ailments, and should always make a careful physical examination to exclude all possibility of lurking organic disease.

If the rest-cure is impossible or not indicated, the patient must take a definite amount of rest by lying down for an hour or two in the morning and in the afternoon—this is especially valuable in women.

Bathing is not to be neglected. The bath should be of short duration and should be followed by a cold shower bath or cold douche, with friction. In the so-called sexual neurasthenia, the application of cold water to the spine and the perineum acts as a powerful sedative.

A change of climate, such as a sojourn at the seashore, in a retired spot, or a sea voyage of some length, is valuable in many instances.

In neurasthenia with disturbances of the sexual functions a combination of bromids and hyoscin is very useful. The patient should also be instructed to sleep on his side (this may be accomplished by having him bind a cigar box on the back, or by tying a towel about the waist with the knot behind), and to apply cold douches to the spine and perineum. For this class of cases outdoor exercise is very valuable.

WATER SUPPLY OF DENVER AND CHICAGO.

An increase of typhoid fever deaths in the city of Denver, amounting to nearly 35 per cent. in September last over the average for the previous three months as compared with the usual seasonal increase of less than 12 per cent., has been made the occasion of an exhaustive study of the water supply of that city by its accomplished commissioner of health, Dr. WILLIAM P. MUNN. His preliminary report to Mayor MCMURRAY on "The pollution of certain sources of the water supply of the city," and his comments thereon, will be a revelation to other commissioners of health and to other mayors of cities.

Dr. MUNN seriously proposes that the water from all sources of the Denver water supply shall be pure and healthful, even if it be necessary that they be passed through "properly constructed and efficient filters, which shall give an effluent having an average at all times of less than 100 germs per cubic centimeter," and that "if any of the patented processes are adopted for the removal of impurities by mechanical or chemical methods, it shall be a condition that a month's test shall show an effluent at all times containing less than 100 bacteria per cubic centimeter, and that the test shall be carried on with the waters of the proposed supply, and that the proposed filter shall be approved by the mayor and the health commissioner, and the tests supervised and accepted by them as satisfactory."

There are communities far more pretentious than Denver—one of them has the honor of being the home office of the JOURNAL—where the permissible limit of the bacteria is ten times this number, and where the records show more than seventy times this number as an actual average.

In his report Dr. MUNN shows, as has been shown by others, that typhoid fever prevalence follows the pollution of the water supply, that it subsides with the improvement of the supply, and that "the great bulk of cases of typhoid fever in all epidemics is due to the one common cause—an infected water supply." He adds: "When the probable sources of that infection are discovered, it is the plain duty of those upon whom the responsibility lies to suggest the remedies. Failure to adopt the remedial measures that are necessary means deliberate acceptance of responsibility for the resultant loss of human life."

The JOURNAL begs to commend this utterance, which will be endorsed by every sanitarian in the country, to the prayerful consideration of the civic and educational authorities of the city of Chicago, where the death rate from typhoid fever is again becoming the highest in the world.

TABLET MEDICATION.

The "tablet fad," as some of our pharmaceutic friends choose to call it, appears to have come to stay. The convenience, cleanliness and presumably accurate dosage of the preparations recommend them readily to the practitioner, and at the present time there is hardly a doctor's office where the familiar glass stoppered bottles and labels of the different manufacturers are not to be encountered. They have undoubtedly affected the druggists' business to some extent, and have perhaps also modified medical practice; how materially is a question to be settled in the future. That they are the unmitigated evil that some pharmaceutic writers hold, is doubtful; but that their extensive adoption as a mode of drug-dispensing by physicians has in it possibilities to be deprecated, is pretty nearly certain. In their present development, it may easily happen that with some they may induce an indolent or careless therapeutic method—that ready made shotgun prescriptions may become popular and an actual evil. It is easy also to see how, without any standard authority regulating these preparations, there may be some among them that are not only useless but absolutely dangerous combinations introduced to manufacturers and sent out among the profession. It may be there are none as yet of this kind that are really of any importance, but we have to reckon with their possibility. Certainly there are some among them that are ineffective or uncertain.

All the objections to these tablets could, it would seem, be avoided if there were a standard list, made up mainly of simple drugs, a few well tried or rational combinations perhaps included, which could be prescribed if so desired and supplied by every druggist, and which could be combined according to the needs of any special prescription if the physician desired to dispense his own medicine. A very large proportion of the pharmacopeia is made up of substances that can very readily be made up into these tablets, the convenience of which is now being daily demonstrated. Others that are not thus suitable, but which are now included in the manufacturers' lists, would of course be omitted from the standard list and it would in this way save both physician and patient from being misled into trouble and expense. The addition of a class of compressed tablets and tablet triturates to the regular pharmacopeia would not hurt any business more than is being done at present, and would regulate what is at present a somewhat irregular, but widespread and popular method of medication and one that has its real advantages and merits.

THE NEW YORK STATE MEDICAL ASSOCIATION.

Thirteen years ago the New York State Medical Society separated on the code question. Those who believed in the code of the National Society began to hold their annual meetings in New York City, and were designated as the New York State Medical Association. The State was divided into five districts, presided over by vice-presidents, and holding quarterly and semi-annual meetings. The regular annual meeting of the Association, at the Mott Memorial Hall, New York City, was held October 13, 14 and 15, and was of more than usual interest. The President's address on "Medical Expert Testimony," was a suggestive, thoughtful study of the subject by Dr. DARWIN COLVIN of Clyde, N. Y., one of the few living original members of the AMERICAN MEDICAL ASSOCIATION. Dr. AUSTIN FLINT of New York in a special report on criminology dwelt on the injustice of the law forced through the legislature by the labor unions, taking all contract labor from the prisons, leaving the prisoners in idleness and increasing the cost to the State. A symposium on prostatic enlargement and its surgical and medical treatment brought out a very interesting discussion. Among the large number of important papers was one by Dr. E. D. FERGUSON, on "Fatal Cases Presumably Due to Intestinal Ptomains," which gave a new meaning to a class of obscure symptoms, and suggested a new field of study that promises brilliant discoveries in the near future. The address on surgery by Dr. PHELPS of New York City, was an exceptionally clear philosophic critique of the general progress of surgery and medicine; also a plea for higher ideals of professional life and living. Dr. SAYRE'S paper "On the Practical Uses of Roentgen's Discovery as Applied to Surgery," illustrated, was of great interest. The program as a whole was very significant of a great evolution in the practice of medicine. Of the forty-five papers and addresses offered, over thirty were devoted to surgery. Many of them were reports and discussions of very formidable operations, mostly by physicians living away from the large cities and centers of learning, and doing a general practice.

The post-graduate schools are clearly doing a revolutionary work in preparing the general practitioner for surgical operations which were formerly only done by leaders in the profession and at large hospitals. Evidently a decided evolution is building up surgeons in inland towns and villages, competent for ordinary demands of modern surgery. This, however, may go too far, as that manual dexterity resulting from daily practice required in certain exceptional operations can only be acquired in the large hospitals. While undoubtedly surgery is one of the fascinating branches of modern medicine, and at present outranks all others in prominence, yet the topics of papers seen in programs of medical meetings, indicate many and probably far more important fields of study. The New York State Medical Association is one of the prominent Eastern societies, whose membership includes many of the leading medical men of the country and whose published transactions are eagerly sought after as representing the advanced studies of medicine.

Yet all medical societies' meetings suffer from the inability of readers of papers to condense and give the listeners the conclusions of their studies only. In an annual meeting of several days' duration, outside the addresses on general and special topics, the readers of papers should be limited to conclusions and summaries of their arguments, leaving to the printed page the facts and observations which can be studied at leisure. Often readers of good papers fail to rouse up any interest by faults of tone and address. Many authors appear at their best in print, and should never read their productions. Others are best in impromptu debate and exchange of opinion.

The model medical meeting is yet to come, but there are signs of its near approach every year.

THE COOK COUNTY (ILLINOIS) HOSPITAL.

The Practitioners' Club of Chicago held a meeting Monday night, under the presidency of Prof. CHRISTIAN FENGER, at which they discussed the perennial Cook County Hospital question. The speakers were Drs. STEELE, BABCOCK, T. A. DAVIS, SENN, W. T. MONTGOMERY, BROWER, HAMILTON, MOYER, LEWIS and WILDER. Some curious facts were brought out in the discussion, among others that the members of the staff, with very few exceptions, were the private physicians of the county commissioners, and that the price of appointment was free treatment of the special commissioner and his family, together with the political pull of the incumbent. One of the speakers stated that internes at that institution were in the habit of performing capital operations in emergency cases without waiting for an attending member of the staff, and that they did not hesitate to perform such dangerous operations as amputation of the hip joint. Statement was made that no provision for bedside instruction was at present made at the hospital, and that it was optional with the patients whether or not they were admitted to the clinic amphitheater. One of the members of the staff, while speaking in a manner entirely friendly to the management, asserted that cases of phthisis pulmonalis, even in an advanced stage, were frequently placed in beds alongside of cases of typhoid fever, pneumonia or bronchitis, and that no separation of these cases was even attempted; that the temperature of the wards was very badly managed, and as a rule kept entirely too high, and remonstrances on the part of the staff were of no particular avail, as the institution is under the management of a lay "Warden," responsible alone to the county commissioners.

These defects in the largest hospital of Chicago are not creditable to the public, and the necessity for putting the hospital under medical rather than lay supervision has again been demonstrated.

At the same meeting a motion to recommend the commissioners to abolish the hospital ticket fee for students was voted down on the statement of Dr. T. A. Davis that this money was used for laboratory purposes. Resolution was finally passed inviting the coöperation of the Chicago Medical and other regular societies of the city, to take immediate action this week, *before the election*, recommending that hereafter the regular members of the hospital staff be appointed on the recommendation of the Chicago Medical Society.

GETTING RICH "BY DEGREES" IN ITALY.

The Rome correspondent of the London *Lancet*, September 19, records the fact that three years ago the sale of bogus degrees had reached proportions in Bologna which incurred the intervention of the police, and their manufacturer is still, it is believed, serving his time in one of the local prisons. But the summary example made of him has not, it would appear, proved much of a deterrent. At least, from information gathered in Italy the industry is still a paying one, if the number of graduates whose scholastic record is rather dim may be received as a test. This time the University which confers the diplomas is not Bologna, but Berne, whose *sigillum magnum* was stolen, or in some way got at, so as to be counterfeited to perfection. The alleged thief or forger has been arrested, but the article was not found in his possession and is still to seek. So the world is not yet safe against the illicit creation of graduates, medical and other, but chiefly medical, of whom, it seems, there are already nearly three hundred vaunting themselves alumni of the leading Swiss University. Scandinavia and Germany boast the majority of such graduates, while there are some fifty or so practicing in or on the English-speaking public in both hemispheres. The rest are chiefly to be found in Italy, Austria and the East.

CORRESPONDENCE.

Glandular Interdependence.

Chicago, Sept. 25, 1896.

To the Editor:—In an editorial on "The Vital and Psychic Complications in Castration for Prostatic Hypertrophy" which appeared in the Journal of Saturday September 19, the writer in speaking of the testicles, observes "that these organs are absolutely without function at an advanced age is most certainly untrue for many individuals. . . . There is probably a germ of truth in the theory of Brown-Séquard as to the invigorating influence of the testicular secretion; certainly the experimenters in organo-therapy have not lost faith in it altogether. The organs do not atrophy completely even after their special sexual function has apparently long been lost, and it is only reasonable to assume that they still have some utility in the organism." This is perfectly true. I think we may safely infer that no organ of the body performs but one function and that alone. The several tissues, using lymph as a medium live upon the blood, taking up from the blood the materials for, and returning to the blood the products of, their metabolism. Therefore, the supply of blood that is not only deficient in quantity but defective in quality, is one of the causes of nutritive derangement. And another cause is the failure of the organism to eliminate the waste products which accumulate in the blood. But yet a third cause of defective nutrition is the alteration of the blood which consists in the interdependence of each and every tissue of the body upon one another, and hence no part can either be removed or remain inactive without producing an ill-effect upon the rest of the body. Foster expresses himself on this subject in the following words: "Changes in one organ may affect the condition of other distant organs by changes induced in the composition or qualities of the blood." And again: "The products of the metabolism of one organ are carried to other organs for further elaboration and possible utilization." Take, for instance, the liver. We know from Minkowski's experiments on birds, and from the experiments of Hahn, Masson, Pawlow, Nencki and others, on dogs that the extirpation of the liver in the former is attended with the replacement of uric acid by ammonia and lactic acid, and the ligation of the hepatic artery in the latter replaced uric acid by the carbonate of ammonia. These experiments go to show that the liver protects the organism from poisoning by the products of its own cellular activity. And Bouchard has demonstrated that this function of the liver diminishes in an enormous degree the toxicity of the waste products.

Take next the pancreas. It has been conclusively proved by the experiments of Von Mering, Minkowski, Lancereaux, Gley and others that besides its digestive functions the pancreas subserves the important purpose of utilizing the glucose that is normally present in the blood. Extirpate the organ or tie all its veins and we have glycosuria or pancreatic diabetes as an immediate result. Forty years ago Schiff demonstrated the troubles and alterations of nutrition following the extirpation of the thyroid. He then believed that this body elaborated something which had an important effect on the nutrition of the nervous system. This has since been verified classically in myxedema.

From Gley's experiments on the rabbit we come to find now that acromegaly, that peculiar hypertrophy, is associated with disease of the pituitary body. From the studies of Addison and the experiments of Brown-Séquard, Langlois, and recently of Schaefer and Oliver, we have arrived at the conclusion that the medullary portion of the suprarenal capsules secretes something which increases the tone of all muscular tissue, especially of the heart and arteries. Indeed, even the kidneys perform other functions besides that of eliminating waste products. Bradford's experiments conclusively demonstrate the fact that the renal organs possess and perform another function, viz., the metabolism of the tissues.

It is more than probable, therefore, that the testicles also have functions besides those intended for procreative purposes. Testicular preparations may, therefore, reasonably be assumed to possess useful properties. That they actually do influence the general nutrition will be readily admitted by the results obtained in the following case:

L. M., age 62, an Englishman by birth, has for thirty-eight years been a sufferer from psoriasis. When examined in June, 1896, was found to be pretty nearly hide-bound by a thick layer of silvery scales from his head, forehead and neck, down his front and back, his arms, nates and legs to the palms of his hands and soles of his feet. His nails looked "worm-eaten," and the bends of his elbows and knees were cracked and bleeding. In his travels in Europe he had consulted every

dermatologist of any name and had tried every known remedy recommended by Startin, Tilbury Fox, Hebra, Unna, Kaposi and others. He had tried hydropathic treatment for two years; every description of sulphur treatment from simple sulphur to all kinds of sulphur preparations, including ichthyol and resorcin, with sulphur and mud baths for another two years: had been pitched and tarred within and without for another two years; the thrysophanic acid, chrysarobin, ararobin, mercury, iodin, pilocarpin and arsenic treatments for yet another two years; hot vapor baths, pure and medicated with salicylates, colchicum, potash soda and lithia, with all manner of diaphoretics, diuretics and purgatives for an indefinite period. But it was of no use; the disease persisted and latterly he had ceased all treatment and was resigned to the inevitable.

He was given a bottle of phospho-albumin, a very palatable testicular preparation, made in Chicago, and he was advised to discontinue all external applications, and to avoid the use of water. He took a tablespoonful three times a day after each meal, and he felt encouraged to continue the treatment until he had taken three bottles of it, when he was again examined.

Now it was approximately estimated that this skin trouble covered about 21_2 square feet of the surface of his body and I have to report the remarkable fact that after taking his third bottle of phospho-albumin there was not a speck of the psoriasis to be seen. Over the diseased patches were now visible dark chocolate-brown stains, but of perfectly velvety smoothness without the least irritation or pruritus. This is not the first or only case of psoriasis cured by testicular preparations. Bouffe reports good results from Brown-Séquard's fluid in this obstinate disease (*Press Med. Belge*, 1894, No. 35). I have another case of seveteen years' standing now under this treatment, but not enough time has yet elapsed to allow of any opinion being expressed as to its effects. It is just possible this treatment may not succeed in the next case, for we do not know what the something is that produced the results and, hence, we are as yet ignorant as to the exact indications for its use. In the next place we are ignorant of the causes which produce psoriasis. When found in conjunction with syphilis specific treatment is beneficial: when it flourishes on a rheumatic or gouty soil the salicylates, colchicum and alkalies help to alleviate the urgency of the symptoms, but when it is "idiopathic" (a term which expresses our ignorance of etiology) and seems to be nothing more or less than a surface manifestation of some general nutritive derangement, then phospho-albumin gives results that are simply marvelous. The glandular bodies should be studied in the laboratory as to their physiologic chemistry and histology, and these studies combined with experimental physiology and empirical therapeutics might lead to great revelations. M. H. Lackersteen, M.D.

The Proposed Leprosy Congress.

New York, Oct. 19, 1896.

To the Editor:—I enclose some copies of letters relating to the proposed leprosy congress. The first idea was to hold it in Bergen, Norway, out of compliment to Hansen. The latter has now renounced his personal claims, and the opinions are now divided between London and Moscow. As you will see, we were happy enough to secure the interest of Queen Victoria, and we have a well grounded hope that the British government will take an active part in the enterprise. Dr. Hutchinson thinks that the Prince of Wales will almost to a certainty consent to act as president of the Congress if held in London. As the British empire is more interested than any other country in the question of leprosy, it seems but natural, especially with these great advantages, that London should be chosen. Dr. Morrow, who is the committee appointed by the American Dermatological Association to represent it in the matter of the Congress, and who was given full powers to act, votes for Bergen first, London second, as the seat of the Congress, and thinks that the most successful meeting could be obtained for London if our Congress meets shortly before or after the Moscow General Congress. I myself shall vote for London. Will you kindly favor us with an editorial voicing these sentiments, and greatly oblige, Very truly yours,

Albert S. Ashmead, M.D.

London, Sept. 22, 1896.

Dr. Albert Ashmead.—*Dear Sir:* At the Ambassador's request I have much pleasure in enclosing herewith the answer from Sir Arthur Bigge to your letter addressed to the Queen. I am, dear sir, your obedient servant,

John Ridgely Carter, Secretary to U.S. Ambassador.

Balmoral Castle, Sept. 21, 1896.

Dr. Albert Ashmead.—*Dear Sir:* In reply to your letter addressed to the Queen and forwarded through the embassy of the United States in London, I have the honor to inform you that your communication has been duly laid before Her Majesty, who is interested in hearing of the proposed International Congress for the suppression and prevention of leprosy. Your letter has now been forwarded to the Queen's ministers, in order that the question may be considered and dealt with by those who in all such matters must be Her Majesty's responsible advisers. I have the honor to be, dear sir, yours very faithfully,

Arthur Bigge, Private Secretary to the Queen.

London, Sept. 16, 1896.

Dr. Albert S. Ashmead.—*My Dear Sir:* I warmly approve your scheme and vote with both hands for Bergen. It would be a mistake to make it a part of the Moscow congress. If in Bergen and well ahead of the Moscow meeting, so that those who wished could attend both, it would, I think, be well attended. For myself I might hope to get to Bergen, but scarcely to Moscow.

I do not think that I much approve the idea of collecting money for leper-houses. What we have as medical and scientific men to do is to find out the cause and the means of prevention, and we should need all the money we can obtain for researches. In the administration of the "Prince of Wales fund" we felt it to be a mistake to have undertaken aid to asylums. It wasted our funds and did an infinitesimal amount of good.

If you thought well to compromise and meet in London, I do not doubt that the Prince of Wales would consent to be president. If you appoint patrons he would probably give his name to the Bergen list.

Why not include "Yaws," or why not make it "For the Study of widely spread Endemic Diseases, Especially Leprosy and Yaws." It might still take its colloquial name from leprosy. Wishing you success, I am, yours sincerely,

Jonathan Hutchinson.

Tokyo, Japan, Sept. 2, 1896.

Dr. Ashmead.—*My Dear Doctor:* I am directed to acknowledge with thanks the receipt of your favor dated New York, Aug. 5, 1896, and beg leave to reply that Prof. Kitasato is highly delighted to hear of your project, and that he will be glad to do all in his power to further the interests of the Congress. He is making researches on the subject you mention, and if they are completed at the time the Congress meets it will afford him much pleasure to report them. He sends his best regards. Yours very truly,

A. Nakagawa, M.D.
Assistant in Institut für Infections-krankheiten.

Bogota, Columbia, Sept. 12, 1896.

Dr. Albert S. Ashmead.—*Dear Sir:* I have had the honor to receive your favor of August 5 of this year, in which you do me the honor to inform me that in the coming year there will be held in Bergen a Congress of Leprologists, to which you do me the honorable distinction to invite me; and at the same time my own interest prompts me to interest myself with the government of my own country to make it accept the invitation which you address to that government, to take its place in the said congress, and to send to it an official delegate. As for me, I accept with the greatest of pleasure, my dear sir, such a signal show of appreciation, and I shall take my place in the Congress unless some unforeseen accident prevents me. Should such an accident happen, you may be sure of the serotherapy exposition you desire, for which I have already in my hands, and I shall receive more, materials to serve as clinical observations, photographs of diseased people, statistic and

historic information, and a lot of things which seem to me to interest the eminent leprologists who will meet at the Congress.

Since I have received your letter I have addressed myself to the Minister of Foreign Relations, in order to satisfy the recommendation made by you, and he told me that he had not yet received the communication which you declare having sent him through the American Minister. But he thinks that he may assure you that the government will accept the invitation and that it will send an official commissioner, as you have asked him.

And now will you allow me to ask you one question? I should like to know that Dr. Hansen will experiment on some case of leprosy of the Hospital Luugaarde with serum-therapy treatment which a year ago I have tried here, with good result, in order that when the Congress of Bergen shall meet. the distinguished scholar will be able to pronounce his idea according to that treatment. For that effect, I remit to you some copies of my third communication to the Academy of Bogota in which there are to be found all the details necessary to the propagation of the anti-leprous serum, and for the treatment of the patients by that method. Hoping for the kindness of yourself. that you will forward this paper to Dr. Hansen. If he wants to make the experiments, without taking to himself the trouble of making the serum, you will do me the favor to let me know, that I could send from here the serum which will be necessary for him.

With the feeling of the most distinguished considerations, I have the honor to declare myself your most attentive and sure servitor, JUAN DE DIOS CARRASQUILLA, L.

COPENHAGEN, Sept. 18, 1896.

Dr. ALBERT ASHMEAD.—*Dear Sir:* I have had great pleasure in receiving to-day your letter, because I am working on the same subject since last year. At the last congress in London in August, 1896, I spoke with the most renowned European leprologists of this matter, and they were all together of the unanimous opinion that a league against leprosy ought to be formed like the leagues already existing against tuberculosis and cancer. I am going to Berlin one of the first days of October to find several other leprologists of our union. I shall inform you of our deliberations on my return.

Yours very truly, DR. EHLERS.

Treatment of Diphtheria.

CAMDEN, N. J., Oct. 19, 1896.

To the Editor:—In the formula of my antiseptic solution in the JOURNAL, Oct. 17, 1896, just to hand, an important misprint has occurred. It should be in the formula *five* drops of carbolic acid instead of one drop.

Will you kindly and promptly correct the same in your next issue. Also I send you two letters which are of great interest in connection with my method of treating diphtheria. Please give them space. Yours very sincerely,

D. BENJAMIN, M.D.

CAMDEN, N. J., July 16, 1896.

Dr. D. BENJAMIN, *My Dear Doctor:*—In reference to your Antiseptic Treatment for Diphtheria, will say that I have used your treatment for the past three years in at least seventy-five cases of true diphtheria, without a death.

The membrane disappeared so quickly in certain cases that reporting the case to the board of health seemed unnecessary.

In a case of a little girl on South Fourth Street, Camden, who was taken with malignant diphtheria, her brother having died only a few days previous, in the hands of another physician, it was my privilege of witnessing the efficacy of this antiseptic treatment.

The membrane disappeared in less than thirty-six hours, the little patient convalescing on the fourth day. As long as the above treatment gives me this percentage of cures, I have no need for antitoxin. I remain, fraternally,

WM. J. KELCHNER, M.D.

CAMDEN, N. J., July 9, 1896.

To the Editor:—Learning that Dr. Benjamin is going to publish an interesting case of diphtheria, and seeing the case with him I desire to make the following statement:

During the practice of twenty-one years I have naturally met with a large number of cases of diphtheria; but the most malignant case that I ever saw to fully recover was Mrs. Samuel Mills, of 726 Clinton Street, this city, who had two children die in close succession from diphtheria, who had been attended by a homeopathic physician. Some time in April last, while attending the funeral of her last child that died, she was suddenly taken with a severe chill, and complained of a painful sensation in the throat, with intense pain in head and back. She was quickly driven home and Dr. Benjamin sent for. Her condition became rapidly worse and her symptoms so alarming that her husband called at my office and requested me to take charge of the case until Dr. Benjamin arrived.

Under the circumstances I consented to do so. I just had time to examine the patient, however, when the doctor drove up. He confirmed my diagnosis that it was not only a typical case of diphtheria, but a most malignant form of the disease. Upon examination he found her temperature to be 105, pulse 130, and respiration 26.

I saw at once that it was a case calling for the antitoxin treatment. Had she been my patient and had I been alone, I probably would have resorted to that remedy: and then Dr. Benjamin declared in the face of such an unfavorable prognosis, that he not only would cure the case, but would in a very few hours check the progress of the disease by employing two well tried remedies of his, both locally and internally; I must acknowledge that when he made that statement I became somewhat incredulous. But nevertheless the doctor evidently knew whereof he spoke, as in a remarkably short time, under the antiseptic treatment employed directly to the throat (which he claims destroys the germs and microbes at once), the patient showed marked symptoms of improvement. The temperature soon became normal, the diphtheritic patches soon cleared off, and in less than a week the patient was down stairs.

Respectfully,

217 South Sixth Street. E. E. DEGROFFT, M.D.

Drinking Waters for Travelers.

NEW YORK, Oct. 16, 1896.

To the Editor:—We regret to encroach upon your time and we hope you will pardon us for doing so as a result of our desire to have you favor us by correcting in the JOURNAL an error which inadvertently crept into the issue of September 19, page 664, where, speaking of the several drinking waters for travelers, it is made to appear that Apollinaris Water and the various Hunyadi Waters are aerated drinking waters of the same standing.

While it is true that Apollinaris is a dietetic and table water which the profession have time and again recommended to travelers in districts where the drinking water is the subject of suspicion, on the other hand the numerous Hungarian Bitter Waters coming from Buda Pest, which are called Hunyadi this or that, are strictly medicinal, being aperients, and, if reports go for anything, vary much from time to time in their specific gravity, in consequence of which Professor Liebreich (University of Berlin) in an article published in the *Therapeutische Monatshefte*, said:

"It is, therefore, a matter for high satisfaction that the aperient water 'Apenta,' from the Uj Hunyadi Springs in Ofen, has been placed under state control. The Royal Hungarian Chemical State Institute (Ministry of Agriculture) has undertaken this charge, and, therefore, it is now possible to obtain a water which is free from injurious extraneous waters infected with organic substances. The analysis has been published by Professor Liebermann, Director of the said Institute. The proportion of sulphate of soda to sulphate of magnesia is 15.432 to 24.4968 in the liter, so that this water is to be classed with the best aperient waters, and may be pronounced one of the strongest. Owing to the constancy of the Apenta Water ensured by the state guarantee, that confidence in aperient

waters, which had been lost, will be revived in favor of this important therapeutic agent."

As an error in the columns of a journal of such high standing and authority as yours is apt to confuse many readers to their disadvantage and ours, we trust that you will be good enough to give the matter attention. Yours very truly,

CHARLES GRAEF & CO.

He Likes our Journal, but Money is Scarce.

MILLBORO SPRINGS, VA., Sept. 6, 1896.

To the Editor:—I received your letter and the JOURNAL September 25; please accept my thanks for them both. After awhile (D.V.), I will become a member of the AMERICAN MEDICAL ASSOCIATION when money gets less ridiculously scarce.

There is no money in rural sections now. Corn 15c. per bushel, butter 12c. per pound, sweet potatoes $1.00 in July last, when a few years back they were $7.00 per barrel. Nothing that a farmer has will sell.

Send me the JOURNAL semi-occasionally. I enjoy the editorials; the terse and brilliant dash of the versatile pen tends to reason like the "needle to the pole," making their conclusions "solid buildings," no "castles in the air."

I am like you, doctor, about that terminology of "fair culture." We were all taught in about the first lesson in our Latin grammar that "os" and "on" were Greek terminations. As to "stomatomycosis" and "coprostasis," "fair culture" slipped like "Cæsar in Africa;" unlike him, however, I am sure he will not hold his "tripper," or wish to, when he looks for the words κόπρος and στάσις; nor will he find lead poisoning, whatever other morbific (escaping) elementaries there may be afloat. This is strictly between you and me. I am no critic, neither wish to be. In your position you are compelled to notice such blunders.

I will join the ASSOCIATION, nothing happening to prevent it, some time. I am sincerely, etc., W. S. S.

Twelfth International Congress of Medicine.

MOSCOW, RUSSIA, Oct. 10, 1896.

To the Editor: Will you kindly insert in an early issue of your esteemed journal the following notice:

From the Surgical Section of the Twelfth International Medical Congress in Moscow.—Acting upon the advice of Dr. E. Browitz (Königsberg), the Surgical Section of the Twelfth International Medical Congress has decided, in view of the approaching Congress, to collect international statistics on narcotizations for the current year (1896). For this purpose the managers of the said Section apply to all their colleagues and earnestly request them to give answers to the following questions:

1. Number of narcoses from Jan. 1, 1896, to Jan. 1, 1897?
2. What narcotics were administered?
3. Number of fatal cases?

The Secretary of the Surgical Section, F. Rein, Malaja Dmitrowka, house Scheschkov, Moscow, Russia, will be glad to receive such information, and, if possible, not later than July 1, 1897.

F. REIN, M.D., Secretary of the Surgical Section.

Serum-therapy.

CHICAGO, Oct. 25, 1896.

To the Editor:—Lahmann's assertion (see "Serum-therapy," JOURNAL, No. 17, page 914), upon healing diphtheria by freeing the body of autotoxins reminds us of the old therapy of evacuating the toxins by moving the bowels and sweating an old plan, with right relinquished or left to the quacks. The renewal of the idea with some physiologic rays makes it no more valuable; we should be on our guard, having enough of the sort in the country. KL.

Journal Volumes for Sale.

CANADIAN, TEXAS, Oct. 15, 1896.

To the Editor:—Can you refer me to any one who can use eleven volumes of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, Vols. I to XI complete, bound and in good condition? Yours truly, CLAUDE WOLCOTT.

PUBLIC HEALTH.

Policemen Trained in Care of the Sick and Wounded.—A letter to the *British Medical Journal* states that a trained "Samaritan" is always present at each police station in Berlin, and 1,500 men have been trained in ambulance work. There are also "Samaritans" in each fire brigade. The latter have cared for 1,533 cases since 1893.

Providence Sewerage System.—Residents along the west shore of Narragansett Bay, in the vicinity of Field's Point, are greatly disturbed over the sewage from this city. The outlet of the mains is at Field's Point, and the tide carries the sewage along the flats to the west of Stave Goat Island and causes a constant nuisance. The residents of Washington Park are also among the complainants, and attorneys are being consulted to ascertain their legal rights in the matter. The sewerage system has just been completed and cost $2,000,000. It was thought by the Providence officials to be perfect, but it was predicted some time ago that an outlet inside of Warwick Neck would be useless. It will cost several more millions to continue the system to a safe point down the bay.

The Decadent American Birth Rate.—France, to-day, with all her industry, natural resources and ardent national life, finds herself face to face with this specter, and her statesmen are planning, by the modification of the inheritance tax-law, to inspire a desire on the part of parents for more children. In brief, by exemptions to families containing more than three children and by additional taxes on those with less, they hope to counteract the alarmingly crescent tendency of French married couples to rest content with very few "olive branches." In 1894 the birth rate in France was 22 to every 1,000 inhabitants, a decrease of 2.7 in a decade. This is believed to be the lowest birth rate in the world, and no wonder thoughtful Frenchmen are aghast; and to this must be added the facts that illegitimate births and divorces are on the increase. Our condition is by no means so bad, but it is bad enough to demand prompt attention and remedial efforts, if Dr. Billings' latest figures be trustworthy. In 1880 he says, our birth rate was 30.95 to every 1,000 people and in 1890 had dropped to 26.68. If it has pursued to now the descending ratio, it must be as we write, about 24.50; not 3 per 1,000 higher than the rate which frightens France. It appears further from the eminent sociologist's researches that the class of parents best equipped to bring forth and educate children are the least inclined to this patriotic responsibility. Into the causes of this we need not now enter and must content ourselves with simply entering a *caveat.—The New York Press.*

Regular Meeting Michigan State Board of Health, Lansing, Oct. 9, 1896.—The meeting was called to order by the president, Hon. Frank Wells of Lansing. The members present were Prof. Delos Fall of Albion, Mason W. Gray, M.D., of Pontiac, Judge Aaron V. McAlvay of Manistee and Secretary Henry B. Baker.

The regular business of auditing of bills and accounts was transacted. The secretary presented his report of the conditions of health in Michigan and of work in the office during the quarter ending Sept. 30, 1896. His report showed that the work of the office was fast being brought up nearer to date, and that work in connection with preparing the annual report of the secretary was progressing rapidly. He thought that by Dec. 31, 1896, his report for the year 1896 would be nearly

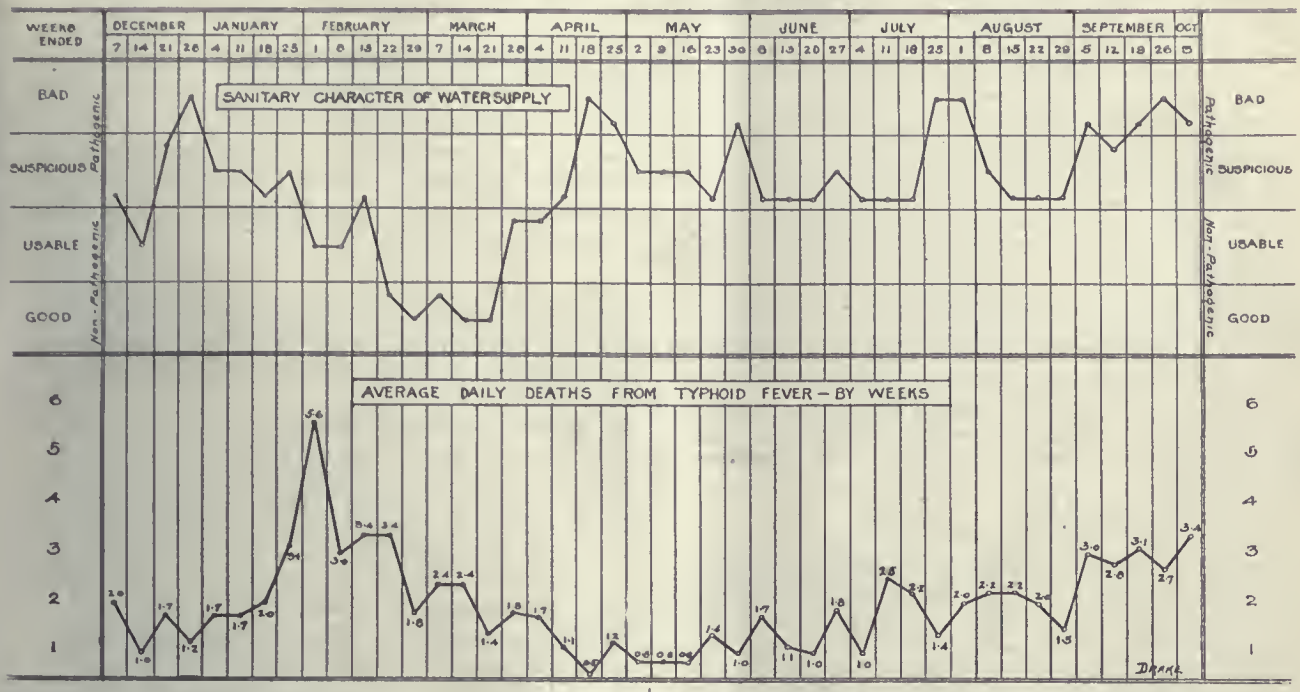
completed. The subject of the quarter-centennial of the State Board of Health was suggested, and the board appointed the secretary a committee to report at the next regular meeting a plan for an appropriate celebration of the twenty-fifth anniversary of the establishment of the board, which should occur July 30, 1898.

Doctor Baker said that during the past quarter he has occupied his spare time in ascertaining the results of the health work which has been done in Michigan, more especially for the restriction of dangerous communicable diseases. The statistics collected by the Secretary of State and those collected by the State Board of Health agree in indicating that lives have been saved and sickness prevented which has resulted in saving to the people of Michigan over $1,000,000 per year. The outlay has been very small. The public health work of the State has, therefore, been exceedingly profitable. In recent years the work has been greatly hampered for lack of money to properly distribute about the State the information necessary for the people to have in order to make the restriction of diseases as effective as it would be if all the people could be taught to coöperate in the work; nevertheless the results are very gratifying.

Clinic Instruction in Infectious Diseases at London.—According to the London *Lancet* for September 5, the facilities for clinic study at the public infectious disease hospitals has been materially improved during the past few years. It says that while the importance of such study in the regular curriculum of undergraduates has long been recognized, but it is only within recent years that proper facilities have been afforded for taking advantage of the valuable material to be found in the fever hospitals of the Metropolitan Asylum Board. "In former years the student had but few opportunities of becoming familiar with this branch of medicine, and it was by no means an unheard-of event for a student to complete his career without having seen half a dozen cases of infectious disease. That there is still evidence of the state of affairs which formerly obtained may be gathered from the fact that during 1895 no fewer than 1,277 patients, or a percentage on the total admission into the Metropolitan Fever Hospitals of 7.6, were after admission found not to be suffering from the diseases mentioned in the medical certificates upon which they were removed to hospitals, the percentage of mistakes at the Eastern Hospital at Homerton being 11 of the total admissions. At the present time five of the admirable hospitals of the Asylums Board, viz., the Eastern at Homerton, the Western at Fulham, the Southeastern at Deptford, the Southwestern at Stockwell and the Northwestern at Hampstead, are open under certain conditions to students and medical practitioners, while instruction in smallpox is also afforded at the smallpox ships in the Long Reach near Dartford. A student desirous of taking a course at one of the board's hospitals, must have completed his third year and have held the office of clinic clerk and dresser; he must then obtain the sanction of the medical school to which he belongs and pay a fee of three guineas for the first three months, and one guinea for each subsequent month to the clerk of the board, from whom he receives a card indicating the hospital to which he has to be attached. At this hospital he must attend at stated times for at least two days in the week for a minimum period of two months, and on the completion of his attendance he receives a certificate from the medical superintendent whose lectures and classes he has attended. While in the hospital the student places himself under the control of the medical superintendent and is bound to obey the regulations in force for the prevention of spread of infection. These rules comprise the wearing while within the hospital wards of brown holland overalls, consisting of coat, trousers and cap, which are provided by the board, and the use of what may be termed a discharge block, which consists of an infected room where the overalls are left, a lavatory and a theoretically uninfected room. The students are further required to keep their hair short and to be efficiently protected against smallpox. A duly qualified medical practitioner has equally to conform to these regulations and obtain the consent of the medical superintendent of the hospital at which he elects to attend. The student who attends these courses will obtain a fair knowledge of infectious disease, which will stand him in good stead in years to come, while he will also get an insight into the management of fever hospitals and the methods of disinfection practiced therein. The provisions in regard to instruction in smallpox differ somewhat from the above, as it is necessary for the student to reside for from two to four weeks on the smallpox ships, where he is provided with rations, apartments and washing at the extremely moderate sum of 12 shillings per week. The student has to travel to and from the hospital ships on the ambulance steamer and to furnish himself with a suit to which he does not attach much value, in order that it may be disinfected or destroyed at the termination of the period. If the student can take this course during the summer we can promise him, as the result of a personal experience, a most enjoyable and instructive little holiday."

Typhoid Fever in Chicago.—The diagram on the opposite page furnishes a most striking illustration of the relation of typhoid fever incidence to the character of a water supply an illustration which, as the London *Lancet* has said of the first section of this diagram, reflects with mathematical accuracy the increase and decrease of the degree of pollution in the rise and fall of the death line. Referring to this diagram in his "notes and comments" on the September report, the Assistant Health Commissioner, Dr. Frank W. Reilly, says that up to the close of September the daily analyses of the public water supply made by the city bacteriologist, Dr. Gehrmann, and the city chemist, Mr. Kennicott, show the water to have been "bad" 22.5 per cent., "supicious" 55 per cent., "usable" 10 per cent. and "good" 12.5 per cent. of the time since the first of the year. During this period the death rate from the acute intestinal diseases and from typhoid fever—diseases directly related to impure water—has been higher than that of any other large city in the country and nearly double that of New York City. The deaths from typhoid fever began to show a marked increase in August, 1895. During the twelve preceding months there had been a total of 455 typhoid deaths, or an average of 38 per month. In August, 1895, there were 59 deaths; in September, 76; in October, 90, and during the twelve months ended Sept. 30, 1896, there have been 751, an increase over the preceding twelve months of 65 per cent. Comparing the first nine months of 1895 with the nine months of this year, the figures are: January 1 to Sept. 30, 1895, total typhoid deaths, 326; January 1 to Sept. 30, 1896, total typhoid deaths, 559; increase in 1896 over 1895, *71 per cent.* This is very nearly the death rate per 10,000 of population of the year 1889, immediately preceding the great typhoid epidemic of 1890-92. That year, 1889, the typhoid death rate per 10,000 of population was 4.83. The foregoing figures give a typhoid death rate of 4.63 for the past twelve months. As compared with deaths from all causes the comparison is even more threatening. The past twelve months have been much more healthful than 1889 in every respect except typhoid fever. The total deaths (for the twelve months) amount to 23,676 or 14.62 per thousand of population. In 1889 the death rate from all causes was 17.56 per thousand. The present proportion of deaths from typhoid is 3.17 per cent. of the total from all causes. In 1889 it was only 2.67 per cent. As set forth in the August report the unwholesome quality of the water has almost entirely offset the improved quality of the milk supply during the period, as shown by the deaths among infants and young children. While there has been a marked reduction in the deaths of infants

DIAGRAM SHOWING RELATION BETWEEN
SANITARY CHARACTER OF WATER SUPPLY AND DEATHS FROM TYPHOID FEVER IN CHICAGO
DECEMBER 1895 TO OCTOBER 1896



under 1 year of age, who drink little or no raw hydrant water, the reduction of deaths among children over 1 year of age who do drink hydrant water has been less than 1 per cent.

For a better understanding of the diagram it should be stated that the quality of the water is determined weekly from the combined chemic and bacteriologic findings for each day during the week. Four qualities are designated: "Good," "usable," "suspicious" and "bad;" and three degrees of each. When the supply is designated as "good" or "usable" the samples have shown an entire absence of any quality capable of producing disease. When designated as "suspicious" or "bad" the samples have shown qualities, at one or more times during the week, capable of producing disease. The quality of "good" is determined by an entire absence of nitrates and nitrites; by traces only of free ammonia; by .001:100,000 or less of albuminoid ammonia; by entire absence of pathogenic bacteria, and by a count of bacteria of less than 500 per c.c. The quality of "usable" is determined by an entire absence of nitrates and nitrites; by free ammonia not in excess of .004:100,000 at any time; by albuminoid ammonia not in excess of .02:100,000 at any time; by an entire absence of pathogenic bacteria; and by a count of bacteria not more than 1000 to the c.c. The quality of "suspicious" is determined by any presence of nitrates or nitrites; by any excess of free and albuminoid ammonias beyond .004 and .02 respectively; and by any excess beyond 1000 bacteria to the c.c. whether it occurs on one or more days. The quality of "bad" is determined by the presence of free or albuminoid ammonia beyond the above figures and of nitrates or nitrites; the presence of pathogenic bacteria and by a count of bacteria of more than 1000 to the c.c. The first, second and third degrees of the designated quality is determined by the more or less continual presence or absence of the factors of that quality and by the closeness to which the next quality is approached. The presence of any one of the factors of quality, even when the others are absent, designates the quality; and if they are all present, if only at one time, the highest grade of the quality is indicated. In addition to this the average findings and their relation to one another—with respect to the proportion furnished by each tunnel to the total supply—are taken into consideration in the statement of the sanitary quality of the total supply. The characterization is a matter of expert judgment and the figures in themselves do not always indicate the quality.

The highest point, 5.4 of the typhoid death line, during the week ended February 1, is thus accounted for by Dr. Reilly: "For several weeks before that ended Dec. 14, 1895, the water supply had averaged "usable" or "good," as indicated on the diagram, and the deaths from typhoid fever and from the acute intestinal diseases were below the average. During the first 17 days of December the precipitation was considerably less than one-half the average precipitation for this month during the previous 25 years—only .60 of an inch instead of 1.35 inches. The sanitary character of the water supply improved from the first degree of "suspicious" during the week ended December 7, to the second degree of "usable" during the week ended December 14. On the 18th 1.10 inches of rain fell; on the 19th 2.66 inches, and on the 20th 1.67 inches, making a total of 5.43 inches in 72 hours or 3.09 inches more than the average total for the whole month. This excessive rainfall flushed the sewage contents of the river and its branches into the lake and contamination was first noted on the 20th, increasing to the middle degree of "bad"—pathogenic—during the week ended December 28. The daily average of deaths from acute intestinal diseases during this week was 2.1. During the following week (ended January 4) this rate shot up to 8.4 per day—exactly quadrupled. The typhoid mortality was affected more slowly—the incubation period being longer—but during the week ended January 18, this began to rise from a previous average of 1.65 deaths per day until it reached 5.4 per day during the week ended February 1."

With the improved quality of the water, beginning during this week, the deaths began to diminish, so that between the weeks of February 22 and April 4, when the water was continuously "good" or "usable," the deaths declined from a daily average of 3.4 (Feb. 15-22) to 0.5 per day in the week of April 18, and an average of less than 1 per day, for the eight weeks from April 11 to May 30. The pollution line culminated again in the week of April 18, since which time it has varied from

first degree of "suspicious" to middle degree of "bad," and the death line has reflected this pollution at the usual interval —at the end of the diagram averaging 3.4 per day.

Diphtheria and Typhoid Fever in Ohio.—The following are the cities and towns in Ohio reporting an unusual prevalence of diphtheria and typhoid fever, since Aug. 1, 1896: Diphtheria: Minster, 39 cases, 6 deaths; Gervais, 27 cases, deaths not known; Brilliant, number of cases not known; Byer, 33 cases, 19 deaths; Conesville, 12 cases, number of deaths not known; Five Point, 7 cases, 2 deaths; New Matamoras, number of cases not known; Bucyrus, 18 cases, 2 deaths; Franklin, 10 cases, 6 deaths; Ironton, 33 cases, 4 deaths; Portsmouth, 56 cases, 7 deaths; Cincinnati, 131 cases, 35 deaths; Cleveland, 170 cases, 47 deaths; Columbus, 17 cases, 2 deaths; Grover Hill, 15 cases, 1 death; Marysville, 29 cases, 2 deaths; Niles, 23 cases; Springfield, 59 cases, 14 deaths; East Liverpool, 28 cases, 6 deaths: Troy, 11 cases, 1 death; Findlay, 14 cases, 5 deaths; total 23 places, 733 cases and 159 deaths. Typhoid fever: Gibsonburg, 105 cases, 9 deaths; Lancaster, 28 cases; Dyesville and neighborhood, 22 cases, 4 deaths; Conesville, 35 cases, number of deaths not known; Haydenville, 9 cases; Conneaut, 12 cases, 2 deaths; Cincinnati, 27 deaths; Cleveland, 40 deaths; Columbus, 11 deaths; Youngstown, 104 cases, 11 deaths; Salem, 16 cases, 3 deaths; Mansfield, 34 cases, 3 deaths; Hayesville, 11 cases, 1 death; total 13 places, 374 cases and 111 deaths.

Medical Practice Act of Illinois.—Resolutions adopted by the Illinois State Board of Health, Oct. 6, 1896:

WHEREAS, the wise and progressive enforcement by our predecessors of the Act to Regulate the Practice of Medicine in the State of Illinois passed July 1, 1877, has resulted in a general, but not uniform improvement of the methods of medical education throughout the United States, and a material elevation of the standard of professional attainments and ability necessary to obtain the legal right to practice medicine in many States, thereby securing in such States a better equipped, more competent and more scientific body of medical men to the great gain and advantage of the people thereof; and

WHEREAS, this latter result has been attained to the fullest extent in those States where the college diploma is not recognized as final, but only as a qualification for examination by a board whose members are not connected with, or interested in any college or teaching institution; be it

Resolved, By the present members of the Illinois State Board of Health, with the fullest appreciation of the invaluable work of their predecessors, that Medical Education and the status of the Doctor in Medicine have outgrown the limitations of the Medical Practice Act of 1877; now, therefore be it

Resolved, That said Act should be so amended as to require, first, that all applicants for the right to practice medicine and surgery or any of their branches in the State of Illinois, shall demonstrate their fitness for such practice, through an examination by a board of impartial, competent and practical examiners, skilled in the various branches of medicine and surgery, and no member of which board shall be connected or affiliated with or interested in any diploma-granting college or teaching institution. Second, that no applicant shall be eligible to such examination unless the legal possessor of a diploma of graduation from a medical college in good standing;

Resolved, That this Board earnestly invite the coöperation and assistance of kindred boards throughout the United States, to the end that uniformity of practice may ultimately obtain in the recognition of medical practitioners in all parts of the country; of all reputable medical colleges whose dignity and usefulness will thereby be promoted; of the medical profession of the State, as represented in the various medical societies, with the view of excluding the incompetent and unworthy from its ranks; and of the members of the forthcoming general assembly in this effort to protect the health and lives of citizens of the State.—J. W. SCOTT, Secretary Illinois State Board of Health.

SOCIETY NEWS.

The National Sanitary Association.—The second annual convention of this society was held in Brooklyn on October 14 and 15, Dr. Frederic Jewett, president. Important scientific business and the inspection of numerous public works important to sanitary officers in cities occupied the attention of the members to the full. At the closing session, officers for the ensuing year were chosen as follows: President, Dr. F. O. Young, Lexington, Ky.; vice-presidents, Drs. H. C. McLean, Brooklyn, N. Y., F. A. Wilson, Meriden, Conn., and C. S. Benedict, New York; secretary, T. E. Veal, Esq., Atlanta, Ga.; treasurer, J. Hoadley, Esq., New Haven, Conn.; executive committee, A. R. Moore, Esq., Brooklyn, N. Y., Drs. F. A. Jewett, Brooklyn, N. Y.; Wallace Sibley, Rochester, N. Y.; Archibald St. George, Fall River, Mass., and J. Hoadley, Esq. The third annual meeting was named for October, 1897, at Lexington, Ky.

The Sixty-eighth Annual Congress of German Naturalists and Physicians.—The Congress at Frankfurt opened with over 3,000 members inscribed, among them all the names most famous in science in Germany; Virchow, Leyden, Gebhardt, etc. The Empress Frederic was also present as a member. Some of the addresses are summarized elsewhere in the JOURNAL. The proceedings were preceded by laying the corner stone of a monument to Sömmering, a famous Frankfurt anatomist and physiologist, and, as the German papers state, the inventor of the electric telegraph.

The Twelfth International Medical Congress.—It is officially announced from Russia that no distinctions will be made against Jewish physicians coming to Russia to attend the Congress. All that is necessary is to have their passports *viséd* at home by the Russian consul before they start, which is the regulation for all foreign members of the Congress. Instructions to this effect have been forwarded to all the Russian consulates and embassies.

The American Laryngological, Rhinological and Otological Society.—The following circular has been issued:

NEW ORLEANS, Oct. 20, 1896.

My Dear Doctor:—The meeting of the Southern Section of the American Laryngological, Rhinological and Otological Society will be held in New Orleans, March 3 and 4, 1897. This date has been selected as it will permit visiting members to see New Orleans during the carnival season and will enable them to secure half-rate railroad transportation. We shall be pleased to have you attend the meeting and to receive from you the title of a paper, on a subject within the object of the Society, to be read before the meeting of the Southern Section. The number of physicians who devote their attention to diseases of the ear, nose and throat has increased so much and the subjects for discussion have become so extensive that it is difficult in the time devoted to the annual meeting of the Society to give the necessary time to many important questions. On this account, the four Sections of the Society have been formed, the object of which is to promote the interest of the specialty during the interval of the annual meetings. A meeting of the Laryngological, Rhinological and Otological Society in the South is a distinctly new enterprise and should be encouraged. With the active coöperation of the physicians interested in this work, the carnival meeting of the Southern Section of the American Laryngological, Rhinological and Otological Society will be an assured success.

Candidates for membership should send their names, properly endorsed, to Dr. Robt. C. Myles, Secretary, 46 West 38th Street, New York, or to Dr. W. Scheppegrell, so that they may be acted upon by the Council of the Society. Very truly yours,

W. SCHEPPEGRELL, Chairman Southern Section.

MISCELLANY.

Dr. S. C. Stanton, formerly connected with the Chicago *Medical Recorder*, is now editor of the *Medical Standard*. He is able and well qualified for the duty.

Promotion.—H. W. Sparks, formerly passenger agent for the Big Four Railroad, has been appointed traveling passenger agent, vice C. W. Norris, resigned. Those who remember the kindess and courtesy extended by this gentleman to the passengers on THE JOURNAL special train to Atlanta, will be pleased to learn of his promotion.

"Osteo-malacia" Cured by Oophorectomy.—The *Gaz. degli Osp.* of September 27, reports a case of severe and very painful osteomalacia cured by Piretti of Naples with a double normal ova-

riotomy, which it says should go on record as one of the really miraculous cures of modern surgery. The improvement was apparent in a few hours, and it was soon complete and permanent, over a year having passed since then, with progressive restoration to perfect health.

Death of Children from Hyperthermia.—A recent discussion of this subject brought out several cases of apparently healthy children whose temperature rose suddenly from some inexplicable cause to 108 degrees F., most of them fatal. Prompt cooling measures are the only means to save such cases. Some ascribed the fatal result to heart failure. Engel has observed a case of fatal hyperthermia following a warm "wrapping" in pseudo-croup, which produced irregular action of the heart.—*Deutsch. Med. Woch.*, October 8.

The South African Republic and the Geneva Convention.—Information has reached this country on September 30 that His Excellency, Mr. Bulaert Van Blockland, envoy extraordinary and minister plenipotentiary of the South African Republic at the Hague, forwarded to the Swiss Federal Council in the name of his government the act of adhesion of the South African Republic to the convention concluded at Geneva, Switzerland, Aug. 22, 1864, for the amelioration of the condition of the wounded of armies in the field. Prior to this the latest act of adhesion to the Red Cross Association was that of Siam in July, 1895.

Rare Case of Gallstones.—A recent number of the *Deutsch. Med. Woch.* describes a bunch of sixteen gallstones evacuated in the feces without much effort and no previous disturbances except a violent brief attack of fever and pain in the abdominal region two years before. The case was that of a woman of 46 years, who had worn a truss for umbilical hernia for sixteen years. The bunch of unmistakable gallstones weighed 12.83 grams and measured three by four centimeters. This recalls Morgagni's observation of a similar conglomerate which weighed 75 grams and consisted of sixty stones.

The Dumb Thermometer.—The improvement in this thermometer consists in the absence of the scale, which is apt to depress patients who catch a glimpse of it, realizing the importance of the temperature recorded. A small case fits over the instrument and a scale on this enables the physician to read the thermometer as he slips it inside after leaving the bed. Mendelssohn thinks it will be found useful. Dr. R. D. Murray several years ago recommended the physician, in cases of yellow fever, to always use the centigrade thermometer, as the general public in America were unfamiliar with it, and therefore could view a high temperature without fear.

The Indian Sacrifice.—Under British rule the Suttee, the Juggernaut and other ancient sacrifices of human life have been done away with among the natives of India. There is another huge sacrifice that remains to be attacked; namely, the enormous waste of the lives of Indian women and children that is constantly going on from want of medical aid. The customs of the country forbid the women from consulting men upon matters concerning the health either of themselves or their offspring. The same reluctance, however, does not prevent them going to their priests, who administer most disgusting and abominable methods of treatment. This should be a good field for medical women.—*Med. Press*, September 30.

Special Hernias in Women.—Waldeyer (*Centralbl. f. Gynäk.*, No. 30, 1896) demonstrated at a meeting of the Berlin Obstetrical Society some important anatomic researches as to the position of the ovary and other pelvic viscera. He maintains that the ovary lies in a shallow pit, which is really a triangle of peritoneum elevated at its margins, formed by the round ligament, the umbilical artery and the ureter. This pit is sometimes very shallow, but it may be very deep, so that the ovary lies in it practically in a state of prolapse, and the peritoneum may even form a hernial pouch, which has been found projecting into the lesser sciatic foramen or into the greater, either above or below the border of the pyriformis. Waldéyer exhibited an incipient hernial pouch of this kind. He likewise showed an inguinal hernia containing the Fallopian tube, and a pelvis with a defect in the symphysis pubis, into which a diverticulum of the bladder had forced itself.

Mixed Clinical Classes.—The announcement that Mr. Jonathan Hutchinson has been compelled to exclude ladies from his popular clinical afternoons on account of the unwillingness of the male patients to undress before them is full of significance. It is greatly to be regretted that this course should have been deemed necessary, for it places yet another obstacle in the way of the acquisition of clinical knowledge by women. Doubtless, in the near future, the public will become as accustomed to women as clinical observers as to women cyclists, and will abandon foolish protests against the one as they have ceased to objurgate the other.—*Med. Press*, September 30.

Bequests to Medical Charities.—The contest over the will of the late Thomas T. Wyman of Boston, by which $400,000, beside the residue of his estate, which is said to amount to $472,319, is left to various public charities, has been settled out of court. The will was contested by certain relatives, and it is stated that the amount given to effect the compromise will only slightly diminish the residue of the estate. The following medical charities receive $20,000 each: The Emergency Hospital, the Cambridge Hospital, the New England Hospital for Women and Children, the Boston Lying-in Hospital, the West End Nursery and Infant's Hospital, the Children's Hospital, the Massachusetts Charitable Eye and Ear Infirmary, the Sharon Sanitarium, the Boston Home for Incurables, the Consumptives' Home, the Carney Hospital and the Perkins Institution and Massachusetts School for the Blind. The residuary legatees are the Massachusetts General Hospital, the Boston City Hospital and the Massachusetts Homeopathic Hospital.

The Agglutinating Substance in Typhoid Serum.—It is announced as the results of the study of the peculiar agglutinating properties possessed by typhoid serum (which is now a fully established fact) that the albuminoid substances, fibrinogen, globulin or casein, isolated from the fluids of a typhoid fever patient by certain processes (described in the *Bulletin de l'Académie de Médecine*, September 29) take away with them the agglutinating property and retain it at least to a certain degree. They lose it in solution and recover it in their precipitate. This fact is interesting not only to the physician but to the chemist, who may find in this agglutinating property some new reaction for the difficult study of albuminoid substances. Others have discovered the same property in the serum in "proteus" infections.

Normal Physiologic Standards in Mexico.—It has been found that the atlases and charts published abroad and accepted as the standard of the normal individual do not apply to Mexico. Vergara de Lope announces that in his investigations the characteristics of the urine, for instance, differ from those in other countries; it is more concentrated, less in quantity and lighter colored. He ascribes the two former to the effect of the altitude on the intra-vascular arterial tension, as the tension of the blood diminishes with increased rarefaction of the atmosphere. He does not attempt to explain the lighter color, merely remarking that the hematic pigment, which some consider the cause of the coloration of the urine, is present in this concentrated urine to excess and, therefore, the cause of the lack of coloration must be sought elsewhere.—*Revista Quincenal*, September 1.

When Licensing of Milkmen not Authorized.—Where it is doubtful, after giving full force to all the provisions of a city's charter, whether the charter authorizes the licensing of milkmen

the supreme court of errors of Connecticut holds, in the case of State v. Smith, decided May 14, 1896, that it does not authorize it. To illustrate: The charter of the city of Bridgeport authorized the common council to make ordinances, not inconsistent with law, relative to commerce; to the inspection of produce brought into the city for sale and the election of inspectors for that purpose; to the sale or offering for sale of unwholesome produce of all kinds; to "licensing cartmen, truckmen, hackmen, butchers, bakers, petty grocers, or hucksters and common victualers, under such restrictions and limitations as said common council may deem necessary and proper" to the health of the city; and to "any and all other subjects that shall be deemed necessary or proper for the protection and preservation of the health, property and lives of the citizens." Here the court does not find authority for an ordinance excluding every one who has not received a license from the local health officer from participating in the business of a milkman within the city when the public statutes leave it open to all on equal terms.

Convicted of Being an Unregistered Druggist.—The defendant in the case of Queen v. Simpson, according to a report in the Canada *Law Journal*, being owner of a large departmental store, was charged with keeping open shop for retailing, dispensing and compounding poisons contrary to the law of the Province of Ontario. It appeared that part of his store was set apart for the drug department and was under the management and control of one Lusk, a duly qualified and certified chemist, registered under the pharmacy act, who dispensed the drugs, giving bills for the same on which defendant's name was printed, and on some of which his own name was also printed with the word "druggist" under it. The defendant was never inside of the drug department nor interfered with the conduct of the business. Lusk purchased all the drugs on his own judgment, but with the defendant's money, who received the proceeds, Lusk receiving a certain portion for his remuneration under agreement with the defendant. Under these circumstances, the high court of justice of the Province of Ontario held June 16, 1896, that the matter must be remitted to the magistrate (who had dismissed the information) with instructions to convict the defendant.

Formation of Urobilin.—The conclusions of an article on this subject in the *Brit. Med. Journal*, October 3 are as follows: 1. The bile pigment present in the upper part of the small intestine during its passage along the alimentary canal is converted into some colorless chromogen, to be again converted in the lower part of the small intestine into bile pigment. 2. Urobilin is, as a rule, formed in the large intestine below the ileo-cecal valve, and only rarely in the small intestine; that is to say, only in those parts where the intestinal putrefaction is most active. 3. The staining of the wall of the cecum and large intestine with urobilin is due to postmortem diffusion, and is not any indication of the absorption of urobilin in the living animal. Why it should in some cases be most marked in the cecum and just below the cecum, and not in the rectum, can only be explained by the fact that those parts are generally found in the postmortem room more decomposed than the rectum. 4. The increase of urobilin in the urine, as well as having pathologic significance—as has been already recognized in cases of internal hemorrhages, such as cerebral, peritoneal or hemorrhagic infarctions and extrauterine pregnancy, and probably when red blood corpuscles are being destroyed, as in infectious fevers, scurvy and pernicious anemia—points also in favor of increased intestinal putrefaction, and may be a useful chemic test for such purpose.

Photograph Evidence.—In an action to recover damages from a city for injuries sustained through a fall alleged to have been occasioned by an inequality that had been negligently allowed to exist in a sidewalk, where the defense of contributory negligence was pleaded, it was contended by counsel for plaintiff that photographs of the place where the accident occurred should not have been admitted in evidence. He argued that they did not tell the story told by the human eye, or in other words, that the picture they made to the apprehension was not the picture (of the obstruction in this case) made to the mind by the eye. One of the illustrations used to show how little analogy there is between a photographic plate and the retina of the human eye, and that the imaging capacity and the character of the imaging performance of the former afford no just criteria of the imaging capacity and performance of the latter, was that the skin of the human face, which under the microscopic inspection of a physician is smooth and absolutely free from eruption, under the pitiless revelation of a photographic plate may be found to be dense with the pustules of smallpox. But the United States circuit court of appeals does not feel that it can concur fully in this view of the question, holding, instead, that the trial court did not err in overruling the objection, and in considering the objection as going to the effect of the testimony, and not to its admissibility. Scott v. City of New Orleans, decided June 9, 1896. At the same time, it acknowledges there is much force in the suggestions of the counsel, and says that touching the effect of this testimony the jury should be fully and carefully instructed, and warned against its liability to mislead.

"Douglasitis."—This is the name given by Condamin to the chronic inflammation of the recto-uterine cul-de-sac, which differs from Schultze's posterior parametritis, as there is none of the tendency of the latter to cause retraction and afterward extension of the sacro-uterine ligaments, and thus favor retroversion of the uterus. Douglasitis is usually consecutive to salpingian lesions, but it also occurs as a primary affection, as Condamin has found in the course of four laparotomies. Repose in the dorsal decubitus alleviates the pain of douglasitis much more readily than of salpingitis, and this is one means of diagnosis. It is characterized by the multiplicity of the lesions, which can be palpated through the vagina by inserting the middle and index fingers, when not only the sacro uterine ligaments can be distinguished, but a number of small attachments, traversing in every direction the floor of the recto-vaginal pouch. It is treated with massage, and systematic distension of the vaginal cul-de-sac by meane of tampons (columnization), but if it does not yield to simple methods, and if there are diseased appendages, laparotomy is indicated, and after detaching all the adherences, etc., an anterior abdominal hysteropexy, to prevent the uterus from becoming displaced. —*Lyon Méd.*, September 27.

Absorption of Medicines by the Vagina.—In 1886, at the annual meeting of the Mississippi Valley Medical Association, Dr. I. N. Love read a paper with the title "Artificial Alimentation and Medication," wherein he gave clinical evidence in favor of the vagina being made available (where the conditions would permit) as a medium for the administration of medicines and predigested food. Ten years' additional experience has strengthened him in his views, and they are confirmed by a recent article in the *Collegione Italiano di Litture sulla Med.*, No. 2. It states that in one hour after the insertion of a tampon saturated with a 20 per cent. solution of potassium iodid the urine contained iodin, the maximum of elimination being twenty-four hours after application, and in forty-eight hours no trace of iodin is found. In the fever patients the absorption was very rapid, while in the hysterectomies it was not altered. Iodoform is absorbed in small quantities, commencing seven hours after application and lasting twenty-four hours. To secure rapid absorption the vagina should be insufflated with fresh iodoform, which should be allowed to remain several days. Salicylic acid is rapidly absorbed in large quantities, appearing in the urine in one hour and disappearing in twenty-

four hours. Salol is also rapidly absorbed, and remains for a long time traceable in the urine. Antipyrin is also rapidly absorbed, appearing in the urine one and a half hours later, and remains for forty-eight hours: but the antipyretic power is less than when administered by the mouth. The conclusions reached here are, in general, that the vagina undoubtedly has absorptive powers, and that these powers are increased in pregnancy and in the puerperal state and in the fevers.—*Medical Mirror*, September.

Improvements in Antitoxin.—Behring stated at the recent Congress of Naturalists and Physicians, that the inconveniences which sometimes follow the use of antitoxin are due to the serum it contains, rather than to the antitoxins, as they are produced as frequently by injections of the serum alone. Consequently he is striving to manufacture antitoxin in as concentrated form and with as little serum as possible. It will soon, therefore, be more accurate to designate it antitoxic therapeutics, instead of serum. Knoll's investigations have established the fact that the blood assimilates the entire amount of antitoxin injected, and that it is not taken up by the corpuscles, but by the fluid elements of the blood. The antitoxins thus assimilated gradually vanish out of the blood again, until in eight days they are reduced to a tenth, and by the end of the third week they have almost entirely disappeared. Behring asserts, therefore, that they positively confer immunity for at least three weeks, and not longer than eight or ten. It is a curious fact that the length of the period of immunity is fixed, and does not vary with the quantity of antitoxin injected. The conclusions of a recent critical and experimental study of the effects of antitoxin on the organism, by Poix in the *Presse Méd.* of October 3, confirm Behring's statement that the accidents following the use of antitoxin are due to the serum and not to the antitoxins. Poix warns against its use on tuberculous patients, as serious congestions, etc., are liable to follow in these cases. Behring's resignation of his professorship at Marburg was not accepted, but he was given an extended leave of absence. Beside the Höchst factory where the antitoxin is produced for sale, he has his private institution at Marburg, devoted to strictly scientific research, and the "standardizing" institute in charge of Professor Ehrlich, which is under government control.—*Therap. Woch.*, October 4.

Louisville.

Annual Mortality Report.—The report of Health Officer White for the past year contains much that is of interest. He reports a total of 3,295 deaths, the death rate per 1,000 based on a population of 211,100 being only 15.5; death rate of whites, 14, and of colored 22.7. The report shows for the first time the prevalence of the contagious diseases as it is the first year that the reporting and placarding of these cases has been observed. There were 137 cases of diphtheria with 72 deaths, a mortality of 52.5 per cent. There were 238 cases of scarlet fever placarded, with four deaths. There were 2,283 vaccinations reported, 724 diseased cattle were killed and 4,514 diseased cattle condemned and sent out of the city. There were 225 stillbirths. Consumption caused 370 deaths, typhoid fever 131 deaths, pneumonia 269; whooping cough 11. Of the total number of deaths 565 were under 1 year of age and 898 under 5 years of age. Two thousand, four hundred and forty-three were white. 852 colored; 67 more male than female.

Cincinnati.

The Cincinnati Hospital has again broken into the editorial colums of the daily press and the present management is severely criticised for the manner in which the institution is being run. During the past few days several women have escaped from the hospital and the last two give as an alleged reason for their action that they were almost starved. The much promised reforms have so far failed to materialize. The Board of Trustees have passed a resolution to ask the next legislature to appropriate $50,000 to make necessary improvements, the Board also refused the request of the Board of the Eclectic Medical Institute to allow their students to witness the operation (free of charge) on patients sent by the college.

At the first meeting of the Academy of Medicine, Dr. J. C. Oliver read a paper on the "Surgical Treatment of Epilepsy." He considered the operative treatment warranted in only a very small percentage of cases. This week Dr. R. C. Hill read a paper on "Intestinal Polypus as a Cause of Death."

The mortality report for the week shows: Zymotic diseases 11; constitutional diseases 19; local diseases 36; developmental 10; violence 3; under 5 years 22; from all causes 79; annual rate per 1,000, 11.73; preceding week, 93; corresponding week 1895, 99; 1894, 87; 1893, 93.

Dr. Albert Snell has been arrested on a warrant sworn out by Dr. Frank Winders, secretary of the State Board of Medical Examiners, charging him with violation of the medical practice laws. This is the first arrest under the new law.

The State Board of Health of Indiana have ordered all health officers of the State to provide themselves with a long glossy linen duster and skull cap to be carried in a separate bag and to be worn whenever they enter a building when any contagious disease exists.

A case of hydrophobia recently developed in Columbus, Ohio. The patient was bitten by a dog last July while attempting to give the animal, which had been bitten by another dog, some medicine. For several hours before the man died it became necessary to strap him to his bed.

Suit for false Committment.—A woman residing in Columbus has recently entered suit against Dr. W. F. Scatterday for $5,000, alleging damages to this amount as a result of her commitment in an insane asylum by the doctor, who was her physician. She claims she was sane at the time.

Washington.

Health of the District—The report of the health officer for the week ended October 17 is as follows: The death rate during the past week stood at 21.48, as compared with the average rate of 23.53 and with 26.80 in the same period last year. The deaths reported to the health department numbered 116, of which 60 were white and 56 colored. As compared with the late preceding weeks there was a slight decrease in the chronic brain, heart and kidney disorders, and in diarrheal complaints. In those of the lungs and of children under 5 years old there was an increase. Of diphtheria five deaths occurred, and none of scarlet fever. The general health of the city, as indicated by the causes of mortality presented the same average above the normal as has prevailed throughout the fall months, the death rate running from 2 to three below the annual average per 1,000 inhabitants. The new cases of diphtheria were 12, houses released from quarantine 8 and those left placarded 31. Of scarlet fever one new case reported, 2 houses released from isolation, leaving 5 placarded.

District Medical Society—Toner Memorial Meeting.—At the regular meeting of the Medical Society held on October 21 all regular business and papers were suspended and the meeting made a memorial one in honor of the late Dr. Joseph Meredith Toner. The meeting was called to order by Dr. S. C. Busey, the president, who began the exercises by a most interesting life sketch of Dr. Toner and closed his remarks by paying high tribute to his memory. Drs. W. W. Godding, Charles H. A. Kleinschmidt and J. D. Morgan read interesting addresses in his praise. The papers read at the meeting will be published and distributed among the profession upon application.

Adverse Report on a Dental College.—A special committee consisting of Drs. W. P. Carr, J. Ryan Devereux, Clifton Mayfield, B. F. Odell and Henry Noble, appointed by the commissioners to examine the standing of the proposed Washington College of Dental Surgery, which has applied for a

license to do business in the District, has submitted an adverse report. All the committee except Dr. Odell signed the report, which says: "The college is just such an institution as the law proposes to keep out of existence. It has no endowment or building, and its total plant is valued by the incorporators at $1,000. The faculty have not demonstrated any ability to teach, except in the National Homeopathic College, which was ruled out of existence by Judge Miller. Two members of this proposed faculty were members of its faculty. Members of the faculty of the proposed college admit that it is based upon the Washington Homeopathic Medical College dental department, whose plant they purchased and a majority of whose faculty they have absorbed, but proclaim their intention of raising the institution out of the metaphorical mud into which they admit it has fallen. Their course and actions, however, when connected with the Washington Homeopathic Medical College dental department, and their present attempt to justify that course render it, in the opinion of your committee, extremely improbable that they will make any serious effort to do so, while their lack of endowment, lack of sufficient appliances and lack of eminent reputation preclude such a possibility, even in the face of earnest effort. None of the members of the proposed faculty belongs to any reputable medical or dental society or association, regular or homeopathic, except one, who is now under investigation by the Dental Society of the District of Columbia for unprofessional conduct. We would, in conclusion, call attention to the fact that Dr. Odell, who was appointed on this committee, is also a member of the proposed faculty, and that while he was present at our most important meeting, he declined on the ground that he could not pass upon his own character, to sign any report of this committee."

Philadelphia.

The Mutual Aid Association of the Philadelphia County Medical Society will hold its annual meeting on November 9, at the residence of the president, Dr. John C. Da Costa. The eighteenth annual report will then be presented by the treasurer, Dr. Geo. B. Dunmire. The total amount of money now at interest is $12,889.63, an increase of $1,103.63 since the last report. The members of the Association number 122, of whom 87 are life members. The Association has two annuitants, one widow and one orphan daughter under its care.

The Medical Schools opened their doors on the first of this month with an increase in the number of matriculants over last year. Provost Harrison of the University of Pennsylvania formally opened the several departments. He referred particularly to the new Dental Hall and the dormitories among the evidences of progress since last year. Dr. W. M. L. Coplin, the newly elected professor of pathology and bacteriology at Jefferson College made the introductory address. At the Medico-Chirurgical, Dr. Isaac Ott opened the session with a lecture on Claude Bernard and recent advances in physiology. Dr. Elizabeth R. Bundy delivered the address before the students at the Woman's Medical College, particularly impressing upon them the importance of hygienic living and the evils of over-study, and spoke on the baneful results of a resort to bromids or to narcotic drugs or the caffein-bearing preparations. She incidentally paid a well deserved tribute to the bicycle as a means of outdoor exercise for women and as an incentive to more rational dress.

The College of Physicians held its first fall meeting on the 3d inst, the president, Dr. J. M. Da Costa, in the chair. Dr. William J. Taylor and Dr. Chas. W. Burr read a paper entitled "Report of a Case of Tumor of the Medulla Oblongata." It was remarked that the symptoms during life were insufficient to establish the diagnosis and the lesions found at the autopsy did not entirely explain the paralysis. The patient was a woman, 55 years of age, who after some loss of power in the left arm and leg, complained of headache and double vision, with a tendency to fall to the left when walking. Examination of the eye-ground proved negative. The loss of power gradually became more marked until paralysis became complete on the left side. She then had an attack of pneumonia and died in convulsions. The urine contained neither albumin nor sugar. On removing the skull cap, the brain appeared at first to be normal, but on closer examination a growth was discovered involving the medulla, especially on the right side, projecting between the lobes of the cerebellum. The tumor was found to be a sarcoma. It was strange that with so much pressure on both sides of the medulla, that symptoms should have been produced only on the left side of the body. The Sections of the College have all opened their winter sessions with interesting meetings and active discussions. Dr. B. C. Heist read a paper before the Section on Gynecology, October 15, on "Technique in Cæsarian Section," Dr. Sprengle read a communication on "Prolonged Pregnancy," and Dr. Chas. B. Penrose one on "Hysterectomy by Combined Operation through the Abdomen and Vagina." Before the Surgical Section, Dr. Randolph Faries described a "Modified Form of Antero-posterior Brace for the treatment of Pott's Disease." A death during the administration of ether was reported by Dr. Jos. M. Spellissy. Dr. John B. Roberts demonstrated a "Successful Operation for Cleft of Hard and Soft Palate," by the case of a patient. Dr. J. William White and Dr. Alfred C. Wood reported on "Some Recent Cases of Renal Surgery."

The Philadelphia County Medical Society has been prospering under the presidency of Dr. James C. Wilson. At the meeting on the 14th inst. Dr. F. W. Talley read a paper on the "Proper Position of Celio-hysteropexy in Gynecology;" Dr. A. O. J. Kelly reported four cases of "Essential Paroxysmal Tachycardia," and Dr. Chas. W. Burr read a paper on "The Relation of Anemia to Chorea," in which any causative relation was denied, and the opinion expressed that when concurrence existed, it might be accidental or the anemia might be due to the chorea or to the causes which produced the neurosis.

Mr. William Macewen of Glasgow was recently entertained by a series of lunches and informal receptions, and received considerable attention during a recent visit to this city. He expressed special interest when inspecting the new wards and recent improvements in the Pennsylvania Hospital, which is the oldest general hospital in this country.

Detroit.

The Michigan College of Medicine and Surgery opened with 100 students. A building has been procured in addition to the college which will be used for extra clinics, general medicine and skin diseases. There has also been lobby rooms fitted up for the students. Dayton Parker has been elected to fill the chair of gynecology, vice E. W. Jenks, resigned, and W. J. Brand to lecture on anatomy.

At the Annual Meeting of the Detroit Medical and Library Association held October 5, the following officers were elected: President, H. W. Longyear; vice-president, Frank H. Walker; secretary, P. C. McEwen; treasurer, A. P. Biddle; librarian, Wm. C. Stevens. After the election of officers, E. T. Tappey entertained the members of the society with a banquet.

At the Regular Meeting of the Detroit Medical and Library Association held October 12, H. O. Walker presented some pathologic specimens, among the number being an ulcerated appendix with a fistulous opening. The case was one of a history of several attacks, a suppurating kidney in which he had done a nephrectomy, also about twenty gallstones, for which the day before he had made the operation of cholecystotomy. Each of the patients was doing well at the time of the report. Theo. A. McGraw read a paper on "The Utility of Omental Splints in Intestinal Surgery," in which he said that he felt warranted in bringing the procedure before the profession for discussion on account of its importance. He also drew atten-

tion to the fact that the omentum is extremely mobile, that it can be drawn to any part of the intestinal tract that is covered with peritoneum. He said that in certain diseases it becomes atrophied and in some persons is quite small, and especially was this so in tubercular subjects, where we find at the autopsy but a small remnant of the omentum. The Doctor said that what was characteristic of all peritoneal membranes was also so of the omentum, the short period it takes to fasten itself to any irritated surface and so acts as a bearer in preventing intraperitoneal suppurations from becoming diffused, and that localized abscesses are frequently found in which the omentum has been the means of holding the walls intact, that a piece of omentum applied over an intestinal fistula will after twenty-four hours make a strong obstacle to the discharge of feces, and what is very desirable, this omental splint is very tolerant to its surroundings, also that the practical value of the omentum splint is its application in wounds and fistula of the large intestine, and that it made a safe union in operations on this viscus. The essayist called attention to the fact that inflammations of the appendix are liable to result in suppuration which invades the connective tissues behind the gut; that an abscess also acted in the same way and might affect a large portion of the intestine. When a bowel under such circumstances became torn or ulcerated through, its repair was exceptionally difficult. He found that Lembert stitches in that region were out of the question, as there is no peritoneum in these desperate cases. There were only two successful procedures, one of which is the resection of the affected portion, and the other the closure of the fistula by an omental splint. He reported two cases which he had had at St. Mary's Hospital. Mr. C., aged 24 years, entered St. Mary's Hospital Jan. 1, 1895, with a suppurating appendicitis. The abscess was opened, and on leaving the hospital after recovery, he was cautioned to return at once for operation if there should be any recurrence. On November 26 he returned with renewed inflammation in that region, the appendix was removed and the adhesions broken. There was no rise of temperature or sepsis, but on the third day there appeared some thin feces on the edge of the wound, and it became necessary to remove the stitches. The discharge of feces from the wound increased daily in quantity, and soon there was an opening in the gut the size of one's little finger. Practically no feces passed through the rectum and anus. Lembert stitches for this false anus were out of the question on account of the absence, over a large area, of both muscular band and peritoneum. An incision was made in the peritoneum over the gut to the extent of 2½ inches, through which cut the omentum was drawn out and fastened with sutures all around the exposed part of the bowel, tucking well down behind and under the intestine. On the next day he had a normal evacuation of feces. That which could not be accomplished by purgatives or enemata took place spontaneously, as soon as the mechanical integrity of the bowel was restored. A man aged 39 years entered St. Mary's Hospital Dec. 11, 1895, with chronic appendicitis. On December 13, the appendix was removed and the wound closed. A month later the wound reopened, fecal matter began to pass through it, and on his return to the hospital he was too weak for operation. About three weeks later, his general condition having improved, the abdomen was again opened. The omentum was then brought down and wrapped in a large fold around the diseased bowel, and fastened with sutures to the neighborhood of the wound, so that the wound was completely enveloped by it. Three weeks later he was sent home completely cured of his fecal fistula. From these two cases it must be conceded that the value of omental splints under these conditions is obvious, yet Dr. McGraw said that he should lay it down as a rule that, whenever a lesion of a large intestine demanded a suture, the line of union should, if possible, be supported by a thick layer of omentum, but that in wounds of the small intestine, this procedure was not necessary, although he would feel more safe from accident with this additional safeguard.

The Wayne County Medical Society at its annual meeting October 1, elected the following officers: President, Geo. E. Frothingham; vice-president, Lewis E. Maire; secretary. J. F. Patton; treasurer, C. Henri Leonard; board of directors, E. B. Smith, Frank S. Hough, T. J. Parker, O. P. Eaton and Kenneth Gunsolus. On the same evening the retiring president, E. B. Smith, read his annual address, after which the retiring secretary, Frank S. Hough, presented his report, which was approved. At the regular meeting of the Society October 8 (memorial night), E. B. Smith read a biographic paper, taking up the lives of Wm. Brodie, who had been president of the Wayne County Medical Society a number of years, Henry F. Lyster, S. D. Richards, C. J. Lundy and August Kaiser, all of whom had been prominent members of the above society.

Annual Report of the Surgeon-General of the Navy.—Surgeon-General Tryon, chief of the Bureau of Medicine and Surgery, has submitted his annual report to the Secretary of the Navy. Estimates have been submitted for two ambulances for use at the naval hospital at Portsmouth, N. H., and Mare Island, Cal., where they are urgently needed.

"The cemeteries of the several naval hospitals have had very little done for them since the war, and in no way creditable to government establishments," says the Surgeon-General.

"Special appropriations will be required for each one to place them in a condition that they can be cared for in the future by the hospital force.

"Attention is again called to the necessity of providing improved accommodations for the sick and wounded on board vessels of war, and to the assignment, when practicable, of sufficient space on the gun deck for hospital purposes."

The Surgeon-General says that the passage of the bill organizing the army hospital corps has already proved of great benefit to the militia of the different States, and the passage of a similar bill for the navy would also be advantageous to the naval militia, now being rapidly organized.

AMBULANCE OR HOSPITAL SHIPS.

A strong argument is made for ambulance or hospital ships specially fitted up. Considerable attention is now being paid to the construction of such vessels abroad, and it is universally conceded that they should be designed and built for this particular duty, and considered an essential part of the fleet of war.

The health of the navy is reported as good. The care and comfort of the sick and wounded of the navy have been much improved by the adoption of iron swinging cots for sick bays of all vessels, and the establishment of an ambulance service at the naval hospitals at Chelsea, New York, Philadelphia and Norfolk.

FOOT BALL AT ANNAPOLIS.

In a short chapter about the Naval Academy, the Surgeon-General says:

"The good health of the station has been maintained throughout the past year. There were nineteen admissions, involving sixty-one sick days, for injuries received at the game of foot ball, and ninety excuses from drills from the same cause. The injuries consisted of one luxation, two fractures of bones, one inguinal hernia, two cases of concussion of the brain, and a number of minor sprains and contusions.

"Attention is called to the unsuitable character of the academy buildings, many of them being badly ventilated, unsatisfactorily lighted and heated, and some of them in a condition almost beyond repair.

"The sewerage system of the academy is defective and unsatisfactory, and proper means should be adopted for carrying the sewage into deep water at some distance from the academy grounds.

IDENTIFICATION OF RECRUITS.

In regard to the identification of recruits, the Surgeon-General says:

"In consideration of the effect upon the discipline and general tone of the enlisted force of the navy, the importance of preventing deserters and dishonorably discharged men from re-entering the service has caused the question of the identification of such undesirable persons to be carefully investigated.

"The anthropometric system of M. Bertillon presents the advantages over other methods of conformity to scientific requirements and capability of indefinite expansion.

"The system employed by the United States army is a modification of the above, in which personal marks or characteristics take the place of anatomic measurements, and since its adoption in 1889 has been attended with excellent results, as shown by the detection of a large number of deserters and the progressive diminution in the number of undesirable candidates presenting themselves for enlistment."

The bureau is at present considering some plan of combining, modifying and selecting from these two systems a method especially adapted to the requirements of the naval service.

VACANCIES IN THE MEDICAL CORPS.

The continued impossibility of filling vacancies in the medical corps is reverted to by Surgeon-General Tryon in the following words:

The record during the last fiscal year is nearly a repetition of the figures presented in the last annual report. There were 341 applications made to the department for appointment as assistant surgeons in the navy. Out of the number only thirty-six applied for permission to appear before the naval medical examining boards.

Of the 36, 22 availed themselves of the opportunity to appear before the boards, and of this number there were 4 rejected physically and 12 rejected professionally leaving only 6 out of the 341 original applicants, representing every section of the country, who were found qualified for appointment as assistant surgeon.

This state of affairs has existed for years, and will undoubtedly continue until there is some favorable legislation for junior medical officers of the navy.

At this date there are 10 vacancies in the grade of assistant surgeon, and the bureau is embarrassed by not having a sufficient number of medical officers to fill important stations ashore and afloat.

Many ships and hospitals are kept without their legitimate quota of officers, and, unless this is in some way speedily remedied, by reason of increase of men in the navy and number of new ships placed in commission annually, serious consequences must follow. On account of the great number of vacancies existing and the probability of the number increasing instead of diminishing, it is strongly urged that the recommendation contained in the bureau's letter addressed to the department on the subject, dated Feb. 8, 1896, be approved, that "a special law be enacted authorizing the Secretary of the Navy, during the present exigency, to appoint acting assistant surgeons for temporary duty in the navy until the number of vacancies in the regular medical corps of the navy are filled." When this is accomplished, their services can be dispensed with and no further appointments made, except in time of war or until additional vacancies occur in the assistant surgeons' grade.

In regard to local institutions, Surgeon-General Tryon says:

WASHINGTON NAVY YARD.

The sanitary condition of the yard during the past year has not been satisfactory. During the summer and autumn months malarial fever of a severe type prevailed extensively, a large proportion of the cases being of a remittent character. During the year there were 250 admissions and 48 readmissions to the sick list. Of this number 216 returned to duty and 79 were transferred to hospital.

There was a loss of 1,021 days from sickness, due principally to the large number of cases of malarial fever.

Reports have been received that apprentices transferred from this yard to other stations all suffered from attacks of malarial fever, undoubtedly due to climatic exposure while undergoing instruction at the yard.

MARINE HEADQUARTERS.

The health of the post has been satisfactory during the past year except that in the months of September, October and November an unusually large number of cases of malarial fever prevailed, which undoubtedly was caused by the insanitary condition existing at the navy yard, which was made the subject of a report by a sanitary board to the department in May, 1895.

Beyond some minor improvements in the introduction of modern water closets and bath tubs, there has been no change in the general sanitary condition of the post.

NAVAL HOSPITAL.

No material changes have been made during the past year in the hospital grounds. The paving of 10th street east which has been commenced, will add much to the comfort of the hospital patients. The hospital is now being furnished with a modern operating room, properly equipped for the performance of operations, and it is hoped that it will be completed at an early date.

The necessity for increased accommodations for the sick at this establishment is apparent.

The records of the hospital for the five years 1891 to 1895, inclusive, show 36 admissions of officers, with a total of 1,265 sick days; other admissions, sailors and marines, number 528. Patients are supplied to this hospital chiefly by the navy yard and marine headquarters, but from time to time they are transferred here from other hospitals, from coast-survey vessels and from other vessels, foreign or belonging to our own navy, which may be in port; also old sailors and marines on the retired list who have no suitable home and when taken ill find a refuge here.

The officers attached to the navy yard and marine headquarters number about 50, while the number of sailors and marines is about 240. Beside the above, there are in and about Washington 250 or more officers, active and retired, liable to need hospital accommodations and treatment.

The situation of the hospital is excellent, occupying an entire square of land on four streets, having thus abundant sunlight and fresh air. The elevation above the navy yard is inconsiderable, but sufficient to make a very great change perceptible in the condition of malarial patients transferred. The mere change from the one place to the other has sometimes sufficed to put a stop to an attack of malarial fever.

There is but one separate room in which a sick officer can be isolated. Additional accommodations should be provided, so that the whole of the two principal floors could be allotted to patients, the lower or main floor and the second floor to the enlisted men. The medical officers on duty should be lodged in an annex, which could be easily built within the present grounds and in connection with the hospital proper, and an appropriation with this object in view should be submitted at an early date.

THE PUBLIC SERVICES.

Army Changes. Official List of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from Oct. 17 to Oct. 23, 1896.

First Lieut. Benjamin Brooke, Asst. Surgeon, leave of absence granted on surgeon's certificate of disability is extended one month on surgeon's certificate of disability.

Major Clarence Ewen, Surgeon, leave of absence granted on surgeon's certificate of disability is still further extended one month on account of disability.

First Lieut. Charles F. Kieffer, Asst. Surgeon (Ft. Crook, Neb.), is granted leave of absence for two months, to take effect upon the completion of his duties with the Third Artillery.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending Oct. 24, 1896.

Asst. Surgeon M. S. Elliott, ordered to naval laboratory and department of instruction, New York.

LETTERS RECEIVED.

Anderson, Winslow, San Francisco, Cal.; Alta Pharmacal Co., St. Louis, Mo.

Bausch & Lomb Optical Co., Rochester, N.Y.; Burr, C. B., Flint, Mich.; Bishop, S. S., Chicago; Burdett-Browntree Mfg. Co., Chicago; Beard, R. O., Minneapolis, Minn.; Bailey, William Curtiss, Las Vegas, N. M.; Boehringer, C. F. & Soehne, New York, N. Y.

Cleary, W. P., New York, N. Y.; Colvin, D., Clyde, N. Y.; Clouse, Geo. M., Columbus, Ohio; Carter, Howard, St. Louis, Mo.; Cutler, H. G., Chicago; Cooper, J. M., Johnstown, Pa.

Dunlap, A. J., Chattanooga, Tenn.; Dewees, William B. (2), Salina, Kan.; Deschamboult, T. A., Manitoba, Canada; Dunshie, J. F., Puerto Barrois, Guatemala.

Erwin, A. J., Mansfield, Ohio.

Gould, George M., Philadelphia, Pa.; Gihon, A. L., New York, N. Y.; Graef, Chas. & Co., New York, N. Y.

Haralson, H. H., Biloxi, Miss.; Holton, Henry E., Brattleboro, Vt.; Holland, John W., Philadelphia, Pa.; Hayes, R. H., Union Springs, Ala.; Harrison, R. H., Columbus, Texas; Hummel, A. L., Adv. Agency (3), New York, N. Y.

Keller, J. M. (2), Hot Springs, Ark.; Kiernan, Jas. G., Chicago; Kiehs, Edwin, Chicago; Kendall, H. W., Quincy, Ill.; Kellogg, A. C., Portage, Wis.; Kingsbury, G. C., Mt. Carmel, Ill.

Ludwig, Henry C., New York, N. Y.; Library Bureau, Chicago; Lea Brothers & Co., Philadelphia, Pa.; Millard, M. R., Detroit, Mich.; McAlister, Alex, Camden, N. J.; McCurdy, S. L., Pittsburg, Pa.; Merrick, M. B., Passaic, N. J.; Maltine Mfg. Co., New York, N. Y.; Morton, John P. & Co., Louisville, Ky.; Madden, John, Milwaukee, Wis.; Manley, Thos. H., New York, N. Y.

Porter, Joseph Y., Jacksonville, Fla.; Probst, C. O., Columbus, Ohio; Parker, James W., Warsaw, Ill.; Patterson, C. E., Grand Rapids, Mich.

Reynolds, Arthur R., Chicago; Reynolds, Dudley S., Louisville, Ky.; Riley, W. H., Boulder, Colo.; Radcliffe, S. J., Washington, D. C.; Romeike, Henry, New York, N. Y.

Smith, Louise Eleanor, Chattanooga, Tenn.; Stoakley, Wm. S., Millboro Springs, Va.; Surgeon-General U. S. A., Washington, D. C.; Schofield, A. E., Tilden, Neb.; Strueh, Carl, Chicago; Steele, G. A., Havana, N. D.; Strecher, J. E., Chattanooga, Tenn.; Sheets, John, Philadelphia, Pa.

Tuley, Henry E., Louisville, Ky.

Van Nostrand, D., Company, New York, N. Y.

Woodbury, Frank, Philadelphia, Pa.

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ORIGINAL ARTICLES.

OPERATION FOR THE CURE OF HERNIA VIEWED FROM A MEDICO-LEGAL STANDPOINT.

Read in the Section on Neurology and Medical Jurisprudence, at the Forty-seventh Annual Meeting of the American Medical Association at Atlanta, Georgia, May 5-8, 1896.

BY HENRY O. MARCY, M.D.
BOSTON, MASS.

The revision of the duties and obligations which the medical profession owe to their constituency must be made in every advancement of science. From this standpoint it is pertinent to inquire, if the demonstration of the easy and safe cure of hernia is not sufficiently ample to demand from our profession a revision of opinion, which only a brief period since would have been accepted as unquestionable? Few will deny that every sufferer from hernia, even in its less pronounced forms, is not alone incapacitated in a considerable degree for the discharge of certain duties incumbent upon a great variety of occupations, but also that there is a recognized life risk, incident to the individual. This has long been accepted in life insurance, examinations for the public service, etc. It is also conceded that, at the best, instrumental supports are disagreeable make-shifts, and that the usual history of the subject of hernia is an increased physical disability.

From the medico-legal standpoint, may it not be considered as an open question, whether this entire class of sufferers have not rights which should be respected, when such life interests are entrusted to the watchful supervision of their medical and surgical advisers. If this be true, does the surgeon discharge his full duty to the one seeking his advice, disabled in large degree from an irreducible or uncontrollable hernia, who offers *simply* the palliation of rest, condemning the patient to the wearisome watching for relief which only death can give? If such queries throw a new light upon the ever increasing burden of responsibility, which the advancement of science places upon him who would be its exponent, what becomes the plain duty of the physician, the rank and file of the profession, who are ever in close touch with this great army of invalids, and, as a consequence, must decide promptly the course to be taken in the constantly recurring cases of intestinal obstruction caused by strangulation?

I need not cite even recent experiences to show the still high death rate in all hospital practice, occurring from delayed operations for the relief of intestinal constriction, delays made fatal not by the gravity of the operation itself, but by the conditions which render operation necessary.

The early operation for the relief of these conditions is attended by a very minimum of danger, which, however, increases in geometric ratio with every passing hour, and yet the average sufferer from acute intestinal obstruction from hernia, is liable to neglect at the hands of his medical adviser, and it is the object of this paper to emphasize this neglect as criminal before the law. There is but one duty for the physician. Immediately upon the recognition of the condition, relief must be afforded. Taxis is no longer warrantable as advised at an earlier period, since this alone often inflicts irretrievable damage upon the constricted intestine. An anesthetic should be at once administered and, if in the relaxed condition of the parts, gentle manipulation does not restore the displaced organ, the operation must be immediately performed.

It is not necessary to give examples of almost daily flagrant violation of this simple, surgical axiom. In my experience the series is long and includes many instances which have come under my observation as a consultant, where from a medico-legal standpoint, I unhesitatingly declare that the neglect of prompt surgical procedures was criminal.

Appealing to the fear of the individual is one of the most reprehensible ways of quickening his conscience, especially in our profession, the members of which are supposed to be actuated in the discharge of their duties to suffering humanity only by motives of the highest and most praiseworthy character. Courts of law are constantly dealing with questions of damage, arising from alleged incompetence, because of the improper restoration of fractures and dislocations, injuries from which a life risk may never be involved and on account of this surgeons are constantly thoughtful to guard against medico-legal complications, seeking consultation for self-protection much more than for the benefit to be derived by the patient. If this was recognized as a possible sequel to every case of the severer forms of hernia under supervision, it would be of great advantage to the patient, to the physician, and the profession at large.

The causes of hernia should be much more carefully studied and understood. A thorough anatomic knowledge of the parts involved, their functions, and pathologic changes must be acquired. Such knowledge is of the first importance in many medico-legal cases. Indeed, the general opinion is that hernia is produced by some violent strain, or accident, for which in the general mind the term rupture is a synonym, that is, a sudden giving away of the parts involved. A superficial study of the case might lead one often to arrive at this conclusion. This is so exceptional that it represents a very minute fraction of the total.

I was called as an expert in court where a town had been sued for large damages, the injury claimed to have been received by a man in middle life, who, as the consequence of a fall into a hole in the street, became ruptured. The hernia was of the indirect inguinal type, and doubtless was the result of a long

series of antecedent causes, probably commencing in a congenital non-closure of the canal. Yet the jury awarded the claim and damages, more from the general belief that such injuries must be the result of sudden violence, rather than from the testimony offered.

On the other hand instances are not wanting where injuries have been inflicted upon large scrotal hernias, even resulting in death, and here may arise a nice point at law, to determine if the individual is liable to recover under such circumstances, when modern surgical opinion teaches that such a man is in daily possible risk to his life from a condition which is amenable to cure by surgical interference of moderate danger.

In this phase of the subject there is also a very constant factor of a material type represented by a money equivalent. This has its exponent in the large number of soldiers of the late war borne upon the pension rolls, disabled because of hernia. Some time ago at a meeting of a large number of surgeons, it was desired that I should give a demonstration of my method of operating for the cure of hernia before the members in attendance. A proper case was selected by a local surgeon, the man having been for years under his observation partially disabled on account of a large scrotal hernia. The suffering was freely acknowledged, the desire for relief so great that preparations for the operation had been partially arranged. It was finally refused, the sufferer admitting that the hernia was worth to him as a pensioner of the United States government $150 per year, and that he would rather endure the disability, than deprive himself of his assured income.

I have no hesitancy in declaring that it is the duty of the government to afford this large class of sufferers, free of expense, an opportunity to be cured of this troublesome and dangerous affliction, and in the event of their refusal to accept the same, order that the pensioner's name be stricken from the roll.

The statements made in this brief paper may seem radical to many, indeed to a degree revolutionary, but I offer them in the full conviction that they are the expression of a just surgical conservatism, and I believe the time is not distant when they will be accepted and amplified.

I look upon the verdict of this Section of the Association to which this contribution is offered as most important in establishing a new status of opinion upon a surgical subject which must be far reaching in results, involving not only large monetary interests but also pregnant with the salvation of many lives.

DISCUSSION.

DR. HUGHES—I think the suggestions are practical, new and destined to prove of great value to mankind. I think the surgical section ought to join in their recommendation, that the pensioners should be offered the opportunity to secure the advantage suggested in the paper. I would not say that they should be *compelled* to do that or throw up their pensions. I doubt if this can be done under the law. The Constitution of the United States provides that no man can be mutilated in any way. We used to have a law in the State of Missouri providing for the castration of men who committed rape. It stood on the statute books until some astute lawyer carried it to the supreme court, and it was declared unconstitutional.

DR. MOYER—I was glad to hear Dr. Marcy refer to the relation of accidents to hernia. More than ten cases have been sent to me for examination by attorneys, claiming that the rupture was caused by a fall or sudden injury. In nine of those cases I gave the opinion that I did not believe that injury and accident caused hernia.

Regarding the doubtful case, the rupture was not at the usual site, but was at the linea alba, midway between the umbilicus and the pubes.

Dr. HUGHES—I would like to ask Dr. Marcy whether he maintains in that paper that accidents are not frequent exciting causes.

Dr. MARCY—I do not.

Dr. MOYER—I think, however, that is the later and more general view of the matter.

Dr. HUGHES—I have always been under the impression that it is a frequent cause. Anyone who is intimately familiar with the personnel of soldiers, and has had large numbers of them to treat—I had an average of 10,000 men under my care during the war in what was called a "straggler's camp"—has doubtless had considerable experience with hernia. Men were constantly coming to me to be examined whom I had in my own command, and whom I had examined personally as to whether they had abdominal or inguinal hernia, finding them apparently sound in that regard—these very men, would develop hernia from the time they were forced suddenly to jump out of cars, owing to a surprise or an attack. I never supposed that the sudden jar was the cause of the hernia, but was the exciting condition.

Dr. BISHOP, of Pennsylvania—If Dr. Marcy's paper would convince people that the operation is comparatively a safe one, and that the danger by not having the operation is greater it would certainly be well. Trusses are as dangerous as patent medicines.

Constant tension—railroad men getting on and off trains: plasterers or painters working overhead, etc., has a tendency to precipitate this trouble. I have advised the use of suspensory bandages in such cases.

Dr. MARCY—A careful anatomic study of the inguinal canal in the male exhibits one of the most beautiful of nature's provisions for protection and safety. The cord traverses the abdominal wall in an oblique direction, so pronounced that the intra-abdominal pressure causes a complete approximation of the walls of the canal, acting always, when in the normal condition, at or near a right angle to its axis. The transversalis fascia is extraordinarily strengthened and thickened so as to produce a firm, inelastic support posteriorly, while the internal ring is reinforced about the cord in a way to prevent a peritoneal depression about its upper border. The testicle finds its way out of the abdominal cavity at such a late period of the intra-uterine life that the developmental processes, which result in the normal closure of the canal just referred to, are often imperfect. When not complete there results a depression in the peritoneum above the cord, which affords a point of yielding to the intra-abdominal pressure, although it may never result in hernia. Often this condition remains unnoticed until in a later period of life, when the muscular tonicity of the abdominal wall is lessened, a yielding occurs, and by a slow process hernia develops. This I believe to be the common cause of inguinal hernia in the male. Any one who will take the trouble to examine postmortem will note that traction upon the cord in a very considerable percentage of adults demonstrates this condition more or less marked, although it has never advanced to a degree which allows the protrusion of any portion of the abdominal contents into or through the canal. Cloquet, of Paris, in the earlier part of this century, made careful dissections of 500 cases of hernia subjects, recording minutely the conditions found. He describes and figures a condition of normal anatomy under the name of the infundibular process of the peritoneum. I can not doubt but that which he describes as normal is pathologic, and results from imperfect closure of the canal in the early months of existence.

That muscular strain of itself in the normal individual is not the cause of hernia is evidenced by the extraordinary play of muscular activities in the gymnast, who in every conceivable way exercises an enormous strain upon the abdominal wall, yet so far as I have been enabled to learn the circus athletes and rough riders of the West are not more liable to hernia than are those of less active occupations.

USE OF THE STOMACH AND RECTAL TUBE IN CHILDREN.

Read in the Section on Diseases of Children, at the Forty-Seventh Annual Meeting of the American Medical Association at Atlanta, Ga., May 5–8, 1896.

BY W. JAY BELL, M.D.

Assistant to the Chair of Obstetrics and Clinical Gynecology, Southern Medical College; ex-Assistant Resident Physician of the New York Infant Asylum.

ATLANTA, GA.

I am fully aware that the stomach and rectal tube is not so generally used in the south as in the north and northeast. Having followed their use so closely during my service on the staff of the New York Infant Asylum and since my location in Atlanta, and having such pronounced beneficial results following their use, I am constrained to present a short paper on the subject before this body.

We may well deem our age the most practical in the world's history and we find theory quickly receding to give place to the tangible and practical.

The approaching warm season causes one who handles the little ones to stop and reflect for a time upon the too often fatal ileo-colitis and gastro-enteritis. There is nothing to be found infallible in medicine nor in means; yet we must accept all available means and apply them judiciously yet assiduously.

Often one will be called in to a little patient with a history that the child takes food well, even hungrily, but in a short time suddenly vomits the sour contents of the stomach, this result following each feeding. Now, all are familiar with ferments. A fermentative state often accrues in the stomach causing fermentation of the stomach's contents with irritation and consequent vomiting, yet the vomiting does not entirely free the stomach of ferment, there being a nucleus of fungus remaining which infects the next food taken and persistent vomiting is the expected consequence. Then what steps must we take to relieve this class of cases? The cause of persistent vomiting is retained ferment. Then the most practical step will be to remove this factor of irritation. It is in this class of cases that the most happy results are obtained from a thorough irrigation of the stomach.

Imperfect digestion is frequently found in the little patient, this may be due to want of digestive power or fermentative interference with digestion. An irrigation of the stomach two or two and one-half hours after feeding and giving a subsequent rest of at least one hour will be met with gratifying results. Athreptic or poorly nourished conditions are found due to a failure of the child to take nourishment; in these cases gavage is often necessary and will often be followed with happy results. In this the same tube may be used, being careful to cleanse.

It was our custom in the New York Infant Asylum to use a tube, which consists of a funnel of glass or hard rubber, with a piece of tubing two or three feet long; to the end of this is attached a small stomach tube or large catheter having a small piece of glass tube intervening for observation. This is a complete tube for either feeding or irrigation. With tube, a pitcher of warm water and a slop jar or pan you are fully equipped. With the patient in the lap of an attendant or mother, having the face to the physician, the tube is moistened and with the left index finger as guide pass the tube steadily into the stomach; with funnel raised above the patient's head fill the stomach to full capacity and, lowering the funnel, syphon off the stomach contents, repeating this until all return is clear. After irrigation a rest of about one hour should be given the stomach before giving nourishment. Flax seed water for a few feedings is best.

Gavage is accomplished by passing the tube and pouring into the stomach the amount of nourishment desired, being careful to compress the tube and hold the mouth well open for a moment after the removal of the tube until irritation of throat passes off, which will prevent regurgitation. The stomach tube is useful in many other forms of gastric irritation, but I will not go further. It is, indeed, a most practical instrument to have on hand at all times and especially in cases of poisoning.

The rectal tube is far more generally used than the stomach tube. Dr. Seibert of New York, says that the first thing that he does when called in to a case of convulsions in a child is to draw out his fountain bag, call for a pitcher of hot water and proceeds to irrigate the colon at once. While the contents of the rectum and colon are not the sole cause of convulsions, yet such a vast majority of these cases are due to, or irritated by bowel contents that the step is a most wise one. The apparatus which I use and which is used in the New York Infant Asylum, consists of a fountain bag with a small stomach tube attached, and no better apparatus could be devised except that a return attachment may be used. The indications for the use of the rectal tube are so manifold that it would require too much time to do more than briefly refer to some of them. It is fully established that the rectal and colon contents are often most potent factors in hyperpyrexia. I have observed in a number of cases a marked fall of temperature from irrigation of the colon.

In ileo-colitis, gastro-enteritis, fermentative and catarrhal colitis, cholera infantum and other forms of fermentation and infected bowel contents, most gratifying results will often follow the use of the tube in high rectal and colon irrigation. Now, it is important that not only the rectum but also the colon should be irrigated. The tube should be passed as high up as the transverse colon which can be easily accomplished, with the child in dorsal position on slightly inclined board, table or bed, the tube is vaselined and passed with a slight rotary movement, bearing in mind the course of the rectum through the curve of the sacrum and upward over promontory to the left, and the tube will pass readily into the colon and up with ease to the transverse colon when the stream is turned on and continued until bowels are thoroughly irrigated.

Efforts to influence the fluid to pass up the colon by placing the child on left side and lowering the head and the trunk, is to me quite unsatisfactory and but slight cleansing effect can be obtained in this way, but with the tube well up into the colon, a far more satisfactory irrigation can be accomplished.

In persistent dysentery I have obtained good results from irrigation, after which inject flaxseed water with a small amount of tincture opium. In cases of gastro-enteritis I have seen splendid results

follow irrigation of both stomach and rectum and am convinced that this step would be wise in a beginning cholera infantum, using rectal irrigation quite hot for stimulating effect and to this may be added a small amount of salt and alcohol. In habitual constipation the use of the rectal tube is preferable to a too frequent use of laxatives. In this, however, a high irrigation is unnecessary. Irrigation is a step that should always be taken in cases of convulsions in children.

INFANTILE SCORBUTUS.

Read in the Section on Diseases of Children, at the Forty-seventh Annual Meeting of the American Medical Association held at Atlanta, Ga., May 5–8, 1896.

BY ALBERT H. BURR, PH.B., M.D.
CHICAGO.

Dr. William P. Northrup, editor of the chapter on Scorbutus in the "American Text-book of the Diseases of Children" (1895), says: "The reader will find in this book for the first time scurvy put down as a disease occurring in the United States." It is barely two years since he tabulated some twenty-six American cases, and directed attention to a disease of infancy hitherto overlooked in this country because of its rarity or because of failure in differentiating it from the somewhat kindred disease of rickets; since that time the interest awakened by the discussion of Northrup's papers has brought out reports of a number of cases from observers in different parts of the country. From this it would seem that the disease is assuming greater importance by reason of its increasing frequency in these days of degenerate mammæ, supplemented by the growing indisposition of American mothers to suckle their young, on the one hand, and on the other by the commercial enterprise and ingenuity of man in devising sterilizers and proprietary foods to meet a long-felt want in the failing maternal fluid and motherly instincts. Between these physical and mental degenerates and the chromo-advertised infant foods, represented as perfect(?) substitutes for mother's milk, the coming baby must run fearful odds in its unequal struggle for existence. Authorities tell us that 25 out of every 100 babies die before the end of the first year, and of these 25 only 4 die at the breast while 21 perish at the bottle. What sadder comment is to be found on modern civilization?

To W. B. Cheadle of London is due the credit of first recognizing infantile scorbutus on clinical grounds. In 1878 he published three cases on account of spongy gums, and obscure symptoms referred to the lower limbs, which he maintained were cases of true scurvy. Soon after this, Thomas Barlow commenced his postmortem investigations and immortalized his name by establishing a pathologic basis for the disorder, which German writers had described as acute rickets. The results of these valuable and conclusive labors he published in 1883 and confirmed the views of Cheadle. Barlow's classic review of the disease in his Bradshaw lecture of November, 1894, leaves but little to be added to our knowledge of this, now inexcusable and easily prevented, disease.

Etiology.—Briefly stated, he says: "The prolonged use of a defective diet induces the symptoms."

Pathology.—"The essential lesions are subperiosteal blood extravasation and its secondary sequences;" hemorrhages into the center of the shafts of the bones, producing absorption of the trabeculæ and leaving them brittle and easily fractured; effusions of blood into surrounding muscles and cutaneous tissues, with progressive anemia resulting from these multiple hemorrhages.

Diagnosis.—The diagnostic differentials between scorbutus and rickets are of chief interest and consist in the hemorrhagic phenomena and their sequelæ; the pseudo-paralysis; spongy gums where teeth are present and the rapid, almost magical improvement under antiscorbutic diet.

The following case came under my care Dec. 12, 1895:

Dorothy R., thirteen and a half months old, had been brought to Chicago from a distant State by the advice of the family physician to be treated for a supposed spinal trouble. She was placed under the care of one of our best orthopedists. The diagnosis was rachitis, with slight spinal curvature. As the child was too weak for any corrective appliances the specialist addressed himself to general tonics and restoratives with the view of improving the anemia and malnutrition. At the end of six weeks the child, which at first seemed to be materially improved, was found to be decidedly worse, and for two weeks had not been able to lift its head from the pillow. Emaciation was progressive and the specialist expressed the opinion that the case was hopeless and the child must soon die from marasmus.

The history as given by the mother was this: Up to eight months of age the child appeared well nourished and in the the best of health. About this time it became fretful, grew pale and began to lose flesh. Purple spots appeared over its shoulders, back and thighs, which suppurated and many of them were lanced, leaving marks similar to the pitting of smallpox. The lower extremities were painful on being handled and the child ceased to move them voluntarily. Its diet from birth had been Mellin's food exclusively. The mother had lost her ability to nurse on account of multiple abscesses of her breasts at a previous birth.

At this time the child was very anemic and much emaciated, weighing but thirteen and a half pounds. It could not lift its head nor move its body or thighs, and was handled on a pillow. The right femur and left scapula were perceptibly swollen. Dentition was delayed. The upper and lower middle incisors only were erupted and these were almost hidden by spongy ecchymotic gums. In the roof of the mouth was a purplish tumor with an eroded apex. The fetor of its breath was marked. The body was bathed in sweat. The stools were hard and variegated in light drab and dark slate colors, with an offensive odor like those of a carniverous animal. The child cried with pain on being handled and was fretful and wakeful during the nights. This array of symptoms completed a picture of pitiful distress.

Treatment.—The food was changed at once to fresh cow's milk and barley flour as a basis. Orange juice and raw scraped beef were given daily, which the child took with the greatest avidity. Scraped apple and tender sprigs of fresh lettuce and cabbage were also allowed by way of variety. A cool sponge bath at 75 degrees with gentle friction was given every morning for its tonic effect. To change the character of the stools and disinfect as far as possible the intestinal tract, calomel tablets, one-tenth grain, every two hours, and a powder composed of guaiacol carbonate, one-sixth grain, and protonuclein, one grain every four hours, were ordered given. Hydrolein was administered three times daily, for its alterative and reconstructive properties. The improvement even in so short a time as twenty-four hours was gratifying and astonishing. At the end of forty-eight hours the character of the stools were changed and the fetor of the breath had disappeared and the child was inclined to amuse itself. After the fourth day it could lift its head and its nights were restful. At the end of the first week all traces of spongy gums and sore mouth had disappeared and it began to laugh and crow and exercise its legs and thighs and no longer dreaded handling. At the end of the second week it had gained one pound, could lift its feet above its head for the first

time in several months. All remedies, except hydrolein and occasional doses of mild chlorid, were now discontinued. A soft-boiled egg with rolled cracker was allowed every other day alternating the scraped beef. Third week, anemia has disappeared. Can sit alone. Has erupted upper lateral incisors. Three weeks ago there was no sign of these teeth. Is taken out daily for exercise. Fourth week, has gained in weight, rolls about on the rug and tries to creep. Discharged cured and returned home at end of six weeks. A change like this after six months of helplessness and untold suffering seems little less than magical.

The points of interest in this case are: The suppuration of the hemorrhagic cutaneous lesions, which the family physician diagnosed and treated as eczema; the swelling of the femur and scapula and slight curvature of lumbar region, diagnosed and treated for six weeks by a noted orthopedist as rickets, and lastly the rapid recovery under antiscorbutic treatment.

The foremost problem in the consideration of every disease is how to prevent it. Scorbutus is a preventable disease. How shall we guard against and limit this recently diagnosed and apparently increasing disorder? We will not find it in the homes of the poor, or among the laboring classes, so often as among the well to do and in the houses of affluence, for the mothers in the commoner walks of life more uniformly suckle their babes, and this is prophylaxis. Barlow says: "In no single case at the time of the malady has the child been breast fed."

1. Woman herself should be physically prepared for better motherhood so that she may be capable of yielding her offspring the only food nature intended for it.

2. Mothers should be impressed with the fact that there is no perfect substitute for breast milk, and that next to the right of being well born, the babe has an inalienable right to nature's food, and no trivial excuse or surmountable difficulty should hazard its life or health.

3. Where for any reason the breast milk is inadequate, or has entirely failed, the nearest approach to it is to be found in the modified cow's milk of our modern laboratories, or the home modification of cow's milk after the plans given by Rotch in his most valuable recent work on pediatrics.

4. Above all, *no continuous* administration of any sterilized, Pasteurized, peptonized or condensed milk, or any dry commercial foods should be given to the *exclusion of fresh or raw elements of diet.* In what this antiscorbutic property consists, which is found in fresh foods, and lacking in the artificially prepared and manipulated foods, is not yet determined, but it is more than likely that the important offices performed by the normal germs of the gastro-intestinal tract in the complicated processes of digestion are incapable of being completed with artificial food, and thus putrefactive changes in imperfectly digested pabulum, lead to auto-infection and malnutrition.

There is a "borderland condition," as Barlow terms it, without detected lesions, a sort of *scorbutic malnutrition*, which the physician should be on the look-out for in every artificially fed infant. I believe scorbutus exists in incipient forms of malnutrition to a greater degree than is commonly apprehended. The causes must be in operation for a more or less prolonged period to produce apparent lesions. In its typical form it is rarely seen before the latter third of the first year. Happily for most bottle fed infants they are saved from the active stages of the disease by the timely admission of certain elements of antiscorbutic diet. It is to this class I would call especial attention. The physical condition of the child during the first eighteen months of its existence is of the utmost importance to its future. It is the period of most active and rapid development, and malnutrition now will weaken its vital powers of resistance for its whole life.

Some of the premonitory symptoms are fretfulness, aversion to being handled, crying out as if in pain when lifted, tenderness of the lower limbs and indisposition to move them, and progressive anemia. The diet should be investigated and appropriately regulated and the parents or others having the care of the child should be instructed as to the necessities of the case for intelligent coöperation.

If every artificially nourished babe could be carefully inspected and its diet harmonized with the cardinal principle pointed out by Barlow, Northrup, Rotch and others, a great army could be saved from premonitory malnutrition, of which the fully developed scorbutic forms but a small contingent.

2036 Indiana Avenue.

DISCUSSION ON PAPERS OF DRS. BELL AND BURR.

Dr. W. A. Dixon, Ripley, Ohio—The use of the stomach and rectal tube can not be too much impressed upon the profession. Children are badly fed, and after the stomach is once loaded and the bowel is disturbed by food that is doing injury or damage, you must or *ought* to use the stomach and rectal tubes. I use them a great deal and to a very great advantage. Dr. Burr's timely paper had reference to artificial feeding. I believe if the profession is cursed by anything at all, it is by the impression abroad that children must be fed by the bottle and by these artificial foods. I believe we are running in the wrong direction as a profession when we permit and submit to the weaning of the child, the taking away from the breast simply because we have inflammation of the breast. We ought to interfere if we are the attendant at the time of confinement; or, if we are the family physician, we ought to anticipate these troubles, we ought to step in beforehand and announce to the mother that she must be prepared to nurse her child, and portray to her all the troubles that follow if it is nursed artificially. Nothing has brought more sorrow to me in my practice than to treat children fed artificially, and hence I lay great stress upon impressing upon the mother the importance of being prepared to nurse the child at the breast, and I take great censure upon myself if I allow mammitis to follow.

Dr. Foster, Deering, Me.—I would like to ask Dr. Bell, before he goes, how often he irrigates the stomach?

Answer: In the case of imperfect digestion, the process of irrigation should be continued until you have obtained a degree of digestive power. The stomach should be tested to see that it digests the material, and the irrigation should be continued until the stomach can digest the food given. Of course, using the predigested food assists this process.

Dr. J. A. Work, Elkhart, Ind.—In this process of irrigation, I would like to ask the Doctor, does he propose to empty the stomach of everything or only undigested food?

Answer: It should be cleaned thoroughly at the time of the irrigation.

Dr. J. A. Work—How is he to do that when the child is fed upon milk and has a high temperature and the milk is coagulated in the stomach? How is he going to get the food away without emesis?

Answer: The contraction of the stomach will throw it out beside the tube as well as through the tube. If you have

reason to believe you have large clots there it is well to overdistend the stomach first. The tube then is used as an irritant and as a means to get other fluid in.

Dr. BURR—Why does the Doctor choose very warm water in preference to cold water, especially in pyrexia?

Answer: I referred to warm water in cases of depression from the cholera infantum. The hot water gives a better cleansing effect. You may have, of course, elevation of the temperature, but in cholera infantum you have no especial elevation of temperature and sometimes you have an abnormally low temperature. And certainly in those cases you would use the hot water. But outside of that there is no special reason for using hot water.

Question: What temperature?

Answer: I should use water about 110 degrees. If I wanted an effect in the reduction of temperature, I should use it cooler than that.

Dr. BURR—I believe with Dr. Bell that the irrigation of the stomach and colon is of the utmost importance in all these cases of malnutrition and indigestion, which are almost synonymous terms. But I have found the application of cold water externally and internally to be far more stimulating than hot water. I would use the cold water in colonic flushings because you can get up peristalsis better with it. The peristalsis better empties the bowel, perhaps, than the flushing itself. The peristaltic action brings matter away from far up the colon. It is a question whether you often get these tubes above one of the flexures of the colon or rectum. Now, if you have infantile convulsions, which are in a large majority of cases induced by indigestion and autoinfection and its explosive effects on the nerve centers, which are so unstable in infancy, then the cold water is doubly important. I know nothing more irrational than what I find day after day of the method of plunging the child into a hot mustard bath and putting something on the abdomen, but neglecting the important feature of first emptying the colon. The first step in my mind is a full cool bath if there is pyrexia, and pyrexia you will often find is the cause of the convulsions. The over-heated blood, of course, is another effect of the poison. We have the poison first, pyrexia next and convulsions third, following the effects upon the nerve centers. We should use the cold bath to reduce the temperature first, then the colonic flushing and then the stomach irrigation, and if we think there is something irritating left we should give a good old-fashioned dose of castor oil. With the other process we may have convulsion after convulsion. I have found sometimes the attending physician present, who has assured me the child has had bath after bath, and I would find the hot water there colored with mustard in evidence, and still the convulsions continued. Fifteen minutes after rational measures were used the child would be asleep.

Dr. J. A. WORK—I asked Dr. Bell the question about the emptying of the stomach because I believe the first thing we have to do as physicians in any of these acute cases is to remove the cause as soon as possible. A physician, unless he studies to do that, is not worthy the name. My friend has just given us a key-note. I have practiced that for twenty-seven years and am more confirmed every day in the belief that we are not to simply administer medicine, but we are to study the cause and remove it. That is the reason I asked the question. In these neurotic cases let us get back to the first cause, or as near as possible to the primary cause, of all the trouble. When I am called to a case of acute irritation of the intestines or stomach with rise of temperature, I first ascertain how the child has been fed. I then want to know about the elimination, because we know there are only four emunctories, or "sewers" *as I explain to the friends of the patient*, the bowels, skin, kidneys and lungs, and I inquire about all these "sewers," whether they are in proper condition or not. If I find the bowels have not moved sufficiently recently, I first secure an evacuation of the bowels and then depend largely, as to what to do next, on what is the condition of the contents of bowels passed. After the bowel is thoroughly cleansed I give the bath, not so much to reduce the temperature, but I have the patient given a washing with soap and water, for nine children out of ten need it at that juncture. After they are washed thoroughly I have them put in a well-ventilated room, and in almost every case the excitement is gone and the patient is calm, easy and on the road to recovery immediately.

Now as to the use of the rectal tube. I believe if we come to consider ourselves as an animal machine, that every thought and motion wears us out and that by reason of this we have to take food and drink, and in our younger days we are active and the activity causes increased circulation and activity of all the body, but as we grow older we are not as active and we need prompting of the elimination. We notice the little boys and girls, say 10 years old, wear out about ten pairs of shoes to our one, which shows they are more active, and they do not have the same need of prompting of the elimination. Some ask, if they begin the use of the enema or purgative, won't they have to use it all their life. But, I ask them, hadn't they better use it all their lives than to be invalids all their lives. I believe there are cases in which nothing else will do but to have elimination, either by the rectal tube or enema, every day, twice a day. Here is a proposition I want to lay down, upon which I have practiced and which I have demonstrated: The four emunctories I have mentioned must each do its work and we must not depend upon one to do the work of the other, but each must be allowed or caused to do its own work within the proper physiologic time.

Dr. H. E. GARRISON, Dixon, Ill.—There is one point brought out which I would like to notice, and that is the use of castor oil in cases of infantile convulsions. I have experimented with it for a long time. I had one boy whose diet I could not control and he would have convulsions now and then. Sometimes he would go two months before a convulsion would occur. I finally decided to give him Rochelle salts for I could not get him to take castor oil. I gave the salts in lemonade whenever he became a little constipated. Eight months have now passed without the child having a convulsion.

Dr. C. W. FOSTER, Deering, Me.—I have been somewhat interested in these papers, but it seems to me the ideas expressed have been along lines of practice in which I am not specially interested. It has been my experience usually, when I have been called, the child has had its fit or convulsion, and very rarely do I see a second or third one. They usually remain quiet until I can get a movement of the bowels by a big dose of calomel or castor oil, and certainly I have seen or thought I have seen children that have been quieted and have gone along very nicely with that method. It seems to quiet the nervous system very well. In regard to the nursing of children, spoken of in Dr. Burr's paper, in my region it is not so difficult to get healthy mothers to nurse their children, but the great difficulty arises often, I think, in urging the mother to nurse her child. We have a great many women who are mothers who are not physically qualified and I do not believe such mothers are fit to nurse their children. I believe it is often better to have the children fed with artificial food, cow's milk, than to have them nursed by these sickly, tuberculous women. I am, myself, a sample of a cow-fed baby, for I came from a tuberculous family. One thing about cow's milk, overlooked by a good many, is the difference in the milk supply of large cities and small cities and villages. I live in a small city and I believe the milk there is better when it is delivered than that milked last night or early this morning, twenty miles from the city, left at the depot, collected by milkmen, mixed together in an ice chest and delivered to-morrow morning. I do not believe such milk is good when it is deliv-

ered. That is one difficulty in feeding babies on cow's milk in the city. I do not believe milk churned a mile is as bad as milk that has been churned five or ten miles. In my early life I was on a railroad fifteen months. I had one of these delightful gravel trains, where we had to have our meals on the train. I found the milk at the first meal had become well buttered. The stomach irrigation is delightful where it can be carried out. In small cities or country, where the patient may be several miles away and we have to put up with the ordinary mother, nurse or help, it is very difficult to wash out the stomach every time the child is fed, or even to give it good rectal injections. It seems to me the sytematic bathing, the use of warm and cold baths, can be carried on in hospitals and cities, where competent help is plentiful, but such treatment is hardly applicable where we can not get competent nurses.

Dr. E. D. Chesbro, Providence, R. I.—One point in regard to infantile scorbutus is the shrinking, anxious expression, which was particularly interesting to me. This particular symptom to which I have referred, was very striking. This child developed no subperiosteal hemorrhage so far as I could see, but she had repeated attacks of epistaxis. The Doctor referred to treatment effecting speedy cure, but perhaps the case he reported would have recovered just as quickly with a change of diet. It is a question in my mind whether drugs exert very much influence in these cases.

Dr. A. C. Cotton, Chicago—We have had some talk on scurvy lately. Last year Dr. Love had something to say, and the year before something was said upon scurvy. In illustrating a statement that he made, a medical friend of mine, in speaking of fads and the tendency to follow when anybody starts anything, said when anybody reads a paper everybody begins for the first time in his life to find he has a few cases of the same kind, rather intimating we are not all honest, and he used scurvy as an illustration. I think it has struck every one here we hear a good deal more of scurvy than we used to and we see a good deal more of it than formerly. There is a good reason for this. The country is overrun with artificial foods, persistently advertised by the manufacturers and also by physicians, who ought to know better. In some whole communities exclusive artificial baby feeding is adopted and the effect is seen in the development of scorbutic symptoms. Formerly they used exclusive milk diet, and then they died of acute milk poisoning, but they did not have scurvy. I think it is Kerr, writing upon milk, in his description says it contains living cells, aside from the proteid substances we have been in the habit of recognizing and dividing into lact-albumin and caseinogen and these living cells are directly absorbed and used in the animal economy of the infant, but are destroyed by heat, even heat sufficient to Pasteurize it. He also says, as we have heard before frequently, that the heat coagulates the albumin. We all know that even when heated to 160 degrees, some of the lact-albumin is coagulated and the emulsion is thicker than before. Knowing these two facts, I do not think we should say we do not see why infants should not develop scorbutus or malnutrition on cooked food and not on raw food. I do not know anything more interesting to me than the discussion Dr. Burr brought out so well in his very concise paper.

Now as to the point mentioned by Dr. Burr and Dr. Dixon. If a woman were to come into your office and ask you to abort her, because it is a good deal of trouble and expense to have a baby and she does not want to undergo the responsibilities of maternity, I suppose about the first question you would ask her would be: Who recommended you to come to me on this errand? That is my first question, because my curiosity is excited. But it does not take long to disabuse her mind of her error in coming to you. It is possible you may show her to the door a little frigidly. Now why not show an attitude similar to that toward the woman who does not want to nurse her child? She may say she had trouble nursing her previous child, but why should we not take just as high ground concerning maternal feeding as we do in regard to this other crime? It is a crime to allow the mother to wean her baby, unless there is some thoroughly scientific reason for it. Of course we do not want a tuberculous mother to nurse her child. We have not paid enough attention to inducing the mother to produce a proper food for her baby. We should make the mother a good milker by feeding her properly and taking care of her. Rotch has said some good things in his book in regard to the management of lactation.

It may be I lack the delicacy of touch in passing the tube, but I find in the majority of cases the sigmoid flexure is an insuperable obstacle. It has been said, instead of doing as Dr. Bell suggested, to pass the tube so *easily* right up to the transverse colon and then turn on the water, if you turn on the water while introducing the tube the introduction of the tube will be facilitated.

Dr. Daniel H. Cunningham, Chicago—As to passing rectal tubes, I have always used about a No. 8 or 9 hard rubber catheter, turning on the water immediately upon entering the rectum and directing the catheter with the finger, and have been sometimes, not always, able to pass the sigmoid flexure.

Dr. Burr—The paper I presented on "Infantile Scorbutus," was intended to emphasize the fact that we have a great deal of incipient scorbutus which does not arrive at the point of characteristic appearances, so that it can not be recognized as scorbutus but only as a tendency toward it; the child will eventually, perhaps, become scorbutic unless attention is paid to change in its diet. The question of feeding children in the city and in the country are two different questions. Our city born, city fed and bred children labor under many disadvantages the country children know nothing about. The majority of country mothers are far beyond the city mothers in the point of health. When I say a child must be breast fed, I pre-suppose a healthy mother. I would not advise breast feeding from a mother suffering from tuberculosis, syphilis, or other constitutional disease. But I believe we should make the healthy mother feel she is a criminal if she denies the child nature's food, unless there are, as I stated in the paper, unsurmountable difficulties. The question of getting pure milk in cities is one of the most difficult problems. In our city we have found necessary a well-enforced ordinance, fining milk men for furnishing bad milk, and every month some of them are brought up and fined. As to the remarks of Dr. Chesbro, about the expression of fear and timidity on the part of the child, I mentioned that in the paper. What is the cause of the fear? The child dreads to be touched. Why? Because its little joints are sore; perhaps there is hemorrhage already under the periosteum. When you find that expression, you should look out for scorbutus. Let that be one of your early symptoms or warnings with reference to the condition of the child's nourishment. Malnutrition is an omnibus word; in one child it may lead to rickets, one form of malnutrition; in another scorbutus, another form of malnutrition; in another to petit mal or epilepsy, in which the malnutrition gives expression in another way; in another it may predispose to tuberculosis. Anything which lowers the power of vital resistance will lead into one of these numerous roads from health to invalidism. I do not wish to emphasize the medical treatment of scorbutus. Undoubtedly the orange juice, raw milk and meat would have worked a wonderful change in the child. I did believe the calomel and guaiacol of value in the first few days. With reference to what Dr. Cotton said about fads, the diagnosis of the condition in this child was not a fad. The child was under the care of a physician from eight until twelve months of age, before it was brought to Chicago. A number of scars were found over the body, from the breaking down and formation of little abscesses in numerous places. But while the commercial men are distributing more and more their chromo advertisements of artificial foods,

and the mothers get recommendations from their family, friends and neighbors, as well as from the press and even some physicians, scorbutus will continue to increase. The tendency is a wrong one and we ought to call a halt with all the emphasis possible.

As to colonic flushing, I have repeatedly found my rectal tube or one of these large catheters, which serves the purpose admirably, doubled up and extruded forcibly from the bowel. It is often utterly impossible to pass it beyond the sigmoid flexure. A little postural change may assist matters very much. For instance, by having the hips elevated you may facilitate the accumulation of water in the colon and assist the peristalsis. I prefer cool water, at 80 or 75 degrees.

A CASE OF CHLOROMA.

Read in the Section on Ophthalmology, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

BY S. C. AYRES, M.D.

CINCINNATI, OHIO.

It is possible that the subject of chloroma is as new and rare to many of you as it was to me when the case I have to report came into my hands. It only came into my service at the Ophthalmic Hospital because the neoplasm had invaded the orbits and produced a marked exophthalmus. In the *American Journal of Medical Sciences* for August, 1893, appears a paper entitled "Chloroma and its Relation to Leukemia," by Dr. George Dock, of Michigan, in which he reports a case. He has examined the literature of all languages and collected, including his own, seventeen cases of chloroma.

Edward Ludwig, aged 7, was admitted to the Ophthalmic Hospital May 18, 1893. His parents are living and in good health. There are five other children in the family, all of whom are healthy.

Previous history.—He has always been a bright, intelligent boy and has never suffered from any serious illness. He has had repeated attacks of parotitis (?) and the present trouble seems to have followed one of these attacks. He at first complained of pain in both orbital regions and at the same time both eyes seemed to be more than usually prominent. After a week or more, his mother noticed some impairment of his hearing, which slowly increased. The exophthalmus increased more rapidly. He became very weak and somewhat emaciated, and complained of a severe pain in the left foot, on account of which he was unable to walk.

Upon his admission into the hospital both globes were very prominent, but the right more so than the left. It was with difficulty that he could close the lids of the right eye over the ball. The corneæ are clear and there is no impairment of vision. The conjunctivæ of both eyes are red and chemotic. The motility of the eyes is unimpaired. In the upper and outer portion of the right orbit can be felt a dense, inelastic growth which protrudes beyond the edge of the bone. A similar growth can also be felt in the left orbit, but not so pronounced. The optic papillæ are somewhat pale, but there are no other alterations in the fundus of either eye. His hearing is so much impaired that he has to be spoken to in a loud tone. Pulse 120 per minute; temperature normal. There is no lesion of any of the cranial nerves. Muscular power and sensation of both upper and lower extremities normal. Pressure on the sole of left foot produces pain, but there is no redness or swelling in this locality.

May 21. The proptosis of the right eye has increased, but that of the left is apparently slightly less. There has developed a swelling in both temporal regions. They are rounded and elastic, without any sensation of fluctuation.

May 23. Protrusion of both eyes increased; corneæ hazy and covered with inspissated mucus.

May 27. Temperature normal; pulse 120. Patient complains of some difficulty of micturition; later on, retention of urine. Both corneæ are quite opaque. The swellings in the temporal regions more pronounced. There has developed a hard, firm swelling in the region of each parotid gland. Intelligence good; hearing somewhat improved. Pain in foot still present. No appetite. The exophthalmus of both eyes increases day by day. Both globes are now forced beyond the palpebral fissure.

June 2. Condition worse in all respects. He has had a severe hemorrhage from the conjunctiva of the right eye.

June 5. Died this morning as result of hemorrhage from the conjunctiva of the right eye.

Three days before death, blood pale and watery. Staining according to the Ehrlich method showed a marked increase in the number of white blood corpuscles, the increase being due principally to the number of multinuclear cells, while the small lymphocytes and those white cells characteristic of splenic and myelogenic leukemia are not increased. Eosinophile cells are sparingly present, not above 2 per cent. The examination of the blood at this time justifies the diagnosis of leucocytosis only, and not leukemia. Furthermore, an examination of the patient revealed no enlargement of the lymphatic glands except those of the neck.

The postmortem examination was made about twenty-four hours after death: Body fairly well developed and nourished; postmortem rigidity well marked, the upper and lower extremities normal. No evidence of subcutaneous hemorrhages. Marked swelling of



the lymphatic glands about the neck. Both eyeballs protrude to such an extent that they are only partly covered by the eyelids; sloughing of both corneæ. Traces of blood about the eyes, mouth and nose. Mucous membrane of mouth swollen; teeth covered with blood. To the touch the lymphatic glands are firm and resisting, with no sign of fluctuation. A small nodular infiltration over the right parietal bone near the median line. On cutting through this swelling it was found to be situated beneath the periosteum, and although there was no evidence of its having arisen from the bone, the latter was at this point remarkably thin. No trace of inflammation or infiltration of the pia mater or the brain. The brain was found to be intensely anemic. On removing the brain the orbital plates were seen to bulge upward owing to the pressure from within. After removing the very thin orbital plates, both cavities were found filled with a firm, solid, and somewhat elastic mass of a light greenish color, which pushed the eyeball forward. This mass was removed with some difficulty, although

only at one point did it seem to be firmly adherent to the periosteum lining the orbital cavity. Here the bone was somewhat eroded. Behind, the new growth extended to the sphenoidal fissure, surrounding but not involving the optic nerve. In front and above, the newly formed tissue extended to and a little beyond the orbital arch. On superficial examination the new growth seemed to be confined to the orbital cavities; a further examination showed this not to be the case, for the cancellous tissue of the sphenoid and the petrous portion of the temporal bones were softened and infiltrated with a dirty greenish-yellow fluid, looking very much like pus. On the left side in the petrous portion of the temporal bone was an area in which the bone tissue was completely destroyed and filled up with a material such as was found in the orbits, differing from it only by being of a more dirty greenish-yellow color, and not quite so firm. The lymphatic glands presented the same appearance in section as did the tumors of the orbits.

Equally as interesting proved the further examination of the new growth. On having placed the tumor in alcohol, the color disappeared entirely within twelve hours. On the other hand, the specimen kept within a tightly corked bottle, still retains the greenish color; in fact, the color has become even more marked. Some of the fresh fluid taken from the interior of the sphenoid bone was examined, but revealed only the presence of large numbers of small corpuscles, fat globules and granular detritus.

The section of the tumor after being hardened in alcohol and ether seemed to justify the diagnosis of sarcoma, the cells being almost entirely of the small round variety, none or very few spindle cells, and remarkably little intercellular substance; no large blood vessels, but numerous lymph spaces. Furthermore, the small round celled infiltration extended into the upper eyelid down to the yellow elastic cartilage.

The seat of the tumor, the peculiar color, the history of the growth, the remarkable involvement of the lymphatic glands, the results of the microscopic examination, make this case one of a few that have been put on record under the head of chloroma cancer vert, the green cancer of the French.

Whether the form of tumor should be called a sarcoma, whether it is of the so-called connective tissue variety, or on the other hand, as Dock would seem to believe, a peculiar condition arising in the course of true leukemia, the tumors being regarded in this case as lymphomata—these are questions which the future must decide. Dock and a number of others have found by an examination of the blood that they were contending with true leukemia. My examination of the blood, as already described, showed a remarkable increase of white blood corpuscles, but they were indicative only of a marked leucocytosis, and not a true leukemia. This examination was made three days before death. However, there is still a great deal of obscurity about leukemia as to its true nature, and when we consider that some writers have suggested the name of sarcoma of the blood for this disease, we can not wonder that in the case of chloroma the pathologic conditions found were suggestive of leukemia.

I am greatly indebted to Dr. Greiwe for the above report of the postmortem and of his microscopic examination of the growths. His views, while they may differ from other investigators', are founded on examinations made of the neoplasm removed from different localities. It is very unfortunate that the portmortem did not include the thoracic and abdominal cavities. A more complete examination might have thrown some light on the tissues invaded by this strange disease.

In all the prominent diagnostic points my case seems to correspond with the one reported by Dr. Dock, as well as most of those he has so carefully collected.

Color.—In color it was a yellowish-green, or perhaps a pea green. It did not vary much in the different localities, but was more pronounced in the larger masses.

Consisteney.—This differed in different localities. It was homogeneous and without fibrous septa. I have described the cut masses as presenting a smooth, shining, jelly-like appearance.

Involvement of periosteum and bone.—Most of the cases show involvement of the periosteum, and in this case it was marked, but more than this an actual softening of the bone. Dr. Greiwe in his report says that "the cancellous tissue of the sphenoid and the petrous portion of the temporal bones were softened and infiltrated with a dirty greenish-yellow fluid, looking very much like pus." On the left side in the petrous portion of the temporal bone was an area in which bone tissue was completely destroyed and filled up with a material such as was found in the orbits, differing from it only by being of a more dirty greenish-yellow color, and not quite so firm.

Duration.—From the report of the mother it seems that she noticed the exophthalmus only four weeks before she brought him to the hospital. He died in two weeks after he was first seen. Allowing two weeks to elapse in which the changes were not detected by the parents, the disease ran its course in the short period of two months. After he was first seen the growth was exceedingly rapid and could be noticed day by day.

Hemorrhage.—Epistaxis is mentioned as occurring in some of the cases of chloroma reported. In Ludwig's case there was severe hemorrhage from the conjunctiva of the right eye. This occurred in my patient the day before he died, and then on the following day recurred with such violence as to destroy his life.

Retina.—The eyes were carefully examined and no swelling of the optic discs and no retinitis was found. The discs were pale and anemic, but not atrophied. His vision was good. In a short time the cornea became so involved that further inspection of the fundus was impossible.

Exophthalmus.—This was pronounced and was the first symptom that attracted the attention of his parents. The engraving shows his appearance a day or two after he was first seen. It was made from a photograph taken by Dr. Arch. Carson, to whom I am indebted for his interest in the case. The exophthalmus increased slowly in both eyes, but more in the right, and in a week from the time he was first seen the proptosis was so great that he could not close the eyelids, and in consequence the cornea ulcerated.

Exciting causes.—There is no known exciting cause in this case, but his illness followed an attack of parotitis. His mother said he had had several attacks of so-called parotitis. It is not probable that these attacks were true mumps, but precursors of the development of the disease.

Deafness.—Deafness was a marked feature. It

varied slightly in severity from day to day, and it was always necessary to speak to him in a loud tone. He had no catarrh and there was no otorrhea. The drum membranes were not examined.

Dr. Dock says: "From what we do know of the natural history of leukemia and of chloroma we can see the analogies of the diseases. We can say that chloroma is a lymphomatous process similar in its clinical features to leukemia and pseudo-leukemia. Our ignorance of its precise relations depend partly on the fact that our knowledge of chloroma is very incomplete, partly on the indefinite nature of leukemia and pseudo-leukemia."

OBSCURE CASES OF OPTIC NERVE ATROPHY OF CEREBRAL ORIGIN.

Read before the Section on Ophthalmology at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

BY CHARLES W. KOLLOCK, M.D.

CHARLESTON, S. C.

Affections of the brain proper that might cause atrophy of the optic nerve are very numerous, but in a majority of cases the disease which produces the optic neuritis causes the death of the patient before atrophy takes place, or can be recognized by the aid of the ophthalmoscope. The cases who can survive the disease sufficiently long for the nerve to become atrophied are usually too obscure in many instances for human ingenuity to explain, and though the neurologists of to-day are wonderfully accurate in their knowledge of this complex organ—the brain—still in very many cases their conclusions must be purely problematical. When we remember that a tumor growing in the brain tissue may produce optic neuritis in one case, and in another death may occur without an eye symptom having been seen, we may readily understand the difficulties of accurate diagnosis.

Lesions at the base of the brain will be followed by characteristic symptoms according to the parts involved and compressed, but it does not follow that atrophy will occur merely because there happens to be a growth, an aneurysm, or even a thickening of the meninges at this locality. Meningitis, when not fatal, often involves the optic nerve and its sheaths and atrophy gradually supervenes, but such cases are not obscure. The history will often give a thorough insight as to the cause of the consequent atrophy.

Lesions of the copora quadrigemina are rare, and cause blindness, loss of pupil reflex, strabismus and nystagmus when the anterior pair, and loss of cöordination when the posterior pair are effected. But both pairs usually become involved and when a defective action of the same branches of the oculomotor nerves on both sides is seen it is more characteristic of quadrigeminal disease than is neuritis, choked disk, or atrophy.

Atrophy from anemia is more common after severe hemorrhage rather than from inanition. Von Graefe usually found atrophy coming on some time after hemorrhage took place and Schweigger says, that the loss of blood and disease of the optic nerve are wholly unexplained and can not be due to simple anemia. Jaeger has described atrophy of the optic nerve that follows hemorrhage. Soon after the hemorrhage occurs the vision becomes indistinct, it may improve or become worse according to the nutrition of the patient, but after repeated hemorrhages amblyopia increases and vision is lost. The disk is pale and bluish in appearance, the sclerotic band is broad, and the remainder of the eye ground is very pale and the vessels smaller than normal. Fries says that 35 per cent. are due to hemorrhage of the stomach and intestines, 25 per cent. uterine, 25 per cent. from abstraction of blood, 7.3 per cent. due to epistaxis, 5.2 per cent. to bleeding wounds and 1 per cent. to hemoptysis and urethral hemorrhage. Tumors pressing upon the cerebral blood vessels and anything that interferes with the circulation in the brain may cause atrophy of the optic nerve, but it is more than propable that death would occur before the atrophy became apparent.

Embolism occurs generally in young persons and is caused usually by a diseased condition of the heart valves; rarely from thrombosis of the veins of the lower limbs, and still more rarely from myocarditis, that causes a rupture of the endocardium. It may also be caused by an atheromatous degeneration of the inner coats of the aorta, and form gangrenous or other processes in the lungs; by tumors that press upon and produce inflammation, and finally form wounds. The middle cerebral artery is most often plugged, which does not immediately produce atrophy but more likely a softening of the brain that may eventually involve the optic nerve and cause atrophy.

Thrombosis comes from atheromatous degeneration of vessels and is more frequent after middle life. There are generally prodromal symptoms and it is at times very difficult to distinguish between this lesion and cerebral hemorrhage, but recovery rarely takes place after the former. The mental powers gradually fail and the patient finally becomes demented. Atrophy is rare from this lesion.

Cerebral aneurysm.—Optic neuritis is uncommon after this lesion and therefore atrophy is also rare, except perhaps in some cases where there may be direct pressure upon the optic nerves or chiasma. Optic neuritis has been occasionally seen when there was an aneurysm of the internal carotid and was then double. Loss of sight in one eye, sometimes extending to the other, with, or especially without, optic neuritis, with or without loss of smell on the side affected, occurs in aneurysm of the internal carotid or anterior cerebral artery; and the distinction between the two depends on the presence or absence of paralysis of the other nerves of the eye ball first affected, which occurs especially when the aneurysm is of the internal carotid. Cerebral aneurysms occur usually between the ages of 10 and 60, rarely before or after, and as often before 40 as after, and more frequently in males than females.

Cerebral abscess occasionally causes optic nerve atrophy by extension of the inflammation to the nerve or its involvment by the consequent softening of the tissues. Abscess of the brain is generally due to injury or suppurative inflammation and is more common among males than females; 42.5 per cent. are caused by ear disease; 24 per cent by injury and the remainder are due to diseases of the nose, orbit, nontraumatic causes and tumors. It occurs in males and females in the proportion of 3 to 1: 1 to 9 years, 24 cases; 10 to 19 years. 48 cases; 20 to 29 years, 72 cases; 30 to 39 years, 29 cases; 40 to 49 years, 26 cases; 50 to 59 years, 16 cases; 60 to 69 years, 7 cases; 70 and over, 1 case.

Optic neuritis is less common than in tumor. Loca-

tion does not affect the neuritis and loss of sight is probably due to neuritis as vision is rarely affected by the abscess itself.

Multiple sclerosis occurs at all ages but more frequently in the first half of adult life, between the ages of 20 and 30 years. It may affect any portion of the brain, hence the symptoms vary. The cranial nerves are often affected, especially the first, second, third, fifth and seventh. Loss of muscular control is a common and early symptom, movements are peculiar and jerky but cease when the parts are at rest. Nystagmus is very common. The "eye symptoms are frequent and important. The optic nerve may suffer in various ways. There may be impairment of sight in one eye or both, often with an irregular contraction in the field of vision, and without at first any visible changes in the optic nerve to account for it. This condition depends upon the development of an islet of sclerosis in one or both optic nerves, or in the chiasma. It may progress almost to complete blindness of one eye. After a time secondary atrophy supervenes, and can be seen with the ophthalmoscope; occasionally the atrophy is preceded by slight neuritis, when sclerosis is near the eye ball. In some cases again there is a primary atrophy of the optic nerves, exactly like that which occurs in tabes, with a similar failure of sight, proportioned to the visible alteration in the nerve. Both eyes usually suffer, but one is often affected earlier than the other. This complication is, according to my own experience, rather more frequent than the form first described, and is of much pathologic interest." There is at times loss of accommodation, less frequently light reflex and the pupils may be unequally dilated.

Bulbar paralysis or labio-glosso-pharyngeal paralysis occurs generally in the second half of life and in males oftener than females. The causes are obscure; sometimes mental depression and anxiety, exposure to cold, debilitating influences and injuries, as blows upon the back of the neck. Optic nerve atrophy is of rare occurrence in this disease and of course when it occurs the symptoms of the disease would be a guide in diagnosis.

Paralysis of the insane, general paralysis.—Vision is frequently affected by this disease, the ophthalmoscope showing choked disk or consecutive atrophy according to the stage of the affection. General paralysis is a disease of the well-to-do, the rich rather than the poor, and occurs generally among those who live a busy, hurrying life rather than among those who reside in rural districts and lead quiet lives. It is often seen in the highly educated, in males oftener than females and about the prime of life. Hot climates, certain pursuits and excessive sexual indulgence are known to be exciting causes. Child-bearing and over indulgence in alcoholic liquors may also be a cause. It frequently follows or is associated with locomotor ataxia. The symptoms of this disease are so well known that it should not be difficult to diagnose the cause of the optic nerve atrophy. In addition to the general symptoms there may be at times dilatation of the pupils, myosis usually occurring at an early stage, but a difference in the size of the pupils is still more definite. The "Argyll-Robertson pupil" is often seen; these symptoms usually occur in other diseases of the brain and are chiefly valuable as indicating central disease. The cause of this disease is "a progressive degeneration of the encephalo-spinal nervous system attended by subacute inflammatory changes in the membranes of the brain and cord." Atrophy of the optic nerve in this disease may be distinguished from that caused by tumor of the brain, syphilis of the brain, etc., by the absence of the symptoms that indicate those lesions and especially from the latter by the failure to get improvement by the use of mercury and iodid of potassium. Treatment is of no avail in this form of atrophy.

Brain tumors cause diffused symptoms, headache, vertigo, vomiting, general epileptiform convulsions, apoplectiform attacks, psychic disturbances and choked disk. Choked disk is found more frequently (54 per cent.) in cases when the tumor involves the corpora quadrigemina. Direct pressure on the optic tract causes atrophy, at times, without choked disk. Tremors and localized spasms are valuable diagnostic signs, because, first, they are more frequent with tumors than other lesions; and second, they are more frequent in the cortex; third, more frequent in the motor zones. In more than one-third of all cases localized spasms and contractions exist at some time during the disease and when present they indicate localization in the cortex oftener than elsewhere, next the corpus striatum and optic thalamus. Paralysis is gradual and distinguishes it from hemorrhage. Tumors of the corpora striata, corpora quadrigemina and lenticular nuclei cause hemiplegias more slowly than hemorrhage. Disturbances of vision are very frequent as symptoms of brain tumor: 1, atrophy of optic nerve following choked disk; 2, deviation of the eye ball or eye lids from isolated or combined paralysis of the nerves supplying the ocular muscles, the third, sixth and seventh; 3, amblyopia, or amaurosis, resulting from direct affection of the optic nerve in its course through the cranium, or at its cerebral centers, the mode of development being, therefore, almost precisely analogous to that of paralysis of any of the nervous tracts by direct compression. The optic chiasma or nerve is liable to pressure from tumors arising from the base of the cranium or from the hypophysis, and also from the peduncles. Hemiopia is produced when one tract or one side of the chiasma is compressed. Tumors of the thalamus do not often cause blindness. Tumors of the corpora quadrigemina have a much larger percentage of blindness than those of any other part and those of the cerebellum come next.

THE DIFFERENTIAL DIAGNOSIS BETWEEN SIMPLE GLAUCOMA AND OPTIC NERVE ATROPHY.

Read in the Section on Ophthalmology at the Forty-seventh Annual Meeting of the American Medical Association at Atlanta, Georgia, May 5-8, 1896.

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At first thought little difficulty would seem to present itself in differentiating simple glaucoma from optic atrophy, and in the majority of cases any careful student ought to succeed. A table can easily be constructed, giving the typical like and unlike symptoms with such clearness of "deadly parallel columns" as to make the tyro sure that only a blockhead could err. Yet some or all of our differentiating signs are at times lacking or doubtful, anomalous or casual complications are encountered, and experience teaches that the best-posted observers are tried at

times to the uttermost by the uncertainties of some cases. And when a case passes from one to another with varying diagnosis, the later student will do well to temper his self-gratulations by remembering that the cardinal symptoms may have been wholly masked before, and better fortune rather than superior skill has given him the advantage.

It behooves us, therefore, to study out, with all care, every detail, even in cases that appear perfectly clear; for most of us have had patients in whom at one time no trace of glaucoma has been detected, while shortly afterward they have presented themselves with so marked a stage of the affection as to convince us that exhaustive study ought earlier to have recognized it. I shall not soon forget two ladies sent me, about the same time, by one physician, each of whom had full development of glaucoma in the left eye when they returned two years later. One had rainbow vision, that made my study exhaustive, though vain for other symptoms; the other had no suggestions of it. Both were irretrievably neglected, when seen again. Such cases passing into other hands must arouse doubts of the competency of the earlier adviser, unless there is full and frank communication with him. On the other hand, optic atrophy may strongly suggest glaucoma and lead to a tentative or positive suggestion of iridectomy which the subsequent history shows to have been groundless.

In simple glaucoma and optic atrophy we may usually find the contrasted symptoms of the following table; but it must never be forgotten that they may be wholly absent, or obscured if present.

TABULATION OF SYMPTOMS.

Simple Glaucoma.	Optic Nerve Atrophy.
Tension increased.	Normal.
Cornea hazy and anesthetic.	Normal.
Anterior chamber shallow or obliterated.	Normal.
Iris atrophic and discolored.	Normal.
Pupil dilated and sluggish or fixed.	Small or dilated (Robertson).
Reflex yellowish-green, "glaucous."	Normal.
Perforating vessels dilated and tortuous.	Normal.
History of pain and obscurations.	Painless loss.
Unilateral character usual at first.	Bilateral generally.
Limitation of field usually to nasal side.	Concentric limitation.
Color-fields commensurate to form-fields.	Disproportionate loss.
Rainbow-vision about lights.	No halos.
Knee-jerks unaffected.	Often lowered or lost.
Optic disc cupped, margins overhanging.	Dished, margins shelving.
Halo of choroidal atrophy usual.	Halo rarer.
Nerve-tissue greenish in shadow.	Nerve bluish-gray.
Arteries and veins pulsating.	Arterial pulsation rare.

The cardinal symptom of increased tension is variable and often uncertain. Hardly any two observers will exactly agree as to the tension of an eye, and a rigid sclera, a tense eyelid or a rude touch may easily cause error. Palpation had better be done with the index fingers of both hands applied to one eye at a time and then transferred to the other for comparison. In doubtful cases it may be done upon the uncovered sclera, but it is usually better to have the patient look very far down and palpate above the tarsal cartilage. If there are intermissions in the symptoms, we may expect to find corresponding falls of the tension to the normal. With a shrinking patient the surgeon must be gentle and not over-endowed with thumbs. The superficial corneal haze, which gives it a slight "pin-stuck" appearance like ground-glass or a mirror that has been breathed upon, may be a very delicate change and, like the anesthesia, demand close observation to detect it. It is doubtless due to edema of the epithelium and pressure upon the nerves. Though most marked near the pole, it is nearly uniform, in contrast to more localized keratitic changes. Individual differences in the depth of the anterior chamber, with a tendency to shallow with advance of life, must be taken into account; and the pressing forward of the lens is not usually very marked, but the appearance of the iris is usually quite characteristic. Altered color, vague detail of the surface or irregularities of structure and a general suggestion of atrophy are rarely lacking, and can easily raise a question as to iritis present or past, by the peculiarity of some of the changes. So too the pupil, semi-dilated and fixed as a rule, oval oftener than round, at best sluggish and imperfect in action — it is generally more abnormal in even the beginning of glaucoma than it becomes in any but the last stages of optic atrophy. The peculiarities of action to accommodative stimulus but not to light, which Argyll-Robertson pointed out; the hemianopic reflex of Wernicke; the consensual action of an iris otherwise immobile, are rare in any glaucomatous phase, and may be determinate of the character of the nerve degeneration which we generally have to diagnosticate largely on negative data, by exclusion. The yellowish-green reflex, often seen in the pupil of the glaucomatous eye, may have some counterpart in the opalescent haze of the lens in the patient with atrophic nerves, who is usually well advanced in life and has more or less arcus senilis and other diminutions of the transparency of his media. Yet it joins in the formation of the external picture of glaucoma which the skilled observer can often recognize at a glance, although analysis of its details shows each of them so vague as to bring doubt as to its real existence. Rarely lacking, however, to complete the picture and demonstrate the congestion of the ciliary vessels is the turgid, dark fullness of the perforating veins as they emerge from the sclera, several millimeters back from the cornea, and meander beneath the conjunctiva. Many conditions of ciliary congestion are marked by the undue prominence of these vessels; but in none of the active conditions are they as marked as they usually are in simple glaucoma. Other injection of the anterior segment, such as may be great in the acute and subacute glaucomatous attacks, may be wholly lacking in all phases of simple glaucoma, and yet the observer will hardly fail to receive an impression of congestion, out of proportion to the expanse of these vessels.

The history ought to help the diagnosis greatly, by the statement of pain in the eye, hemicrania or "neuralgia," coincident with the periods of obscuration and heralded by rainbows around the light. Both affections are likely to be bilateral, but in optic atrophy the second eye follows but little behind the other in its decline; whereas years may intervene before the glaucoma that has blinded one eye manifests itself in the other.

Mensuration of the visual field should never be neglected, and although its showings are never to be accepted as pathognomonic, much can generally be learned from the charts thus obtained. Color-vision is generally much lowered in optic atrophy, red and green even wholly lost or presenting very restricted areas of perception, with scotoma regions, where the recognition is weak, if not quite lost. The form-field

is more commonly restricted uniformly in the spinal and some of the cerebral cases, although hemianopsia and quadrant defects are not unusual, and may be very helpful in localization of the underlying lesions. In glaucoma the general form-field suffers proportionately more and may be narrowed down, more especially on the nasal side, until mere central vision remains, and the patient "sees as through a gun barrel."

The knee jerks and other tendon and muscle reflexes are well worthy of careful study in a number of our eye cases, but especially in any where plantar numbness, lancinating pains in the extremities and imperfect station or coördination suggest spinal disease. None of these defects are to be expected in glaucomatous conditions, although it is not impossible to have glaucoma attack an individual giving such evidences of lesion of the cerebro-spinal axis.

It is to the ophthalmoscope especially that we turn, however, for our diagnosis in many of these uncertain cases. Here the picture may be unmistakable, when much was doubtful in all other directions. Yet we can be over-confident as to its help, and find a picture that is almost typical of glaucoma when none is present, or that gives no confirmation to a diagnosis that is unmistakable in spite of such negative findings. It is easy to make a set of diagrams, as does Fuchs, to define the difference between physiologic, atrophic and pressure excavation of the nerve head; but in fact we may meet combinations or transpositions of such appearances. Jaeger's admirable atlas gives us some of the puzzling findings, while others have probably never been reported. The total cup, with overhanging edge and greenish shadow, may seem typically present in cases with normal fields and perfect central vision; and we look again in a vain effort to see where healthy nerve fibers can find a place at the margin of such a disc. So, on the contrary, we may find not only acute, but chronic glaucomas, in which neither the ophthalmoscope nor even anatomic study later, under the microscope, can demonstrate superficial cupping nor underlying depression of the lamina cribrosa. Most trying is such an inconclusive or contradictory finding in such cases where one eye has already been lost by unmistakable glaucoma, and the other is affected, but with a condition too little defined to make us positive in deciding either for or against iridectomy.

NOTE.—Numerous original illustrations of the typical and the contradictory appearances of eye grounds, fields and anatomic sections were thrown upon the screen with the stereopticon.

SPONGE GRAFTING IN THE ORBIT FOR SUPPORT OF ARTIFICIAL EYE.

Read in the Section on Ophthalmology, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

BY E. OLIVER BELT, M.D.

WASHINGTON, D. C.

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To a skilled oculist the ordinary enucleation of an eyeball is one of the simplest operations he is called upon to perform, and yet there are some cases in which so much of the conjunctiva is destroyed by careless or ignorant operators, that it is impossible for an artificial eye to be worn afterward. This is very annoying to a patient, and we can not blame him if he never forgives the doctor who has so afflicted him. Such cases emphasize the fact that it is the duty of the surgeon not only to operate skillfully for the immediate relief desired, but he should do everything in his power to prevent disfigurement, and when an organ or limb can not be restored to usefulness, he should at least obtain the best cosmetic results possible. After an eyeball has been removed and an artificial eye inserted, very frequently it is not as prominent as the natural eye. It has a sunken appearance which attracts attention, at once, to the fact that the eye is artificial. To remedy this defect has been a problem for ophthalmologists for years.

One of the most satisfactory operations heretofore practiced is that known as Mule's operation, which consists in the evisceration of the contents of the eye, and the insertion of a hollow glass globe in the sclerotic. This is sewed in, and proves fairly satisfactory, but there is some danger of the globe being broken, and occasionally the stitches come out and the globe escapes. There is also the risk of sympathetic ophthalmia, where the entire eyeball is not removed. To obviate these difficulties and at the same time secure a full orbit, I have devised a method of sponge grafting which seems to meet the requirements without the disadvantages of other methods.

The operation is a simple one and is performed as follows: The eyeball is removed by the ordinary method under strict asepsis. After all hemorrhage is arrested the socket is washed out with a formalin solution, 1 to 1,000, followed by sterilized salt solution. A globe of fine, soft sponge, about three-fourths the size of the eyeball, previously sterilized in 5 per cent. formalin solution and rinsed in the salt solution, is then inserted into the socket, or capsule of Tenon. The conjunctiva is brought together and sewed with rat-tail sutures. The eyelids are then closed with compress and bandage. In a few weeks the sponge is filled with new tissue, which in time becomes firm, solid flesh, making a full orbit and a fine support for the artificial eye. The sponge fibers are apparently absorbed.

I have performed this operation in five cases with fairly good results in all, but union of the conjunctiva has not been firm enough to prevent some of the stitches from breaking or cutting out and the wound gaping. In future cases, to relieve this strain on the conjunctiva and to obtain good motion of the eye, I think of uniting the opposing recti muscles with rat-tail sutures, and then the conjunctiva over that by the purse-string or subcutaneous suture. By this method we should get union by first intention, good motion of the stump and a full orbit. There seems to be no danger from infection of the sponge, for in two cases the eye was removed for panophthalmitis. Not only has this operation advantages over other methods in recent cases, but in old cases in which the eye was removed months or years ago, where there is this sunken appearance of the artificial eye, the socket might be reopened and a sponge inserted.

Since making my investigation, I find that Prof. D. J. Hamilton of Edinburgh practiced sponge grafting for old ulcers in 1880, since which time a few other physicians have tried it in fresh wounds and some other similar conditions that skin grafting has been used in. However, I can not find in all the medical literature in the library of the Surgeon-General's office any mention of sponge being used as I have suggested and tried.

Case 1.—E. L., colored, aged about 30, came to Freedman's

Hospital in the spring of 1895, suffering from a ruptured eyeball (from a blow). Sight was entirely destroyed, and as the injury extended entirely across the cornea and through the ciliary region I advised removal of the eyeball, to which she consented. As she was willing to stay in the hospital as long as necessary and I could keep her under observation, I decided to try the insertion of a small sponge in the socket, with the hope that new tissue might form through it, as was reported to have occurred with a sponge accidentally left in the body during an operation. Accordingly, after removal of the eye, a globe of fine sponge was inserted and sewed in the socket. The sponge had been sterilized by boiling. After a few days the stitches came away and the sponge was exposed; however, there was no tendency for it to come out. There was considerable discharge and the orbit and sponge were cleansed as frequently as required. In two or three weeks about half of the sponge separated and came away. I found the remaining portion filled with new tissue and presenting a healthy granulating surface. The patient left the hospital soon after and was not seen again until a few days ago, when I found a moderately well filled orbit; the wound was entirely closed and appeared to be covered with conjunctiva.

Case 2.—April 7, 1896. A. B., right eye ruptured (eight days previously by blow) through cornea and ciliary region. Eye full of pus. Enucleated under anesthesia, socket cleansed with formalin solution, 1 to 1,000. Sponge (sterilized with 5 per cent. formalin solution) inserted and stitched in with silk sutures. April 15, sutures out, wound gaping and sponge showing full length of fissure. May 5 about half of the sponge separated and came away, the balance filled with new tissue. June 3, socket full of new tissue and wound closed. Artificial eye inserted, has good motion and no sunken appearance of orbit.

Case 3.—April 13. C. T., aged 30, eye lost seven years ago. Eyeball shrunken. Eye removed under anesthesia. Socket cleansed with formalin solution, 1 to 1,000. Sponge inserted and stitched in with rat-tail sutures. April 28, temperature normal all of the time. No suppuration. Wound healed by first intention. Smooth stump. April 30, one or two stitches out, sponge showing for one-fourth inch, but seems to be filled with new tissue. June 3, wearing artificial eye. Orbit full, has not a sunken appearance, and motion of eye good.

Case 4.—April 23. A. J., aged 30. Stuck fork in left eye one week ago. Panophthalmitis. Eye enucleated under anesthesia. Socket washed with formalin solution, 1 to 1,000. Sponge inserted and stitched in with catgut and rat-tail sutures. April 30, some stitches out and sponge showing. May 5, fissure closed again with rat-tail sutures. May 7, all stitches out again. June 3, wound gaping and sponge showing, but adherent all around and new tissue filling three-fourths of sponge.

Case 5.—April 25. M. B., aged 30. Right eye lost by purulent ophthalmia several months ago. Eye enucleated under anesthesia. Socket cleansed with formalin solution, 1 to 1,000. Sponge inserted as usual and rat-tail sutures used. May 5, doing well, but some stitches out. June 3, nearly the entire sponge is filled with new tissue and the wound closing up.

A CASE OF TOTAL BLINDNESS; POSSIBLY DUE TO AN OVERDOSE OF QUININ.

Read in the Section on Ophthalmology, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

BY H. BERT. ELLIS, B.A., M.D.

LOS ANGELES, CAL.

August 8, 1895, I was called to J. W., a man 34 years old. After repeated questioning of the patient and his sister, the following disconnected, incomplete and probably somewhat inaccurate history was elicited:

The young man was an accountant in the employ of one of the Texas railroads and had been with them for years, although for some time he had been an opium, whisky and tobacco habitué. The first habit he had contracted as a result of the use of opium during an attack of dysentery. Four years ago, he had gone to an institute and had been cured of these habits, but quickly lapsed into them again, excepting that he never renewed the use of tobacco.

I was unable to find out definitely the amount of morphin and whisky that he used daily. His own statement was to the effect that he had been taking about 7 grains of morphin daily. This statement was probably inaccurate, for judging from the amount it was necessary to give to keep him reasonably quiet, at the time I was called, he certainly could not have been taking less than from 10 to 20 grains in the twenty-four hours, and probably more for some months; and of whisky he used from one pint to one quart daily.

In October, 1894, when suffering from malaria, he had been given by a physician 120 grains of quinin in twenty-four hours in four doses. In a very short time he was totally blind in both eyes, but this condition lasted only about two weeks, after which there was a gradual return of vision, so that he resumed work on his books, and was able to continue at intervals by aid of an assistant (for his vision never became good), till February, 1895, since which time he had not been able to see anything, except to distinguish a bright light occasionally. There was no history of concurrent deafness.

During June and July he had been living with a woman who was an opium habitué and she had kept him constantly saturated with morphin, till his sister brought him to Los Angeles.

The patient, five feet, nine or ten inches tall, was extremely emaciated, weighing about 103 pounds; his normal weight had been from 145 to 150. He had the marked opium cachexia and puffiness of lower lids. There was almost complete loss of the cutaneous and deep reflexes, the knee jerk being entirely absent. The bowels were sluggish, and the urine very scanty, ten to twelve ounces in twenty-four hours. He was practically demented, his memory so defective that he could not sustain a conversation.

The pupils were so small that it was quite impossible, in his helpless condition, to make a satisfactory ophthalmoscopic examination, without producing mydriasis, which I did with a weak solution of sulphate of atropin, and found the fundi presenting very small deviations from the normal. Both nerves were pallid and the arteries and veins, though relatively normal, were both slightly reduced in size, no other changes could be detected.

The morphin was gradually diminished and codein substituted, the whisky slowly reduced, so that by November 1, he was taking no morphin or whisky.

At different times, trional in 15 grain doses, chloralamid 30 grains, chloral and bromids 20 and 30 grains, and hyoscyamin 1-30 grain were given to quiet him. Sulphate of strychnin was administered, in gradually increased doses, from 1-60 to $\frac{1}{3}$ grain three times daily, hypodermically, in the temples. The knee jerk and other reflexes returned. Occasionally he would describe quite accurately some object in the room, but these returns of vision were very transient. His intellect improved materially, as did also his physical condition. About November 1, he had two quite marked convulsions, and we decreased the strychnin. The patient died late in December, of bronchitis and edema of the lungs; a condition not unlike senile bronchitis.

Was this a case of toxic amblyopia? and if so, was it due to quinin, morphin or whisky?

Now is the time to increase the membership in the ASSOCIATION. Let every member send in one or more new names.

THE MEDICAL TREATMENT OF INEBRIETY.

Read before the New York State Medical Society at New York City, Oct. 15, 1896.

BY T. D. CROTHERS, M.D.
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Inebriety is a more complex disease than insanity. Its progressive degeneration often dates back to ancestors, to defects of growth, retarded development and early physical and psychic injuries. Later, the poison of alcohol, by its anesthetic and paralyzing action, develops more complex states of degeneration, the form and direction of which is very largely dependent on conditions of living and surroundings.

The psychic symptoms show progressive disease of the higher brain centers, both masked and open, with degrees of palsy and lowered vitality. In insanity many definite pathologic conditions are traceable. In inebriety a wider, more complex range of causes appear, the line of march of which is often traceable in more general laws of dissolution. Its medical treatment must be based on some clear idea of what inebriety is, and the conditions present in the case to be treated. This requires a careful clinical study of the symptoms, tracing them back to causes, and all the varied conditions formative in the progress of the case. In such a study, heredity appears as the most frequent early predisposing cause. The question then is: What conditions of life have been most active in developing these inherited tendencies? How can these conditions be checked and prevented? What means and methods are possible in the rational treatment?

The second class of cases most commonly noted are those due to physical causes. These are the physical and mental strains and drains, also injuries both physical and psychic. The remedies here are distinct, and the means to build up and restore these defects call for therapeutic skill and judgment. A third class of inebriates seem to be due to especially psychic causes, of which mental contagion of individuals, of conditions and surroundings are most prominent.

Here another class of remedies and therapeutic measures are required. These classes are often combined, and the various causes are blended, requiring more accurate study to determine the leading factors in each case. These are conditions which provoke the early use of alcohol, and give form and direction to the progress of the case.

The second part of the clinical study of inebriety is the effect of alcohol. What injury has it caused? How far has it intensified all previous degenerations, and formed new pathologic conditions and sources of dissolution? Also what organs have apparently suffered most seriously from the drink impulse? and, most important of all, how far is the use of alcohol a symptom or an active cause? Having ascertained these facts, the medical treatment is the same as in other diseases, the removal of the exciting and predisposing causes, and building up the body.

The first question is the sudden or rapid removal of alcohol. If the patient is alarmed, and intensely in earnest to abstain, he will consent to have the spirits removed at once. If he is uncertain, and has delusions of the power of alcohol to sustain life, the withdrawal should depend upon circumstances. The removal of all spirits at the beginning of the treatment is always followed by the best results. The reaction which follows can usually be neutralized by nitrate of strychnia, one-twentieth of a grain every four hours, combined with some acid preparation. Soda bromid, in 50 or 100-grain doses every three or four hours will break up the insomnia, and cause sleep the first two nights.

The withdrawal of spirits should always be followed by a calomel or a saline purge, and a prolonged hot-air or hot-water bath, followed by vigorous massage. Hot milk, hot beef tea, and in some cases hot coffee, are very effectual. If the patient persists in a gradual reduction of the spirits, strychnia 1-20 of a grain should be given every two hours. The purge and hot bath should be given every day while the spirits are used. The form of spirits should be changed from the stronger liquors to wines and beers. Some of the medicated wines are useful at this time, or spirits served up in hot milk. There is no danger of delirium from the withdrawal of spirits, particularly where baths and purging are used freely. The two conditions to be treated at this time are poisoning and starvation. The system is saturated with ptomains from alcohol, and suffers from defective digestion. The nutrition is impaired, and organic growth retarded. Saline or calomel purges with baths meet the first condition, foods and tonics the second. Not unfrequently the withdrawal of spirits reveals degrees of brain irritation and exhaustion, that are practically manias and delirium, or dementia and melancholia. The essential treatment is to regulate the nutrition and elimination, then arsenic, strychnin, phosphates and iron will comprise the chief remedies that are found most useful.

Many of the chronic cases of inebriety reveal dementia when spirits are removed; others show well-marked paresis, or tuberculosis. Symptoms which were attributed to the action of alcohol are found to be due to previous degenerations. In one case the demented talk and conduct while using spirits burst into marked dementia when the drug was withdrawn. In another case, the wild, extravagant conduct of the inebriate appears in paresis when free from spirits.

The removal of alcohol is often followed by tuberculosis, not suspected before, which apparently starts from some trivial cause and goes on rapidly to a fatal termination.

Rheumatism and neuritis are forms of disease which frequently appear after the withdrawal of spirits. Diseases of digestion are common, also diseases of the kidneys. The latter is usually masked and bursts into great activity when alcohol is removed. These and many other organic diseases suddenly come into view, and whether they have existed, concealed by the anesthetic action of alcohol, or have started up from the favoring conditions of degeneration caused by spirits, are not known. The therapeutic requirements must reach out to meet all these unsuspected disease states which may appear any time.

The removal of spirits in all cases reveals conditions of both physical and psychic degeneration that call for a great variety of therapeutic measures.

The next question is to ascertain the special exciting causes and remove or build up against them. In the periodic cases the early favoring causes of the drink storm are often reflex irritations from disordered nutrition, exhaustion and excessive drains or strains. Later a certain tendency is formed for explosions of

deranged nerve energy in alcoholic impulses for relief. This periodicity is often due to causes which can be studied and prevented by remedial measures. In certain cases nutrient and sexual excesses are followed by a drink storm. In another, exposure to malarious influences, where the disease has existed for a long time before, brings on the craze for drink. In other cases, constipation, overwork, neglect of hygienic care of the body, irregularities of food and sleep, emotional excitements or depressions are followed by an alcoholic craze. A vast range of psychic causes have been noted. Thus, a residence on the seashore or in high altitudes, on mountains, provokes his thirst for spirits and removal to higher or lower planes is followed by a subsidence of it. Many persons never use spirits except in large cities, or at special exciting gatherings, or on holidays and festive occasions. Here evidently some defect of the brain exists, either organic or functional, which should be reached therapeutically. Literally, many of these cases have been cured by change of surroundings as well as medicines.

While the ostensible object of medication is to stop the drink craze, this is as far from being curative as the suppression of pain by a dose of opium. Conditions which cause the disordered nerve force to concentrate in cravings for the anesthesia of spirits, are to be neutralized and prevented before a cure can be expected.

The use of narcotics and drugs to check the desire for spirits at the beginning is temporary and always uncertain. Opium, chloral and cocain given freely at this time often simply changes the drink craze for these drugs, which are used in the place of spirits ever after.

The return of the drink impulse at regular or irregular intervals is in most cases preceded by premonitory symptoms, which enable the physician to use preventive remedies. In certain cases calomel and saline cathartics, with prolonged baths, rest, or exercise, according to the requirements of the case, have been found curative.

Various cinchona tonics, free from spirits, and iron preparations are often useful. Large doses of strychnin seem more valuable after the full development of the morbid impulse, given when spirits are discontinued. Some of the various coca compounds on the market have a strong influence in breaking up the drink storm.

In a certain number of cases patients are unconscious of the approach of the drink storm and are difficult to treat. But when they realize its coming and seek assistance the task is easier. The general principle of treatment is sharp elimination through all the excretory organs and the use of mineral tonics, changes of diet and living; particularly a study of the exciting and predisposing causes, and their removal. When the drink paroxysm has passed away, then radical constitutional remedies are to be used. The history of syphilis calls for mercury, arsenic and potassium. Defective nutrition requires a study of the diet best suited to build up the tissues.

Entailments from other diseases, as malaria, rheumatism and various neurotic affections, require appropriate remedies.

Tinctures of any form are dangerous. The susceptibility to alcohol is so great that the smallest quantity is felt, although it may not be recognized. Where spirits are taken continuously the system is always depressed; all functional activity lowered and literal palsy and starvation are present.

The removal of alcohol is only a small part of the treatment. The demand for alcohol is a symptom of this progressive degeneration. Given remedies to produce disgust for the taste of spirits, or to break up the cravings for it, are not curative. Apomorphia, mixtures of atropia, hydrastin, and a great variety of allied remedies, are all dangerous; while apparently breaking up a symptom of the disease present they often literally increase the degeneration by their irritant narcotic properties and further depressing action on the organism. The indiscriminate use of these, and allied drugs, in the various specifics for inebriety, is the most dangerous empiricism. It is the same as opium or other narcotics for pain in all cases, irrespective of all conditions and calling the subsidence of the pain a cure. Thus in the following cases a periodic after a gold-cure treatment developed into acute dementia, which ended fatally. In others epilepsy, acute mania, pneumonia, rheumatism, nephritis, followed from the chemic suppression of the drink impulse. In all probability the narcotics used were active, contributing causes to the particular organic disease which followed.

The masked character of inebriety makes it dangerous to use narcotics beyond a certain narrow limit. Cases which have been subjected to active drug treatment to suppress the desire for spirits are feebler and more debilitated than others. Those who have taken the so-called specifics are marked examples and whether they use spirits again or not are always enfeebled and pronounced neurotics. In all these cases there is so wide a range of causes and conditions that specific routine treatment is impossible.

Strychnin has recently come into some prominence and is a useful, valuable drug. In some cases where the spirits are withdrawn its action is pronounced as both a tonic and stimulant. Given in 1-30 grain doses four times a day, for a few days at a time, then discontinued, or given in larger doses for a shorter time, the results are usually good. In some cases certain susceptibilities to the action of strychnia are noticeable and where the drug is taken to prevent the drink attack it sometimes rouses it, seemingly precipitating the condition which it is supposed to prevent. This is often anticipated in the muscular tremors and nerve twitchings that evidently come from strychnia when used even in small doses.

Strychnia should never be given alone, except immediately after the withdrawal of spirits. At other times, combined with cinchona or other vegetable tonics, is an excellent tonic. Care should be used to watch its effects on the motor nerves, and be sure that the patient is not unusually sensitive to it. Belladonna, atropia, cannabis indica, hyoscyamus and drugs of this class have a limited value and should be used with great caution in states of irritation following the withdrawal of spirits. They are best given in combination with other drugs for a brief time and in particular cases. The bromids are valuable in the same way and in the same conditions, only in much larger doses than mentioned in the text-books. From 50 to 100 grains to a dose are requisite, always accompanied with baths and never continued more than two or three days. Coal-tar preparations are of uncertain value as narcotics, but may be used in certain cases with good results. The various mineral and vegetable acids are almost indispensable in selected cases and often can be given a long time as tonics.

In the treatment of cases, after the paroxysm is

over, frequent changes of the form of the tonics are most valuable. Iron, phosphorus, arsenic, potassa and bitter vegetable tonics should be alternated, with free intervals, for periods of months. The various derangements of the system should be watched and treated with appropriate remedies and every case should be constantly under medical care. The facts of the case having been studied, the question of where the medical treatment can be applied to the best advantage must be determined from the case and its surroundings.

If at home the physician must have full control and his directions carried out implicitly. When the drink paroxysm appears the course of treatment must be prompt and exact. In one case the patient goes to bed and is secluded from all sources of excitement; in another he is sent away to the country and among strangers; in a third case a few days' residence in a hospital or asylum under the care of a physician is sufficient. Hospital treatment, with its exact care and physical and psychic remedies continued for a long time give the strongest promise of permanent restoration. Wisely adapted medical treatment, based on a careful study of each case, makes it possible for the family physician to treat these cases, in the early stages, with success.

No single remedy is capable of meeting a wider range of conditions than the Turkish or hot-air baths, with free massage. Next to this is hot and cold showers, and hot packs with free rubbing. Bitter tonics and salines with regulated diet are next of importance. Elimination through the bowels, kidneys and skin freely are always essential. Beyond this the good judgment of physicians should determine when to give narcotics and when to abandon them, always remembering their danger and very uncertain temporary action. Also that the cessation of the drink craze is only temporary. If this is accomplished by drug and chemic restraint the permanency is very doubtful.

The subsidence of the drink symptom by the removal of the exciting causes and building up the system to greater vigor and health is the only rational treatment. In this the highest medical judgment possible and the greatest therapeutic skill are essential for success. The medical judgment, which will determine the exact condition in each case, and the possible range of remedies required; not any one drug or combination of drugs; not so-called moral remedies, or appeals to the will power, but a clear, broad, scientific application of every rational means and measures are demanded. A large number of these unfortunate cases are distinctly curable in the early stages, and later when chronic conditions come on the possibility of cure continues to a far greater degree than is commonly supposed.

It is the common observation of everyone that a certain number of cases recover from the apparent application of the crudest empiric and psychic agencies used in the most unskillful way. This fact furnishes the strongest possible reasons for believing that when inebriety shall be studied and treated as a disease more generally by the profession a degree of curability will be attained far beyond any present expectation. The present empiric stage of treatment should rouse a greater interest and bring the medical treatment of inebriety into every-day practice. Then the family physician, and not the clergyman and quack, should be called in to advise.

A new realm of medical practice is at our doors, only awaiting medical study above all theory, and exclusively from the scientific side.

ELECTRIC TRAUMATA, THEIR PECULIARITIES AND THEIR TREATMENT.

Read at the thirty-ninth annual session of the Medical Association of Missouri, May 21, 1896.

BY NORVELLE WALLACE SHARPE, M.D.

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Among the forces of nature that are rapidly being utilized by man in the arts, sciences and the daily needs of life, and occupying a prominent rank is electricity. Its applicability is becoming multifarious, its capabilities are unknown. We have but to glance over the columns of the press and note the casualties to realize the numerous accidents attributable to it alone. It is needless to observe that the recorded cases represent but a meager proportion of the actual number of its victims. Of the varieties used to-day, two currents stand out prominently over the others in their applicability to the needs of modern life—the alternating and direct. The alternating ranging from 1600 to 2000 voltage, ordinarily, produces our incandescent lighting system. The direct current ranging from 500 to 3000 voltage, supplies the arc lighting system, and in the lower voltage is the motive power in street railways, factories, etc. It is obvious that with the increased usage of these agents, accidents will occur in direct proportion to the complexity of factors, and insufficiency of safeguards, unless a superior attention to safeguarding be practiced. The lethal force of electricity is almost entirely dependent upon voltage or electro-motive force, being actually the result of the current in amperes, which is caused to flow through the body against its resistance, by the electro-motive force. In any electric circuit the current in amperes flowing, is equal to the electro-motive force in volts divided by resistance in ohms. This is known as Ohm's law; and for our purpose is equivalent to stating that with a given resistance the current in amperes is proportional to electro-motive force in volts, and further, the current in amperes is the actual lethal force. There are cases on record where a pressure of 500 volts has been fatal, but far the greater number of casualties have been produced by pressure exceeding 1000 volts. From 1500 to 2500 volts have been employed in electrocution, the skin resistance brought to the minimum by contact sponges of large surface, wet with saline solution. The usage of these technicalities may be clarified by the following suggestion: Imagine a pipe conveying water driven by force, the conventional hose will suffice. Thus we find that: 1, the volt, unit of electro-motive force equals pressure or head of water; 2, the ampere, unit of quantity equals quantity of water passing through the pipe, expressable in gallons; 3, the ohm, unit of resistance (produced by one ampere of current, under pressure of one volt in one second of time) equals the degree of frictional resistance of pipe. Permitting C to equal current,—quantity,—ampere; E to equal electro-motive force,—pressure,—volt; R to equal resistance,—ohm; we deduce $C = E \div R$. In medical application of electricity where the resistance within the cells is large, R should be subdivided into R', internal, and R'', external resistance; the resultant equation reading $C = E \div (R' + R'')$. But in electric lighting and power systems where an almost constant

pressure is maintained on the supply mains, the resistance of the mains is so inconsiderable, as to be negligible. Demonstration of the practicability of these formulæ is easy. The pressure required for incandescent lamps (for example) is about 110 volts (being reduced on alternating current from the high voltage of mains by means of transformers), the resistance is 220 ohms. Current to be found: C = 110÷220 or ½ ampere for 16 C. P. lamp. The 32 C. P. lamp requires one ampere, pressure 110 volts; resistance required: R = 110 ÷ 1 = 110 ohms.

Of the various human tissues the skin presents the highest resistance to electric penetration. (Different thicknesses produce resistance of varying degree). When it is removed, destruction is markedly intensified. Skin resistance increases by dryness; moistened, especially by saline solution, it is notably diminished. Experience tends to show that a current of one or two amperes is fatal to the majority of individuals. The fact that comparatively low voltages in some cases have proven fatal, and victims of shock from relatively high voltages have recovered, does not necessarily show that some systems can withstand more current than others, but rather that the skin resistance was greater, or the area of contact smaller in the more fortunate cases (according to Ohm's law). Any current sent through the body being dependent upon the resistance offered (the skin being the chief factor), it follows that the larger the area of contact, the less resistance, and a proportionally greater amount of current is received. It is known that a 2 or 3 per cent. saline solution offers a resistance equal to about one-twentieth of that of pure water, and that sea water offers about one-fortieth. The resistance offered to an alternating current by a cubic foot of pure water at 60 degrees F. is 80 ohms 60 degrees; a cubic foot of water, plus 15-100 pound of rock salt is 7 ohms. Elevate these fluids to 212 degrees F., pure water resists to the extent of 24 ohms, the saline solution 4.2 ohms. From these data it is clear that the salinity of the sweat, temperature and humidity of the atmosphere and season of the year are all important factors in the determination of the resultant shock to an individual. Of the two chief currents, direct and alternating, the former has the greater electrolytic intensity, the latter produces no permanent chemic change. Death from either current is without doubt due to sudden and profound shocking of the sympathetic system.

The injuries resultant from electricity range from relatively trivial burns to loss of life. Of all such injuries, an overwhelming percentage consists of burns. They usually occur upon the hand or forearm and differ radically from ordinary burns and scalds, in, 1, appearance; 2, accompanying pain; 3, concomitant shock; 4, prognosis; 5, subsequent manifestations; 6, reaction to treatment, and frequently 7, result. I may mention *en passant* that during the four years these researches have occupied, I have failed in the search of literature upon this subject.[1]

Appearance: The majority of electric burns, seen early, present a dry, crisped aspect, excavated and bloodless, with surrounding zone characterized by pallor. This condition changes within thirty-six hours, serous oozing obtains, the tissues soften, and hyperemia replaces the pallor.

Pain is as a rule very moderate, in some cases practically absent. Twenty-four to forty-eight hours after contact it is usually present.

Shock: Electric burns differ from other burns in that the systemic shock is from the contact, the shock from the burn *per se* being *nil.*

Prognosis, in regard to time: Electric burns average from one and one-half to three times as long in recovery as other burns; in some cases, dependent upon locality, such as proximity to bones and joints, the ratio is as 5 to 1 or more; prognosis, of results, is as uncertain as time prognosis; severe cases may progress relatively rapidly; mild cases are often persistently rebellious to recovery; usually both mild and severe cases are tedious and prolonged.

Subsequent manifestations: The rule of the electric burn, from which there are rare exceptions, is that it changes within thirty-six hours from contact to a serum saturated area, with disintegrating walls and floor, progressing to profuse purulent secretion with continued tissue degeneration. This degeneration will frequently involve nerve, muscle, tendon, joint capsule, ligaments, articular surfaces, periosteum and bone itself. Exuberant granulations springing up, the entire plain bathed in pus, complete a picture alike distressing to patient and surgeon.

Reaction to treatment is very unsatisfactory, it being apparently impossible to check the disorganizing process, especially in severe cases, with most scrupulous antisepsis or asepsis. After a varying period of from fifteen to fifty or sixty days, and often much longer, firm granulation will slowly proceed and the *Result* will be as good as is ordinarily secured in other burns. In some cases, however, owing to the disintegrating process involving bones and joints, producing necrotic masses, amputation is necessary. Too much stress can not be laid upon the above clinical picture, and errors in prognosis are readily made by those who have not been brought in contact with such injuries, in regard to time and result. The sloughing almost invariably present is noteworthy. Frequently a burn which in its incipient measurements will not occupy more than a square inch of surface, will produce a subsequent area of four or five square inches, or more, due to degenerative changes. The intensity and persistence of this process, unabated by usual surgical methods, can only be accounted for, by a local trophic death, produced by electrolytic activity in destruction. This wet gangrene continues as long as the local trophic inanition lasts; and healthful rejection of sloughs, and replacement by firm granulation material, can not and does not obtain, until local trophic equilibrium is again established.

The treatment of profound shock from an electric current should be instituted upon lines analagous to those pursued in shock from other agents. The patient will be found pulseless or nearly so, respiration of the most feeble character or absent, warm skin which rapidly cools, with pallor, immobile pupils and absolute muscular relaxation. Laborde's method of tongue traction in the horizontal position or with the head upon a lower plane than the body, is advised. Frictions, heat to body and extremities, hypodermic injections of brandy, digitalis, etc., are valuable. In cases where respiration is not absolutely suspended, inhalations of nitrite of amyl, until face flushes, followed by a massive hypodermic of strychnin, will bring the vital forces together; this effect should be followed by nitroglycerin. Electric applications are *not* advised. Dissatisfied by the poor results of classic

[1] One day before this paper was read I was made cognizant of the fact that Moyer of Chicago had about a year ago produced an article on lines somewhat analagous to those investigated here. I have not seen the article, nor any other on this subject.

REPORT OF CASES ILLUSTRATIVE OF PECULIARITIES OF ELECTRIC TRAUMATA.

Name.	Injury.	Cause.	Current.	Duration of Injury.	Remarks.	Result.
G. L. . .	Burns last phalanx 3d finger left, dorsum both hands.	Electric wire contact.	Alternating.	Seventeen days.	Suppuration.	Good.
W. H. J.	Burns 3d and 4th fingers, right, 4th finger left, and right wrist.	" "	"	Between sixty and seventy days.	Suppuration and sloughing involved, 1st inter-phalangeal joint and 1st and 2d phalanges, necrosis. Degeneration extended rapidly and deeply on both palmar and dorsal surfaces of finger, and upward upon the hand. Amputation at 4th metacarpo-phalangeal articulation.	Marked cicatrization, otherwise good.
N. F. . .	Shock.	Hand and foot contact, dynamo.	Direct.	Instantaneous.	Points of contact barely visible.	Death.
P. O'K. .	Burns right hand and fingers and left forearm.	Electric wire contact.	Alternating.	Sixty-five days.	Suppuration and sloughing necrosis of phalanges. Succeeded, however, in saving phalanges.	Marked cicatrization, otherwise good.
C. A. . .	Burns right hand and fingers.	" "	"	About ten days.	Suppuration.	Good.
R. B. . .	Burns left hand, right wrist.	" "	"	Forty-seven days.	Suppuration and sloughing.	Good.
T. J. M .	Burns left hand,	" "	Direct.	Eleven days.	Sustained while adjusting arc lamp on a stormy night.	Good.
J. J. R. .	Burns thumb 1st and 2d fingers, left.	" "	"	Twenty-five days.	Suppuration and sloughing.	Good.
J. McE. .	Burns right hand and face.	Electric "flash light."	Alternating.	Three or four days.	Ran a satisfactory course.	Good.

aseptic treatment of these cases of burns, the author, in the search for improved methods, utilized, among other agents, the following: Bichlorid solutions, carbolic solutions, pyrozone solutions, chlorid of zinc solutions, in varying strengths; peroxid of hydrogen, sterilized water, hot and cold; iodoform, dry, in emulsion and in glycerin; salicylic and boracic acids, bicarbonate of sodium, loretin, aristol, tartrate of iron and potassium in solution. And for the digestion of the sloughs, pepsin, trypsin and pancreatic extract in appropriate media. Both moist and dry dressings were employed in various cases. These agents yielded results practically analagous to the conventional aseptic and antiseptic measures of wound treatment; in some cases, the results were not as satisfactory. They should be employed as adjuvants, fitted to the demands of the individual case, to aseptic or antiseptic means, and not as substitutes.

CONCLUSIONS.

1. The skin is the chief factor of resistance in an individual sustaining an electric shock.

2. That moisture of the skin, and especially, marked salinity of sweat, favors access of current.

3. Humidity and temperature of atmosphere, and season of year are important factors in determining individual resistance.

4. Electric traumata differ from ordinary burns or scalds in duration.

5. Electric traumata differ from ordinary burns and scalds in results (noticeable in severe cases).

6. Prognosis in all cases should be guarded.

7. Rigid asepsis should be followed in the manipulation of all cases.

8. Sloughs are best removed by solution of pepsin, thus: Scale pepsin 2 grms.; hydrochloric acid U.S.P. 1 cubic centimeter, distilled water 120 cubic centimeters, washed off in two hours with peroxid of hydrogen, pyrozone or hydrozone. Application to be repeated as may be necessary.

9. Deep disintegration demands especial watchfulness for the detection of bone or joint invasion.

10. Necrosis of bone should be combatted by injecting a 3 per cent. solution of hydrocholic acid in distilled water, repeated not more frequently than every two hours. Every second day the acid pepsin solution (see above) should be used until the necrotic masses are cleared away, when gauze packing should follow. In cases complicated by tuberculosis a 10 per cent. mixture of iodoform in glycerin or a 7 to 10 per cent. solution of iodoform in ether, should be subsequently employed.

11. Persistent bone or joint invasion with necrosis, requires amputation, or in some cases resection.

12. Degenerative division of important nerves should be subsequently repaired by Levering's method.

13. Degenerative division of important arteries and veins should be repaired by Murphy's method, when possible.

14. Granulating areas, after sterilization, should when feasible be covered by large skin flaps.

15. When healing process has started, peripheral skin growth is hastened by the use of a layer of sterile gauze saturated with an iodoform-glycerin mixture, and covered by rubber tissue.

QUINSY; THE DIFFERENTIAL DIAGNOSIS AND TREATMENT.

BY J. HOMER COULTER, A.M., M.D., PH.D.
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The fact that many presumable authorities use indiscriminately the terms tonsilitis and quinsy, has led me to attempt, if possible, to emphasize the differentiation so clearly brought out by Bosworth in his late work. He was, I believe, the first to make prominent the difference between the two conditions. Admitting that the symptoms are often analagous, even more so than are usually seen in other contiguous structures, yet because the pathology is comparatively open to inspection, the diagnosis should in the ordinary case be made with approximate certainty.

Let us briefly observe the comparative anatomy of the parts; it may add somewhat to our etiologic theories. I do not find by dissection nor by any anatomic authority, that any of the muscular fibers from the palatoglossus or palatopharyngei muscles leave the striations of those muscles and branch off into the body of the tonsil; nor do they anastomose with each other until they have passed below the triangular space occupied by the tonsil. This olive-shaped body, which we term the tonsil, is thus ensconsed within its position much as the eye rocks in its bony cradle, but with a much less intimate anatomic relation to surrounding structures.

The lymphatics of the tonsil are most important

etiologically. If they anastomose to any great extent with the lymphatics of the lateral and posterior pharynx, then we might anticipate an infection in the tonsil would often be conveyed to the peritonsillar tissues. Or if the action of the tonsillar lymphatics was absorptive rather than expulsive the bacteria would more likely be lodged deep in the plexus within, near the carotid artery, and we would anticipate a phlegmonous condition as a much more frequent evidence of the correctness of our etiology. The comparative absence of these evidences however, must indicate that, either the lymphatics in the so-called "lymphoid ring" are not very ready bearers of bacilli, or else the intimate connection, presumed by some authorities, between the lymphoid tissues at the base of the tongue, between the pillars and in the vault of the pharynx, is an imaginary one.

Some have claimed that the normal secretion of the tonsil was one of nature's antiseptics, a leucocyte guard destroying every microbian intruder; but if the leucocytes be absent from any cause, or the lacunæ be in a diseased condition, it is then but an open viaduct into the system, provided this intimate relationship between the lymphatics and the deeper tissues really existed.

In those cases in which the pillars overlap the tonsil there may be pseudo-continuity of tissue formed, but such a condition, I maintain, is distinctly pathologic. If a normal anatomic relation exists between the tonsil and pillar, the former will not appear as an etiologic factor in the production of peritonsillar abscess quinsy. If pyogenic germs be pent in by an overlying pillar and thus forced into the surrounding areolar tissue, we may expect quinsy as a natural result. Many recurrent attacks of quinsy are doubtless in some measure due to this cause.

That there does occur non-idiopathic cases of quinsy can not be doubted; but the *post hoc ergo propter hoc* theory of all cases following measles, scarlet fever, diphtheria or rheumatism is open to discussion. Indeed such an etiology occasionally receives a severe "shaking up" by the deductions of clinical experience. In most cases the origin is in the peritonsillar areolar tissue. Oftentimes on account of the intensity of the inflammation and edema the tonsil is protruded, but seldom indeed, if ever, is it involved in the inflammatory process anterior, posterior, or, in severe cases, surrounding it.

If there existed a more intimate natural continuity of tissue between the tonsils and the surrounding areolar tissue, we might expect from these bacteria traps a very frequent infection and consequent quinsy. Hence it may be argued that the tonsils, even though pathologic, may be in a measure a preventive rather than a cause of quinsy. Bosworth says: "An acute tonsillitis does not, and can not, develop a quinsy without some particular predisposing cause or dyscrasia."

Mechanical, chemic or traumatic influence may each be active in certain cases. Certainly, sudden changes from heat to cold, with draughts about the head, produce a fertile field for this disease. A strumous diathesis, that popular scape-goat of the "case reporter," and bane of the conscientious etiologist, should not be forgotten on so appropriate an occasion. Bosworth and others are inclined to think a very large percentage of these cases are due to an uric acid diathesis. If so, why does it not occur more frequently in rheumatics? My experience does not confirm such statistics. In my cases, rheumatism has not occurred more frequently than has a neurotic temperament, which condition I should hesitate to offer as an etiologic factor of any considerable importance.

With the anatomic relations of the tonsils in mind, and the most probable and only tenable theory of quinsy being that of a specific bacteria, the exact nature of which remains to be discovered, we can posit as our differential definition of quinsy: An acute inflammatory action in the peritonsillar areolar tissue, usually resulting in a suppurative process.

The symptoms in general are so well known that I will not unnecessarily lengthen this paper with a detail of them; only to such an extent as may be necessary to elucidate the differential characteristics of those pathologies most likely to be mistaken for quinsy. Those occasionally encountered are, follicular tonsillitis, the early stages of the exanthemata, acute pharyngitis, fibroid tumor, aneurysm, syphilis and that severer form of acute infectious phlegmon or retropharyngeal abscess, which is characterized particularly by its always serious, and most frequently, fatal prognosis.

In all tonsil inflammations the tonsillar gland is more or less hypertrophied, and shows evidence of recent or present inflammatory action. It is usually less painful than quinsy. Deglutition is more easily accomplished, though dysphagia is common in both. The peritonsillar tissues are not swollen, except as they may be pulled toward the median line by adhesions to the tonsil. In tonsillitis there is less tenderness, though this symptom may depend somewhat on the temperament of the patient. If the tonsil has been thoroughly extirpated, tonsillitis is necessarily excluded. Ear complications can scarcely be caused by tonsillitis. Respiration is not as a rule embarrassed by quinsy. The tonsils are not always enlarged in quinsy; while a peculiar fetid breath and constipation are almost invariably present. Another, to me, almost pathognomonic symptom of quinsy is the inability to expectorate.

In the early stages of the exanthemata, and the first thirty-six hours of quinsy, there is certainly often much difficulty in making a positive diagnosis. In diphtheria the temperature is subnormal or slightly increased. The possible prevalence of contagion would be an important factor. In these exanthemata the throat is rather sore than painful, there is also more hyperemia. A membrane would indicate, though not insure diphtheria.

It scarcely seems possible that one could mistake a fibroid or other benign tumor for quinsy, yet such mistakes have been made. Its density, duration and freedom from pain and temperature would positively differentiate it in any case. Syphilis, in the tertiary form, might confuse one unaccustomed to seeing either condition frequently. But the history of the case should be sufficient. Ulceration, moreover, does does not occur in quinsy.

Aneurysm, in general appearance, would most closely resemble quinsy. But its infrequency and history, as well as absence of pain and other symptoms, would certainly prevent error.

The acute infectious pharyngeal phlegmon, fortunately, does not occur very frequently. It nevertheless is an important point in this consideration. I surmise that when at some time, a plodding investigator succeeds in making a specific bacteria culture from both

conditions, they will be found to be identical. The former differing from quinsy, mainly in the intensity of its toxemic virulence. Infectious phlegmon also attacks the deeper tissues and posterior pharyngeal wall, extending downward, the respiration becoming embarrassed as the abscess increases in size. Spondylitis is not infrequent in infectious phlegmon; but whether as a cause or as a result, authorities disagree. Certain it is, however, quinsy is not associated with spondylitis either as cause or effect. In the infectious phlegmon, the face is more congested and livid; the neck stiff, the muscles tense and prominent, and the usual quinsy symptoms greatly intensified. Quinsy may occur in children, rarely so the other disease. In case it is a simple pharyngeal abscess, it may occur in childhood. Retropharyngeal abscess is not so acute, painful or serious, and is amenable to the treatment of abscess in other parts.

Treatment.—In any suggestions as to abortive measures, I recognize the fact that we do not usually see a quinsy patient until the disease has been progressing for twenty-four or more hours. To abort it at this stage is out of the question, in almost any case. We can not claim for any medicinal remedy or combination a positive abortive effect in a case of quinsy.

In every case it is advisable to give a good mercurial cathartic, followed by a saline. Unless we are reasonably positive of the presence of pus, when the case is first presented, I do not believe the use of the knife is advisable at that time. We must not provoke the inflammatory action by a too hasty attempt to relieve our patient by incision. We have all too often seen a veritable stabbing process performed in and about the tonsil, in the fruitless endeavor to locate the abscess. It appears to me this might usually be avoided by previously assuring ourselves with a careful differential diagnosis.

For many years the stereotyped line of prescribing had been quinin, opium, guaiacum, sodium salicylate, aconite and belladonna, either singly or in compound, as the opinion of the prescriber was guided by experience. I have no word of criticism for these. They were good, and doubtless afforded a vast relief in the aggregate. But as all things must change, and we tire, even of friends at times, so when improvements are made we must accept them as such. More recently salol has come into quite general favor.

From 1892, when I listened to Dr. Newcomb in his exhaustive paper on the treatment of tonsillitis medicinally, at the meeting of the AMERICAN MEDICAL ASSOCIATION in Detroit, until about one year and a half ago, I have felt that salol was the remedy *par excellence* for these cases. At that time three cases, all clerks in the same department of one of our largest establishments, presented themselves at the same time. Two of them roomed together, the other lived with his parents. Such a coincidence at least suggested the possibility of contagion. A broken window on a cold, damp day was the presumable etiologic explanation. They were all suffering intense pain. Two of them had typical attacks of quinsy, the other tonsillitis. I used my usual applications, advised hot gargles and poultices, prescribing salol with rather confident promises of speedy relief. I had had two positive, and two doubtful, failures with salol in the three years' experience previously, so that to find my patients growing worse for thirty-six hours did not entirely surprise me. Free incision was meanwhile made without obtaining pus, in either case of quinsy. The tonsillitis was further advanced, and was much relieved by the incision. In the other two I prescribed lactophenin, 10 grains every three hours; after the second dose Mr. B. was almost entirely relieved of pain; the temperature the following morning was 99.2. The other symptoms were likewise very much ameliorated. In the case of Mr. R., the third dose relieved him quite as completely. At this visit I was able to thoroughly evacuate the pus and cleanse the cavity, affording the usual relief in such cases.

Since the above experience I have used the remedy in twelve cases of quinsy, and in all but one instance the results have been most gratifying to myself, and I am sure not less so to the patient. These patients have been first seen in all stages of the disease, from the first hour of the attack to the fourth day; and in one case, in consultation, on the sixth day.

The average time of relief has been about four hours. In all but three the relief was decided before the knife was used. In each of these three there were evidences of pus present, and the bistoury was used at once; so that the part played by the remedy is indeterminate.

I have in these cases given the lactophenin to the exclusion of every other remedy internally, excepting the cathartic already referred to; not omitting, however, the usual hot gargles and external applications.

My reasons for preferring it to salol are: Its action is decidedly more prompt; it has thus far given me no undesirable after effects; it not only relieves the pain, but reduces the fever with an equal certainty. In cases of evident rheumatic diathesis I should certainly employ, in addition thereto, my customary remedies.

103 State Street.

THE STATISTIC EVIDENCES OF THE VALUE OF VACCINATION TO THE HUMAN RACE, PAST, PRESENT AND FUTURE.

Read before the American Medical Association at the Jenner Centennial Celebration, held at Atlanta, Ga., May, 1896.

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(*Concluded from page 958.*)

HUTCHINSON'S CASES.[47]

First Series.—Patients first seen seven weeks after vaccination. Vaccinifer four months old, healthy looking, vesicle eighth day lymph. To the vaccinator and the surgeon, she at the time the lymph was taken, bore the aspect of excellent health. All of the vesicles from which lymph was taken bled. Two months afterward Mr. Hutchinson saw vaccinifer. "My attention was, however, at once attracted to a slight peculiarity in the tint of her skin and to the look of her face; and although it was strongly denied that she had ever 'snuffled,' yet when she was made to cry I noticed a nasal twang which was very suspicious. On having her stripped, not a single spot of rash could be seen on her skin, but on inspecting the buttocks five small circular condylomata were discovered close to the anus, about which there could not be the slightest doubt. Mother detected condylomata about a week previously, but declared infant had never been ill. I could not find in the mother herself any indications of syphilitic taint, nor obtain any history of suspicious symptoms. Did not have opportunity to inspect father. A fortnight later, sought child at its home. The child then looked more ill than when first seen; the condylomata were in the same condition. It had no rash. Its head was enlarging, and its mother complained that it was wasting away. About the existence of constitutional syphilis in the infant at the date of my examination (two months after vaccination) there could not be any doubt, and scarcely any as to the taint

[47] Quoted from Illustrations of Clinical Surgery. By Jonathan Hutchinson, F. R. C. S., 1877.

having been an inherited one. There can, I think, be little doubt that in this instance it was the blood, and not the vaccin lymph, which was the source of the contamination.

Second Series.—Patients seen about seven weeks after vaccination. History of vaccinifer: Child stout, well-grown, seven months old; selected as vaccinifer from amongst several others, as being most healthy present. Excepting a little transitory "tooth-rash," probably lichen, on the face he had no eruption. His head was decidedly large and the fontanelles widely open. Mother said this had been noticed for a few weeks. Mother said "he had snuffled a great deal." No trace of rash on child's skin, but at anus there was a single small condylomatous patch just healing. Saw infant several times during six weeks after this first examination, but no symptoms of a more definite character showed themselves. The condyloma soon healed and with the exception of a slight tendency to hydrocephalus, the infant, at time I last saw it, might have been regarded as a specimen of excellent health. Several persons vaccinated from it mentioned it was very healthy looking at time lymph was taken. No trustworthy evidence could be obtained as to whether blood was or was not transferred in the operation of vaccination. No syphilitic symptoms found in either parent. Father denied ever having had venereal disease, and submitted to personal examination at my office, and we failed to detect anything of a nature to cast suspicion on his denial.

Third Series.—Patient seen three months after vaccination. History of vaccinifer: Vaccinator says vaccinifer was a model of vigor and health. He presented child to me. I found a very large and very fat baby, eight months old. It had no rash, nor any trace of condyloma, and the only point about it suggestive of syphilis was the state of the bridge of the nose, which was decidedly broad and sunken. Mother appeared in good health; says the first two children died in infancy. This is only child living.

Fourth Series.—(One case.) Patient first seen fifteen months after vaccination. History of vaccinifer: Patient says vaccinifer puny at time of vaccination, and the mother ill. Does not know if vaccinifer's arm bled or not. Vaccinator denied that child looked puny at time of vaccination. Patient was probably last but one out of a considerable batch vaccinated from child. Mother of vaccinifer had borne three children previously. The eldest is a boy 10 years old; has no symptoms of syphilis. Second child stillborn. Third child a girl 4 years of age, who had no special symptoms in infancy excepting that for several months during teething she had very troublesome ulcers at the anus (condylomata); also had tendency to water on the head. Vaccinifer (fourth child) was four months old at date of vaccination, and appeared, according to the mother's statements, to be perfectly well. Subsequently, however, when dentition commenced he, like his elder sister, had very troublesome sores about the anus and a tendency to water on the head. For the anus he was three months under treatment at a dispensary. At twenty-three months of age patient is living, full-grown, and shows no peculiarities excepting a large forehead. Surgeon who treated child for trouble of anus says vaccinifer had syphilitic condylomata, snuffles, a slight skin-rash, and was very cachectic when he treated him. He did not ask the parents any direct questions because he was perfectly certain as to the nature of the ailment.

Fifth Series (two cases).—Patients first seen seven months after vaccination. Surgeon which did the vaccination could give no important facts. (History of vaccinifer entirely unknown to Mr. Hutchinson.)

Sixth Series.—No history of vaccinifer could be given, as lady had been vaccinated in India.

In contrast to these cases of alleged transmission of syphilis by vaccination, the following, a few of quite a number of cases, are cited, in which physicians of the highest professional standing took as vaccinifers persons known to be syphilitic at the time, and from them vaccinated a number of persons known not to be syphilitic, and failed to develop the slightest manifestation of syphilis in any one of the persons so vaccinated:

Name of Experimenter.	Number Vaccinated.	Number Infected with Syphilis.	Number not Infected with Syphilis.
Bidard	6		6
Mountain	30		30
Sehreirer	2		2
Jonkoffsky	57		57
Delzenne	9		9
Bourguel	55		55
Guerin	55		55
Total	214		214

To these must be added the numerous experiments of Boeck, Cullerier, Taupin and Heyman. Boeck experimented on a large number of cases, and he took great care to mix the blood of the vaccinifer with the vaccin lymph. Here we have a record of three hundred or more direct efforts to produce vaccinal syphilis and every such effort was unsuccessful. It must be admitted that these experiments are a thousand-fold more valuable than the details of cases of alleged vaccinal syphilis, for they were conducted under intelligent supervision, and in accordance with conditions which were carefully observed. From these experiments the experimenters could and did know that the vaccinifers were syphilitic; that the lymph of a genuine vaccin vesicle was used, and if or not it was admixed with syphilitic blood or other inoculable matter. It should be remembered, in comparing these data, that the reports of cases of alleged vaccinal syphilis were wanting in every one of these essential points of observation; they were entirely accidental and were not expected to occur. Dr. Viennois of Lyons made an exhaustive investigation of vaccinal syphilis, and as result of his labors said: "There is no infectious quality in the vaccin matter itself, and if we employ the vaccinal fluid only in inoculating a healthy child, the operation will be safe. If the vaccin matter taken from a syphilitic subject is without any admixture of blood the result will be a vaccinal pustule only, without any syphilitic complications, either immediate or future." This, gentlemen, is the teaching of the profession of medicine in all countries at the present day. That some few persons have been infected with syphilis by persons attempting to vaccinate them, no one is ready to deny: but when such results followed, they were probably inoculations with syphilitic blood or virus, not vaccin virus. No physician, except for experiment, should ever vaccinate any person to serve as a vaccinifer, unless such person be in undoubtedly good health and known to be free from scrofula, consumption or syphilis. This proposition is reasonable, for it is wrong to risk unnecessarily anyone's health.

Call the attention of vaccinophobists to the fact that vaccinal syphilis has been so rarely pointed out, and they will say the profession is a body of blind worshippers over the grave of Jenner, and has never tried to ascertain the truth of the matter. Let us see if this be true. In 1856, fifty-eight years after vaccination had been generally practiced, the Board of Health of London issued a circular letter addressed to the various governments, asking information in relation to vaccination and its results. This board propounded the following searching question, among others: "Third. Have you any reason to believe, or suspect, that lymph from a true Jennerian vesicle has ever been a vehicle of syphilitic, scrofulous or other constitutional infection to the vaccinated person, or that unintentional inoculation with some other disease, instead of the proposed vaccination, has occurred in the hands of a duly educated medical practitioner?"

The Imperial Society of Surgeons at Vienna, Austria, replied: "Although it may be maintained that the blood of individuals affected with secondary syphilis can serve as a vehicle for this specific contagion, even this theory (if it could be proved) would not exercise any influence on the practice of vaccination; for both experiments made on purpose (Heim) and accidental vaccinations have taught that without considering the quality of the vaccin lymph, that taken from syphilitic subjects may have been used upon healthy persons and the contrary, viz., from healthy individuals and used upon persons suffering from syphilis, without, on such occasions, the latter disease having been conveyed with the cowpox. What has been proved in reference to syphilis may be applied equally to all other dyscrasic diseases, since this, even in cases of direct vaccination with their morbid products, has always shown a negative result."

The Faculty of Medicine at Prague replied: "The experience obtained in this country gives no grounds which leads to the belief or presumption that the consequence to a vaccinated person can be such as put forth in this question."

The Imperial General Hospital of Vienna replied in like manner with the Faculty of Medicine at Prague.

The Imperial Lying-in and Foundling Hospital replied: "A true vaccin pustule can not become the vehicle for conveyance of syphilitic or any other contagion."

From Bavaria the following reply was given: "In Bavaria up to the present time, two cases have happened of syphilis being inoculated with vaccinia. That was, however, in each of those cases the fault of the vaccinating physicians themselves; and the accident could in either case easily have been avoided, since syphilis was unmistakably present in the children from whom the lymph was taken. The inoculation of syphilis can at all times be avoided by an observant surgeon who uses due circumspection in choosing the subject from whom he will take lymph for vaccination."

The answer from Denmark was as follows: "The experience which we have acquired in this country does not lead to the supposition that lymph taken from true vaccin can be the means of communicating any scrofulous or constitutional contagion."

The Duchies of Holstein and Lauenburg said: "The experience which has been gained in the Duchies of Holstein and Lauenburg requires an answer to this question unconditionally in the negative."

The same question was propounded to every prominent physician and surgeon in Great Britain, including physicians and surgeons in charge of all the vast hospitals and public charities and vaccin stations, and no one of them failed to answer it in the negative.

Dr. John Simon, Chief Medical Officer of the Privy Council, examined thoroughly and exhaustively all the alleged cases of vaccinal syphilis, and, in his report for 1869, says but fourteen of all these alleged cases were to be attributed to vaccination, and every one of these fourteen cases were, he says, the result of malpractice on the part of the vaccinator. "If," says Simon, "our ordinary current vaccination propogates syphilis, where is the syphilis it propagates? Who sees it? The experience of this department is an entire blank upon the subject. For the last ten years we have been in incessant intimate communication with the different parts of England on details of public vaccination, and during these ten years every one of about 3,500 vaccination districts into which England is divided has been visited three or four times by an inspector specially charged with the duty of minutely investigating the local practice of vaccination; yet, from this systematic and extremely detailed search for all that has to be said upon the subject of vaccination in England, no inspector has ever reported any local accusation or suspicion that a vaccinator had communicated syphilis."

Hutchinson's cases have since been reported.

In North Germany, so late as 1873, the testimony has been given that only two cases of alleged vaccinal syphilis have occurred during twelve millions of vaccinations made there up to that date. Syphilographers—those men who are most highly accomplished in the study of the causes and sources of syphilis—have almost unanimously declared that the alleged cases of vaccinal syphilis were but inoculations with syphilitic products, and such results will never follow vaccination, even from a syphilitic subject, if lymph from a genuine vaccin vesicle be used Venereal specialists, such as Lancereaux, Cullerier, Ricord, Langston Parker, Acton, Lee, Bumstead, Hammond and Keyes, never, in the whole course of their vast experiences, met with a single instance of vaccinal syphilis. But let it be admitted (in order that there may be some ground for the discussion) that every one of these cases of alleged vaccinal syphilis reported above was consequent upon vaccination duly and intelligently performed, even this would not detract one iota of the value of vaccination—the grandest discovery which has ever yet blessed man in his checkered career upon earth. Vaccination is capable of saving at least one million human lives every year; and if syphilis is actually proven to have occurred one time in a million vaccinations, is not all this fuss about vaccinal syphilis as a rational ground for abandoning vaccination the old story of the mountain in labor bringing forth a mouse?

The following extract from a letter (April, 1870) from Dr. Seaton, throws a flood of light upon this question of vaccinal syphilis:

"I am not aware of any fresh case of alleged introduction of syphilis by vaccination with humanized lymph since I published my book, but curiously enough there has been discussion lately in France on some cases of syphilis in children who had been vaccinated with animal lymph. Of course, the syphilis was a latent syphilis, and the vaccination could have had nothing to do with it, except perhaps to hasten its evolution; but the cases are instructive, and point, in my opinion, to the explanation of all the alleged cases of vaccin syphilitic inoculation with humanized lymph, except those in which there was downright carelessness and mixture of or substitution of viruses."

To show the dangers of contracting syphilis which beset man at every turn in life, the following illustrations are furnished:

But we have recently heard intelligent physicians say that if one case of syphilis is proven to have followed vaccination, then vaccination must be abandoned. Gentlemen, this is serious ground; and if applied with the same rigor to the other branches of our profession the practice of surgery, of gynecology, of obstetrics, and dentistry must be abandoned. And if applied to man in all his surroundings with the same vigor, he must live on air, for syphilis has been frequently caused by the necessary processes of eating food and drinking water. Further than this: if a few cases of syphilis contracted in any manner are to doom all things from which they were contracted to be banished from use by man, then our race must be content with the covering of skin placed upon him as he sprang from the hands of his Maker, for syphilis has been caused repeatedly by infected clothing. Let us take the simple process of cupping, to forcibly illustrate this proposition. It is a well established fact that an epidemic of syphilis was produced at Brun, in Moravia, in 1577, by cuppings done by the bath man of the town. Suizer observed cases of the same nature at Bamberg in 1602; Horst, at Ulm in 1662; Wideman, at Windshelm in 1620—in the latter instance seventy cases of syphilis were caused by the simple process of cupping. Catheterism of the Eustachian tube is a very delicate yet harmless operation, and certainly syphilis is not a necessary consequence of its performance, yet a number of cases of syphilis from this source have been established—as many as thirteen such cases have been reported at one meeting of the Medical Society of Hospitals in France. The operations of circumcision, catheterism of the bladder, uterine examinations, accouchment, removal and transplanting of teeth, the lancing of a furuncle, have caused numbers of cases of syphilis, and if the rule sought to be applied to vaccination be invoked against these operations, then their performance is criminal. Even the forks and spoons and drinking-cups and tumblers have caused large numbers of cases of syphilis; and yet who is ready to abandon the use of these articles because some fellow with a syphilitic mucous patch in his mouth used them, and a careless and filthy butler placed them back on the table without cleaning, and syphilitic infection followed? Again, it has been shown upon as reliable testimony as vaccinal syphilis, that wearing apparel and bedding used by a syphilitic person and afterward used by a careless or filthy son of Adam have caused syphilis; but we think the day is far distant ere this clothes-worshipping and bed-loving people will abandon these comforts because a few cases of syphilis have followed their use. These cases are all due to the same causes, *i. e.*, gross and inexcusable carelessness or filthiness.

That these cases have occurred is beyond question, and have produced ten times as many cases of syphilis as vaccination. The kiss of a lover has caused, by reason of mucous patches on the tongue, more syphilis than every one of the alleged cases of vaccinal syphilis. How often, Mr. President, do we meet with cases where, in consequence of ill health of the mother, or of insufficiency or total absence of flow of milk, a wet nurse is necessary to furnish food for the infant. There is scarcely a month but what the busy practitioner meets with such cases. Now, it is well known that syphilis has been caused in a vast number of infants by infection from syphilitic nurses. And yet because these unfortunate results are found, are we to forego the advantages of wet nursing, and thereby consign such children to the grave by resorting to cows' milk, or other more indigestible nourishment? Should we not display more prudence and judgment in selecting wet nurses? Again, how frequently have wet nurses been infected in nursing syphilitic children.

It must be admitted that in submitting to vaccination man incurs no greater risk of contracting syphilis than he does in submitting to the minor harmless operations in surgery or dentistry, or in the necessary process of eating food and drinking water in hotels, restaurants, railroad trains, hospitals, etc.

If vaccinal syphilis is thought to be liable to be transmitted by humanized vaccin virus, then those fearing this result have in bovine virus a full protection against such an accident. But this remedy will not satisfy antivaccinists, for when Dr. Carpenter made this statement Dr. P. A. Taylor (their leader in England) replied:

"I observe you add that 'tens' out of every 16,000,000 would vanish under calf-vaccination. Of course you are perfectly aware that it is not yet a settled question whether what is called spontaneous cowpox is (contrary to Jenner's opinion) protective against smallpox. Professor Simonds, Principal of the Royal Veterinary College, is (or was in 1879) distinctly of an opposite opinion. Speaking at the London conference on Animal Vaccination, he used these remarkable words: 'If this be so, you must fall back upon one of the old methods, and must inoculate your calf either with human smallpox, or horse-pox. In the former case, you come under the statement of Sir Thomas Watson, that by the use of this lymph 'there must have been a vast amount of mitigated smallpox spread about.' If you fall back upon the horse, you will be liable, I suppose, to such horrible outbreaks as that of glanders, under which thirty-eight children are supposed to have suffered in Italy.' The following is from the *Lyon Médicale* of June 22, 1879: 'On April 26 and 28 the local doctors vaccinated with this lymph (animal lymph) thirty-eight children, all aged less than

twenty months. While they were awaiting the incubation of the vaccin pustules, they soon perceived that they had inoculated one of the most horrible of maladies, and that they were the involuntary authors of a real massacre of the innocents. The gentleman who sent these particulars to the *Gazetta d' Italia* betook himself to San Quirico. He saw the victims. He observed vast phlegmons laying bare the muscles and penetrating into the joints, accompanied by eclamptic symptoms. To him it appeared to be very probably an epidemic of glanders.' But even supposing you are able to inoculate with 'spontaneous cow-pox,' what is to secure against the transmission of bovine disease? I take the following from a letter sent by the guardians of Ashton-under-Lyne to the president of the local government board a few months since:

"On December 13, 1879, Mr. Simon wrote:—'When a given (animal) body is possessed by one of these constitutional diseases (scrofula, syphilis, etc.), no product of that body can be warranted safe not to convey the infection;' and Dr. Creighton, of Cambridge University, gives the history of twelve cases of bovine tuberculosis in human beings, the disease being a more rapid form of consumption than that peculiar to man."[48]

"As the new lymph will be obtained from bovine animals, in whom this tuberculosis is hereditary, and occurs in 4.75 per cent. of any given number of cows, the guardians are anxious to know if the local government board is prepared to take the responsibility of introducing another formidable disease (bovine tuberculosis) to man by means of the system of vaccination. * * *

"Some crazy enthusiasts recommend that lymph be taken direct from the cow. They can not surely have seen those frightful pictures of the disease so produced, which were published by Mr. Ceely, of Aylesbury, some thirty years ago."[49]

After detailing the advantages of animal vaccination, Dr. Warlomont answers the objections to those who affirm that bovine tuberculosis and charbon may be transmitted by means of animal vaccination. It is admitted, in the first place, that tuberculosis may be inoculated. The experiments of Villeium, afterward established by Koch, demonstrate the possibility of transmitting tuberculosis by bacterial infection, the bacteria being also susceptible of cultivation apart from the body.

After detailing carefully the various experiments of Cohnheim and Baumgarten upon monkeys, rabbits and guinea pigs, including those in which tubercular tissue as well as blood taken from freshly killed tuberculous animals, was inoculated into the eyes of rabbits, Dr. Warlomont sums up as follows:

"It is to be inferred from the preceding data that the bacillus of tubercle can transmit tuberculosis either by means of tubercle itself, or by tuberculous blood, or by air exhaled from an infected lung. * * * It would be puerile to overlook the importance of these data in their relations to vaccination, either animal or human. The security henceforth endangered must be no longer established upon theoretic grounds. It must be supported by experimental facts which, fortunately, are not wanting. An extremely important fact is demonstrated by the experience acquired in the inoculation of tubercle, viz., *it is thus far found to be an impossibility to produce tubercular infection by the superficial insertion of bacilli.* In order to reproduce tubercle in an animal, it is necessary *to convey the bacilli into the depth of the tissues.* It is thus explained why no one is ever infected in making autopsies of tubercular subjects, and also *a fortiori* that no one has ever been infected with tuberculosis by the process of vaccination. * * * The absence, therefore, of a single fact establishing the possibility of producing tuberculosis by the superficial insertion of tubercle, as in the usual act of vaccination, assures us of the impossibility of such transmission, when the operation is performed with products having only remote relations to it."

The developments of modern pathology clearly prove that Warlomont was in error when he said: "An extremely important fact is demonstrated by the experience acquired in the inoculation of tubercle, viz., it is thus far found to be an impossibility to produce tubercular infection by the superficial insertion of bacilli. In order to reproduce tubercle in an animal it is necessary to convey the bacilli into the depth of the tissues." Sternberg, in his magnificent work on bacteriology; Ziegler, general pathology, and Green, in his work on pathology and morbid anatomy, 1895, all tell us that tubercular infection in man can and has been known to result from slight abrasions of the skin. Therefore if matter of any kind containing tubercle bacilli be brought into contact with the skin abraded for vaccinal purposes it is altogether possible for the individual so treated to become infected with tuberculosis. Now, while this is possible, as proven by the most recent researches of pathology, this danger is so infinitesimal as to be practically non-existant. How is this proven. Every modern authority upon pathology insists that when tuberculosis results from bacilli entering the system through a lesion of the body (an abrasion of the skin, for instance) it leaves behind a permanent change at the portal of entrance. In other words, that tuberculosis is at first a local disease, the formation of tubercle at the point of abrasion for vaccination, for instance. Now for the test: Of the hundreds of millions of vaccinations performed from 1796 to this day, no single observer has ever been able to point out so much as one case of tubercular process at the point of vaccination from either humanized or bovine vaccin lymph, crust or scab. The medical literature of the whole world does not furnish a single example of tuberculosis proven to have been in traceable connection with vaccination, humanized or bovine. But suppose tubercular infection did occasionally result from vaccination would that be a rational demand for the medical profession or mankind to eschew vaccination? Apply this rule of avoiding all danger and what results? Surgical operations must cease, for a vast legion of human beings have died from anesthesia. Opium must be thrown away, for in thousands of instances death has resulted from opium narcosis even when the drug was given by the most skillful men of our profession. Not one single instance has ever been recorded wherein vaccin lymph, even in a tuberculous subject, has ever been found to contain tubercle bacilli. Tuberculosis is a specific disease and can not result except by planting the bacilli in the system through a bodily lesion. There are no tubercle bacilli in vaccin lymph, therefore there can be no tuberculosis engendered by vaccination. But tubercle bacilli crowd men down at every turn by infection, ordinarily through respiration. A disease so universally and constantly threatening man as does consumption; it is idle bosh to engage in an idle warfare upon vaccination to prevent consumption, a disease more generally prevalent and fatal in pre-vaccinal times than it is at present. I could fill chapter after chapter with records showing incontrovertibly that consumption was more prevalent in pre-vaccinal times than at present. I give you only one instance. In the table already presented showing the general differential death rate in London per 100,000 living at seven different periods during the 226 years, 1629 to 1854, the mortality from consumption was as follows: From 1629 to 1636, 1,021; 1660-79, 1,255; 1728-57, 905; 1771-80, 1,121, 1808-10, 716; 1831-36, 567; 1840-54, 323.

Here, then, is the proof, and from it there can be no appeal that the consumption death rate in pre-vaccinal times was nearly four times as great as that of 1840-54, fifty years after vaccination was resorted to in London. Furthermore, the table shows that in the face of an increasing vaccination rate the consumptive death rate was not one-half as much in the period, 1840-54, as it was in that of 1801-10. To argue this question further would be an insult to your intelligence.

Erysipelas.—This is another bugbear of vaccination to anti-vaccinationists. No truthful man would pretend to deny that erysipelas is occasionally observed to attack the vaccinal process. But erysipelas is in no sense an integral part of vaccination. It is always and under all circumstances an epiphenomenon. Vaccinia and erysipelas are each specific diseases and differ one from the other as widely as daylight from midnight darkness. They are as essentially different entities as wheat and corn. Neither disease can give rise to the other more than seed corn can produce wheat. Erysipelas in connection with vaccination results from infection of the vaccinal wound with the germ of erysipelas. In other words, the erysipelas is due to the infection of the wound with streptococcus erysipelatis, the wound happened to be that of vaccination. Only this and nothing more. But, really, erysipelas does not occur near so frequently in association with vaccination as it does in association with minor surgical wounds. If all the requisites of modern surgical asepsis were carried out with cases of vaccination erysipelas would rarely, if ever, be encountered. The vaccin wound, vesicle and scabbing is left unbandaged, which is not done with other minor surgical operations, and the wonder is that it is not more frequently encountered. The vaccination wound being left uncovered is constantly an open door for entrance of the poison from an infected atmosphere, infected hands, clothing, etc., of the patient and his attendants. In a recent report of the Royal Health Office of Germany it was shown that out of more than 2,225,000 vaccinations made that year there were eleven deaths from erysipelas. Every intelligent, truthful student of medical history is forced to admit that without exception a similar number of wounds encountered in minor surgery has furnished more deaths from erysipelas than has vaccination. But let it ever be remembered that if there had been ten times that number of cases of erysipelas in connection with vaccination the former was in no

[48] October number of Journal of Anatomy and Physiology.

[49] Current Fallacies about Vaccination, by P. A. Taylor, M. P., London, 1881.

wise an integral part of vaccination. The existence of these cases of erysipelas loudly calls for better care of our vaccinal patients, but is not a tittle of argument against the propriety of vaccination.

Vaccinal syphilis.—Not one case of this disease was observed among these 2,225,000 vaccinations.

Inflammation of lymphatic glands and ducts.—Out of 2,225,000 vaccinations of the year there were four cases of inflammation of the lymphatic glands and ducts. There was no mention of death or permanent injury to health from this cause.

Inflammation of skin surrounding the vesicle.—Among the two and a quarter million of vaccinations made in Germany the same year a number of cases of severe inflammation of the skin in the neighborhood of the vaccin vesicles were observed, but no cases of permanent injury to health, or death resulted. These inflammatory conditions were by the inspectors generally attributed to irritation by the clothing, by scratching and by other mechanic means; for instance, the vaccinees during vaccination continued their arduous labors in the fields and mechanical pursuits.

An examination into all the facts relative to these cases showed that nearly every one of them was in direct traceable connection with faulty methods of vaccination or carelessness on the part of vaccinees or their parents.

REDUCTION OF GENERAL MORTALITY.

"Drs. Greenhow and Farr, under the auspices of the General Board of Health of London, have shown that, with the decline of smallpox consequent on vaccination, the general death rate has greatly diminished from all causes, and that, too, notwithstanding a severe and fatal epidemic of influenza and two epidemics of cholera; and under this diminution it is especially notable that the two classes of disease usually considered the most fatal—namely, scrofulous and low febrile affections—have diminished in a remarkable degree. The general death rate per 1,000 of living population, during the periods of 1846-55, was 25 per cent. less than the decennial period of 1746-55, and 40 per cent. less than the decennial period of 1681-90, showing a successive decline since the remoter period from 421 to 355, and since the more recent period from 355 to 249.

"According to Dr. Farr's statistics, the average annual death rates in London, from all causes and all ages, per 10,000 living, were:

From 1771-1780	500.
" 1801-1810	292.
" 1831-1835 (smallpox prevailed)	320.
" 1840-1854	248.9.

"The average annual death rates in Sweden, from all causes and all ages, per 1,000 living, were:

From 1776 to 1795	268.
" 1821 to 1840	233.
" 1841 to 1850	205.

"In McColloch's Descriptive and Statistical Account of the British Empire, Dr. Farr has shown that fever has progressively subsided since 1771 (at first under the influence of inoculation), 'and that the combined mortality of smallpox, measles and scarlatina is now only half as great as the mortality formerly occasioned by smallpox alone.'

"According to the researches of Dr. Greenhow, previous to the introduction of vaccination, the death rate from scrofulous diseases was five times greater than it is at the present time, and the present death rate of pulmonary consumption, great as it is, is 7 per cent. lower than it was previous to Jenner's discovery."[50]

But let us appeal to vaccinophobists for a preventive of smallpox, and they will say: "We believe in sanitation. Let the people have an abundance of pure air, water and food, and smallpox will not appear." Now, what does the whole science of medicine testify as to the etiology of smallpox? Here it is in a nut-shell: Smallpox spreads at the present time exclusively by means of a specific virus which is begotten in the body of a smallpox patient, and is conveyed directly by exposure of the person to one sick of smallpox, or coming in contact with infected clothing, bedding, etc. How absurd, then, is the claim for sanitation, for you can take an unvaccinated person to the purest air of the country, even upon mountain tops, and put him in contact with the virus of smallpox, and he will contract the disease as readily as if directly exposed to it in the filthiest slums of the filthiest population on earth. The same is true of water and food, whatever their purity. But put your unvaccinated subject into a house where all the decaying garbage of a city, both animal and vegetable, is piled high as the second story window, then pour water all through it, and call upon the heat of the sun to set all this putrefying mass into the most active putrefactive fermentation, and if smallpox virus has been kept away from it, your subject may die of a zymotic fever, but never of smallpox.

Now as to the last part of my subject.

THE FUTURE OF SMALLPOX AND VACCINATION.

This depends wholly upon man's action in the future. With all this incontrovertible testimony before us (and a thousand pages of a similar kind can be presented if need be) it is proven beyond the shadow of a doubt that in vaccination and revaccination duly and efficiently performed, man is capable of exerting absolute mastery over smallpox. The existence of an epidemic of smallpox at the present day, under the known prophylactic powers of vaccination, is a blot upon the civilization of the age in which we live.

A frightful comment upon man's ingratitude to Jenner, and disregard of Jenner's teachings, is that of Gloucester, as published in London *Lancet* and copied in the New York *Medical Record*, May 2, 1896, p. 634. The *Record* says:

"It is extraordinary to note how at Gloucester, a town in which Edward Jenner resided for years, this centenary year of the discovery of vaccination is being kept. First, we find a board of guardians in fair weather, when there was no smallpox about, declaring themselves boastingly to be opposed to vaccination; then, frightened at their own mischievous default, first recommending vaccination to the public by means of circulars, and later, when still more frightened, actually turning right about face on all their former boasts and resolves, and deciding to enforce the compulsory clauses of the vaccination acts. Secondly, we find that their experience—just one hundred years too late—has been most bitterly bought, for, according to last week's papers, out of ninety deaths from smallpox in the hospital (there have been 118 in all the city) seventy-four were of unvaccinated persons. Thirdly, we find that among this community which has so long been misled by the guardians, there have within a few weeks been some 700 cases of smallpox, and that in the absence of any controlling vaccination the disease has seized that part of the town where the sanitary conditions are by no means worst, but where there was an undue proportion of unfortunate children who were unvaccinated. Fourthly, we find some thousands of pounds being spent in attempts to check smallpox by hospitals, quarantining and disinfection, but all in vain, for the disease goes on multiplying just the same; indeed, there were no less than 172 fresh cases last week. And, fifthly, we find that even some of those most responsible for the terrible loss of life among the unvaccinated are hurrying to get protection by vaccination for themselves. We leave those who have been so grievously injured by disease, maiming and death, to apportion the blame. Here we only note with regret and shame that any British city, and above all Gloucester, should be in the state in which that city finds itself in the centenary year of Edward Jenner."

The New York *Medical Record*, April 25, through its London correspondent, shows that only one revaccinated person has been admitted into the hospital. She had undergone smallpox inoculation fourteen years previously and now contracted smallpox while nursing patients ill of the disease.

Last week's medical journals state that the smallpox epidemic in Gloucester continues to reap its fearful harvest of unnecessary sickness and death from this, when uncontrolled by vaccination, king of fatal diseases.

What a confirmation of the truth of the old adage, "Whom the gods would destroy they first make mad."

I give you two cases in contrast with Gloucester.

Take London, ten or twenty times more populous than Gloucester. During the year 1895 there were but fifty-five deaths from smallpox in London.

Take the German army. In a report recently made to the Reichstag concerning the decline of disease in the German army, it was shown that from 1873 to 1896 (twenty-three years) there had been but two deaths from smallpox in the thoroughly revaccinated army of the empire. These facts carry their own comment.

In this day when we hear so much of degenerated health from vaccinaton, and not infrequently death; when we hear so much of degenerated lymph, let us remember that the main trouble lies in degenerated practice relating to vaccination.

Let every physician arouse from the slumber of neglect of this important measure, cease to regard it as one of the lost arts, realize that it is a living, moving reality, which when rightly practiced and extended shall carry health, long life and happiness in its train. Let him pledge himself here and now to enter with renewed zeal upon the high duty of enlightening the public so grievously ignorant of or indifferent to the prophylactic power of vaccination. Let him who is unacquainted

[50] Transactions American Medical Association, 1865, p. 269.

with the appearance and phenomena of the typical vaccin disease lose no time in its study; and then from the unpretentious husbandman who, in raising wheat and other grain, selects the finest specimens as seed from which to gather from a fruitful soil an abundant harvest, learn to select the most typical vaccin vesicles from the most healthful subjects and in good ground sow the seeds of cowpox—a disease which if universally inoculated, and repeated at necessary intervals, would banish from the face of the earth one of the most loathsome and fatal diseases known to man.

On this Centennial celebration of the discovery of vaccination I close this paper with the following quotation from John Simon of Great Britain, for many years the honored medical officer of the local government Board of that nation.

"It can be no common certainty which commands so general an assent. It can have been neither a truthless nor a barren doctrine, which, within sixty years from its rise, has all but universally satisfied private judgment, and has converted nations to its grateful followers.

"No truth can be thought of, against which some one does not rail, and it would be idle to hope, under existing conditions of the human mind, that vaccination should be much more generally credited than it is.

"Perhaps in no age of the world have persons, in proportion to their instruction, been readier than now to accept physical marvels, and to modify their conceptions of natural laws, at the biddings of quacks and conjurers. It goes with this credulity to be incredulous of proved truth. Alike in respecting what is known, and believing what is preposterous, the rights of private foolishness asserts themselves. It is but the same impotence of judgment, which shrinks from embracing what is real, and lavishes itself upon clouds of fiction.

"To some extent, therefore, it may be felt a weary and unprofitable work to have spent time and labor in reasserting proofs which, fifty years ago, were exhaustive of the subject."

"They have enabled you to estimate the full measure of gratitude which is due to the discoverer of vaccination. They have set before you, as experience, what it must have seemed mere enthusiasm to foretell. You will read it in the skilled evidence of individuals, who, solely with the resources of Jenner's antidote, are maintaining day by day against the most dreadful of infections the victory which he commenced. You will read it in the colossal statistics of nations, which till sixty (now ninety-six) years ago were decimated by that one messenger of death.

"If utility to human life be any test of what is noble in labor, if our teachers of inductive philosophy have rightly advised us, *non tantum et ordini, verum etiam usui et commodis hominum consulere*—then assuredly the discovery, of which those things are told, may rank with any achievement of man.

"'Let men rejoice that there has shone so great a splendor from amid their race,' is the bidding which at Newton's tomb reminds us of immortal debts to the greatest interpreter of nature, and claims kindred for us with the power of his intellect, passionless and 'almost divine.' If corresponding honor be due to the most beneficent application of science, if our mortal state owes love to those who lessen its weakness and misery, surely here has been a second student of nature, who, also matchless in his career, might have claimed to lie beside that monarch of the intellect in his last repose, and to share the inadequate homage of that grateful epitaph.

"For, though a different, it is an equal praise, which the members of Jenner's profession vindicate for his honored name. He, too, could interpret nature, but above all, he could render her teaching fruitful. To arm mankind against the worst of pestilences, to widen by one discovery the horizon of human life, to banish a cruel terror from every mother's heart—such was Jenner's aspiration in his study of nature, such has been the fruit of his philosophy."

SOCIETY PROCEEDINGS.

Chicago Academy of Medicine.

The regular meeting of the Academy was held Oct. 15, 1896.

(*Concluded from page 960.*)

MENTAL ASPECTS OF INFANTILE PARALYSIS.

Dr. H. B. C. ALEXANDER—The mental symptoms arising in connection with infantile paralysis vary in type with the constitutional disturbance accompanying the paralysis. The most frequent permanent disorders occur in the cerebral paralyses where conditions of more or less grave imbecility are found accompanied very often with epilepsy. German and American statistics show that this occurs in at least 35 per cent. of diplegiacs, and 60 per cent. of paraplegiacs, while but 13 per cent. of hemiplegiacs are mentally affected. In many instances this mental disorder coexists with a gibbous sclerosis which seems to be the underlying lesion of the mental defect. In cases where epilepsy exists the usual epileptic psychoses occur. The mental state may vary in these chronic cases from slight stupor to grave mental deterioration. In many instances the mental defect appears only in moral expression. Not a few of these children are incapable of learning the ordinary relations of *meum* and *tuum*. The epileptic mental disorders are notoriously aggravated by bromids. Under these, motor phenomena disappear to give way to disagreeable mental and moral manifestations. The influence of the gradual progressing mental disorder is excellently illustrated by a case which came under my observation. The patient came from a neurotic family and suffered from suppurative otitis media secondary to scarlatina; this resulted in complete facial paralysis of the right side. During infancy and childhood there were frequent attacks of melancholia with decided suicidal tendencies. At 17 she cut her throat in an attempt at suicide and was admitted to the Insane Hospital. She was much depressed, very suicidal, in constant terror and trying to escape from the ward every time a door was opened. When she first came under my care in 1885, some years after her admission to the hospital, she seemed partially demented, with little intelligence or memory, very untidy in habits. Physically she was well nourished and healthy. There were at that time no marked suicidal tendencies, but the habit of struggling to escape from the ward each time the door was opened still remained and made her a most troublesome patient. There were never signs of disappointment at a failure. The effort seemed an uncontrollable impulse, the result of an old mental habit. September, 1884, she pulled down from the top a dining-room window, climbed over the lower sash, before she could be stopped, and fell from the third story. The shock was considerable, but she did not lose consciousness. A comminuted fracture of the shaft of the left femur was discovered, and the limb was soon placed in a fracture box and a Buck's extension applied. Very little stimulant was given. After the first twelve hours the temperature gradually rose to 101. She was very quiet, seemed dazed and frightened for several days. The temperature gradually fell to normal and six days after the accident marked mental improvement was noticed. She was bright and cheerful, talked of her past life, inquired for her friends, showed a good memory for past events, and was quite tidy in her habits. The bone united quickly, and in two months the patient was able to walk about and apparently quite restored mentally; was allowed to go home, but was very soon returned to the hospital in a condition similar to that before the accident and has remained so since. In this case the mental depression probably masked the dementia existing from the first and with the subsidence of the emotional state the dementia became more apparent and progressed with a gradually developing cortical change. The acute disorders occurring in connection with the infantile paralysis may vary from simple melancholia, which is quite frequent but temporary in duration, to acute mania, much more rarely acute confusional insanity, which is quite frequent but often called coma. Imperative conceptions often occur in these cases and are stimulated by injudicious humoring into positive delusions.

FORENSIC ASPECT OF INFANTILE PARALYSIS.

Dr. HAROLD N. MOYER—There is comparatively little to be said on this subject. The forensic aspects are only those that pertain to obstetrics. It is possible that a suit for malpractice might have its origin in infantile paralysis which developed subsequent to birth. There are none such recorded, so far as I know, and it would seem to be difficult to fix any degree of responsibility on a physician for a condition, so obviously dependent upon diseased states, and not upon negligence of the practitioner.

As regards infantile paralysis which develops prior to, or after birth, the question is different. The necessary manipulations during delivery of the child, instrumental or otherwise, may be very easily brought forth as a cause of the paralysis which follows, whether they have a bearing on it or not. As Dr. Paddock has said, obstetric manipulations may cause paralytic phenomena. The question of the law would be as to whether due care and diligence had been exercised in carrying out such manipulations. There is, however, a practical and important point relating to the jurisprudence of such cases. In all ordinary surgical operations that are performed on adults an action must lie within two years from the time the negligence is said to have taken place, otherwise it lapses by the statute of limitation, and no action can be had. If the paralysis has occurred in infancy, a suit may be brought in the case of a male child at a period as late as 23 years, that is, two years

after majority, and in the case of a female chile, it would be 20 years. There are quite a number of cases on record in which physicians have had such suits brought against them. I recall one case in which a suit was brought against a physician more than 22 years after he had attended a case of confinement, whether the paralysis was congenital or due to obstetric manipulations, I do not know. There was paralysis of the arm, which persisted throughout life. The man who brought the suit against the physician recovered judgment for not less than five thousand dollars; but on an appeal to a higher court the case was reversed, and whether it was subsequently settled out of court I do not know. These cases are important from the fact that actions may be brought long after the witnesses are dead or the facts forgotten by the physician. In the forensic aspect of infantile paralyses these cases are not wholly devoid of interest.

THERAPEUTIC RELATIONS OF THE PALSIES OF INFANCY.

Dr. SANGER BROWN—In a general consideration of this subject, I will first speak of those palsies due to a lesion of the peripheral neuron; then of those due to a lesion of the central neuron, and lastly of those due to a lesion of both neurons. It may not be out of place to state that by the central neuron I mean the nerve cell or unit whose body is in the cerebrum and whose axis cylinder process passes downward to end in an arborization or brush surmounting the body of a peripheral neuron, either in the medulla oblongata or in the anterior horn of the spinal cord. By the peripheral neuron I mean the nerve cell or unit, the body of which lies in any of the nuclei in the medulla oblongata or the anterior horn of the spinal cord and passes thence by the several nerve trunks to the various muscles. So far I have only spoken of the motor neuron, both for the sake of clearness and because the relations of the sensory neurons are not so well understood, nor are they so intimately concerned with our subject. The advantage of discussing the question according to this natural division appears when it is stated that the symptoms due to lesion of the central neuron are very different from those due to lesion of the peripheral neuron: that is to say, generally in the former case there is exaltation of the reflexes or a spastic condition without atrophy, and in the latter diminution or loss of the reflexes with atrophy. And further, no matter upon what part of the respective neurons the lesion may act, the relation of the several symptoms to each other holds as above stated.

Therapeutic measures should be directed. in the first place, as far as possible, to the lesion producing the paralysis, and, secondly, to the restoration of the injured neuron upon which the paralysis depends. Incidentally the nutrition of the paralyzed parts should receive prompt and careful attention in anticipation of the partial or complete ultimate recovery of the neurons concerned, and, finally, any tendency to deformity should be met without delay by suitable surgical and orthopedic devices.

I will now proceed to mention some of the peripheral palsies commonly met with in early infancy and childhood, commencing with the

Obstetric palsies.—During the process of delivery the fingers of the accoucheur may be so firmly pressed into the axilla of the infant as to injure one or more of the nerve trunks of the brachial plexus, thus causing a corresponding paralysis of the arm. In a similar manner the trunk of the facial may be injured by the blade of delivery forceps. In a case of this kind no active treatment could be employed for two or three weeks at least, and in the meantime the paralyzed parts may be bathed as the other parts are, care being exercised in handling the ailing arm, which may be kept wrapped in absorbent cotton. After two or three weeks, light massage and gentle movements are indicated. Prior to the fifth week, young children's muscles do not respond to any but very strong electric currents and so this agent can not be used here. No medication is required and the prognosis is good.

Facial palsy.—In the child, as in the adult, the seventh nerve may suffer from extension of disease from the middle ear or brain, but I need here only mention that from which, in children at least, almost always results from exposure to a draft and develope very rapidly the so-called rheumatic neuritis. Such cases usually recover in from two to twelve months, whether treated or not. It is difficult to demonstrate the utility of blisters, cups or leeches, applied over the mastoid process, though the practice is pretty firmly established and usually does no harm. Many patients demand electricity in some form, and both practical and theoretic considerations warrant its use, though in my opinion its direct value is not great. About ten days after the onset the patient may sit upon a flat electrode, four to six inches square, while a small electrode is moved slowly from the mastoid process along over the main divisions of the nerve, using a current of from four to seven milliamperes. The applications should be made three times a week and last ten minutes. Either pole may be used, but slow interruptions should be made.

Multiple neuritis.—A distinction ought to be made between an inflammatory process acting upon the nervous elements of the trunk of a mixed nerve and a toxic or toxemic process acting upon the bodies or nuclei of these elements. In the former case there is always tenderness of the nerve trunk at the seat of inflammation, and motor and sensory disturbance limited to the distribution of the respective nerve or nerves. In the latter case there will be no increased tenderness of nerve trunks; there will often be observed considerable motor paralysis with little or no disturbance of sensation, and when sensory symptoms are present they are not limited to the distribution of particular nerves. Though actual multiple neuritis sometimes occurs in children, if the peripheral palsies are classified in accordance with the foregoing considerations it will be found to be quite rare, while the non-inflammatory degenerative forms due to the influence of a poison acting upon the body or nucleus of the peripheral neuron are very frequent. The symptoms of multiple neuritis are usually active and more or less progressive for from four to eight weeks, after which they slowly decline. During the advance of the disease pain is a very prominent symptom, and to relieve this, maintain the strength of the patient, neutralize or eliminate any causative influence, and if possible diminish the inflammatory process, are the main objects of therapy. Where such causes as lead, malaria or alcohol are suspected, the appropriate treatment is obvious. For the relief of pain heat is often of service and if hot water is employed caution is necessary to prevent the formation of blisters, for it often happens that the sensation is so much reduced that the patient can not be depended upon to make the usual protest. On account of the impaired nervous force ulcers form easily and heal badly. In many cases it answers well to swathe the limbs liberally in absorbent cotton, confined with a loose bandage. Opiates should be used sparingly, that is, not regularly, for otherwise the pain remaining urgent so many weeks, too free use of this drug may have the effect of intensifying the symptoms; when, however, pain prevents sleep, morphia sulphate or codeia phosphate, hypodermically, will be found the best hypnotic. After the first few weeks, when the pain has somewhat subsided and paralysis and atrophy are easily seen, daily applications of galvanism, from 5 to 15 milliamperes, should be made, and as soon as it can be borne, light massage and passive movements may be commenced. It may happen that orthopedic apparatus or even tenotomy may have to be employed to prevent or overcome contractures.

Parenchymatous degenerations.—Of the parenchymatous degenerations of the peripheral neuron, due probably to the action of a toxic or toxemic influence on the nucleus, lead palsy and diphtheritic palsy may be taken as types. After proper measures have been directed against the cause, paralysis and atrophy may be treated as a multiple neuritis, but a more speedy recovery and satisfactory recovery may be expected. If it is a fact, as many authorities assert, that in diphtheria the knee jerks are always lost, and that this loss is due to the action of the specific toxin on the nucleus of the peripheral motor neuron, then in every case of diphtheria, strictly speaking, there is diphtheritic paralysis; that is to say, the nutrition and function of the peripheral motor neuron is impaired, and it is only a question of degree between the cases in which muscular weakness is or is not very apparent. According to what I have just said, if the claims made for the influence of antitoxin are correct, this substance must act specifically against the development of diphtheritic paralysis. I do not recall any published clinic observations on this point.

Acute anterior poliomyelitis.—This disease is essentially an acute exudative inflammation, affecting chiefly the anterior horns of the spinal cord in the lumbar and cervical enlargements, hence the paralysis is due to injury or destruction of the peripheral motor neurons whose nutritive centers are there situated. The therapeutic indications are, in the first place, to limit as far as possible the inflammatory process, and thus spare the neuron, and, secondly, as in all the other palsies due to a lesion affecting the peripheral neuron, to restore such of these elements as have not been destroyed and maintain by artificial means the nutrition of the muscles over which the diseased neuron is in the meantime unable properly to preside. Though the symptoms usually develop rapidly—often in a few hours—it is fair to assume that just in proportion as the inflammatory process is checked will the number of neurons which will ultimately recover escape. During this stage the patient, in order to promote the circulation in the cord, should rest either on the side or abdomen, and have hot and cold applications alternately made to the spine; an ice bag over the

seat of inflammation for half an hour, then a hot water bag for half an hour, and then neither for an hour, and so on; and, indeed, I consider it rational to continue this kind of treatment for from a week to ten days after the inflammatory process has probably reached its height. At the outset it is well to give one-tenth gr. of calomel every hour till the bowels and kidneys respond, and this may be repeated after three or four days if there are no contraindications. During this stage the diet should be light, and fever if possible should be treated by palliative remedies. For convulsions full doses of chloral per rectum are recommended. After the inflammation has subsided, potassium iodid in doses that will not disturb the digestion may be given for two or three months in the hope that it may promote absorption of the exudate. The second indication of treatment is met by the application of electricity, bathing, massage and orthopedics, as already indicated; but here permanent paralysis and atrophy are more likely to remain than in any of the palsies heretofore spoken of. Under judicious treatment, however, improvement may continue two or three years after the symptoms have reached their climax, and this fact warrants a corresponding persistence in the treatment. The explanation commonly advanced for this prolonged period of improvement is that each muscle is supplied by neurons which are distributed in the anterior horn transversely for an inch or more, and some of them therefore escape complete destruction and require from two to three years to reach their limit of recovery and development.

Paralysis due to lesion of the central neuron; infantile cerebral palsy; spastic hemiplegia, diplegia and paraplegia.—These palsies are associated with spasm without actual atrophy. The causative brain lesion may occur *in utero*, or as a result of prolonged difficult labor, or from various causes after birth. The causes which operate after birth are often obscure, and authorities differ much in regard to them. There is a general agreement, however, that the lesion is nearly always cortical, while in the adult it is in the majority of cases in the interior part of the brain. In the child convulsions and coma are usually prominent symptoms of the onset and though treatment during this period is of great importance, time does not permit me to discuss it, nor will I attempt to discuss the epileptic convulsions and mental defects which commonly accompany the infantile cerebral palsies; excepting that these children often have a deficient circulation, which is assisted by frictions and passive movements of the limbs. After the brain lesion has become stationary, such measures as have been recommended in the palsies due to lesion of the peripheral neuron are of little or no avail in effecting an improvement, and, indeed, often aggravate the symptoms by eliminating the pathologically excited peripheral neuron to increased activity. Surgery has of late shown brilliant results in relieving the spasm and contractures which are often such a distressing accompaniment of these palsies. I have already taken up too much time and can not consider many important palsies of childhood which yet remain, particularly, for example, those due to a lesion of both the peripheral and central neuron, as transverse myelitis; but I shall feel very well satisfied if I have succeeded in drawing attention to the essential physiologic difference between the functions of the peripheral and central neuron and the corresponding variations in the symptoms due to a lesion of each with the general principles of rational and appropriate treatment.

SURGICAL AND ORTHOPEDIC ASPECT OF INFANTILE PARALYSIS.

Dr. F. S. COOLIDGE—In discussing this subject, I shall speak from the standpoint of personal experience. The cases of this nature coming to the orthopedist are divided into two groups: 1, the cerebral paralysees, of which hemiplegia and spastic paraplegia form the major part; 2, the spinal paralyses, which, if we throw out the paralyses of Pott's disease, consist mainly of anterior poliomyelitis. I shall only have time to speak of the main forms of infantile paralyses. There is a great difference between the two groups. In the paralyses of cerebral origin the affected muscles become the seat of spastic concractions. Any slight irritation causes an involuntary contraction. Any effort to use even one of these muscles causes a contraction of them all. These incessant contractions result in shortening the bellies of the muscles and stretching the tendons. On the whole, the muscles are shortened and contraction-deformities finally occur. In the cases of anterior poliomyelitis the affected muscles are paralyzed, become limp and loose, the "sleeping paralysis" of the Germans. Flexions and deformities occur because the healthy muscles, pulling the member over to their side by their normal tenacity, meet with no opposition and become structurally shortened.

In the cerebral spastic paralyses, contraction of the affected muscles causes deformity. In anterior poliomyelitis contraction of the healthy muscles causes deformity.

The mechanical treatment of the spastic cases is rather unsatisfactory. There is always present some mental impairment, varying from a slight amount to complete idiocy. Furthermore, the difficulty is generally not the lack of power, for it is usually a paresis rather than a paralysis, but in the involuntary spasm of all the affected muscles. This in the severer cases renders a single act, as of placing one foot in front of the other, impossible, and causes a stiffening and extension of the entire legs with every muscular effort. To add the weight of a brace to legs already uncontrollable is, of course, absurd.

Until recently little of advantage was accomplished by surgery. A few years ago, however, it was found that cutting the tendo Achillis caused a wide separation of the cut ends, and that when the gap was closed the spastic condition of the calf muscles entirely disappeared. The strength of the muscles was possibly diminished somewhat, but they were placed under the control of the brain. I have never seen any plausible explanation of this remarkable fact, but have proved it in many cases. In none has the spastic condition returned. That the same is true of all the other muscles I have no doubt, except that the spastic condition does return in them occasionally. If we could cut all the tendons of the legs in a spastic paraplegia the spastic condition would disappear and the limbs would become controllable. Many of the tendons can be cut, and following the lead of Dr. Bradford, I have repeatedly cut the tendons of the adductors at the pubis, the internal and external hamstring groups and the tendo Achillis in both legs. This, together with massage and passive motion and teaching the child its newly found power of coördinate movement, has done a great deal, and has placed upon their feet children who had hitherto been helpless. Unquestionably the spastic condition in some cases returns in the course of years, but this may be partly due to the fact that not all the muscles can be reached. Noticing also that the spasm exists in the anterior thigh muscles, from the fact that frequently the patellæ are drawn up quite an inch, and that the belly of the quadriceps extensor is markedly high up, making what might be called a "ligamentum patellæ superius." I recently elongated this tendon an inch by cutting down, lengthening and suturing it, in addition to cutting all the other tendons above named. As this is, as far as I know, an original operation, I am watching the result with great interest. There is certainly decidedly less spasm in that leg than in its fellow, which I treated similarly, except for the elongation of the large extensor tendon. The child, who is 7 years old and never even stood alone, can now place one foot in front of the other quite definitely and walks with a hand supporting him.

The orthopedic treatment of the second group, anterior poliomyelitis, is of great importance. Early in the disease the limbs should be massaged and given passive motion, and if the paralysis remains complete for some time light suitable dressings should be used, holding the limbs in the normal position to prevent the formation of contraction-deformities. This simple rule is sadly neglected. In those groups of muscles in which there is slight power remaining, exercise and training can yield considerable strength. Those groups of muscles in which the paralysis remains complete after a few months never regain any power.

As soon as the line of demarkation is drawn between the totally paralyzed muscles and those which can be improved, it becomes necessary to apply some form of apparatus which will give the best possible use to the limb. But it is a hard task to perform, for in such limbs the circulation is extremely poor, the skin bruises easily and sores form easily. To fulfill all the indications, and yet guard against sores and discomfort, calls for long, patient, skillful effort.

With reference to the surgical treatment of this group, existing deformities should be corrected by tenotomies or forcible stretching before any brace can be applied. I had intended speaking of transplantation of tendons, suturing tendons of healthy muscles to the tendons of paralyzed muscles, thus making the healthy ones do the work of both; and also of stiffening the joints by partial resection, so as to yield a stiff bony support rather than a useless flail-jointed leg; but will leave this for Dr. Beck to discuss.

CEREBRO-SURGICAL RELATIONS IN INFANTILE PARALYSIS.

Dr. A. E. HALSTEAD—In the consideration of the treatment of infantile cerebral paralysis, by operative measures on the brain, it is essential, first, to briefly review the etiology and pathologic anatomy of these conditions.

Etiologically we have three groups: *First*, those in which the conception of this condition precedes birth. In this group we have as the most frequent causes:

a. An arrest of development of a part or a whole of the brain. This arrest may be due to heredity, congenital syphilis

or to any other condition that interferes with the circulation of the blood of the brain during early fetal life. An examination of the brain of these cases shows an absence or a partial development of one or more convolutions or at times of a whole hemisphere. In such cases we have idiocy associated with paralysis of one or more of the extremities, depending upon the location and extent of the brain lesion.

b. Intrauterine infections give rise to circumscribed or diffuse meningo-encephalitis, this in turn being followed by the formation of new connective tissues and later by atrophy and degeneration of the brain tissue. Frequently we have thrombosis of the cerebral vessels as a result of this infection, which later gives rise to circumscribed softenings and to the formation of cysts.

c. Trauma to the mother during pregnancy is infrequently the cause of congenital cerebral paralysis. Two of such cases are on record; First that of Gibbs, in which the mother received a blow on the abdomen at the sixth month of pregnancy. The child was born at full term with a right hemiplegia and died at the end of a month. Autopsy showed a subdural clot covering the motor area on the left side. The second was Cotard's case, which was similar to the preceding, excepting that the child was stillborn and had contractures and atrophy of the extremities on the left side. Autopsy showed clot over the right hemisphere.

In the *second* group we have those paralyses which result from injuries received during birth. The most frequent result of this injury is a meningeal hemorrhage. Occasionally the hemorrhage is into the substance of the brain. In a few cases a depressed skull fracture is followed by brain symptoms. Chronic meningeo-encephalitis with sclerosis, atrophy and the formation of cysts are the constant results of these meningeal hemorrhages.

In group *three*, those in which the paralyses develop after birth, we have as the cause, first, intracranial infections occurring during the course of the acute infectious diseases of childhood, such as measles, scarlet fever, whoopingcough, etc.

The pathologic conditions found in the brain in these cases are the same as those found in the cases where the infection has occurred during intrauterine life, viz., sclerosis, atrophy and adhesions between meninges and brain, and skull and meninges.

We also have in this group as the cause of paralysis, trauma received during the early years of life. This may be either a depressed fracture or a hemorrhage. The pathologic conditions following are the same as those that follow similar lesions that occur in adult life, excepting an arrest of development of the brain commonly follows in children. In the treatment of cerebral paralysis we must consider not only the palsy, but also those conditions which so frequently follow or accompany it, namely, epilepsy, chorea and mental defects.

In the first group, cases of cerebral agenesis are not amenable to surgical treatment. In those cases in which we have hemorrhage as a result of intrauterine trauma, if the child lives and the symptoms are such that the lesion can be localized, trephining and removal of the clot are indicated. These conditions are rarely present.

Where we have intrauterine infection as the primary cause of paralysis, the brain symptoms are more frequently the result of arrest of development than of the primary lesion. In those cases in which sclerosis and adhesions follow the infection, removal of the sclerosed tissue, if not too extensive, at times is followed by improvement of the epilepsy or chorea, but has no effect on the paralysis other than to make it more complete.

When the paralysis is due to injuries received during birth, it should be treated immediately by operative measures.

If the brain symptoms (paralysis, paresis or spasms) be the result of a depressed fracture, the fragment should be elevated at once. If no fracture be apparent the lesion is probably a meningeal hemorrhage, and should be treated by trephining and removal of the clot. If these conditions are not treated immediately after birth atrophy and sclerosis with secondary degeneration quickly follow and render operative treatment useless. If the operation is performed early these secondary changes do not take place.

In the third group, where the paralysis is due to meningeo-encephalitis, secondary changes take place rapidly and are such that operative measures on the brain can benefit the patient but little. In those cases that are followed by the formation of cysts, either from thrombosis, embolism or softening of circumscribed areas, opening the skull and evacuating and draining the cysts frequently produce favorable changes in the epileptiform, athetoid or choreiform movements that so often accompany cerebral palsies, but does not benefit paralysis or mental defects.

In any one of these groups, the paralysis may assume the form of a diplegia or a paraplegia, in which case the lesion is too diffuse to be treated by operations on the brain.

ARTHRODESIS IN INFANTILE PARALYSIS.

Dr. Carl Beck—All that was accomplished in the treatment of infantile paralysis was to enable the patient to hobble about supported by braces or heavy apparatus. During the last few years, particularly on the recommendation of Karewski, attempts have been made to treat these cases surgically. This departure has proven so successful that many unfortunate patients prefer operation to wearing heavy support braces. The operation, which is called arthrodesis, consists essentially in the destruction of a joint, producing anchylosis, or at least very restricted movement. The following case affords so good an illustration of the usefulness of the operation that I will describe it in detail, concluding with an enumeration of the indications and contraindications:

D. D., 15 years of age, was admitted to the Cook County Hospital for the purpose of securing a supporting brace for her paralyzed limb. Up to the age of 4 years she was a perfectly healthy child; she then became sick with the symptoms of acute poliomyelitis, which resulted in paralysis of both limbs. After about one year's treatment with electricity, massage and other methods, she improved so much as to be able to use her left lower extremity, while the right leg remained paralyzed, except that the adductors and the psoas muscle could be used to a certain degree, enough to allow her to throw the leg forward and inward, but she was never able to make any firm, premeditated movement. Extensive passive movements could be made; the leg could be placed around the neck or extended backward to bring the sole in contact with the head. While the patient was walking on crutches the leg would swing like a flail. During the following years it did not improve in the slightest degree, but became atrophic and slightly flexed. She was obliged to use a crutch all the time. The changes in the pelvis and vertebral column that are usual to cases of infantile paralysis, *i. e.*, scoliosis and incongruity of the pelvis, developed in this case also. It was in this condition that the young girl, who was very bright and otherwise well developed, came under observation. The case seemed to be a suitable one for treatment by operation, inasmuch as the slight but persistent action of the adductors and flexors allowed of the patient's throwing the limb forward. In order to convince myself that she would be able to walk on a stiff leg the limb was put in a plaster of paris cast. The slight contracture caused a good deal of pain when the limb was straightened, but she could, nevertheless, walk with the aid of a crutch. This being satisfactory I decided to make the limb permanently stiff. On Nov. 16, 1895, the operation of arthrectomy of the knee-joint was performed. In consequence of the long-standing contracture the bones had become deformed, and in order to have the limb perfectly straight it was necessary to remove quite a portion of the condyles anteriorly. Otherwise the operation was a typical resection. The result was excellent. Four weeks after the operation the leg was put in a water-glass bandage, so that the patient might walk in this very light dressing, and six weeks after the operation she was discharged with a high shoe. The operation which I first thought of performing on her ankle-joint was unnecessary, as she could walk firmly with her anchylosed knee. This patient was exhibited at a meeting of the Chicago Medical Society January 20. She was then able to walk without support for the first time in eleven years.

Since that time I have had occasion to observe several other cases, but the time which has elapsed since treatment is too short to permit me to make a report. From this one case, however, I have gained the conviction that arthrodesis is a justifiable and very useful operation, by which patients are enabled to use their limbs without the aid of crutches or braces. The indications, however, are very restricted, since experience teaches that by careful and untiring care many cases of infantile paralysis improve so greatly in the course of time that the muscles acquire some activity. In a case like this, however, where no change for the better had taken place in eleven years, it could not be expected that treatment would enable the child to recover the use of the limb. Furthermore, the small groups of muscles, adductors and psoas, unless trained become atrophic and it would not have been possible for the limb to be thrown forward had not her intelligence led her to practice the movement and preserve the muscles. As a first indication I would say that the operation should be done only after all hope is abandoned that the limb will become useful by the return of muscular action. Another condition is that power must be preserved in some muscles at least, otherwise the stiffness of the knee and ankle will be of no advantage. For-

tunately in most cases such a degree of muscular power is retained.

This method can be used in cases where the feet alone are paralyzed. In such cases Karewski and others have had good results in both limbs by producing anchylosis, which, however, gradually yielded to restricted motion; motion at a small angle, so that patients were able to walk firmly on their feet without braces. The operation would be contraindicated shortly after an acute attack of poliomyelitis.

The literature on this subject is already quite extensive, a number of cases having been operated upon in France, Germany, and this country. The results are uniformly good. Thus, Karasiewicz reports among eighty-seven cases eighty-four satisfactory results. When we think that many of these wretched children are not able to buy good braces, or to keep them in order, but are obliged to hobble about on crutches all their lives, developing contractures, decubitus, and deformities of the pelvis and spine, we must admit that this operation has proven a godsend in the treatment of infantile paralysis and that it deserves to be placed on the same level with other plastic operations. The object is not to restore form, but to restore the function (*la chose la plus principale pour la classe ouvrière* —Verneuil) and make the unfortunates useful members of society.

While I was on the Continent this summer I asked different surgeons how many craniectomies they had done, and what kind of results they obtained. In France, where craniectomy was first done quite extensively, it has been entirely abandoned. Lannelongue, who was the first to do the operation in France, has given it up. His results were not good enough to justify the operation. In Germany the operation has never been done to any great extent, and, as far as I could learn, only one or two operations have been performed. In Italy very few craniectomies are done. For the last three years I have not resorted to the operation myself.

After looking at Dr. Engelmann's specimen, I should say that a craniectomy would have been useless in such a case, because there is not simply a pathologic condition of the brain, but the entire nervous system shows lack of development. The nerves and spinal cord are very small, and the case was undoubtedly one of micromyelia and microcephalia. There is defective development of the finest elements of the brain. But there are cases where craniectomy may be of some use. The post-mortem of a case which I saw not long since showed me plainly that I ought to have performed a craniectomy, which might have been a great benefit to the patient.

As to the surgical treatment of anterior poliomyelitis, as Dr. Coolidge has said, orthopedic treatment in some of these cases does not yield good results. This is particularly true where we have to deal with poor and badly treated children, whose parents can not afford to buy an apparatus, and who can not keep the apparatus in good condition if they had it. Such children are neglected.

CRANIECTOMY AND MENTAL SYMPTOMS.

Dr. JAMES G. KIERNAN—From an alienistic standpoint it has long been decided that in the majority of cases the results following craniectomy were negative. It had at one time some support from the standpoint of the alienist, owing to the fact that cases would occur of this character; for example, one of the popes sprang from a family of which the majority were rather below the average mental standard than above it; in point of fact, idiots preponderated, and he himself was not intellectually of high order until he fell downstairs one day and sustained a fracture of the skull. From that time on he began to improve mentally and became somewhat renowned for shrewdness as a church politician. Such cases as this appeared from time to time in the literature. It was also noted in a few instances in autopsies made at insane hospitals, that there were some cases in which there had previously been skull pressure interfering with brain growth.

In another set of cases, and these were the vast majority, the influence of the premature closure of sutures could be entirely excluded in idiocy. This would appear to me to be the fact in the case reported by Dr. Rosa Engelmann. The atrophy in this case is more than pathologic. I should be of the opinion that the condition was teratologic as well as pathologic, and that the pathologic condition was secondary to the teratologic changes. From this standpoint, it would seem that craniectomy would be at best useless. A factor which must be considered in dealing with any apparent improvement, is the constitutional effect of an operation *per se* irrespective of its character, or location. This has long been recognized by alienists and is now being considered by surgeons. The influence of this factor is strikingly illustrated in the case reported by Dr. Harriet C. B. Alexander. Alienists have noticed from time to time that traumatism or even pathologic states will produce temporary improvement in old cases of insanity.

With reference to some of the etiologic factors, it should be remembered, as Dr. Baum remarks, that there are a good many conditions reported as scleroses, so-called miliary scleroses, which can be produced on the brain of any healthy dog by the operation of alcohol. In 1882 Dr. Bottcher of Saxony, made investigations on the children of women who worked in the potteries as to the influence of lead poisoning on the mother, because most of these women potters were then subject to lead poisoning. His results, which were very valuable, were published in several neurologic journals. In a large number of cases the women bore large-headed children, so-called macrocephalic idiots, in which the normal cerebral tissue was replaced by barren ependyma tissue. He found a large number of children, apparently healthy at birth, who later presented conditions similar to those cited by Dr. Brower as occurring in family paralyses. The autopsies in some cases showed the condition present, which was found in 1887 by Spitzka, and subsequently by others, to be a family tendency to miliary aneurysms. There was a tendency in a number of generations (in the family that Spitzka studied) to this. It seems to me, miliary aneurysms would throw some light on the phenomena observed by Dr. Brower. The child would have first the arterial condition predisposing to miliary aneurysm and subsequently aneurysm would develop which, either by rupture or by pressure, gave rise to the various conditions found in this class of cases. This condition would also to a certain extent explain the phenomena of diffuseness, of certain cerebral lesions in diplegics and paraplegics, to which Dr. Brown has called attention. This diffuseness of lesions bears directly on one point brought out in the discussion of the mental symptoms. The hemiplegic condition is generally due to localized lesions, while the other conditions are generally due to diffuse.

With regard to etiology, it is well known that most contagious diseases produce a secondary pathologic state closely allied to the luetic state. As Dr. Baum has said, physicians are apt to err, on the one hand by considering certain conditions occurring in luetics as the result of lues; while on the other hand, they are liable to regard the reaction to alteratives as an evidence of lues. Certain diathetic states, such as gout, will react favorably to potassium of iodid. Furthermore, it should be remembered in the same connection that when Hutchinson made the claim that the so called Hutchinson teeth were due to lues, it was not as positive as many of his co-laborers have made it. He admitted that in 10 or 20 per cent. of the cases where notched teeth were found, no positive evidence of either lues in the ancestors or in the patient himself could be detected. That is one important factor we have to consider in connection with the etiology of infantile paralyses. It would seem that almost all contagious diseases have a tendency to produce a sclerotic state. Researches have shown that scarlatina and typhoid fever will do it, and herein is an explanation of the characteristic results of those conditions in producing these paralyses.

Dr. Halstead has alluded to the question of exsecting sclerotic masses. Exsection in the brain is going to be followed sooner or later by scar tissue. I have followed one case reported by a neurologist and surgeon in which one patch was removed from the brain, followed by disappearance of the man's symptoms for two years, after which they returned. A second patch was then removed, which resulted again in disappearance of the symptoms, since which the case has disappeared from the literature, whether from the results of a third operation or not, remains unknown.

CRANIECTOMY IN INFANTILE PARALYSIS.

Dr. ALEXANDER HUGH FERGUSON—Of all the craniectomies I have done this is the only one that died. I assure you that craniectomy has its place in surgery. Here was an infant, 7 months old, with constant fits, a history of long tedious labor and of delivery by forceps. The craniectomy in this case was undertaken for the purpose of ameliorating the child's condition and of lessening the fits, doing something better for it than can be done either physiologically or medically. I do not intend to report all of my cases to-night. Some of them will illustrate very well the benefits of craniectomy. I think no operation should be condemned until it has been thoroughly tried, particularly in those cases where every other form of treatment has been tried and found useless. It is in this class of cases that craniectomy has its exact place in surgery. We often get most benefit when least expected. In one case, a boy 7 years of age, there was paresis of the right arm with some mental impairment. He could only count up to seven. Convulsions were frequent. We recommended and did a craniectomy on the opposite side. He is now able with this arm to

throw stones and break windows. It is a little over two years since the operation was done. The convulsions have been materially increased in number. Instead of having a fit once a week, twice a week, etc., he now has a convulsion once in three months or so, depending upon the excitement to which the child has been subjected. However, the boy is very much improved, is more easily controlled, which is saying a great deal.

Another case was for the effects of meningitis. There was a dragging of both the arm and leg. This patient was a marvel in figures. After a craniectomy there was an amelioration of the violent symptoms which he exhibited toward other members (children) of the same family. The boy can also walk much better as the arm and leg improved. In another case in which craniectomy was performed the result was unsatisfactory. In still another operated upon we got no result. We declined to operate on another patient, believing that we could not benefit him.

A craniectomy was done on a child, 5 years of age, who was unable to stand, walk on talk. She was filthy in her habits. After the operation she began to improve in temperament and in habits and can now walk. On account of the improvement she was brought back for a second craniectomy, which I did four weeks ago, making a horseshoe-shaped incision backward and raising the whole roof to see if anything could develop underneath. We know that in cases of insanity it is remarkable how they improve with very little brain tissue and then relapse again. But if you improve the brain tissue for the time being it is better than can be done with medicine. In those children, feeble-minded, imbecilic and even idiotic, there is no telling what development and regeneration may take place after craniectomy.

Another case of craniectomy was that of a little girl of 3 years of age who had hemiparesis of both the right arm and leg. The child was unable to walk, had frequent fits and was also a masturbator. We did a broad craniectomy in this case; there was a depression of the left side of the head; there was a history of labor and of forceps delivery, but I attributed her condition more to the long and tedious labor than to the application of the forceps. Following the operation the fits were under control; she commenced to use the limbs better. The improvement was so marked that we did a second operation. After the second craniectomy she commenced to talk a little, and I am satisfied that the improvement in this case at the present time is more than could be brought about by resorting to medical treatment, training, etc. I claim that the mortality in those cases where the nerve centers are fairly strong is very low. The case reported by Dr. Engelmann to-night is the only one I have lost in twelve operations.

RHINO-LARYNGOLOGIC ASPECT OF INFANTILE PARALYSIS.

Dr. Edward T. Dickerman—What rôle the nose, throat and ear play as an etiologic factor in infantile paralysis is difficult to say. No part of the body is more prone to violent infections and to the constant presence of pathogenic factors of infection than the above organs. In the acute exanthemata of childhood we have in the nose, throat and ear the most violent mixed infections of the mucous membrane and deeper parts. These inflammatory changes may extend into the accessory sinuses and involve the bone itself. What is easier than from these various sources of infection to have the process extend along the course of the blood vessels or by the minute lymph channels to the meninges, setting up a local meningo-encephalitis with secondary sclerotic changes and accompanying focal symptoms? Another factor to be taken into consideration is the fact that certain toxic elements may first cause a definite disease and secondarily be followed by a paralysis, such as diphtheria. Here we may have first the local action determining the position of the paralysis, while later the toxic elements in the blood cause the peri-neuritis and neuritis with paralysis. It is also undoubtedly a fact that we may have this paralysis and neurotic changes without the local affection. This being true, is it asking too much to think that such changes could not occur in the brain itself? In looking over the literature of the subject, which is very meager, I find that as an etiologic factor, which might be traced to the nose and throat,—tonsillitis, diphtheria, measles and scarlet fever,—the reports were not of such a character that one could draw any definite conclusion, and the future will only reveal the exact etiologic rôle that these parts play.

ORTHOPEDICS IN INFANTILE SPINAL PARALYSIS.

Dr. John Ridlon—A little more than two years ago, in a paper read before the Chicago Academy of Medicine, I expressed the belief that early orthopedic treatment of infantile paralysis was of the greatest importance. The results of my observation and treatment during the past four years have confirmed the belief expressed two years ago. I am satisfied now, beyond a question or doubt, that the early orthopedic treatment of these cases will result in a complete recovery in a considerable number of cases that otherwise would become hopeless cripples.

The orthopedic treatment of infantile paralysis consists in correcting the deformity, if any deformity exists, by mechanical or operative measures, and in constantly maintaining the limb in the corrected position for a very long period, supplemented by more or less local stimulation to the paralyzed muscles.

The choice between the mechanical and the operative methods for the correction of the deformity depends upon the severity and duration of the deformity. Speaking broadly, slight and moderately severe deformities should be corrected by mechanical measures; severe deformities by operative measures. The functional results are undoubtedly better if the deformity is corrected by mechanical measures. In recent cases no deformity exists that can not be readily overcome by gentle manipulation. The deformity having been overcome, retentive appliances must be carefully adjusted and constantly worn. The almost universal failure to cure or materially restore the usefulness of these paralyzed limbs depends more than any other factor upon the fact that the limbs are not constantly maintained in the corrected position. Not once during the period of the retentive treatment must the paralyzed limbs be put on the stretch. Few physicians and fewer patients and parents have the perseverance to continue the retention without relaxation for eighteen months or more, despite the fact that it is the key-note of success in these cases. During this long period of retention as full a restoration of the control of the paralyzed muscles takes place as can possibly be had, and structural shortening takes place in the hopelessly paralyzed parts. This structural shortening of itself alone is often sufficient to prevent a relapse of the deformity in limbs where whole muscular groups are completely paralyzed.

The local stimulation consists in lashing the paralyzed muscles with the looped end of a double strap, in massage, in local roasting either at ordinary atmospheric pressure or in a partial vacuum, and possibly also in the application of electric currents.

Chicago Ophthalmological and Otological Society.

Regular meeting held April 14, 1896, Dr. Gradle in the Chair.

There were sixteen members in attendance.

Dr. Fisher reported two cases of iron in the eye.

Case 1.—Mr. G. aged 37, struck by a piece of iron in the right eye fourteen years ago, which caused immediate blindness. He did not work for three months, since which time he has been troubled once a year, the attacks lasting at first about a week but becoming more and more severe every year since. The Doctor saw him February 13, 1896. On examination the right eye was found to be atrophic and tender; the left eye V. 20—30; the right eye was enucleated, and on section a piece of iron was found completely encapsulated, the lens being calcareous. The piece weighed 2⅛ grains. The remarkable part of the case was the large size of the metal, remaining so many years without creating much disturbance.

Case 2.—Child, 4 years old. Right eye was injured while playing with two hammers on November 9. On November 11 the Doctor first saw the child. Vitreous was cloudy; no reflex from the fundus. There was a scar in the cornea with a corresponding scar in the iris where the foreign body had penetrated. The child was anesthetized and under strict antiseptic precautions a piece of iron was removed with the magnet. A small amount of vitreous was lost, but no reaction followed. In two weeks the globe was filled with pus and the eye eviscerated.

Dr. Hotz reported a case of a piece of steel in the eye of a boy 12 years of age, who on March 1, 1896, was struck in the left eye by a fine chip from a hatchet. The chip pierced the center of the cornea and was seen by the family physician lying on the iris. Atropin was at once used twice a day. On March 4 the boy was brought to Dr. Hotz on account of the inflammation which had started up. A linear scar 2 millimeters long was seen in the center or the cornea. The nasal side of the pupil was fully dilated, the temporal side only slightly. On the temporal half of the iris above the horizontal meridian near the papillary margin was a white, pearl-like mass of exudate, from which the foreign body could be seen protruding. The lens and vitreous were clear and the tension slightly minus. There was some tenderness. Extraction was tried with the magnet through an incision made at the upper tem-

poral junction of the corneal margin, so that an iridectomy could be done upward if necessary. A magnet could not pull out the metal and a pair of curved forceps was used. The eye recovered quickly, the boy leaving the hospital at the end of four days. The lens, however, became cloudy afterward.

Dr. GRADLE spoke of the secondary results in the lens following injury to the eye, and quoted the case of a girl 4 years of age struck by the blade of a penknife, which cut through the outer quadrant of the left cornea. On the third day the iris became slightly entangled in the wound with some exudation at the margin of the wound. Atropin and a bandage were used, and recovery occurred after six weeks with the iris adherent to the wound. There were some deposits on the capsules of the lens, lace-like in character, but the lens substance itself was clear. Later the lens substance became opaque.

Dr. COLEMAN reported the case of a woman, aged 25, complaining of asthenopic symptoms for close work, no trouble at a distance. He found the abduction at 20 feet 10 degrees; the adduction 15 degrees; the right eye refraction — .50, the left eye — .50 ⌒ — 4, ax. 180. With the rod test there was esophoria; with the double prism test there was exophoria of 3 degrees. For near the adduction was 12 degrees, abduction 18 degrees. She has been wearing the correction for some time, but is unable to read longer than three or four minutes. Exercise with prisms for four or five weeks without any increase of the adduction at 20 feet. A tenotomy of the left external rectus gave the test on the following day of 3 degrees esophoria with the rod and binocular single vision with the red glass. This operation was done only a few days ago, so that it is too soon to judge of results. Dr. Hotz suggested that relief might have been given to the patient if the spheres had been left out.

C. P. PINCKARD, Secretary.

SELECTIONS.

Illinois State Board of Health and Medical Education.—Under the proceedings of the Nebraska State Board of Health will be found a report of the investigation made by that board of a case where the applicant for a certificate to practice made an affidavit that he was a graduate of the National Medical College and Hospital of Chicago. He had no diploma, claiming that it was granted but held for fees. The board never having passed on the standing of this college, made inquiries as to its standing, and facts were brought out that the applicant had attended another school, had failed to pass, had gone to the National Medical College, and in two weeks was graduated. The board therefore refused to recognize the school, and the application for a certificate was rejected.

The first thing the board did was to ascertain whether the school was recognized by the State Board of Health of Illinois, it naturally being supposed that that board ought to know the standing of schools in its own State. Inquiry showed that the Illinois board did recognize the school, and had the Nebraska board not found out the facts referred to it would naturally have supposed the school was straight and would have recognized it as being in good standing. It showed on its face that it was; its catalogue and announcements made it appear that it had the full time required and everything that is supposed to be necessary to put a school "in good standing."

That the Illinois board is not what it was in the days of Dr. John H. Rauch is becoming more and more evident. This is not the only school in Chicago that the board recognizes as being in good standing, when evidently they are far from coming up to even a low standard. In the *New York Medical Journal* of August 25, Dr. Julius Grinker exposes one of these, the "Harvey." After commenting on a paper published in the *Journal* by Dr. Morton, of St. Joseph, on medical education, he showed up the sorry state of affairs which existed in Chicago and Illinois as follows:

"Allow me to state that upon careful investigation he will find in the city of Chicago, besides the three regular medical schools that maintain a high standard, a number of inferior evening colleges of medicine, the purpose of their existence being to defeat the spirit of the medical practice act, though they profess to comply with the letter of the law.

"These evening colleges of medicine grant diplomas after an attendance varying from six months to four years, which the State Board of Health recognize. Upon the payment of $5 and the presentation of such a diploma, the State Board of Health of Illinois grants applicants a license to practice medicine and surgery in the State of Illinois."

After eulogizing the Illinois State Board of Health as it used to be, he says:

"It is this very same State board of health—but now with another secretary—that enables colleges like the Harvey and Harvard night schools of medicine to do a thriving business of inducing young and middle-aged men and women to leave the workshop and the stock yards, where they slaughter cattle, for the more remunerative occupation of slaughtering mankind."

Speaking of the Harvey Medical College, Dr. Grinker says:

"This school, as well as others of the same character in the city of Chicago, allows its students to work all day at their respective operations, and exacts of them an attendance upon lectures three hours evenings, namely, from 7 to 10 P.M., although excuses of three months' absences are accepted.

"As for clinics, they receive mention in the *Catalogue*, and students graduate without ever having seen a single capital operation at the college, their being no hospital connected with it, and but few dispensary clinics.

"The facilities of the school are of the most limited kind. It is located on a floor and a half of an office building, where there are a dentist, a private dispensary of an advertising doctor, and a good-luck store. One can form an idea of what kind of material they can get up there for the benefit of evening students."

Dr. J. W. Scott, the secretary of the State Board of Health of Illinois, answers Dr. Grinker in the *Journal* of August 15, and accuses him of having been connected with the school himself, and in reply to this Dr. Grinker says (see *Journal*, August 29):

"The history of my connection with Harvey is as follows: After having read in the papers that the Illinois State Board of Health has decided to recognize the Harvey School of Medicine, I allowed my name to be used in connection with a professorship. I was invited to the college, and the secretary offered me the chair of pathology, which I accepted. Previous to my acceptance I had several conversations with the secretary in regard to the scope of the institution, its work and its ultimate future, from all of which I gathered the remarkable admission that this school was only intended to be a preparatory school, a so-called "feeder" for the day schools of medicine, and that it was expected that some day one of the regular day schools would buy up the night school and amalgamate with it. She assured me on a later occasion that her senior class was virtually useless, that none of the members of the class had a right to graduate, and it was not intended that they should. I then reasoned: Are there not reputable physicians teaching popular physiology and chemistry in the New York evening high schools, and why should I not connect myself with a preparatory school of medicine?

"And here comes the most interesting part: As long as I was only teaching pathology to juniors I had no idea of the mental caliber of the seniors, who never were juniors in this institution, and some not in any; but when my colleague, the regular professor of practice of medicine, temporarily discontinued his course of lectures, I had ample opportunities in my quizzes and lectures before seniors to form a correct estimate of the composition of the class.

"Imagine my surprise when at the end of the term I received a note to come down to the office and sign diplomas! About the same time I was informed that students would graduate as full fledged doctors, and eight diplomas were presented to me for my signature as the professor of pathology. I asked for credentials which would show that those eight seniors had passed in my branch with some reputable teacher, but was told that the directory was well satisfied that the students had passed in pathology somewhere. I then stated that I should not attach my signature to any of these diplomas until I had satisfied myself that the holders of them had passed in my branch. The secretary then told me that students might produce credentials if they saw fit to do so, but that they would graduate anyhow; furthermore, that such a request on my part was unheard of, and I was the only one of the faculty asking for credentials.

"It was at this time that I discovered a diploma mill, and I hastened to resign my professorship immediately, and who would not?

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"On the evening of the same day I met Dr. Scott, and asked for an investigation of Harvey Medical College.

"Never was I more surprised than when Dr. Scott, whom I saw for the first time, answered all my objections in almost the same words that the secretary of the college had made use of the previous day. He knew by heart the name of every graduate of Harvey College, and was armed with an array of arguments that were simply astounding."

And Dr. Grinker goes on and shows that Dr. Scott knew too much about the Harvey Medical School not to be intimately connected with it. Proceeding, he tells of the fight he and others made before the board to have the school declared not in good standing; how Dr. Scott, the secretary of the board, fought them at every step, and how he finally gave up in disgust.

It is interesting but not pleasant reading when one remembers what the State Board of Illinois used to be. What has become of the spirit that used to animate it? What has become of the spirit and courage of Dr. Rauch? There was a time when the Illinois board was a beacon light for those who were striving to elevate the standard of the medical profession of the country. It gave courage and hope to those who were anxious to raise the standard of medical education in the United States so that the title of "American doctor" should cease to be a reproach, but rather an honor, before the people of the world. There was a time when if the Illinois board recognized a school it was recognized over the country. There are eighteen medical colleges in Chicago, exclusive of the post-graduate schools, and of these seven ought to be recognized, and no more. There is not one of the others that comes up to even a fair standard. And yet what can the Nebraska and other boards of health do if these schools show up the required three years' course and clinical instruction? Nothing. With our present law they must recognize them, unless evidence outside can be procured that will give a good reason for refusal.—*Western Medical Review.*

Intercurrence of Infectious Diseases.—In the *Archives of Pediatrics*, Dr. Alfred Hand, Jr., of Philadelphia, reports two cases, brothers, in which there was the coexistence of two and three (respectively) zymotic affections.

1. W. B., aged 6 years, suffered from diphtheria with a second attack of measles. On February 10, he came under notice, complaining that his throat had been sore for several days. Inspection then showed swollen tonsils with distended follicles and a slight grayish deposit on the right wall of the pharynx, the gland at the angle of the jaw was scarcely palpable, the temperature was 98.6 degrees and the pulse was 85. A culture was taken from the throat, and the child was isolated and put on tincture of the chlorid of iron internally, and the above mentioned spray locally. On February 11, at 10 A. M., the clinic diagnosis of diphtheria was clear, the pseudo-membrane having spread from the pharynx over the posterior pillar on to the tonsil, causing glandular enlargement and an intermittent weak pulse. The clinic diagnosis was confirmed bacteriologically, and as soon as possible 600 antitoxin units were given. On the following day the membrane was much less in extent, and by the next day it had entirely disappeared, strychnin and digitalis seemed indicated, the latter and the iron being given for six days, the strychnin being continued for two weeks and a half. The case ran without fever at any time until February 24, when the temperature rose to 102 degrees. Measles was suspected, but the mother asserted that he had had them four yeas ago, and from her description of the disease as it affected her five children there seems to be no reason to doubt that it was true measles and not roetheln. However, three days later, W. B. was covered with a typical rash of measles, the temperature curve showing the prëeruptive remission and the eruptive rise. Convalescence was without incident, the diphtheria bacilli persisting until 5 per cent. nitrate of silver solution had been used locally. The immunity which one attack of measles usually furnishes toward a subsequent one is, it is well known, sometimes overcome. That it would occur more frequently is probable if the infection should be so concentrated and the exposure to it so long as in W. B.'s case. It was not possible to isolate the brothers on the appearance of the measles, and the two occupied the same bed.

2. C. B. who had an intercurrence of diphtheria, measles and chicken-pox, was 4 years of age. He was first seen February 7, having numerous varicellar blebs on face and hands. The source of contagion was readily traced. On February 11, having been exposed to diphtheria, as shown in the first case, he was carefully examined at 10 A. M. for signs of pseudo-membrane, none being visible in the nose or throat, although the throat was reddened. At 1:30 P. M., as he was about to receive an immunizing injection of antitoxin, his skin felt warmer than normal, and the thermometer showed a temperature of 101.6. The pulse was 140, the glands at the angle of the jaw were swollen and the left nostril was occluded by the swollen mucous membrane and a thin gray pseudo-membrane. Six hundred antitoxin units were injected and cultures were taken separately from the nose and fauces, the report from the bureau of health being affirmative as to the presence of the diphtheria bacilli in the pseudo-membrane, but negative as to their presence in the throat. On February 12, his temperature was 100, and the left nostril was apparently in a perfectly healthy condition, all the swelling and the pseudo-membrane having disappeared. The temperature stayed slightly above normal for several days, the explanation for this not appearing until February 14, when the child was covered with a profuse measles rash. An irritating cough was a prominent symptom, and a slight exudate was detected on the left tonsil, but a culture from this failed to show the diphtheria bacilli. Convalescence was uninterrupted, being rather protracted, as the diphtheria bacilli were obtained by cultures from the nose (and ultimately from the fauces) for three weeks longer, in spite of, or possibly because, local treatment by means of a spray consisting of equal parts of peroxid of hydrogen, listerin and water. The rest of the medication consisted in a few doses of strychnin, tincture of the chlorid of iron, and of a cough mixture composed of ipecac and citrate of potash.

It is also interesting to note the presence of the diphtheria bacillus in the respiratory passage during the marked catarrhal lesions of measles, and yet with no formation of membrane. Whether this can be ascribed to the antitoxin injections or not, can not be established, but under former modes of treatment a relapse of diphtheria might, with reason, have been expected.

The "Livery" Phase of Gout; The Case of Sir Walter Scott.—Dr. George Harley writes upon gout for the London *Lancet* of July 4, referring in an interesting way to the tortures that were undergone, through the malady, by that friend of our boyhood's reading hours, Sir Walter Scott. He says, "Murray Forbes said that gout, diabetes, renal calculi, gallstones and jaundice may all occur in the same patient. In order that the reader may not suspect me of manufacturing a case to confirm the statement, I shall furnish him with one whose authority is beyond dispute, seeing that it is none other than that of the renowned Scottish novelist, Sir Walter Scott, extracted from his own diary, and thereby rendered all the more valuable from the fact that the account he gives of his clinic history is alike unbiased by medical dogma and personal theory, for he was a lawyer and not a medical practitioner. Sir Walter tells how he had to diminish the use of alcohol 'for fear of a weakness in the direction of diabetes, a disease which broke up my father's health.' He also says he 'was seized with a most violent pain in the right kidney, which Dr. Clarkson diagnosed as renal gravel augumented by bile.' In Lockhart's life of Scott it says he occasionally suffered agonizing pain from the passing of gallstones accompanied with jaundice. Sir Walter himself

describes more than one of 'these excruciating attacks.' Moreover in various parts of his journal Scott refers to the violent attacks of gout he had at different times in his feet, knees, gums and back, comparing the pain to a 'scorpion's bite,' and its intensity as being sufficient to make him 'howl.' As is the case with most 'livery' subjects Sir Walter Scott was subject to fits of great mental depression. Alluding to one of these in 1826 he says it was accompanied by 'a fluttering of the heart' and a feeling as if he 'knew not what was going to befall' him. Like many other gouty and 'livery' people Sir Walter Scott ultimately died from apoplexy, so that his is a most instructive case of hereditary liver derangement, associated with gout, diabetes, renal calculi, and gallstones, and ending in apoplexy. When all the foregoing hepatic pathologic data are considered it is evident that gout in different people must require entirely different forms of treatment. And in order to treat a case philosophically each individual constitutional peculiarity must be prescribed for quite as carefully as the special condition denominated gout, for while one patient may be benefited by colchicum it may on another act as a poison. Carbonated alkali does good to one, and iodid of potassium acts like magic on another; whereas, as Scudamore discovered, many require their livers to be set to rights before any gout remedy whatever is of the slightest use. This is one of the reasons why several of the vegetable purgatives, in combination with quinin and digitalis, have been vaunted by some of our continental *confrères*, and mineral waters by others as podagra specifics. But the curative effects of both the one and the other of them spring mainly, I believe, from their hepatic action. Piperazin, salicylate of soda, diuretin, and guaiacum are all useful in certain cases. Exactly in the same way different gouty constitutions tolerate different wines. It may, however, be laid down as a general rule that the less acid and the less alcoholic a wine is the less likely is it to disagree with a gouty patient. Hence it is that the sour forms of champagne at present sold in England should in all cases be shunned, no matter what one is told by the uninitiated to the contrary. Champagnes such as the French themselves drink are the safest, for that sugar gives gout is alike contrary to scientific observation and everyday practical experience. Again while hot applications with anodyne liniments and hot alkalin fomentations are of marked benefit to some, I know from personal experience that ice applied to the painful part until the skin over it is frozen will occasionally give immediate relief. Massage again, either moist or dry, when it can be tolerated often greatly expedites the cure. Gout is such a protean form of disease that no special line of treatment can be formulated for it as a whole, each constitution and each individual paroxysm requires to be treated according to its own special conditions."

PRACTICAL NOTES.

Treatment of Children's Burns.—For superficial burns, lotions of warm or hot boiled water, followed by the application of a tarletan compress folded five or six times and dipped in a solution of boric acid, 10 grams; antipyrin, 6 grams; sterilized water, 250 grams. Bandage with the following salve: Boric acid, 3 grams; antipyrin, 1 to 2 grams; vaselin, 30 grams. Preserve the epidermis as much as possible and merely prick the blisters at the lowest point. If the burn is on the hand or arm, it must first be plunged into a basin of warm boiled water, reducing the temperature gradually, and washed with soapy water, then with a 2 per cent. phenic water, and the blisters pricked without removing the skin. If there is pain, moisten with a tarletan compress wet with a solution of saturated boric water, 500 grams; laud. Sydenham, 4 to 10 grams. After this Reclus' salve can be applied: Iodoform, 1 gram; antipyrin, 5 grams; boric acid, 5 grams; vaselin, 50 grams. If the burn extends over a large surface of the body, the garments must be removed with the greatest care not to tear off any of the epidermis, which must always be carefully preserved. Then place the child in a large warm bath, and perform the antiseptic toilet of the parts involved, with chloroform anesthesia if necessary, and dress the same as a hand or arm. For deep burns, after the antiseptic toilet of the parts involved, apply a dry bandage of iodoform gauze with plenty of cotton. If the burn is on a member it can be dressed with the following dry powder to attenuate the suppuration: Iodoform, 2 grams; charcoal and quinin, each 50 grams. Wait, if necessary to amputate, until after the shock period has passed.—Périer in the *Journal de Méd. de Paris*, September 6.

Placenta Previa.—A writer in the *Medical Sentinel*, October, remarks that Dr. Senn in his address at Atlanta came in closer touch with the great mass of laborers in our profession, than any other writer has in anything presented to us during the present year. He proceeds to describe a couple of cases of placenta previa, emphasizing: 1. The beneficial effect derived from ergot, and its application to these cases, producing such strong contractions, the tonicity of which was permanent for hours. 2. While it is fatiguing, still the hand makes an excellent tampon for applying pressure, and at the same time can be utilized as a dilating agent of the os, when time is such a valuable factor. Again the dilation consequent upon its use prepares the vulva and perineum for the passage of the head when we resort to the use of forceps.

Artificial Serum for Washing out the Serous Cavities.—Mengus (*Indépendence médicale*, July 22), relates two cases. The first a hydrocele of the tunica vaginalis testis that had relapsed after the employment of an injection of tincture of iodin. It was cured by injecting a boiled and filtered 0.70 per cent. solution of sodium chlorid at the temperature of 104 degrees F. The second case was one of ascites in a patient with heart disease. Paracentesis had had to be performed six times in the course of five months, and the man was becoming cachectic. The seventh puncture was followed by the injection of about a quart of the same solution at the same temperature. After massage, about three quarters of the amount was withdrawn. The patient regained his general health, and at the time of the report, three months afterward, no further effusion had taken place.—*N. Y. Medical Journal.*

Cocainization.—Reclus has a record of 3,500 successful cocainizations, and always administers it to the patient in a reclining position, retained until after he has eaten something. He also uses a hundredth solution in all cases, and never allows it to be injected into a vein, nor in larger quantities than 12 to 15 centigrams. He states that cocain allows important and delicate operations to be performed almost without assistance, and without the loss of time, the annoyance and the dangers of chloroform. He considers its use indicated in the removal of subcutaneous tumors, in incising an abscess, in ingrown nails, amputations and disarticulations of the phalanges and metatarsus, in herniotomy, in the radical cure of hernia and hydrocele, in anal dilatation, circumcision and castration, in opening abscesses and hydatic cysts of the liver and in making an artificial anus. The long duration of the anesthesia is a point in its favor; the skin can be sutured without pain even after an operation that has lasted twenty to twenty-five minutes. If the above simple rules are followed, there need be no fear of syncope, which is the fault of the administrator and not of the cocain. The reclining position is imperative.—*Revue Int. de Méd. et de Chir.*, September 10.

Chronic Pericarditis Simulating Cirrhosis of the Liver.—Pick reports three cases in which the clinic picture was that of cirrhosis of the liver, but in which the autopsy showed, in spite of the fact that there were no symptoms of heart disease, that a chronic adhesive pericarditis was the primary affection

to which the condition of the liver was secondary. He sums up his paper as follows: There is a complex of symptoms which simulates mixed forms of cirrhosis of the liver, with hepatic enlargement and great ascites, but without icterus, which is due to an increased growth of the connective tissue of the liver from the disturbance of circulation produced by a latent pericarditis. This may lead, through stasis in the portal circulation, to the most enormous ascites. This is more common in early life, but nevertheless is also observed in later years. In the differential diagnosis stress must be laid on the lack of any etiologic factor for cirrhosis of the liver, a history of the previous pericarditis and edema of the feet, and a thorough examination of the heart.—*Boston Medical Journal*, October 8, from *Ztschr. f. Klin. Med.*, Nos. 5 and 6.

Congenital Luxation of the Hip Joint.—Lorenz claims to avoid the disadvantages of the methods of Mikulicz, Paci and Schede, by what he calls his functional method. He proceeds first by reduction, then reposition, formation of the acetabulum and restitution. Reduction is accomplished by extension, with the use of the screw in narcosis; reposition by flexing, opening the acetabular cavity, and maximal abduction. The amount of outward rotation varies in different cases, and the smallest amount of abduction that will accomplish the reposition and maintain it, is the limit. Then follows three months' fixation of this position with an immovable bandage. The soft parts that formerly prevented, now press the head of the femur into place in the acetabular region, thereby modeling it in a measure. In the severest cases the limb can not be walked on for two or three months, as the amount of original abduction does not allow the use of a raised sole at first. This can be resorted to later as abduction grows less, and it is made lower by degrees from four to two centimeters, etc. The treatment lasts from six months to a year. It is adapted for children up to 6 years. Surgical intervention is necessary, of course, in cases of irreducible luxation. Double-sided luxations are treated together at the same time. Lorenz has treated thirty cases successfully in this way. Four double luxations produced unsatisfactory results. The advantages of this treatment over the surgical are that the number of passive movements is less, the treatment requires less time, and the leg is not shortened so much. Lorenz also emphasizes the importance of ambulatory after-treatment. — *Wien. Klin. Rundschau*, September 20.

Causes of Death after Laparotomy.—Fritsch of Bonn suggested at the recent congress of German Naturalists and Physicians, that whichever method a surgeon has made his own, and can perform with ease and rapidity, that is the best for him; but it does not follow that it would be the best for others. He considers that the results of the various methods in vogue are due not so much to the special method nor to antisepsis, as to the skill, rapidity and subsequent care of the operators. The normal blood destroys or eliminates the cocci, but if the heart is weak, the circulation sluggish, it is unable to effect this, and the cocci are not destroyed, but thrive and locate wherever they find a lowered vitality, as in the peritoneum after an operation. Persons do not die after a laparotomy because they become septic; they become septic because they are dying or while they are dying. He advises, therefore, that in cases of weak or debilitated heart, in thrombosis after pneumonia or influenza, it is best not to operate at all, but to wait. Debilitating measures, too cool baths, hunger, strong purgatives are to be avoided before the operation. The technique must be good; the after-treatment very careful. Lavage of the stomach, warm enemas, tonics, quinin, etc., combat the weakness. A long and tedious operation lowers the vitality, especially when the abdomen is opened, and hence perfected and rapid technique, whatever the method, increases the chances of success. He concludes by warning operators not to trust too much to antisepsis, but to improve their skill and help to establish the indications for the various typical operations, instead of trying to invent new ones.

Malacin in Rheumatism.—Malacin is a phenacetin with salicylic aldehyde in the place of the acetic acid. It has been tried in Russia as a substitute for salicylate of soda in a few cases of acute and chronic rheumatism, and its success warrants further investigation. The cure followed in four to six days; the pains rapidly disappeared and there were no stomach disturbances nor depression. It was administered in 1 gram powders three to five times a day; a total of 17 to 26 grams. It has also proved beneficial in neuralgia.—*Journal de M. de Paris*, October 4.

Goitre from Administration of Thyroid Extract.—A recent paper by Dr. Robert Hessler, of the Northern Indiana Hospital for Insane, gives an account of what corresponds to an attack of exophthalmic goitre, brought on by large doses of desiccated thyroid gland. The case was that of a cataleptic who had lain immovable in bed for over three years; there was an absence of motor and sensory activities; the feeding was by means of the nose-tube. Under increasing doses of gland constantly increasing activities resulted, until finally the patient "returned to life" and was able to speak and walk. At a time when 75 grains were given daily, symptoms of exophthalmic goitre appeared and the remedy had to be discontinued temporarily; the pulse going up to 160. In the course of a few days the patient relapsed to his usual condition but "revived" on again receiving the remedy, with a return of the symptoms mentioned. The case was reported in the *Indiana Medical Journal*. A similar case recovered promptly in a few weeks on small doses. The thus artificially produced exophthalmic goitre had all the characteristics of the natural disease, minus the glandular enlargement, and all symptoms disappeared on withholding the remedy or under a small dosage. From a study of this case, and several others receiving similar treatment, the author concludes that Graves' disease is due to an over-stimulation of the nervous system by products of the thyroid gland, and that the administration of this gland as a remedy is injurious; the proper treatment is one tending to reduce the functional activity of the thyroid gland.

Treatment of Pneumonia with Inhalations of Amyl Nitrite.—Hayem has used this treatment in seventy-five cases of pneumonia, and recommends it in high terms as successful in diminishing the dyspnea, rendering expectoration easier and improving the physical phenomena in general. One inhalation a day was usually sufficient, but occasionally one was given morning and night. Fifteen drops were inhaled on a compress at a time, repeated if necessary until 100 drops had been used, although the desired results were usually secured with less. The treatment was continued through the whole course of the disease, and for a couple of days afterward. He ascribes its efficacy to its influence on the circulation of the blood in the lungs.—*Memorabilien*, October.

Treatment of Post-Scarlatina Nephritis.—Schmey recommends his method of treating this dangerous complication as he has practiced it for ten years with unfailing success. It is especially effective in cases with a tendency to dropsical swellings. The child is wrapped in a wet sheet from head to feet, with a woolen blanket outside. He is then given every hour a teaspoon of syrup jaborandi until he is in a profound perspiration, and not until then is he released from his wrappings. This process is repeated every day until all the swelling has subsided, which is usually in the course of two or three days. He prepares the syrup by the following formula: 0.3 folia jaborandi concis., heated in a vapor bath for ten minutes, in 20 grams water. It is then strained and 10 grams sugar added. He administers subcutaneous injections of pilocarpin instead

of the syrup to children over 15, and has the pack preceded by a hot bath.—*Memorabilien*, October.

Tertiary Syphilis in a Child of Five.—Feulard describes a case brought to him for a sore in the nostrils, which examination disclosed to be a pronounced case of tertiary syphilis, with destruction of the nasal septum, the palate and the posterior part of the pharynx, the teeth shaped like the teeth of a saw with other unmistakable lesions. The father accompanying the child was a strong healthy man, who had two healthy grown daughters, all free from any syphilitic taint. The mother had died a year after the birth of this child, and the father had before this, grave reasons for doubting his paternity, although the child might have been infected while it was at nurse in the country. The case is remarkable for the rapidity with which the disease had developed unrecognized to the tertiary stage, and the fact that it had progressed without attracting attention or causing much annoyance to the child.—*Annales de Derm. et de Syph.*, September.

Hospital Contagion of Syphilis.—Fournier records the second case in his hospital experience of a patient being treated for eczema and being discharged cured, returning soon after with syphilis contracted in the hospital. He is inclined to ascribe the contagion to the patient having perhaps exchanged caps with some syphilitic, as such extreme precautions are taken at the Saint Louis to prevent infection. Leredde suggests that syphilitics with lesions in the mouth ought not to be allowed to expectorate promiscuously any more than tuberculous patients.—*Ann. de la Soc. de Derm. et de Syph.*, September.

Tuberculosis of the Spinal Cord.—Schlesinger describes a case of pronounced motor and sensory disturbances in a man of 42, commencing with sudden vertigo and vomiting of fluid through the nose, violent pain the right half of the face, and terminating fatally with complete ataxia, etc. The necropsy revealed an isolated tubercle in the spinal cord, its maximum of development corresponding to the third cervical. Transverse section showed that it filled almost the entire space of the spinal cord, only a thin layer of white matter partially surrounding it. The gray matter had entirely disappeared. The tubercle diminished in size as it approached the first cervical, where the lesion was confined to the gray matter. A few scattered follicles were found at the decussating point of the pyramids. The medulla was unusually large.—*Presse Méd.*, October 3.

Non-Surgical Treatment of Peri-uterine Phlegmon or Pelvic Cellulitis.—Lutaud treats non-suppurating uterine phlegmon of the broad ligament behind or in front of the uterus by absolute repose at first, with narcotics, rectal opiates, etc., to arrest the pain which is always severe in acute cases, and is the best guide to the location of the tumor. He then controls the vomiting, fever and hyperthermia. He prescribes for this purpose: Antipyrin 2 grams, syrup of papaver somnif. 30 grams, spirit of menthol 10 grams, tilia-water 60 grams. A tablespoonful every hour. He sometimes applies leeches to the hypogastric region over the tumor when the phlegmasia extends to the abdominal wall, with mercurial salve and cataplasms. He also inserts medicated glycerin suppositories into the vagina, or tampons dipped in: Glycerin 30 grams, cocain hydrochlorate 1 gram. He keeps the vagina aseptic by warm irrigations three or four times a day, of the solution: Naphthol and chloral, each 10 grams, thymic acid 1 gram, alcohol 240 grams. Two tablespoons of this to the liter. Any other antiseptic can be used, except sublimate, which is too irritating for prolonged use. After the pain is under control, the tumor can be investigated, and even if there is suppuration, surgical intervention is not always necessary, as numerous examples are known of the tumor discharging spontaneously into the rectum, the bladder or vagina, followed by complete cure. The spontaneous discharge may of course produce fistulas or multiple pelvic abscesses, which render laparotomy or hysterectomy inevitable. But if, as often happens, there is no suppuration, the tumor hardens and is not painful, but dangerous on account of the adherences produced. The treatment in these cases is principally by massage to destroy the adherences and restore movability to the uterus, while assisting the complete resolution of the neoplasm. He sometimes also uses blisters or conical cauteries, tincture of iodin or croton oil, with always oversight of the general health and especially of the functions of the bladder. He usually administers the following in cases of indurations and adenopathies: Sodium iodid 20 grams, syrup of bitter orange 500 grams. One or two tablespoons a day. He emphasizes the value of massage as one of the most effective therapeutic means of treating chronic affections of the uterus and the adnexa. By introducing two fingers into the vagina to the cervix or the seat of the tumor, and pressing with the other hand on the abdomen, the indurated mass or the adherent uterus can be seized between the two hands and by gentle and gradual manipulation reduced and rendered movable.—*Journal de M. de Paris*, October 4.

Dermatitis Roentgeni.—Dr. Conard, in *Codex Medicus*, August, reports a case of skin affection that was, in his opinion, indirectly referable to the X ray. "R. B., photographer, consulted me August 24 on account of what he considered rheumatism in the first and second fingers of his left hand. He complained of pain and swelling and stiffness of the joints. He had first noticed some discomfort in them about five or six days previously and had used some home remedies, but the pain and swelling increased. Upon examination, I found the first and second fingers swollen and extremely sensitive to the least touch and of a peculiar, livid brown color on their dorsal surfaces from the tips down to and including the carpo-metacarpal joints, involving the tissues toward the thumb and then fading away. The palmar surface was normal. The line of demarkation was very conspicuous and decided by objective and subjective tests. There was entire absence of constitutional symptoms. The pain was described as of a burning or scalding character, as if burned with a hot iron; upon further questioning him I learned that in connection with his regular photographic work he had photographed with Roentgen rays, and had given public exhibitions of the same, in doing which the very part of his hand affected as described was for a considerable time and on numerous occasions exposed to the rays, at a distance of two or three inches from the Crookes' tube. During the time he was exhibiting X-rays he would occasionally have his fingers in chemic solutions, especially potassium cyanid, but he was always careful to wash them thoroughly; yet the index finger, which was the most in the solutions, was the most affected and was first attacked around the nail, the process extending up that finger and down the other. Evidently some of the chemicals had been absorbed by the skin and the X rays had driven them into the tissues, thus helping to set up this peculiar form of dermatitis. Another peculiar result of his work was the changing of the color of his mustache from black to a dull brown and its falling out in places, leaving the lip perfectly smooth. Treating the condition on general principles, for the induration, pain and stiffness, I ordered ichthyol and lanolin (1 to 7), to be applied on soft linen or lint. In two days both fingers down to the second joint were blistered. This was apparently caused by the ichthyol, although the continued application of it to the other part of the fingers failed to produce blisters there. Relief from pain and burning was complete after the blisters formed. Following and up to the present time, two weeks after the trouble was manifest, the skin was a dark brown or livid color, much thickened, hard and stiff, with the sense of touch or feeling greatly diminished. All inflammatory symptoms, pain and swelling having subsided, the applications were discontinued. The indications now are that the cuticle will disquamate, and the skin gradually assume its normal condition and appearance."

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INFORMATION WANTED.

It would greatly facilitate the prompt delivery of the JOURNAL to those members of the ASSOCIATION living in large cities, if they would kindly furnish this office with their street address in those cases where it is omitted from the wrapper of their JOURNAL, as we have been notified by the postmasters of the larger cities that second-class mail matter not having street address, would be placed in the general delivery to await call.

SATURDAY, NOVEMBER 7, 1896.

THE AMERICAN PUBLIC HEALTH ASSOCIATION AND AMERICAN BACTERIOLOGISTS.

The sanitarians and public health men on this side of the Atlantic have recently given a decided impetus to bacteriologic work. At the meeting of the American Public Health Association in Montreal, Canada, two years ago, a proposition from its committee on the pollution of water supplies for a coöperative investigation into the bacteriology of water was approved by the Association, and Major CHARLES SMART, U. S. Army, was appointed chairman of a committee to carry the suggestion into practice. It was the intention that the committee when fully formed should consist of all those bacteriologists who were willing to coöperate in the investigation. Letters came promptly from the notable laboratories of the country manifesting interest in the proposition and expressing a desire to participate in the undertaking. Some men of large experience and more than national reputation, whose administrative duties prevented them from participating in laboratory work, heartily agreed to act as an advisory council to the committee in developing its work. This council consisted of Surgeon-General STERNBERG of the Army, Professor WELCH of Johns Hopkins University, VAUGHAN of Michigan, PRUDDEN of New York, and SMITH of the Agricultural Department. An effort was made to settle by correspondence the important subject of the laboratory methods to be adopted in the investigation, but this developed so much variance in the practice of different laboratories that it became needful to call a convention for a thorough discussion of the points at issue. The convention met, but although the members were informed beforehand of the subjects that were to be brought up for settlement, many of these presented so much difficulty that the whole subject was referred to a committee consisting of ADAMI of McGill University, WELCH of Johns Hopkins, ABBOTT of the University of Pennsylvania, SEDGWICK of the Massachusetts Institute of Technology, SMITH of the Agricultural Department, CHEESMAN of New York, FULLER of the Louisville Water Company, and SMART of the Army. This committee met in New York in February last to digest its materials and outline its work. Its report was presented at the meeting of the Public Health Association in Buffalo in September last. It insists upon the importance of uniformity of methods if species are to be grouped correctly. It recommends for future work certain definite tests to be adopted in every case, failing which a description shall be held to be incomplete. It divides the tests applicable for descriptive work into two categories, the necessary and the optional; but these terms are used with some little hesitation, for many of the tests included among the optional are of value for purposes of species differentiation in special cases and might with propriety be included in the first category. The necessary tests are described under the headings: 1, source and habitat; 2, morphology; 3, biology, the last including cultural, biochemic and pathogenic characters. The optional are aggregated under two heads, morphologic and physiologic. The report is not a manual of laboratory methods. It dwells only on those points on which it is felt that there is need for greater uniformity in procedure or a more precise and correct technique. When presented at Buffalo it was incomplete, in so far as it had to be submitted to certain of the members of the committee for final revision. It will no doubt appear in an early issue of the *Journal of the American Public Health Association*. Whether the Water Committee of the Association will be able to carry out its original proposition of a coöperative investigation into the bacteriology of water is doubtful; but if nothing more is done the Association may rest satisfied with its work, in that it has led the bacteriologists to better methods for the identification and differentiation of species.

THE CONTAGIOUSNESS OF TUBERCULOSIS.

The inhumanity of certain tendencies of modern sanitation has been already noticed in the JOURNAL, in connection with a striking instance of attempted legislation against tuberculosis in New Zealand, which it is believed is still pending. One does not, however, have to look as far as to the antipodes to find some evidences of a cowardly zeal for self-protection against disease without regard to the rights or feel-

ings of the unfortunates. It is natural enough for the laity to dread the introduction amongst them of contagious diseases, and precautions are certainly justifiable, but it is another thing for physicians to encourage or even tolerate an increasing fear of disorders the contagion of which is manageable or avoidable by simple and readily available hygienic precautions. When the disorder is one like tuberculosis, that may exist anywhere in a latent form, and to which in times past, and even yet, some exposure has been and is almost inevitable, any excessive and selfish fear is altogether unreasonable.

In a paper read before the American Climatological Association at its late meeting Dr. VINCENT Y. BOWDITCH of Boston made an earnest plea for moderation in our statements regarding the contagiousness of pulmonary consumption, which was especially inspired by reckless and extravagant utterances by medical men as well as laymen in a recent discussion in the daily press. It was stated by a physician, possibly by more than one, that consumption "is as contagious as smallpox," and that "hospitals for consumptives are a source of danger to the whole surrounding community." Dr. BOWDITCH shows that in well regulated hospitals or sanitaria for consumptives contagion is almost unknown, or, at least, that with ordinary cleanliness and care as to the destruction of the sputa, the danger is reduced to a minimum. While the vitality of the bacillus tuberculosis is very great under favoring circumstances, the experiments of RANSOME and DELEPINE have shown that, when dried, an exposure of only a few hours to direct sunlight is fatal to it, a fact that goes far to account for the advantages of climates like that of Colorado and New Mexico in the treatment of this disease. They also find that even a 1 to 10 per cent. solution of chlorinated lime is an efficient disinfectant of clothing and apartments that have been soiled by the sputa, which alone are the sources of the infection. These results have not so far been contradicted, and accepting them as true, some ardent sanitarians will have, in common prudence, to moderate their statements, if not their convictions, on this subject.

The fact is that physicians, like other men, are fallible and subject to go to extremes over any new and striking discoveries in pathology and therapeutics. While there are many who are unduly conservative or backward in taking up and utilizing new facts, there are others who in their enthusiasm go altogether too far, and it is a question sometimes which of these two classes does the most harm. When this human weakness of intemperance in conduct of statement affects matters of sanitary methods and precautions it is likely to add very effectually to the sum of human misery, a result in the production of which certainly no medical man should be desirous of having any part. This question of the sanitary defense against tuberculosis appears, at the present time, the one most open to objectionable possibilities of this nature, and Dr. BOWDITCH's paper seems, therefore, a very timely communication.

DEGENERACY THEORIES OF THE SEVENTEENTH CENTURY.

Physicians who are accustomed to trace the development of the degeneracy hypothesis to NORDAU or LOMBROSO will doubtless be astonished to learn that its essential principles were recognized by the Bohemians who formed the literary class of the time of SHAKESPEARE. THISTLETON DYER ("Folklore of SHAKESPEARE") with a quaint unconsciousness of the coeval teachings of MOREL remarks that "it was an old prejudice, which is not quite extinct, that those who are defective or deformed are marked by nature as prone to mischief." Thus in "King Richard III." Margaret says of Richard, Duke of Gloucester:

> Thou elfish-mark'd, abortive, rooting hog,
> Thou that was sealed in thy nativity,
> The slave of nature and the son of hell.

She called him hog in allusion to his cognizance, which was a boar. A popular expression in SHAKESPEARE's day for a deformed person was a stigmatic. It denoted anyone who had been stigmatized or burnt with iron as an ignominious punishment; and hence was employed to represent a person on whom nature had set a mark of deformity. Thus in "3 Henry VI." Queen Margaret says:

> But thou are neither like thy sire nor dam,
> But like a foul misshapen stigmatic
> Mark'd by the destinies to be avoided,
> As venom toads, or lizards' dreadful stings.

Again in "2 Henry VI." young Clifford says to Richard: "Foul stigmatic, that's more than thou canst tell." In "A Midsummer Night's Dream" mothers' marks and congenital forms are deprecated by Oberon from the issue of happy lovers:

> And the blots of Nature's hand
> Shall not in their issue stand;
> Never mole, hare-lip, nor scar,
> Nor mark prodigious, such as are
> Despised in nativity,
> Shall upon their children be.

Constant allusions are met with in old English writers relating to this subject showing how strong were the feelings of our forefathers on the point. One further instance given by SHAKESPEARE is afforded by the words of King John (iv, 2) with reference to Hubert and his supposed murder of Prince Arthur:

> A fellow by the hand of Nature mark'd,
> Quoted and sign'd to do a deed of shame,
> This murder had not come into my mind.

The significance of stigmata as evidence of defect was recognized even by lawyers of the 17th century. BACON (who as HARVEY says: "Wrote on science like a Lord Chancellor") dogmatically accepts the coexistence of moral and physical defect, but in place of

tracing both to the same cause, hereditary taint, remarks that: "Deformed persons are commonly even with nature, for as nature hath done ill by them, so do they by nature, being void of natural affection, and so they have their revenge on nature." The notion of degeneracy as affecting physical structures was as old as EMPEDOCLES. One quaint use of it was made by SYLVIUS (of Fissure of Sylvius fame) in a criticism of VESALIUS ("From the Greeks to Darwin"). VESALIUS (1514–1564) had brought the charge against GALEN (A.D. 131–200) that his work could not have been founded upon the human body, because he had described an intermaxillary bone. This bone, VESALIUS observed, is found in the lower animals but not in man. SYLVIUS (1614–1672) defended GALEN warmly and argued that the fact that man had no intermaxillary bone at present was no proof that he did not have it in GALEN's time. "It is luxury," he said, "it is sensuality which has gradually deprived us of this bone." This passage proves that the idea of degeneration of structure through disuse as well as the idea of the inheritance of the effects of habit, or the transmission of acquired characters, is a very ancient one. The erroneous conception, that loss of structure was evidence not of advance, but of degeneracy, still mars many of the current researches on degeneracy and has led both LOMBROSO and NORDAU into many blunders.

THE MEDICAL DEPARTMENTS OF THE ARMY AND NAVY.

The Federal Government employs medical men in connection with three of its departments—the War, the Navy and the Treasury. The officers of each are appointed by the President, confirmed by the Senate and hold life positions during good behavior. Pay and status increase with length of service, as promotion is determined by seniority except in the case of the chief of each service, who is selected for office by the President. The scale of pay and the grades of seniority are arranged on the same general plan so that at first sight one might expect competition for appointment to be equally active in all three of the services. An Army Medical Examining Board has just closed a four weeks' session in Washington, D. C., after filling the vacancies in the corps by selecting eight men out of forty-five candidates, who presented themselves for examination out of forty-nine invited to appear. During the past fiscal year three vacancies in the Treasury Department were filled by a competitive examination for which there were sixty-one applicants, thirty-six of whom underwent the ordeal of examination. In the Navy 341 medical graduates made application for appointment, but only thirty-six of these requested permission to appear before the examining board and only twenty-two availed themselves of the permission. Six vacancies were filled from this number leaving ten unfilled at the end of the year. This has been the experience of the Navy for several years past and the Bureau has been so embarrassed by not having a sufficient number of medical officers to fill important positions afloat and ashore that Surgeon General TRYON has recommended the appointment of acting assistant surgeons for temporary duty until the vacancies in the corps have been filled in the regular way. These results show that the services of the Federal Government do not offer equal inducements to young medical men although they are organized apparently on the same general plan.

The passed candidate of the Army Medical Board is commissioned an assistant surgeon with the rank and pay of a first lieutenant of cavalry, $1,600 a year. At the end of five years service he becomes the equal of a captain of cavalry, and then by seniority the higher grades are reached, there being ten lieutenant-colonels, six colonels and one brigadier general to fifty surgeons with the rank of major and 110 assistant surgeons with the rank of lieutenant or captain according as they have served less or more than five years. The proportion of officers of the higher grades is not so large as in some of the other staff corps of the Army, nor indeed as in the Navy Medical Department, but our Army brethern appear satisfied with present conditions as all those who now occupy these higher grades entered the corps at a time when a majorship was the highest rank that could be reached outside of the surgeon generalcy. Ten per cent. is added to the pay proper of the Army officer for every five years of service up to twenty years, so that should there be a delay in his promotion to a higher grade, its financial effects are considerably neutralized; but compulsory retirement of the older officers at 64 years of age makes progressive promotion for the younger men. Quarters are provided for the medical officer and forage for his horses as in the case of other officers of like rank; and the conditions in time of peace are such that his home life may be as unbroken as that of a practitioner in civil life.

In the Navy the personnel consists of a surgeon general or a chief of the bureau with the rank of commodore, the naval equivalent of a brigadier general, fifteen medical directors with the rank of captain or army colonel, fifteen medical inspectors with the rank of commander or lieutenant colonel, fifty surgeons and ninety assistant surgeons. The older officers have no general ground of complaint. They have a high rank, corresponding pay and as most of them have already completed their sea service, their home life is comparatively unbroken; and good quarters are provided for them, when on duty at naval hospitals or navy yards. They are absorbed into the retired list at 62 years of age. But the conditions are not so pleasant for the passed can-

didate of the Naval Medical Board. He is commissioned an assistant surgeon with $1,700 a year, if at sea, and $1,400, if on shore duty, but with the relative rank of an ensign, the naval equivalent of a second lieutenant in the army; and during the three years which he is required to hold this rank, he is thrown into more intimate relations with the warrant officers of his ship than with his superiors in the medical department. When he becomes a passed assistant surgeon, he ceases to draw the 10 per cent. longevity increase of pay, although the corresponding grade of the engineers of the Navy are allowed this increase; and he does not receive the relative rank of lieutenant (equivalent to captain in the army) until all the line officers who antedated his entry into service have reached this rank, nor, when he has been promoted in his own corps to the grade of surgeon does his relative rank become that of lieutenant-commander, the equivalent of the army major, until the line officers aforesaid have been promoted. Of the fifty surgeons now on the Navy list only five have this, their proper rank, while forty-five are held down and have been held down for years waiting for the promotion of officers of the line.

Evidently legislation is needful to remove the obnoxious features of the Naval Medical Service or the high standard of professional qualifications will have to be lowered to permit the vacant positions to be filled. A bill to reorganize the corps should be supported in the next Congress by the whole strength of the medical profession.

DANGERS OF COCAIN.

The recent death of a patient in a physician's operating room from the effects of cocain again calls attention to the dangers attending the use of this drug. Regarding the case in question we have no criticisms to offer, as the circumstances were such that a general anesthetic would apparently have been more dangerous than cocain. While in this instance no blame can be attached to the medical attendant for the untoward result, it at the same time recalls the deadly power of this drug. The number of fatal cases so far reported is happily not many, but those of severe poisoning are quite numerous. The employment of cocain is largely on the increase, it being frequently prescribed by druggists for the relief of toothache and other forms of local pain. It is also used by dentists, and oftentimes in a most reckless manner.

The poisonous properties of cocain seem to be especially pronounced when used in the urethra, nose and mouth. It is less so when employed in operations on the trunk and extremities. This raises the question as to whether the additional danger is due to the facility of absorption from these parts or to the semi-erect position in which most operations on the nose and mouth are most frequently conducted. Solutions of too great strength are often employed; some of them being made extemporaneously by adding a few grains of the drug to an unknown quantity of water. The studies of SCHLEICH have shown that when efficiently used, very weak solutions may suffice for lengthy anesthesia of extensive areas.

We feel at this time that a note of warning is needed regarding the use of cocain. It should never be prescribed or used by any but qualified medical practitioners. When used by them it should be in solutions of known strength, and if for operations, preferably by the intra-cutaneous method of SCHLEICH. The patient at the beginning of an operation in which cocain is used should be placed in a horizontal position, which should be maintained until the effect of the drug wears off.

LEGISLATIVE PREVENTION OF SUICIDE.

The uninterrupted increase of suicides in Great Britain as officially verified for more than forty years, so says the recent three years' report, is again attracting attention. This, the jury verdict of insanity is far from explaining, as in ninety-nine cases out of a hundred the act of self-destruction is the only evidence of unsound mind on the part of the deceased. But this plea in most instances is a fiction of coroners' juries, originally designed to subvert the almost savage treatment of the corpse by the law itself. The disgrace of a cross-road burial with the impaling stake has never attained its object of a warning to the living, and the penalty of imprisonment in case of failure has likewise succeed not a whit better. In the State of New York there are already signs of a reaction in the shape of modifications of the latter law, or for the matter of that, an absolute repeal. The courts themselves affirm that the inevitable second attempt is certain to be effectual. Thus the concession to the feelings of relatives and friends counts for naught.

The strain of an advance civilization with its pessimism and the decrease of the religious sentiment only in part furnish reason for the present tendency toward the old Roman idea that this self-murder was an act of courage rather than a mawkish bid for an often undeserved sympathy. May we not say that psychology rather than pathology can better solve the problem, since there is always present that indefinite something known as a moral twist? It is not enough for us to always beg the question by the dictum that it is a disease; why not rather call it an impulse taking instant form through fear of a certain repentance? Often, too, the means for self-destruction at hand suggest the act, just as much as other surroundings will divert into a contrary direction. We are all aware of the ingenuity of suicides and their patience in the study of expedients for glossing over their crime against posterity under the name of accidental death. Their act is born of egoism, which, by

some is classed as a mental disease and the final doom is at the very least the disgrace of their survivors, which they often seek to mitigate by a homicide or two. At all events no remedy is effectual after death.

THE QUADRENNIAL ELECTION.

The election of Major Wm. McKinley to be the President of the United States will set the money machinery of the country in motion, and now that capital need no longer fear to come out of its hiding places we trust that prosperity may come to and abide with every reader of the JOURNAL. We trust that the good work of organization may go on apace and that the members may make renewed efforts to increase the membership. Our JOURNAL has prospered even in the face of the great financial depression which has affected all classes of business. With the business revival sure to come, let us all have confidence, and show it by taking hold of the ASSOCIATION affairs with renewed vigor.

CORRESPONDENCE.

Give Full Names of Authors.

PHILADELPHIA, Oct. 30, 1896.

To the Editor:—Having been engaged lately in a literary work involving considerable consultation of papers and verifying of references I have realized, as any one must under the circumstances, the extra labor necessitated by a practice which has always been more or less general with authors, of mentioning only the surname of writers and investigators referred to. Any one who has had experience can not fail to have been struck with the large number of persons of the same surname who are contributors to medical literature, so that a reference to Dr. Sydenham's or Dr. Jones's views and Dr. Ranklin's papers gives a very imperfect idea of the individuality of the author. Take for example the name Hoffmann. The student will find in the Surgeon-General's Catalogue this surname more than one hundred times, and of these Hoffmanns quite a number are authors of voluminous and important papers. So that to be told that Hoffmann believes thus and so, is of little assistance to the reader who desires to look up his views and papers. Again, to take a name to which modern medical literature often refers—Laveran. At least two Laverans, both French army surgeons, have written papers of importance. The Laveran whose name is so identified with the malariæ plasmodium is A. Laveran,[1] while Louis Laveran is a very different person. Yet writers only quote Laveran. It is needless to multiply instances. They will occur to anyone. My object in asking publicity to this letter is to beg writers to adopt the practice of giving the full name of the authority quoted. This of course involves a little trouble at first to hunt up the Christian name, but as years roll on and we are all thus explicit in indicating the authorities quoted, it will become easier and easier, while the amount of labor saved to those looking up references will be immeasurable. Especially important is it that the editors of the various handbooks and annuals which are now filling such a useful niche in medical literature should adopt the practice of using the full name, for it is from suggestions in such books that writers often want to look up references.

Respectfully yours,

JAMES TYSON, M.D.

[1] Unfortunately, even the Surgeon-General's Catalogue has not the full Christian name.

Serum-therapy.

CHICAGO, Oct. 31, 1896.

To the Editor:—In the last issue of the JOURNAL I find a short letter referring to and criticising Dr. H. Lahmann's article on serum-therapy. As Dr. Lahmann will hardly become acquainted with the contents of this letter, I think it my duty to reply to it in his stead, because it was I who translated his article for the JOURNAL.

In consideration of the fact that every serum-treatment so far employed has proven to be a failure, and considering also that the efficiency of the antitoxin treatment of diphtheria is still either doubted or denied by a great many competent physicians, it seems to be quite a bold undertaking by any advocate of the serum-therapy to call a physician whose therapeutic views differ from his, a quack.

In concluding his letter Dr. K. says: "We should be on our guard, having enough of the sort in the country." I would like to call his attention to the fact that there is another thing in this country and in the world, which we ought to guard against still more, and that is the abuse done with the drug treatment. If we step behind the prescription counter of a drug-store and look over the prescriptions, we will have a most elegant opportunity of studying a legitimate quackery which has done and is doing more harm to the sick than any "old-fashioned" treatment ever did or ever will do.

Very truly yours, CARL STRUEH, M.D.

PUBLIC HEALTH.

Diphtheria in Illinois.—Six cases had occurred at Newman, up to the 24th ult., with four deaths. In addition to the reports from West Hammond and Newman, diphtheria has been reported as existing within the week ending October 24 at the following places in the State: Flora, Sidell, Clinton, Sparta, Jacksonville, Springfield, Auburn, Virden, Chrisman, Galesburg, Orange Township (Knox Co.), and Melrose, near Astoria. The reports do not indicate that the disease prevailed extensively at any points, but an unusually large fatality is reported in proportion to the number of cases.

Water-Supply at East London.—The vestry of Hackney, London, has been endeavoring to supplement the scant water-supply of its poorer dependent population by a house-to-house distribution of water amounting to 100,000 gallons weekly since the first of August. It has also supplied a number of storage jars, not less than 1,500 of them, to families having no other means of storing water. A subcommittee of the vestry has been in session every day, Sundays inclusive, all through the vacation period.

Diphtheria in Indiana.—Diphtheria is reported as epidemic in several counties in Indiana. The southern part of the State has sent in the greater number of complaints. The story is generally the same from all points. The first case is pronounced tonsillitis by the attending physician, consequently no quarantine is established, and so the disease becomes epidemic. In more than one place the people discovered that physicians had carried the disease, and demanded protection from the State Board of Health. Although the State Board has miserable financial support still it manages to furnish culture outfits for diphtheria diagnosis and make microscopic examination without charge. Recently at Columbus, a practitioner furnished a householder a written certificate to the effect that, "no contagious or infectious disease existed at house of————," despite the fact that cultures proved the reported tonsillitis to be true diphtheria. To prevent the carrying of contagion by doctors the State Board of Health has passed rules directing specifically how they shall protect themselves when knowingly visiting contagious and infectious diseases.

Payment of Kentucky State Board of Health Bills.—Although it is provided by section 2053 of the Kentucky Statutes that the necessary printing of the State board of health shall be done in the same way and upon the same conditions, as other public printing is done, the court of appeals of the State says that it does not necessarily or properly follow that the cost thereof was intended by the legislature to be paid to contractors for State printing out of the general fund. On the contrary, it thinks it plain that it should be paid out of the fund provided by section 2054, which appropriates $2,500 per annum, or so much thereof as may be deemed necessary by the State board of health, to pay the salary of the secretary, meet contingent expenses of the office of secretary, and the expenses of the board, "which shall not exceed the sum hereby appropriated." The court goes on to say, State Board of Health v. Stone, Auditor, decided Sept. 24, 1896, that although the State board of health is an institution invested with considerable responsibility, and undertakes to perform duties deemed essential to the general health and physical well-being of citizens of the State, the position of its members is one rather of professional distinction than pecuniary gain, and hence the only officer connected with it entitled, under the statute, to compensation for services rendered, is the secretary, whose salary, though fixed by the board, can not exceed $1,200. The residue of the appropriation, as above $1,300, must cover all the expenses stated, including all legitimate cost of printing.

The Etiology of Hereditary Stigmata.—In the *State Hospitals Bulletin*, July-September, Dr. Frederick Peterson of New York city, contributes a very instructive article on the physical stigmata of degeneracy. He closes his paper as follows:

A few words should be said concerning the etiology of the stigmata of degeneration. When we come to investigate the causes which lead to their formation we meet with much difficulty. Usually we must look to modifications occurring during fetal development, during the evolution of the child, modifications brought about by arrest or errors of development, not so much perhaps in the organs themselves (which show the effects) as in the central nervous system, in the nervous mechanism which governs heredity. As the evolution of our bodies as well as our minds depends upon the brain and spinal cord and the countless nerve filaments which radiate from them to every tissue, so the nervous system plays the most important part in the influences which have to do with heredity. The nervous coördination must be rearranged by strong stimuli in order to reproduce the hereditary impulse. This is why traits acquired by us in our individual lifetime are not apt to be inherited by our descendants. If a person loses an arm his children are not deprived of that useful member, for the nervous mechanism of development which has for ages produced arms in their proper places and which is fixed in the powerful hereditary impulse of the race has not been changed. So in the breed of dogs whose tails have been cut off for countless generations, not one is born without a tail, because the nervous coördinations governing the evolution of the tail bear down with all the hereditary force of the race since its first beginning (when the tail existed though the animal was legless) to keep it in existence. If in some way we could reach the nervous mechanism which is responsible for the evolution of the tail, we might modify or even prevent its development. It is therefore some derangement of the nervous mechanism governing heredity which brings about deviations from the normal type, which gives rise to anatomic, physiologic and psychic anomalies which we designate as the stigmata of degeneration. How is the nervous mechanism of heredity deranged? It may be readily and profoundly deranged in a variety of ways, for instance by poisons. Thus alcohol disarranges the nervous mechanism of heredity in such a way that the descendants may suffer from the drink-craving, from idiocy, insanity, epilepsy, hysteria, neurasthenia, from shattered nervous systems, for at least three generations, and in these unfortunates we find along with marked functional stigmata of degeneration, these actual physical deviations from the normal type which we call anatomic stigmata. But idiocy, insanity, epilepsy and the like are in themselves conditions which disarrange the nervous coördinations so profoundly as to effect the hereditary impulse and give rise to anatomic and functional stigmata in the descendants. What is bequeathed to the degenerate child is a fragile and unstable nervous constitution. The evidence of this inherited fragility of the nerve-mechanism may present itself as insanity, or it may be epilepsy, or it may be feeble-mindedness, or it may be criminal tendencies, or it may be simple nervousness or hysteria or certain kinds of headache or possibly only eccentricity. All of these disorders are more or less interchangeable and are merely proofs of an unstable nervous organization. Where such conditions do not develop they may exist in a latent state and pass as a legacy to another generation. Whether the neuropathic state be manifest or latent, we are apt to find anatomic stigmata of degeneration present on careful examination.

Health Report.—The following reports of mortality from smallpox, cholera and yellow fever have been received in the office of the Marine Hospital Bureau of the Treasury Department:

SMALLPOX—FOREIGN.

Bombay, India, September 22 to 29, 2 deaths.
Gibraltar, October 4 to 11, 1 case.
Hiogo, Japan, September 19 to October 3, 170 cases, 63 deaths.
Licata, Italy, October 3 to 10, 3 deaths.
Madras, India, October 7 to 14, 70 deaths.
Manzanillo, Cuba, October 1 to 15, 2 deaths.
Moscow, Russia, September 26 to October 3, 1 case, 1 death; October 3 to 10, 1 case, 1 death.
Nogales, Mexico, October 17 to 24, 4 cases.
Odessa, Russia, October 3 to 10, 12 cases, 5 deaths.
Paris, France, September 26 to October 3, 1 case.
Rio Grande do Sul, August 22 to September 19, 74 cases, 7 deaths.
St. Petersburg, Russia, October 3 to 10, 5 cases, 4 deaths.
Tuxpan, Mexico, October 3 to 10, 2 deaths.
Warsaw, Russia, September 26 to October 3, 5 deaths.
Vera Cruz, Mexico, October 15 to 22, 1 death.

CHOLERA.

Bombay, India, September 22 to 29, 3 deaths.
Calcutta, India, September 12 to 19, 4 deaths.
Hiogo, Japan, September 19 to October 3, 9 cases, 1 death.
Hong Kong, China, September 12 to 19, 2 deaths.
Madras, India, September 19 to 26, 7 deaths.
Yokohama, Japan, September 26 to October 2, 1 case, 1 death.
Cairo, Egypt, September 15 to 21, 28 cases, 9 deaths.
Throughout Egypt to date, September 25, there were 21,565 cases and 17,990 cholera deaths.

YELLOW FEVER.

Matanzas, Cuba, October 7 to 21, 27 deaths.
Santiago, Cuba, October 17 to 24, 12 deaths.
Cardenas, Cuba, October 10 to 17, 4 deaths.
Quantanamo, Cuba, September 1 to 30, 6 deaths.
Cienfugos, Cuba, October 11 to 18, 17 cases, 4 deaths.
Havana, Cuba, September 15, to 22, 145 cases, 55 deaths.
Guadeloupe, W. I., October 1 to 4, 3 cases, 2 deaths.

NECROLOGY.

E. W. WOOD, M.D., of Northboro, Mass., died suddenly September 6, aged 56 years. He was born in Middleboro in April, 1840. He taught school in his earlier life, beside studying medicine. He enlisted for nine months in Co. C, 4th regiment, Massachusetts volunteers, and was appointed assistant surgeon under Gen. Banks.

HERMAN HARDRICH, M.D., of Brooklyn died October 4, aged 42 years. He was of German parentage, born in New York city. He graduated in medicine from the New York University Medical Departent in 1876. His professional life was spent in Brooklyn, but during the past fifteen years he had been maimed or disabled by spinal and other complications. His final illness was ascribed to pulmonary tuberculosis, ending with a convulsive seizure.

GEORGE B. O'SULLIVAN, M.D., of Brooklyn, died October 11, aged 30 years. He was a native of that city and a graduate of the Long Island College Hospital about ten years ago. He served as interne in St. Mary's General Hospital in 1888 and a term in St. Mary's Maternity Hospital. After completing his service in the latter institution, he opened an office and in a short time built up a large and remunerative practice. During the past winter he had an attack of pneumonia. Although

this was severe, his convalescence did not progress satisfactorily, and pulmonary tuberculosis supervened. At this time he was strongly advised to leave Brooklyn and settle in the Northwest, but this he was unable, for family reasons, to do. In May last, he reluctantly agreed to take a vacation and decided to spend it in the Adirondacks. The climate of this section did not appear to benefit him, and his stay there was brief. The midsummer was spent at New Suffolk, L. I. There he seemed to experience some improvement. In the latter part of August he returned to the city and resumed his practice, but his strength was, however, not equal to the task and he was obliged to gradually give up his business, until toward the last he was confined to his home. In his death was ended the career of a man of great promise, a career that had always been upright, honorable and useful.

A. C. McLellan, M.D., a native of Prince Edward Island and graduate of McGill University, Montreal, and the Royal College of Surgeons, Edinburgh, died at Gloucester, Mass., October 17. He was 35 years of age.——B. H. Whaley, M.D., of Whaleysville, Md., October 9, aged 29.——P. S. Carden, M.D., of Richmond, Va., October 11, aged 60.——R. C. Walker, M.D., of Mobile, Ala., October 11, aged 59.——John Springs Baxter, M.D., of Macon, Ga., October 12. He was born in Macon in 1832 and was graduated from the University of Georgia in 1853. He received his medical degree from the Jefferson Medical College in 1856 and returned to Macon to begin the practice of medicine. He enlisted in the war with the Macon Volunteers in 1861 and was made surgeon of the battalion in 1862. Later he was assistant surgeon at Richmond to the Third Georgia Hospital, then became surgeon of the Forty-sixth Georgia regiment in the field until the surrender. After the war he resumed practice in Macon for about a year and then went into the general merchandise business under the firm name of Jones & Baxter. Retiring from business in 1873, in 1876 he became director in the Southwestern Railroad and in 1891 became its president, which position he was holding at the time of his death.——Richard Beebe, M.D., of Alford, Mass., October 20, aged 72. He was graduated from the Pittsfield Medical College.——M. H. Raymond, M.D., of Grass Lake, Mich., October 21, aged 60. He was graduated from the University of Michigan in 1852.——Walter P. Brown, M.D., of Lexington, Mich., October 18, aged 43.

SOCIETY NEWS.

Second Pan-American Medical Congress.—President Diaz will receive the Congress on the 19th inst., and the municipality of the City of Mexico will tender a reception on the 17th inst. Dr. H. L. E. Johnson, chairman transportation committee, has authorized the Baltimore & Ohio road to communicate in his name with persons north and east desiring to attend the Congress and make arrangements over that road connecting with the special train of the American Tourist Association at Cincinnati. Dr. Liston H. Montgomery has arranged a special over the Laredo, Texas and Mexican National Railroad, at a cost of about $150. Stop-over privileges will be allowed, and the trip will occupy about three weeks. The price includes hotel accommodations.

List of Honorary Presidents and Secretaries for Canada:—Drs. James Stewart, Montreal; H. P. Wright, Ottawa; John Caven, Toronto; L. D. Mignault, Montreal; Morehouse, London, Ont.; J. L. Davidson, Toronto; Sir Wm. H. Hingston, Montreal; Cassidy, Toronto; Edward Farrell, Halifax; J. A. S. Brunelle, Montreal; T. J. Roddick, Montreal; Surg. Major Strange, Colin Sewell, Quebec; W. Gardner, Montreal; F. W. Ross, Toronto; Adam Wright, Toronto; Grondin, Quebec; A. B. MacCallum, Toronto; Wesley Mills, Montreal; J. B. A. Lamarche, Montreal; Sheard, Toronto; J. C. Cameron, Montreal; Blackader, Montreal; Burnham, Toronto; Buller, Montreal; Kirkpatrick, Halifax; A. A. Foucher, Montreal; Chrétien-Zaugg, Montreal; Stephen Dodge, Halifax; Birkett, Montreal; J. C. Cornil, Toronto; D. Marcil, St. Eustache, P. Q.; J. E. Graham, Toronto; A. A. Browne, Montreal; E. P. Benoit, Montreal; F. Montizambert, Quebec; W. Bayard, St. John, N. B.; P. H. Bryce, Toronto; James Patterson, Winnipeg; Davie, Victoria, B. C.; A. Vallée, Quebec; Workman, Toronto; Stephen Lett, Guelph, Ont.; Burgess, Montreal; McAvinny, St. John, N. B.; Beers, Montreal; Wilmot, Toronto; Shepherd, Montreal; C. E. Lemieux, Quebec; Geikie, Toronto; Adami, Montreal; A. P. Reid, Halifax; A. R. L. Marsolais, Montreal; Arthur Lemieux, Dentist, Montreal; Luke Lesky, Dentist, Toronto.

The Medical Society of the District of Columbia.—The following circular has been issued by this Society:

Sir:—I have the honor of transmitting to you the following preamble and resolutions adopted by the Medical Society, and to request that the action suggested therein be taken, and that the Society be duly informed of the appointment of a representative as provided for by the resolutions:

Whereas, There is now pending in both Houses of the Congress of the United States, a bill, entitled, "A bill for the further prevention of cruelty to animals in the District of Columbia," which avowedly contemplates the supervision and restriction of vivisection in this District; and

Whereas, It is believed that such proposed legislation will so obstruct and limit experimental research as may seriously interrupt the pursuit and progress of biologic and medical research in this District, therefore be it

Resolved, That the Medical Society of the District of Columbia hereby invites the bureaus, departments, schools of medicine and scientific societies hereafter named, to unite with it in the organization of a commission to be constituted of one representative from each of such bureaus, departments, schools of medicine and scientific societies, which shall be known as the "Joint Commission on Vivisection," charged with the duty of investigation relating to the practice of animal experimentation in this District, and representation of the constituent organizations before Congress, in such manner as said commission may determine.

Resolved Secondly, That this invitation be extended to the Bureaus of Medicine and Surgery of the Army, Navy, Marine Hospital Service, Animal Industry, the Medical Departments of the Columbian, Georgetown, Howard and National Universities and to the Chemical, Biological, Anthropological, Entomological and Philosophical Societies of the District of Columbia.

Resolved Thirdly, That the expenses of the Joint Commission shall be defrayed in equal proportion by each bureau, department, school and society represented in said Joint Commission.

Resolved Fourthly, That the corresponding secretary be requested to transmit a copy of the foregoing preamble and resolutions to each of the bureaus, departments, schools and societies named, and request their concurrence, and the name and address of their representatives. Very respectfully,

[Signed] Thomas C. Smith, M.D., Cor. Sec'y.

BOOK NOTICES.

Modern Greek Mastery; A Short Road to Ancient Greek. By Thomas L. Stedman, A.M., M.D. New York: Harper & Bros. 1896.

This is an attempt to bring the English speaking medical man face to face with the new Greek, but he might as well know once for all that he can not learn any foreign language without study. Such books as the one under consideration are valuable, but they can not take the place of the tutor by the colloquial method. Dr. Stedman says: "In these days of international congresses a pressing need is felt for some common medium of expression, for few men are such masters of the three languages in which discussions are usually held at these gatherings to enable them to take an intelligent part in all the deliberations. English, French and German have each in turn been proposed as the international language, but national jealousies would appear to offer insuperable obstacles to the adoption of any one of them to the exclusion of the other two. The only solution of the difficulty seems to lie in the selection of some other language which could be univer-

sally accepted without wound to the national pride of any European people. Many men from Voltaire to Blackie, and others of the present day, have urged the adoption of Greek for this purpose, and of all living tongues none has stronger claims in this regard. Its adaptability to the needs of international communication is shown by the fact that it is now the language of commerce throughout the Levant, as it was before and at the beginning of the Christian era, the common tongue of men of letters and of polite society in the civilized world." The author makes a good point in advocating the study of modern Greek by saying that to learn Greek by the study of the ancient classics, such as Homer and Xenophon, is like it would be to undertake the study of the English language by carefully reading Chaucer and Spenser. The one who will master this book may be said to have accomplished the mastery of the language which it teaches.

A Text-book of Diseases of the Nose and Throat. By FRANCKE HUNTINGTON BOSWORTH. New York: William Wood & Co. 1896.

The present edition of some eight hundred pages is a condensation of his former voluminous treatise.

This excellent work has lost none of its practical value by covering the same ground with half the reading text of the former editions. The pruning process has been rather of words than ideas, and its value as a text-book for students and practitioners has been greatly enhanced. Bosworth's work is unquestionably the most complete text-book on the subject as yet given to the profession by an American author, and may well be considered to rank with Morell Mackenzie's classic on the same subject.

Manuale di Materia Medica. Del Dottore GAETANO MALACRIDO. Ulrico Hoepli, Milano, 1896.

L'Impiego Ipodermico e la Dosatura dei Rimedi. Del Dottore GAETANO MALACRIDO. Ulrico Hoepli, Milano, 1895.

Manuale Pratico della Medicatura. Del Dottore ADELCHI ZAMBLER, con Prefazione del Prof. E. TRICOMI, con 6 incisioni. Ulrico Hoepli, Milano, 1896.

These three publications of the Hoepli series give very fair and apparently very complete statements of the present state of our knowledge of their respective subjects, and a very handy form for those acquainted with the language. The treatise on materia medica is especially full and complete for a pocket manual; so far as known we have nothing in English that approaches it in this respect; some even of the less known drugs are more fully mentioned than in the U. S. Dispensatory. It would be an excellent work of reference for any physician and the language being an easy one to acquire, would not be, by any means, a serious objection.

The volumes make no special pretense at being other than handy manuals, and for this they seem eminently suited. Our Italian confrères appear to be well provided for in this regard.

The Medical and Surgical Uses of Electricity. By A. D. ROCKWELL, A.M., M.D. Illustrated with 200 engravings: new edition. New York: Wm. Wood & Co. 1896.

This work is practically the ninth edition of Baird and Rockwell's well-known treatise on the medical and surgical uses of electricity, but Dr. Baird has long since been dead, and has no connection with any of the revisions since the second. Baird and Rockwell has so long been the standard work on electrotherapeutics that any additional commentation of it is a superfluity. It is sufficient therefore to say that the present edition has been brought down to date, even including a chapter on the Roentgen ray. Among the new features for the book we notice an illustration of Girdner's telephone bullet probe with the method of using it, and the Cleaves' electrode for vaginal hydro-electric applications, and various skiagraphs illustrative of the Roentgen photography in diagnosis. It is evident that Dr. Rockwell intends that his book shall be a standard on the subject for a long time as it has been conscientiously revised.

A Practical Treatise on Medical Diagnosis. For the use of students and practitioners. By JOHN H. MUSSER, M.D., Assistant Professor of Clinical Medicine, University of Pennsylvania, Philadelphia. New (2d) edition, thoroughly revised. In one octavo volume of 925 pages, with 177 engravings and 11 full-page colored plates. Cloth, $5; leather, $6. Philadelphia and New York: Lea Brothers & Co. 1896.

The new edition of this work embodies the latest improved advances, newly established facts and methods in this branch of practical medicine. There are many new engravings and colored plates. We can repeat the favorable mention we gave the first edition of this work, and can only say that the new one will be found even more valuable. We notice with pleasure that in the directions for bacteriologic diagnosis the metric system of weights and measures is used throughout the volume. The colored plates of bacteria are accurate and comprehensive. All classes of practitioners, general and special, are aware of the fact that they can not have too many good books on diagnosis. In this class Musser's book fairly belongs. A full index adds to the value of the book.

A Practical Treatise on Materia Medica and Therapeutics.—By ROBERTS BARTHOLOW, M.A., M.D., LL.D. Ninth edition, revised and enlarged. New York: D. Appleton & Co. 1896.

The ninth edition of Bartholow's therapeutics has been enlarged, so that it now forms a volume of 866 pages. The additions and alterations which have been made as a rule relate to the accounts, more or less full, of the synthetic remedies from organic chemistry, many of which are patented, but are the property of the manufacturing chemists. The general character of the work is unchanged, and it continues to be, as heretofore, a standard work on therapeutics. We regret, however, that the author has not revised the system of weights and measures to correspond to the new Pharmacopeia or advanced position of chemic and pharmaceutic science. The old British weights and measures is still employed throughout the book. This detracts very much from its value. We hope to see it corrected in future editions. This has been done in the chapter on Topical Remedies, Part III of the book, which is free from criticism in that respect. Centigrade thermometer is also used in this portion of the work. Where the formula of the U. S. Pharmacopeia is given, however, it is impossible for the author to avoid using metric terms, and it looks curious to see a metric term used in the preparation of the drug, while the dosage is always given in the old fashioned weights. With this exception, the new revision stands the test of comparison with other works on this subject. It will, we trust, continue to be a favorite for many a year, and the defects which we have pointed out are so easily corrected that we hope the tenth edition will be free from them.

Biennial Report of the Board of Health of the General Assembly of the State of Louisiana for 1894-95. By S. R. OLLIPHANT, M.D., President, Baton Rouge, 1896.

This report contains the most important features of the work of the Board of Health of the State of Louisiana for the years 1894 and 1895. It is of considerable interest in many particulars. Among them is the report of a conference of quarantine authorities of the Gulf with a view to securing uniformity of regulations, governing the fruit trade during the summer, and it was agreed that the representatives should maintain a medical inspection service in certain foreign ports. The committee of the conference consisted of Drs. Patton, Cochran and Hargiss, who recommended a modification of the quarantine laws and regulations of the United States, promulgated by the Secretary of the Treasury, April 4, 1893. On account of a disagreement between the Board of Health of New Orleans and the Marine Hospital Service, it is stated by Dr. Olliphant, page 24, as Secretary, that "in January, 1894, the local representative of the Marine-Hospital Service especially informed this board of his instructions to make monthly inspections of our quarantine stations. The feeling engendered

on part of this board by this attempted *officious* supervision is fully set forth in a letter authorized by the board." A letter addressed to the Secretary of the Treasury follows.

Dr. Olliphant adds: "Despite our protest, the formality of visiting our stations monthly is regularly indulged in by the Surgeon in charge of the United States Marine-Hospital in this city. By the absence of complaint from the Supervising Surgeon-General at Washington, I infer the reports of our practices and methods have proven satisfactory." Again on page 27, Dr. Olliphant states that a subordinate of the Board of Health was requested to furnish a certificate of pratique by the Marine-Hospital Service instead of by the Board. This statement follows, and the report continues, page 29: "The President and Attorney of this Board proceeded at once to Washington and through the courtesy of our Senators and Representatives were introduced to the Secretary of the Treasury. This official was not aware that any change in the regulations of the proceedings had been inaugurated. We then repaired to the office of the Supervising Surgeon-General of the United States Marine-Hospital and discussed with him the justice of our claims, and while he did us the courtesy to promise to give the matter serious consideration, he obstinately refused to recommend to the Secretary of the Treasury to suspend this order till his decision was rendered. On our departure from Washington we were assured by the Secretary of the Treasury that our claim appeared to be well founded and would receive due consideration."

On August 16, the regulations of the Louisiana Board were finally acceded to, and the report continues: "It is to be hoped the United States Marine-Hospital Service will desist from further interference with the quarantine affairs of the State of Louisiana. When that service is prepared to demonstrate the superiority of its regulations and methods, I feel confident that this Board of Health will most gladly adopt them. Till then let us progress and not retrograde."

Full accounts are given of the smallpox epidemic of 1894, and the report concludes with the usual statistic tables and a republication of the laws of the State and ordinances of the city of New Orleans in relation to health and sanitation. The report is, therefore, not only valuable from the standpoint of history but as a book of reference for those interested in the sanitary legislation of Louisiana.

The Bausch and Lomb Optical Company of Rochester, N.Y., have issued a catalogue of unusual merit concerning microscopes, microtomes, photographic and laboratory apparatus. The descriptions of the instruments are clear and complete.

MISCELLANY.

Prof. Klebs' Article on "Tuberculosis" translated into Italian.—The article by Professor Klebs on Tuberculosis, which was published in the JOURNAL, No. 4, Vol. 27, has been translated into Italian and appears in full in the *Gazetta Degli Ospedali e Delle Cliniche*, September 15.

"Omnibus Physicians."—The *Nouvelles du Jour* announces that at Olloy, near Mariembourg, a physician has been appointed by the authorities to take charge of all the sick in the community and attend them gratuitously, for which he receives a certain salary and all expenses paid.—*Gaz. M. de Liège*, September 10.

Operation for Atresia Vaginæ.—Mackenrodt (*Centralbl. f. Gyn.*, No. 21, 1896) points out that attempts to keep the artificial vagina open by tampons after operations for this condition are seldom permanently, if even temporarily, successful, and states that he has recently in two cases successfully substituted a vaginal wall by transplantation of flaps obtained in operations for prolapse on otherwise healthy women. The new canal is prepared and plugged with iodoform gauze till its inner surface is covered with healthy granulations, and is then lined either by several single flaps which are kept in position by a tampon, or a lining is formed by sewing a number of flaps together around a Cusco speculum and introduced with its wounded surface external into the granulating canal, and fixed by a tampon, which in either case is not removed for eight or ten days.—*St. Louis Med. Journal*, October.

To Remove a Foreign Body from the Nose, Urethra, etc.—Beugnies describes a simple arrangement with which he removes foreign bodies from small passages. A hole is bored in the end of a probe and a thread fastened in it. This is then introduced into the passage and carefully pushed past the foreign body. The string then held in one hand and the probe in the other, the little whip thus forms a loop with which the foreign body is easily withdrawn.—*Gaz. Méd. de Liège*, September 10.

Newly Appointed Army Medical Officers.—The Army Medical Examining Board, which has been in session during the last four weeks in Washington, D. C., completed its work on Saturday, October 24, by recommending the appointment of eight of the candidates, in order of merit as follows: Basil H. Dutcher of New York, Leigh A. Fuller of New Jersey, Franklin M. Kemp of New York, George A. Skinner of Minnesota, Carl R. Darnall of Texas, Wm. E. Richards of Mississippi, Louis P. Smith of the District of Columbia, Marshall M. Cloud of Kansas.

The Disinfection of Books by Vapor of Formalin.—An experiment has recently been made by a medical authority in the disinfecting powers of the vapor of formalin on library books. His conclusions are as follows: 1. Books can be disinfected in a closed space, simply by vapor of commercial formalin, by using 1 c.c. of formalin to 300 c.c. or less of air. 2. The vapor of formalin is rapid in its disinfectant action. The effect produced in the first fifteen minutes is practically equivalent to that observed after twenty-four hours. 3. An increase in the amount of air to each c.c. of formalin is not counterbalanced by an increase in the length of time of exposure. 4. In case the disinfection has been incomplete, the vitality of the organisms has been so weakened that they survive only if transferred in a few hours to media suitable for their development. 5. The use of the vapor of formalin is not detrimental, as far as observed, in any manner to the books, nor is it objectionable to the operator beyond a temporary irritation of the nose and eyes somewhat similar to that produced by ammonia.—*Health*, October 17.

Change of Name.—The editors of *Mathews' Medical Quarterly* announce that with the January issue of that publication its name will be changed to *Mathews' Quarterly Journal of Rectal and Gastro-Intestinal Diseases*. This is a change which has been deemed necessary for some time, as it is essential that the title of a medical journal should convey to the reader an idea of its contents, and this has not been the case with its name from the beginning. There will be no change in the policy of the journal in the least. As it will continue to be the only English publication devoted to diseases and surgery of the rectum and gastro-intestinal tract, the articles which will appear in it will be limited to these subjects. The journal will continue to be edited by Drs. J. M. Mathews and Henry E. Tuley, and published in Louisville, Ky.

Operative Treatment of Partial Epilepsy.—In the *Deutsche Medicinische Wochenschrift* for August 27, Sachs and Gerster of New York give the results of operation in nineteen cases, and arrive at the following conclusions: 1. Those cases of partial epilepsy are suitable for operation in which at most one to three years have elapsed since the trauma or onset of the disease. 2. In depression of the skull or in other injuries to the skull, operative interference is indicated even in after years. The prognosis, however, is less good the longer the elapsed time since the original injury. 3. Simple trephining may suffice in

many cases; this is especially true if one is concerned with skull injury or with cyst formation. 4. Excision of the cortical lesion is advisable, if the epilepsy is of short duration and referable to an exactly localizable portion of the brain. 5. Since such lesions are often only visible microscopically, excision should be undertaken even if the diseased part macroscopically appears normal. Still one should, however, use the greatest caution, in order that the proper portion be excised. 6. Surgical interference in epilepsy occurring in connection with infantile cerebral paralysis is permissible, if it occurs not too long after the onset of the paralysis. 7. In old cases of partial epilepsy, in which very probably an extended degeneration of association fibers has taken place, surgical interference is entirely useless. — *Boston Medical and Surgical Journal.*

The Healing Craft Defended.—The New York *Sun* has had upon its editorial staff for some years a writer whose sympathetic and intelligent remarks upon medical affairs have been much quoted in our journals, as showing that the profession is not absolutely friendless in the daily press. The following short paragraph was elicited by a New York city event that occurred in the heated term of last August: "Mrs. S. B. died of the heat last night, while her husband was trying to get a doctor. The medical man whom he succeeded in finding refused to attend the patient because the husband was unable to pay his fee. It is seldom that a doctor violates the oath of Hippocrates, by which he binds himself before he takes up the work of his profession. That famous formula defines the duties of the physician to his master, his pupils, the sick and himself. With reference to the third of these the doctor promises to treat the suffering as a father cares for his children. He calls down upon himself all evil if he fails in this solemn duty. He prays that he may be accursed. The conduct of this medical man was in direct violation of the solemn obligation. But a case of this sort is only the exception that proves the rule. *In no calling in life is there as much self-sacrifice willingly suffered for the good of humanity as in that of the healing craft.* It is, therefore, all the greater shame that any one man should forget the traditions of a noble profession."

The Late John Eric Erichsen.—Sir John Eric Erichsen, who has been called the brightest literary exponent of English surgery in his generation, as heretofore announced departed this life September 23, after a somewhat sudden illness. He had been in fair health and in a hopeful mood until about one week before his death. Mr. Malcolm Morris, editor of the *Practitioner*, has lately written briefly of Erichsen's position among his confrères: "Sir John represents all that is best in the traditions of English surgery which, as Bilroth says, has since the days of John Hunter had 'about it something noble.' His career has a special interest for me, as in his early professional life he devoted a considerable amount of attention to skin diseases, on which he wrote a book which may even at this day be read with profit. Thirty years ago Sir John Erichsen's operations at University College Hospital were among the surgical sights of London, which students from other schools and visitors from foreign countries flocked to see. Yet on his first appointment he had had difficulties to contend with, which might have dismayed a weaker man. The medical student of 'the forties' was an animal *ferœ naturœ*, as different from the decorous and examination-ridden youth of the present generation as Squire Western from the country gentleman of to-day. I have been told that at Mr. Erichsen's first operation in the hospital theater one of the students expressed his disapproval by throwing a ball at his head; the missile reached its mark, but without disturbing the self-possession of the operator. This little morning mist of unpopularity, however, speedily melted away before the splendid qualities of the man. It is an interesting fact that Sir John Erichsen's first house surgeon was Sir Joseph Lister; the same post was afterward held by Sir Henry Thompson. His pupils, however, are not to be counted merely by the number of those who were privileged to hear the living voice of the master; his great work has for more than forty years been turned over with nightly and daily hand by students, and constantly referred to for counsel by surgeons wherever the English tongue has currency."

Bacteriuria Treated by Internal Drug Administration.—The London *Lancet*, September 12, refers to a paper in the recently issued fourth volume of the Edinburgh Hospital Reports, by Dr. Lowell Gulland, on this subject. Organisms, he says, may make their way into the normally aseptic parts of the urinary apparatus in four different ways: 1, by spontaneous growth from the urethra into the bladder; 2, by instrumental introduction; 3, by the bursting of an abscess into the urinary tract, *e.g.*, from parametritis or appendicitis; 4, by transmission through unbroken tissue from elsewhere, *e.g.*, the rectum, and 5, by passage through the kidney from the blood. Only a few organisms have been proved to appear in the urine in this way. Although the urine forms an almost ideal culture medium no organism will remain in permanent possession of the urinary tract unless it is pathogenic or unless there is retention of urine. Any organism will probably cause a certain amount of damage to the mucous membrane, and its primary development will thus be favored; but as the epithelium recovers, the rate of removal of the organism will exceed the rate of growth and the organism will at last be eliminated. Cystitis is by far the most common inflammation of the urinary tract. The ammoniacal fermentation of the urine, formerly thought to be invariable in cystitis, is only occasionally present, and, as a matter of fact, the urine in cystitis is frequently acid. In reference to treatment, when the acute symptoms of the attack have subsided and the mucous membrane has recovered to a certain extent, there is still over the whole or part of its surface a layer of adhesive muco-pus swarming with organisms. In this condition washing out of the bladder is often most efficacious, but in certain cases it is inadmissible, and recourse must then be had to administration of remedies by the mouth. Drugs to render the urine acid if it is alkaline, are useful. Various germicidal remedies have also been recommended, but all of them Dr. Gulland shows, are excreted in a form in which their germicide value is small. He suggests, however, that although they do not destroy the vitality of the organisms they may have an effect upon their virulence either by preventing the secretion of their toxic products or by neutralizing these when formed. Such a view is extremely difficult to put to the test of experiment.

Mania Following Orchotomy; Successful Treatment with Testiculin.—Dr. A. T. Cabot of Boston, in the *Annals of Surgery* for September, narrates a rare case of the above description in a well-preserved patient of 75. In the course of a crushing operation for stone, the surgeon removed both testes; upon recovery from anesthetic the patient began to manifest a confusional mental disturbance with exacerbations of mild mania. Previous to the operation he had been mentally clear for the most part, although not free from occasional confusion of ideas. The wound healed kindly and the prostate became so much reduced in size that about one month after the operation the patient passed some urine voluntarily. Testiculin was then tried as a remedy for the persistent mental confusion. The improvement under this treatment was prompt, and the man left the hospital about ninety days after the operation. The treatment by injection was kept up about two weeks, when it was discontinued on account of the pain. This is probably the first recorded case in which testicular extracts have been used in such a case as this, but the immediate improvement which followed confirms the belief that the loss of the testicles had something to do with the mania, and suggests the importance

of a further trial of these extracts in similar cases. Care was taken that neither the patient nor the friends should have any idea of what was being given or what results were expected, so that the possible effect of suggestion should be reduced to a minimum. This would seem to be a necessary precaution in any similar trial; for suggestion is a powerful therapeutic agent in such functional nervous disorders. Beside these immediate and psychic disturbances, there are other cases in which the operation has a very decided depressing effect on the general strength of the patient, leading to an amount of shock quite out of proportion to the extent of the mutilation. In other cases, again, the patients have borne the operation well, the wounds have healed kindly, and still, at the end of a fortnight, or perhaps a little longer, they have gradually failed without any marked change in their symptoms and have died. If a case of this sort comes to autopsy, it usually reveals a condition of pyelonephritis, and the death is perhaps sufficiently explained thereby. It is, nevertheless, a striking and suggestive fact that these patients, who have been carrying the load of partially disabled kidneys for a long time, after a slight operation, which heals kindly, gradually succumb by progressive loss of strength without any evident increase of symptoms pointing to an aggravation of the renal condition. This seems to indicate that, by the removal of the testes, the vital force of the patient has been diminished, and thus, in a measure, the theory of Brown-Séquard finds support.

Combined Vagino-abdominal Hysterectomy.—Gaston Hardy appeals in the *Annales de la Soc. Méd. Chir. de Liège*, September, for a combination of the vaginal and abdominal methods of hysterectomy. He advises that in every laparotomy it is wise to prepare for a vaginal operation also, and in every vaginal to prepare to open the abdomen if necessary. His experience seems to have been in many cases that whichever route he followed he wished he had taken the other, and he thinks that only by combining the two can the average surgeon secure the best results under certain circumstances. He advocates the removal of the uterus when both ovaries have to be ablated.

Contribution to the Physiology and Therapeutics of the Kidneys.—Several explanations have been offered for the fact that the xanthin series, caffein (trimethylxanthin), theobromin (dimethylxanthin) and monomethylxanthin, produce diuretic effects on some animals and not on others. It has been ascribed to the composition of the blood, to the diet, etc., but an extensive series of experiments by Corin described in the *Annales de la Soc. Méd. Chir. de Liége*, for September with a review of the subject in all its phases, demonstrates that the diuretic effect of caffein on the rabbit and its absence in the dog, is the result of a vagus tonus possessed by the dog and absent in the rabbit. Hence to place the two animals on a level in this respect, it is necessary to render the vagus inactive in the dog by sectioning it or paralyzing it with atropin. When this is done the caffein produces exactly the same decided diuretic effect on both animals. Corin has established the fact that excitation of the vagus itself, excluding the ramifications that extend to the heart, directly diminishes the urinary secretion. This excitation is without results if the animal has previously been intoxicated with atropin, which demonstrates that atropin paralyzes the vascular or other terminals of the pneumogastric in the kidneys, just as it paralyzes its terminals in the heart. It is therefore to be assumed that the rabbit is without this vagus tonus for the kidneys as, we know it is without it for the heart. He closes with the remark that if there is a renal vagus tonus in man, as there is in dogs, which everything tends to establish, then chloral is not to be considered the best adjuvant for caffein, but atropin or the belladonna preparations are indicated. He is now experimenting on man to confirm this assertion.

Teratogenesis.—Ballantyne remarks in the course of an article reviewing the testimony for and against the theory that maternal impressions can cause defects in the fetus resembling the impression, that it is most extraordinary in its wide extension in time and space, and its firm hold on the minds of both profession and laity. To those who wish to see it dead it is most disappointedly vital, and to those who wish to demonstrate its truth, most strikingly destitute of scientific proof. He concludes that the cases of resemblances reported are merely coincidences, but that strongly marked and prolonged mental states do affect the development of the fetus. Féré states for instance, that the children conceived during the sieges of the Franco-Prussian war can be recognized by bodily and mental stigmata so marked that they are known "enfants du siege." The results of anxiety, insufficient food, etc., are not always teratologic, but may be of the nature of sterility, abortion, congenital debility, etc. To this extent he believes in the old doctrine of maternal impressions, the one grain of truth in the immense mass of fiction, which has had a most maleficent effect on antenatal pathology. The general trend in most countries is decidedly against it, except in America. He mentions references to it in recent fiction, Egerton's "Keynotes," Cobban's "Red Sultan," Merriman's "From One Generation," Henty's "Rujub," Blackmore's "Lorna Doone," as well as in the "Merchant of Venice," "Tristram Shandy," "Fortunes of Nigel," and O. W. Holmes' "Elsie Venner."—*Edinburgh Med. Jour.*, October.

Porokeratosis.—Mibelli has recently described a new affection produced by a hyperkeratosis of the orifices of the sweat glands, which he calls porokeratosis. Dubreuilh has since had occasion to observe a case which confirms Mibelli's announcement that it is entirely distinct from lichen planus in any form. The child, 12 years old, has had lupus and the lesions in question since his first year. They are on the hand and the forearm, and have gradually extended without ever becoming inflamed, or causing pain or special inconvenience. They form an irregular track two to three centimeters wide, skipping the wrist, from the last phalanx to the elbow, consisting of hard, horny, verrucose elevations half a centimeter in height at the elbow. They drop off occasionally, but grow out again at once. The smallest are the size of the head of a pin, and are small, pale conical papules, the summit of which is formed by a small horny tip which projects from the top of the papule, from which it is quite distinct. These are the original lesions, which began on the hand. Scattered among them are a few cones from which a hair issues. The largest lesions are the size of a lentil or hemp seed, and present a central corrugated surface and a surrounding crater-like slope. The center is horny, whitish, opaque, thick and hard, separated from the crater enclosure by a narrow, deep, circular fissure. It is hard to enucleate this center, as it is tough and adherent, but when it is done or falls out spontaneously, the depth of the crater is found to be of the same horny substance. After removal of the crusts the skin underneath is found normal and soft. The general health is good. The *Arch. Clin. de Bordeaux* for August contains Dubreuilh's report with a few more details.

Acute Infectious Diseases and General Paralysis.—In an interesting article in the *Archives Cliniques de Bordeaux* for August, Delmas describes the experiments that have been made by scientists in producing general paralysis, and the conclusions as to its etiology. It is almost universally admitted now that general paralysis is consecutive to syphilis in a large number of cases, which produces this effect by its toxins, as an infective disease. It has also become an established fact that acute infective diseases may be followed, after a certain interval, by a confirmed general paralysis, and still more often by forms of psychopathies such as acute delirium, mental confusion, general pseudo-paralysis, etc., presenting with more or

less completeness the clinical character and the anatomo-pathology of general paralysis. Infection appears thus to play an important, even the principal, rôle, in the evolution of general paralysis and similar conditions, and the query arises now whether general paralysis and the psychopathies resembling it are not essentially of infective origin. He describes one case of the kind following an attack of influenza in the epidemic of 1889, and agrees with Bannister that it is doubtful whether grief or venereal or alcoholic excesses alone could produce general paralysis, while it is unquestionable that they favor the evolution of an infective disease, and thus, indirectly, the paralysis. He mentions among others Charrin's experiment with a rabbit which he kept for four hours continuously on a rotating wheel. Examination of the blood of the fatigued and alarmed animal showed it so full of microbes that one drop alone produced 800 cultures. Widal also relates the case of a rabbit inoculated two months before with streptococci, which apparently retained his usual health until he was placed with a female, when he promptly succumbed to paralysis. Many authorities quoted consider that the acute disease merely arouses a latent paralysis, but Delmas believes that the lesions discovered in the brain after certain acute infective diseases, such as typhoid fever, measles, diphtheria, etc., by Raymond, Barlow, Popoff, Voisin, etc., produce the paralysis in the same way as the lesions consecutive to syphilis.

Free Sanatoria for Tuberculosis.—The Red Cross hospitals in Germany erected in readiness for war, are to be used as sanatoria for indigent consumptives, if the experiment now being tried with one of them proves a success. There are already seven or eight free sanatoria for this purpose in the country, but their accommodations are limited, and they are "merely a drop on hot iron" in comparison with the number of persons affected with the disease (1,200,000). In 1892 Gebhard, the superintendent of the Hanseatic Anstalt für Invaliditäts u. Altersversicherung (Sickness and Old Age Assurance), found that as a matter of business economy it was better to take charge of persons affected with tuberculosis and cure them, than to pay their indemnity in case of illness. The wisdom of this measure became more and more apparent with the increasing numbers of tuberculous persons who took advantage of the offer of the association. At first their expenses were paid at private institutions, but the association is now erecting a sanatorium of its own. The persons thus treated prevent the infection of others at their homes; they also learn the principles of hygienic living and teach them to others on their return. They are also advised in regard to change of occupation if necessary, etc. The report of 26 persons sent to Görbersdorf by an assurance association states that after an average stay of eighty-three days, 73 per cent. were able to resume their occupations; 4 per cent. conditionally, and 16 per cent. derived no benefit from their stay. The treatment was therefore successful in three-fourths of the cases. The Hanseatic association reports 226 cases treated, with success in two-thirds; 155 resumed their former occupation; 81 are known to have continued it; 17 gave up in one to nine months and 57 could not be traced. The association is more than satisfied with this showing, as if only 29.2 per cent. resume their occupations for even one year, the amount of payments thus saved covers all expenses. It is expected that as the public becomes more accustomed to the idea, more persons will apply in the incipient stages when the disease is more easily cured, and the finances of the association benefit accordingly. Dettweiler's combined report of his private and his free sanatorium shows the results of his experience with this treatment, which he considers "very satisfactory;" in 1895, 120 patients were treated, and in 10 per cent. the bacilli entirely disappeared; 24 of the rest were cured part absolutely and part relatively; 73 of the remaining 89 were improved; 9 grew worse; 2 died and 5 did not remain. The average gain in weight was ten pounds. Ascher concludes his review of what has been accomplished in various countries with the statement that nearly every canton in Switzerland is erecting a sanatorium for pulmonary affections.—*Deutsch. Med. Woch.*, September 3.

The Life of the Hospital Interne.—Dr. Charles McBurney, in a recent address, magnified the influences of hospital life in the early career of the good young surgeon. Without stopping at this time to criticize or analyze the glowing periods of the New York professor, we must say that the natural gifts of energy and industry of some of our young surgeons, without hospital privileges, will land them in a higher surgical niche than can possibly be reached by others, their more highly favored classmates, who are lacking in dash and push and wisdom. But Dr. McBurney has a right to be heard whenever he is pleased to speak upon the bringing up of good surgeons. In this connection he is reported in the *Boston Medical and Surgical Journal*, September 24, to have said: "In my opinion the most important thing in the production of a good doctor or a good surgeon, I should say, was his hospital life; that no other single part of his life compared in value to that. Whether he has his four years' course or three years' course, I look upon as comparatively unimportant. The student who has had two years' full course, and two years of good course, and then has a hospital life of two years, is, in my opinion, worth infinitely more than a student who has his four years' medical student life and no hospital experience. I would not be understood as raising a word against the increase in the number of courses, except a word of warning; but the hospital life I look upon as absolutely essential, if we would develop the fine students that we have given M.D.s to. I see that constantly year after year. They come into the hospitals as internes well provided with the fund of knowledge that is acquired by a student in a good medical college, but totally unable to apply it, totally at sea as to what they like and what they do not like, totally ignorant as to whether they are fitted for this specialty or that specialty; and I see them go out of the hospital fully developed, men that I did not expect it of in the least, fine characters, able, self-poised, ready to attack serious problems and fully prepared to become valuable members of the profession. And I look upon this as so important that I would make very large sacrifices in other directions to encourage students to have this portion of time, a year and a half or two years, allotted to them for life in a hospital. There is something about the constant contact with the patients, the constant feeling of responsibility, which is not too heavy to crush, though heavy enough to strengthen, that develops the man month after month with the greatest rapidity."

Report of the Red Cross.—According to the *Lancet*, October 3, in the thirty-three years ending July, 1896, there have been every twelve months on an average sixteen nations engaged in hostilities! On the other hand, the organization of the Red Cross has multiplied its ramifications till even such powers as Japan have fallen into line and become affiliated to the parent society, showing an example which Spain, among other countries, would have done well to follow. Having allowed the Red Cross organization to lapse shortly after the Carlist war, the Spanish government showed signs of a desire to resuscitate it, but as far as we can gather her suppression of the Cuban revolt, with all its sanguinary, not to say ferocious, incidents, has not yet been mitigated by Red Cross intervention. The most interesting feature in the present report is the anxiety Japan evinced to place her relief to the wounded on the best footing known to civilization and to make the provisions of the Red Cross available, not only for her own troops, but for those of her antagonist. Not content with the measure of success with which its Red Cross organization was worked, the Japanese government delegated M. Ariga to con-

fer at Geneva with the central authorities of the society so as still further to perfect the system which in the late war had given so satisfactory an account of itself. In marked contrast to the enlightened procedure of Japan, the Ottoman Red Cross remained inactive during all those Armenian and Cretan butcheries which have scandalized civilization, and when remonstrated with for its inhumane supineness, urged that the collisions between the Turks and their subject population being matters of domestic, not international, import, were outside the competence of the Geneva Convention. When the American Red Cross, having collected large funds for the relief of the Armenian sufferers, sought to apply them to their humanitarian purpose, it was met by the same objection as a bar to its intervention, and Miss Barton, the highly efficient and skilled president of the society's branch at Washington, visited Geneva, on her way to Armenia, so as to learn from the central authority how she could turn to the best account the relief funds placed at her disposal. She found she could apply them only by way of "private benevolence," not as an agent of the Red Cross; and the account she gives of her work, in a letter from Constantinople, is one of the most intensely interesting features of the present report. Another important section relates to the coming *réunion* of the powers which signed the Geneva Convention, a *réunion* which will take place at Vienna next year. Its predecessors have been five in number—meeting first at Paris, then at Berlin, next at Geneva in 1884, then at Carlsruhe, and finally at Rome. One feature of the Vienna meeting was to have been the extension of the Red Cross organization to the calamities of civil life—earthquakes, floods, mining explosions, conflagrations, and such like. It is understood that this proposal has encountered opposition at headquarters; but it would be interesting to know, in the probable event of its being revived, on what grounds so manifestly humanitarian a development of an essentially humanitarian society is to be postponed to the Greek Kalends.

Army Medical School.—The session of 1896-97 of the Army Medical School, Washington, D. C., begins November 4, 1896 and ends March 12, 1897. The order of duties, as announced in the program issued by Major Walter Reed, Secretary of the Faculty, calls for instruction in the pathologic laboratory, daily except Sundays, from 9 A.M. to 12 M.; in the chemic laboratory from 1 P.M. to 2:50 P.M.; and attendance at lecture 3 to 4 P.M. On Saturdays instruction in Hospital Corps drill and first aid is given at Washington Barracks, D. C., 9 A.M. to 10:15 A.M. followed by instruction in equitation at Fort Myer, Virginia, 11 A.M. to 12 M. Lectures are to be delivered as follows: On Mondays, military medicine, by Colonel D. L. Huntington; on Tuesdays, military hygiene, by Major Charles Smart; on Wednesdays, duties of medical officers, by Colonel Charles D. Alden and on Thursdays, military surgery, by Colonel W. H. Forwood. The hours for operative surgery and optometry will be announced hereafter. Toward the close of the session Lieutenant-Colonel Geo. B. Davis, Deputy Judge Advocate General, U. S. Army, Professor of Military Law at the U. S. Military Academy, West Point, N. Y., will give a course on military law. Dr. Robert Fletcher will lecture Monday, February 8, 1897, on the Army Medical Library and the methods of utilizing it. Clinical instruction will be given on Fridays November 13 and 27 and December 11, 1896 and January 15, 1897 at the Government Hospital for the Insane, Washington, D. C. Professor C. W. Stiles of the Department of Agriculture will lecture on Fridays, beginning January 30, 1897, on Parasites in Man. There will be no exercises at the school on Sundays, Thanksgiving day, December 25 to January 1 inclusive and Washington's birthday.

Hypnotic Anesthesia.—Milne Bramwell concludes an article on this subject in the Anesthesia Jubilee number of the *Practitioner* with the remark: "The chief objection to hypnotism in surgery is the difficulty and uncertainty in the induction of the primary hypnosis. Susceptibility varies widely. Recent statistics show that about 94 per cent. of mankind can be hypnotized. With a considerable proportion, however, many preliminary attempts are necessary, and sometimes hypnosis never becomes deep enough for operative purposes. As an almost invariable rule the nervous and hysteric are the most difficult, the healthy and the well balanced the easiest to influence. Some years ago when in general practice, I could usually rapidly induce hypnotic anesthesia among my own patients. Now when my practice is confined almost entirely to those suffering from chronic nervous affections, I find it more difficult to obtain deep hypnosis with insensibility to pain. Under these circumstances, unless grave reasons existed for the non-employment of other anesthetics, I should consider it a waste of time to attempt to hypnotize a patient for operative purposes alone. Apart from this, hypnosis possesses many advantages: 1. Once deep hypnosis with anesthesia has been obtained, it can be immediately reinduced at any time. 2. No repetition of any hypnotic process is necessary, the verbal order to go to sleep being sufficient. 3. The hypnotizer's presence is not essential. The patient can be put in touch with the operator by written order, or by other means previously suggested during hypnosis. 4. No abstinence from food or other preparation is requisite. 5. Nervous apprehension can be removed by suggestion. 6. Hypnosis is pleasant and absolutely devoid of danger. 7. It can be maintained indefinitely and terminated at will. 8. The patient can be placed in any position without risk, a not unimportant point in operations on the throat and mouth, and will alter that position at the command of the operator. Gags and other retentive apparatus are unnecessary. 9. Analgesia alone can be suggested and the patient left sensitive to other impressions—an advantage in throat operations. 10. In labor cases, the influence of the voluntary muscles can be increased or diminished by suggestion. 11. There is no tendency to sickness during or after the operation, a distinct gain in abdominal cases. 12. Pain after operation, or during subsequent dressinge, can be entirely prevented. 13. The rapidity of the healing process, possibly as the result of the absence of pain, is frequently very marked. He adds that numerous operations during hypnotic anesthesia have recently been reported. The following are a few examples. France: Dr. Schmeltz, carcinoma of breast; Dr. Bourdon, uterine fibroid; Dr. Taillaux, colporrhaphy. Germany: Dr. Grossmann, fractures and dislocations. Sweden: Mr. Sandberg, dental operations. Switzerland: Professor Forel, cataract. Cuba: Dr. Diaz, dental operations. America: Dr. Wood, necrosis of humerus. Holland: Drs. Van Eeden and Van Renterghem, dental operations. Many painless confinements, mostly primiparous, have been recorded in France by Drs. Mesnet, Dumontpallier and Fanton; in Germany by Dr. Von Schrenk-Notzing; in Austria by Dr. Prtizl; in Belgium by Professor Fraipont; in Switzerland by Dr. Dobrovolsky; in Sweden by Dr. Wetterstrand; in England by Dr. Kingsbury, etc.

Hospitals.

PLANS for the New St. Alexis Hospital at Cleveland, Ohio, are now completed and the ground has been broken.——The monthly report of the Rochester (N. Y.) city hospital shows the number of patients admitted during the month of September, 72; discharged 60; deaths 9; remaining in hospital 70.——In the will of Maria G. Carr, the testatrix provides that $20,000 of her estate shall go to the Presbyterian Hospital of Chicago, for the purpose of erecting an annex to be known as the "Dr. Wilson Carr Memorial." $2,000 is to go to the Home for the Friendless, $100 to the Humane Society, and $1,000 to the Chicago Historical Society.——The board of governors of St. Mary's Hospital at Passaic, N. J., have decided to modify the

plans for the proposed new hospital on account of the exceedingly high bids received from various contractors.

Washington.

WEEKLY REPORT OF THE HEALTH OFFICER.—The weekly report of the health officer for the week ended October 24 is as follows: The health of the city underwent an improvement of 5 per cent. during the past week as compared with the week previous. The deaths as reported at the health department were 110, with a death rate of 20.37. In the week before they numbered 116, with a rate of 21.48, and in the same period last year 119, with a rate of 22.46. The mortality from typhoid fever fell from 10 to 3, and that among children under 5 years old from 35, with a rate of 0.12, to 25, with a rate of 0.09, while that from diphtheria increased from 5 to 8. Except these no disease was prevalent in noticeable form. Acute lung diseases remained stationary; heart and kidney affections showed a moderate increase and brain disorders a corresponding increase. New cases of diphtheria 12, cards removed 14, remaining 28; scarlet fever 4 new cases, no cards removed and 8 remaining.

PUBLIC HEALTH COMMITTEE.—At the meeting of the Committee on Public health of the Washington Board of Trade held recently, the committee agreed to adopt and recommend the report of last year. The chairman of the committee, Dr. S. C. Busey, called attention to the fact that the board of trade as a board did not secure the adoption of any of the recommendations of last year, but that the medical practice act, the milk act and the act requiring the connection of all houses with sewer and water, had been passed through the exertions of the Public Health Committee of the Medical Society. Dr. Busey is chairman of that committee also.

DECISION IN THE CASE OF ALLEGED VIOLATION OF THE MILK REGULATIONS.—Judge Kimball on the 31st ultimo rendered his decision in the case of a dairyman charged with violating the milk regulations which were made by the District Commissioners. It was charged that he failed to keep his cows clean and that he also failed to provide the feeding boxes required by the regulations. The point had been raised that the commissioners had not the power to make the regulation. The proof was heard several days ago, and the court held that the commissioners had exceeded their authority in requiring that certain troughs and feeding boxes should be used. The court held, however, that the commissioners had the right to require dairymen to keep their cows clean and suspended execution of sentence in the case.

THE EPISCOPAL EYE, EAR AND THROAT HOSPITAL.—A meeting was called on the 26th ultimo to organize an ear and throat hospital under Episcopal auspices. Dr. E. O. Belt read an appeal for such an institution signed by Drs. Samuel C. Busey, J. Ford Thompson, Thomas C. Smith, G. Wythe Cook, William W. Johnston, Frank Hyatt, George N. Acker, N. S. Lincoln, William H. Hawkes, Robert Reyburn, H. C. Yarrow, T. Morris Murray, R. W. Baker, C. D. Hagner, Henry D. Fry, John H. Mundell, T. B. Hood, J. H. Bryan, J. Taber Johnson, William Mercer Sprigg, William H. Fox, S. S. Adams, W. Lindin Bowen, T. V. Hammond, I. C. Rosse, J. S. McLain, W. H. Wilmer, John Van Rensselaer and E. Oliver Belt. The members present adopted the project and the board of governors and managers will consist of several members from each Episcopal church in the District of Columbia; the first medical board to comprise Drs. T. Morris Murray, J. H. Bryan, William H. Fox, William H. Wilmer, Frank Hyatt and E. Oliver Belt. There are also to be three consulting physicians, Drs. S. C. Busey, W. W. Johnston and J. Taber Johnson, and three consulting surgeons, Drs. N. S. Lincoln, J. Ford Thompson and J. W. Bayne. There will be an indoor and outdoor department, the latter a free dispensary, open daily except Sunday. The indoor department will be the hospital proper, with beds for those requiring operations and special nursing. The institution is to be supported by annual subscribers, and memorial beds may be endowed by persons who are anxious to perpetuate a good charity in commemoration of a departed relative.

ESTIMATE FOR THE HEALTH DEPARTMENT FOR THE ENSUING YEAR.—For the health department for the ensuing year the commissioners recommend an increase of six clerks, two of whom shall act as sanitary inspectors and food inspectors at $1,200 each per annum. Six additional sanitary and food inspectors, who shall also supervise the collection of garbage and dead animals, are estimated for at $900 each. A new engineer for the smallpox hospital at $900 is asked, as well as a clerk, who shall be a physician and act as chief of inspectors and deputy health officer at $1,800 per annum. A sanitary and food inspector to assist the chemist at $600 is urged, and $500 is asked for the support of the chemic laboratory. For the enforcement of the provisions of the act to prevent the spread of scarlet fever and diphtheria $6,000 additional is asked, making a total appropriation of $11,000. For the establishment and maintenance of a bacteriologic laboratory the commissioners estimate $5,000. The commissioners renew their estimate of last year of $15,000 for the disposal of the general refuse of the city. An estimate of $50,000 for the purchase of a site for a hospital for minor contagious diseases is urgently recommended, and $25,000 is asked for the erection of a hospital for the treatment of scarlet fever and diphtheria.

Support for the Poor of Paris.—The annual budget for the Assistance Publique amounts in round numbers to the large sum of $8,000,000. Of this amount the surgical and medical personnel receives $200,000.

THE PUBLIC SERVICE.

Army Changes. Official List of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from Oct. 24 to Oct. 30, 1896.

The following named recently appointed Asst. Surgeons will repair to Washington, D. C., and report in person Nov. 4, 1896, to the president of the Army Medical School, for the course of instruction prescribed in general orders No. 78, Sept. 22, 1893, from A. G. O.: First Lieut. Basil Hicks Dutcher, First Lieut. Leigh Austin Fuller, First Lieut. Franklin Middleton Kemp, First Lieut. George Alfred Skinner, First Lieut. Carl Roger Darnall, First Lieut. William Evans Richards.

Change of Address.

Battell, J. G., from Haymarket Thea. Bldg., to cor. Grand and Western Aves., Chicago.

Carson, J. R., from Henderson to Waverly Place, Nashville, Tenn.; Cody, E. T., from Chicago, Ill., to Tucson, Ariz.

Earll, R. W., from Columbus to 1015 Cedar Street, Milwaukee, Wis.

Hayes, H. L., from 1416 Rhode Island Avenue, to 113 First Street, N. E. Washington, D. C.

Lyen, J. B., from Kirkwood to Salvisa, Ky.; Lebensohn, M. H., from Chicago, Ill., to Sunbright, Tenn.

Moses, T. F., from Urbana, Ohio, to Worcester Lane, Waltham, Mass.; McBride, M. A., from Leesville, Texas, to New Orleans, La.

Winterberg, W., from 1132 to 1208 Sutter Street, San Francisco, Cal.; Wunderlich, F. W., from 145 State Street to 165 Remsen Street, Brooklyn, New York.

LETTERS RECEIVED.

Abbott Alkaloid Co., Chicago, Ill.; Ashmead, A. S., New York, N. Y.

Bailey, William Curtiss, Las Vegas, N. M.; Brown, F. F., Advertising Agency, New York; Bishop, W. T., Harrisburg, Pa.; Baker, Philip S., Greencastle, Ind.; Beegle, H. B., Blue Island, Ill.

Columbus Phaeton Co., Columbus, Ohio; Cook, S. E., Lincoln, Neb.; Craig, G. G., Rock Island, Ill.

Dvorak, W. J., Chicago, Ill.

Fenn, C. M., San Diego, Cal.; Fehr, Julius, Hoboken, N. J.

Haralson, H. H., Biloxi, Miss.; Hummel, A. L., Adv. Agency, New York, N. Y.; Hannam, A., London, England; Heidner, G. A., West Bend, Wis.

Kreider, George N., Springfield, Ill.

La Semaine Medicale, Paris, France.

Merrick, M. B., Passaic, N. J.; Moyer, Harold N., Chicago, Ill.; Manley, Thos. H., New York, N. Y.; Mulford, H. K., Co., Philadelphia, Pa.; McAllister, E. B., Terre Haute, Ind.; Mechem Investment Co., Colorado Springs, Colo.; Mather, A., Paterson, N. J.

Oakland Chemical Co., New York, N. Y.; Open Court Publishing Co., Chicago, Ill.

Risley, S. D., Philadelphia, Pa.; Rothgeb, H. D., East Lynn, Ill.

Savage, G. C., (2) Nashville, Tenn.; Steiger, E. & Co., New York, N. Y.; Spencer, John C., San Francisco, Cal.

Thomas, John D., Washington, D. C.; Tyson, James, Philadelphia, Pa.; Team, J. W., Ridgeway, S. C.

Wile, William C., Danbury, Conn.; Winslow, Chas. E., Los Angeles, Cal.; Witherspoon, T. C., St. Louis, Mo.; Whitmire, Z. L., Urbana, Ill.

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ORIGINAL ARTICLES.

A FEW PARAGRAPHS ON AFFECTIONS OF THE LACHRYMAL APPARATUS.

BY WILLIAM B. MEANY, M.D.
MEMBER OF THE AMERICAN MEDICAL ASSOCIATION, ETC.
ST. LOUIS, MO.

It will be apparent to any one who is at all familiar with the anatomic conformation of the lachrymal passages, that certain shaped appliances fashioned from a practically unyielding metal, under the name of lachrymal probes, do not meet the requirement for the purpose they were designed.

We have evidence at every hand of the great injury following the passage of the probe, and the difficulty of effecting a cure for obstinate cases of epiphora, due to obstruction of the lachrymal canal.

The "slitting up" or destruction of the punctæ and canaliculi, for frequent probings, the indiscriminate "plunging" and "twisting" of a bistoury or a sharp double-edged Graefe cataract knife into the tissues of the nasal duct, the application of caustic, tissue-destroying agents, have not only signally failed to effect a cure but, in the majority of cases, have entailed future discomfort and irreparable damage, with little or no permanent benefit to the patient.

Disease at the worst can only destroy tissue.

What is needed in an inflamed mucous membrane, with a hypersecretion of mucus and pus, is something that will coagulate albumin; coagulation of the discharges, taking care to keep the processes in operation for a short time, carefully and frequently removing the coagulated matter, will not fail to arrest the progress of the disease.

The patency of the lachrymal passages is as essential as that desired in the urethral canal, and in some particulars the environment of the lachrymal apparatus requires a perfect condition for the performance of its normal functions.

Simple obstructions from catarrhal inflammation require only a little care in the toilet of the lachrymal apparatus.

When the tears begin to flow through their natural conduits, and are poured out in the right place, in quantity suitable to the need, their useful and multiple office is performed in a way so simple and perfect that no art, however skillful, could equal it; no antiseptic lotion is as free from extraneous particles, or holds in combination better remedial agents than this secretion; why. then, practice meddlesome and needless interference? We will find by careful inspection that preëxisting catarrhal inflammation in the nasal fossæ is responsible, in a majority of instances, as the original cause of the trouble in the lachrymal canal; its extension is easily facilitated owing to the continuity of structure.

An ordinary Schneiderianitis has been known to produce more or less discomfort of the patient, by the further involvement of the mucous membrane lining the lachrymal canal, not only affecting the inferior end of the nasal duct and sac, but extending to the canaliculi, through the punctæ, producing irritation in the ocular and palpebral conjunctivæ. In obstruction of the lachrymal passages due to inflammatory disturbances, the palliative or antiphlogistic plan of treatment should obtain. Filling the nasal angle of the orbit with warm saline, or saturated solutions of boric acid, the gentle massage with the fingers of that part of the face over the nasal duct and sac, so as to afford sufficient aid to effect irrigation and drainage into the nose will, in the majority of cases, bring about a cure; and sometimes, if this simple plan of treatment be adopted in chronic inflammation of the sac, in conjunction with proper attention to the nasopharynx, no other treatment will be required, save in debilitated subjects.

Chronic inflammation of the lachrymal sac, or chronic catarrh, is of frequent occurrence. The symptoms are well known and need not be detailed here. In the normal condition, the lining membrane of the sac secretes only a little thin mucus, but when irritated, the quantity of the fluid becomes increased, and its quality changed; the sac becomes distended, and on pressure a clear and thick viscid fluid exudes in many instances through the canaliculus. According to some, pus is rarely seen unless there is some untoward irritation (such as may be produced by the laceration of the membrane by injudicious probing), causing ulcerations of the membrane.

As a rule, there has been some chronic inflammation preëxisting in the lower part of the duct and nasal fossæ, in most cases of chronic inflammation of the sac; this having led to the contraction or closure of the inferior orifice of the canal, and to this region must the treatment be directed.

We have now to select a plan of treatment for the removal of the cause of the trouble. By directing our efforts toward the original catarrhal condition involving the nasal fossæ and lower orifice of the duct, and the introduction of solutions of boric acid, euthymol, hydrastia, hydrozone, papain (and, should occasion require it, the 1 to 5,000 bichlorid solution carefully instilled), using an Anel's lachrymal syringe for the purpose, by gently inserting the nozzle through the patent canaliculus into the sac.

Care should be taken to avoid over-distension of the sac; this can be readily accomplished by emptying the sac at frequent intervals of the fluid injected.

Another method of treatment, and one which can claim prestige for a quarter of a century or more, and has never been known to vary in any particular (save recently the addition of cocain, that the patient may be rendered insensitive to pain), and is employed by many surgeons up to the present time, may be correctly described as follows:

The inferior canaliculus is "slit up," a metal probe is then passed down into the duct until it reaches the inner wall of the sac, often with great difficulty and the employment of much force; the patient complains of severe pain, a little blood appears, as the mucous membrane has been torn, and perforation of the membrane follows and false passages are made.

A week elapses and the same performance is repeated, and goes on from week to week, with some form of a style, it may be of gold, silver or other metal, yet they fail to prevent the formation of dense cicatricial strictures in or below the sac; obliteration or destruction of the lachrymal sac with caustics accompanies this method of treatment.

An opening made externally through the skin down to the sac, affords better facilities in the treatment, and possesses many advantages over the passage of a probe; a clean incised wound in this location heals quickly and kindly, and the inflammation rapidly subsides.

In cases of obstruction of the nasal duct where there has been abscess of the lachrymal sac, occurring, as it frequently happens, by inappropriate, or absence of treatment, it is not uncommon to find external fistulous openings just below the inner canthus. The openings may be small or almost invisible, or at least surrounded by an ulcerated area.

In such cases it is sometimes sufficient to cure the obstruction of the nasal duct — the fistula healing without treatment; more frequently, however, further operative procedure is essential to the cure.

Formerly, it was considered good practice to pare the edges of the fistula with a fine scalpel, but this procedure often results in a visible and unpleasing cicatrix in a conspicuous part of the face.

It has been my custom, for some years past, to use the Volkmann's scoop to scrape away all unhealthy and thickened tissue that may be in propinquity to the fistulous openings and apply a pad of dry (sublimated) lint, or distilled water dressings.

When the surface to be scraped is small, this is usually followed by rapid healing without a visible scar; when the surface is large, it is customary to wait a few days until the surface presents a red, granular appearance, and then proceed to graft certain minute portions of the skin taken from the patient's arm or elsewhere.

These grafts spread out, and become a center of new skin growths, to meet the in-growing circumference of the patch, and usually in one week's time from the grafting, the surface will be found to have kindly healed, with only the slight redness which is natural to new tissue.

These grafts grow rapidly, and thus materially assist in preventing the contraction which otherwise follows the healing of a wound; by covering the wound with gold-beater's skin the new growth formation may readily be observed, and the scraped surface protected from noxious atmospheric influences.

The canaliculi are occasionally obstructed with concrements of micrococcus masses that appear to have found their way into the lachrymal canal from their "home" in the buccal, naso-pharyngeal and laryngeal cavities. The leptothrix buccalis, the chain and spiral cocci, the streptothrix and pneumococci, have been found in the lachrymal canal; this canal has ever been a source of danger to the ocular and corneal conjunctivæ, as the starting-point for morbid growths—of which we may include pterygium rather than the acceptance of the internal deep-seated vibrio theory—dangerous perforating ulcers of the cornea and suppurative processes that have, in a number of recorded cases, caused destruction of the eyeball. The lachrymal canal is a fruitful source of infection, and frequently transforms the best of operative procedures into disastrous failures.

No surgeon should neglect to carefully inspect the naso-pharyngeal and lachrymal passages, and see that morbid secretions in these passages are removed and the passages rendered aseptic, before operating upon the eye. When therapeutic measures, after a fair trial, have failed to remove the obstruction, so as to admit of proper drainage of the lachrymal canal, the introduction of flexible rubber filiform bougies, the Eustachian bougie, catgut and silkworm-gut ligatures, or electrolysis may be resorted to.

There can be little doubt that a certain proportion of cases of obstruction indicate a specific origin; the local treatment can be readily merged into the constitutional. Should tumors, dacryoliths, deformed turbinates and morbid growths appear, the therapeutic local treatment will in no way interfere with the adoption of any surgical measures that may be required.

Electrolysis is more expeditious and free from danger, and complications are almost *nil*, when compared to the passage of probes, the wearing of various forms of tubes or styles, nitrate of silver and other caustics and powerful astringents.

By electrolysis, the site of its influence can be limited to the smallest point. The duration and extent of its decomposing action is entirely under the direction and control of the operator.

The material to be decomposed by electrolysis in stenosis of the lachrymal canal is not dense, and does not offer great resistance, and therefore a battery composed of a small number of cells is sufficient. A galvanometer, however, is required for the purpose of measuring the current, for different batteries have a different electro-motor force; a difference also exists in cells which have been recently charged, or which have been in use for a long time.

Two to four milliamperes will be found a sufficiently strong current to enlarge any narrow lachrymal canal. For stenosis of the lachrymal canals, a probe made of platinum, small enough to be inserted into the punctum, is introduced and passed along the canal to the nasal duct; the probe is fitted into a handle, which is attached to the negative pole of the battery. A flat electrode, covered with some substance that will retain moisture, is connected with the positive pole, which generally is placed on the back of the neck, having been first moistened with salt water. The handle of the negative electrode has a mechanism for completing the circuit.

With four milliamperes the enlargement of the canaliculus takes place in thirty seconds; no local anesthetic is required.

In a few seconds after the circuit is closed the probe, which was at first gripped tightly in the canal, can be made to move backward and forward along the canal with ease.

During the operation, a little froth collects by the side of the probe and oozes out of the punctum; this, with a sharp stinging sensation, which lasts thirty seconds, is the only discomfort the patient has to endure.

The advantages attending this procedure are chiefly due to the fact so little alteration or displacement of

the normal channels is effected. By it we have the means of increasing the lumen of the punctæ and canaliculi without excessive stretching, which must necessarily alter the conditions of the surrounding muscular and other structures.

2602 Locust Street.

MATERNAL IMPRESSIONS.

BY WM. F. BATMAN, M.D.

VICE-PRESIDENT INDIANA STATE MEDICAL SOCIETY.
LEBANON, IND.

The definition of maternal impressions is that a profound and sudden impression made on the mother's mind may pervert or stop the growth, or cause defect in the child with which she is pregnant.

Maternal influences over the young have been recognized from the earliest history of man. The thirtieth chapter of Genesis gives Jacob's policy whereby he became rich. He pilled the rods of green poplar, hazel and chestnut and set them before Laban's herd and by maternal impressions he colored enough of the herd in ten or a dozen years to become rich.

And the next chapter tells us of Rachel's influence over Joseph and Benjamin to impress the race of mankind.

While this force has been recognized among all nations of people, it is only in the last few years that an attempt has been made to separate the truisms from the superstitions on this subject. In fact if you wanted the greatest superstition for ages, the one on maternal impressions would linger to haunt the members of each new generation.

There are two classes of defects which have been attributed to these impressions: The perceptible or bodily deformities, and the imperceptible or mental defects. First, the perceptible or bodily defects, we will verify by a few well authenticated cases:

I attended a multipara mother a few years ago, who gave birth to an akephalous fetus. The head of the child had no bones at the side and top part of the cranium. The top of the head was even with the superciliary ridges and auditory meatus, showing total absence of a cerebrum. The scalp was complete and well covered with hair. The child was well formed and above the average in size. It was stillborn. The mother believed the cause of this to be the caring for a sick dog while she was in the third month of pregnancy. But Prof. Rudolph Virchow of Berlin, thinks that these cases are the result of hydrocephalus.

Dr. Joseph Haven reported the following case to the Chicago Medical Society, Dec. 9, 1895: "Twelve or fourteen years ago I was in attendance upon a family in this city, one of whose members was a little girl 8 or 10 years old, extremely nervous and high strung, who possessed an uncontrolable fear of dogs. Anything in the canine race, even the picture of a dog would distress her. Her mother, explaining the matter to me, said that while carrying the child *in utero* she had been frightened by a dog, and that the girl had inherited that fear. As the child grew older she did not outgrow that tendency. During an attack of typhoid fever, in her delirium she had frequent visions of dogs, so that it was often necessary to employ narcotics to quiet her. The child grew up and was married, shortly after which she became pregnant. About the sixth week of pregnancy I was sent for in a hurry. I found Mrs. D. hysterically excited. I was told that in going out of the yard a neighbor's dog jumped upon her and terribly frightened her. She was put to bed, began to flow, and a miscarriage seemed imminent. But she was tided over. I saw her daily after that for some time. She assured me that her child would be marked like a dog. I tried to disabuse her mind of this idea. Time went on and about the third month the same dog jumped on her again and bit her in the foot, inflicting a slight lacerated wound. It was some time before I could go to the case and when I reached the house a miscarriage had just taken place. I took possession of the fetus, being careful that the mother should not see it. On account of the peculiarity of the specimen I secured the dog that had been the occasion of so much trouble, and to-night I show you the skull of the dog which I would like to have you compare with the little monster. Those who believe in the transmission of maternal impressions will get some consolation from examining these specimens, and those who believe such results happen as mere coincidences will have to account for this freak as best they can."

Here is a case that occurred in the practice of my colleague, Dr. J. C. Sutherlin of Ladoga. This case differs from any that I have known or read of, the impression being caused by an act of anger on the mother's part. At about the fourth month of pregnancy she was insulted by a minister. She was getting a meal at the time and was in a perfectly good humor, but happened to have a large knife in her hand. The minister had his right hand, palm down, resting on a table. The insult was unexpected and made her so intensely angry that she struck at his fingers with the knife, fully intending to cut them off, which fortunately missed the culprit and left him unharmed. A female child was born with the ends of the fingers amputated on the right hand, the same hand the mother used in striking.

One of the most striking cases reported is that of Dr. Addenbroke, *British Medical Journal*, May 13, 1871. "Two women, sisters, both at about the third or fourth month of pregnancy, were assisting their mother, who was an invalid, to night stool, when she was suddenly paralyzed on one side. The daughters were greatly shocked, and at full term each gave birth to a child with facial paralysis on one side."

We could go on and multiply cases well authenticated showing how these impressions have marked the skin, pierced holes in the ears, maimed and deformed the extremities, injured the arterial and nervous systems, indeed, caused malformations in every organ and part of the body.

Professor Rokitansy, the great pathologist, says that mental emotions do influence the development of the embryo. He also refers to the frequent anomalies of vascular system caused by them.

The period of pregnancy is most liable to impressions for bodily defects in the third and fourth months. There may be an excess as well as an arrest of development. Some of the imperceptible or mental impressions are very hard to discriminate from certain hereditary traits. Now, there is no doubt that sudden or prolonged impressions on the mother's mind will cause bodily defects. How easy it would be to derange the soft pulpy brain structures with its thousands of delicate cells and pervert their action for future use, thus giving us more evidence for charity to our weaker members of society. How well I remember this statement from an intelligent, proud society woman of Crawfordsville. She raised two boys and they were both affected with alcoholic dip-

somania. One studied law with Lew Wallace, who said he possessed a bright mind and was gifted with oratory. The other was a most efficient clerk and salesman. They spent a fortune and both died a premature death, slaves to their appetite. This mother told me, with tears in her eyes, that she could never blame the boys like others, for she craved whisky while carrying both of them, till she would weep with agony. The father was an excellent man morally, and accumulated a fortune by his own work.

James I. would pale at the sight of a drawn sword, alleged to have been caused by his mother, while pregnant, seeing Rizzio cut down.

One of France's bravest generals, whose courage Napoleon said was the best, became pale and tremulous when he saw a sword, caused by his father in a fit of jealousy trying to kill his mother.

The following is what the *Commercial Tribune* says about the child murderer, Carl McElhinney of Dalton, Ohio: "The question, is the boy morally responsible, remains unanswered. Half a dozen physicians of this and the surrounding towns have labored in vain to solve the mystery of Carl McElhinney's peculiar brain. At a consultation of two physicians, it was decided that the child murderer was not, and is not, mentally deranged. Further facts, however, were not established. Dr. H. R. Bittern, one of the examiners, propounded a theory based on anterior conditions. Said he: 'This is only a theory, and is presented merely to help a solution of the mystery of the mental condition of seven-year-old McElhinney, and is not to be taken as my final conclusion. I have some belief in the inheritance of mental idiosyncrasies. Both Mr. and Mrs. McElhinney were of sound and healthy mind. However, at and before the birth of Carl, I believe, Mrs. McElhinney's mind was not in an easy, natural and normal condition. This might account for Carl's singular mental formation. Before Carl's birth Mrs. McElhinney was an assiduous reader of novels. Morning, noon and night her mind was preoccupied with imaginative crimes of the most bloody sort. Being a woman of fine and delicate perception, she appreciated to an extent almost equaling reality the extravagant miseries, motives, villainies set down in novels, so that her mind was miserably contorted weeks before the birth of her child Carl. The boy was an abnormal development of criminality. He has a delight in the inhuman. It takes intense horror to please this peculiar appetite. Murderer Holmes was such a being, but even he did not show his tendencies before maturity. I believe criminal record does not show a case so remarkable as this. As the boy matures these mental conditions will mature. He is dangerous to the community, and I doubt that even a severe schooling in one of our severest reformatories would better his condition. However, by all means, he should be sent to one."

Wars or any tumult in society that may excite fear, anxiety or grief in pregnant women are dangerous. The instance of idiotic and stillborn children to the number of one hundred being born near the great siege of Landou in 1793. proves this.

We, as scientific physicians, who Dr. Victor C. Vaughan says are one hundred years in advance of the politician, should teach our patrons how to care for our pregnant women, and the danger from maternal influences. The Spartans bred warriors, and I believe this generation can breed a better people. One of the future advances to help the generations to come, will be to teach them the power of maternal influences, with better care of our pregnant women. This, with a proper knowledge of the dangerous hereditary diseases in marriage, will strengthen the human race.

EVOLUTION OF GIRLS.

Read in the Section on Diseases of Children, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5-8, 1896.

BY HARRIET E. GARRISON, M.D.

DIXON, ILL.

The question whether man has ascended from the monkey or descended from "a little lower than the angels" does not matter in the present discussion; also whether women have passed to a higher or lower plane in the evolution of our higher woman; whether it is a higher sphere to wield the keen, logical brain of a Maria Mitchell or to be the mother of a host of well trained sons as Cornelia, is not pertinent to the present subject. For the reason that popular opinion, before which we all fall prostrate, says woman's brain, whatever its capacity, must be made to hold a certain amount of book lore which we call an education. Sometimes when we have this erudition applied we think with the poet, "Knowledge comes, but wisdom lingers."

"Go on to perfection" is the motto written above every scientific laboratory door; and one of the most weighty problems for the scientists now to solve is, how can the little tiny mite of brain force, which has just given its first feeble wail of protest against the tremendous activity of the nineteenth century, be evolved into the vast intellect which she must have when she becomes a higher women, with the least loss of nerve force?

The majority of our women are the victims of nerve exhaustion. How can it be prevented? If child nurses can only be taught to watch the promptings of nature and assist her in her work the task of developing infancy into perfect womanhood would be a comparatively easy one. But the mother usually wastes all her nerve energy in useless repining from the time that she believes a new spark of life has been kindled until the anguish she dreads has been endured, or she is spending it in a vain effort to have a perfect child. One of our very highest women, a university graduate, said to me when I was called to prescribe for her three-weeks-old baby, "I was so anxious to have my child well born that I studied and practiced every detail of diet and mental gymnastics laid down in tokology and several kindred works, but I almost died when baby was born, and here he is, as you see, continually unhappy. He has been fed at the breast under the guidance of a trained nurse recommended by my physician, and her regimen has been very exacting. The only time the child seems comfortable is when he is disrobed for his bath, although the clothes have been made and are worn according to the directions sent out by one of the largest sanitariums in the country." "Well, my dear madam," I replied, "you were so anxious to have your child well born that he has gone clear back to the state of primeval innocence of the Garden of Eden. If you had rested your brain by pleasant reading, eaten what was wholesome and nourishing, in reasonable quantities at accustomed times, and then allowed nature to care for it without spoiling her work by torturing yourself with imagining that the food would injure you or

your child, and had kept your physique in good condition by light, agreeable exercise, most of it taken in the open air, or, as a résumé, taken life easy and trusted in Providence, you might have stored up sufficient nerve force to have made your labor more easy and your child would certainly have been in as good condition as he is now; and my experience says he would have been in a better condition than he now is."

The purpose of this article is not to call attention to the clothing and diet necessary to develop healthy girls, but to point out some of the things which have been overlooked in their evolution.

We will now glance at some of nature's indications for development. The cells which control the higher attributes are located in the anterior lobes of the brain, while those which control the animal functions of the digestion and motion are in the posterior or central part. The natural mechanism of labor compresses the anterior lobes into the smallest possible space, while the other lobes undergo less pressure. This is made possible by the largeness of the anterior fontanelle as compared with the posterior. In this way nature takes care of what is necessary for the child, and in other ways provides for future development of the higher attributes. Modern scientific investigation teaches that for the first few years of life the brain can be changed and the different attributes helped or hindered in their development. Brain material, like everything else, must have room to grow and there can be no growth in a part that is compressed. It is easy to tell in almost every child, when a few months old, by the shape of its head if it has been kept a very long time in one position. The side or part upon which it has been lying will be flattened. Nature teaches that a girl is first a pronate, then a four-footed, after which she becomes an erect animal. If the girl is allowed to follow the dictates of nature the higher brain will develop as she slowly evolves from one type to another. But here our civilization steps in and instead of allowing the embryo woman to develop along nature's line and be allowed to squirm, kick and roll through early infancy, she is forced into all manner of unnatural positions by pillows and props. As our girl is not allowed to develop the front brain naturally, we must instruct our nurses to assist the development by frequently placing her pronate with the head lower than the chest. This can be done by placing the child across the knees of the nurse with the head projecting beyond and hanging slightly down. This is the position which colicky babies so much enjoy. Perhaps colic is due to the blood being in the abdominal viscera when it should be developing the higher attributes of the brain; hence the relief when it is sent where it belongs.

The more cultured the family into which our girl is born the less she is allowed to take the exercise intended by nature for her proper development. From birth she is held in as nearly an erect position as possible and propped into a sitting posture by pillows and that instrument of torture, the high chair, in which so many weary hours of childhood are passed. I frequently find little girls who have never resumed the recumbent attitude, except when asleep, since infancy and the mother says with pride, "my little daughter never crept like common girls." We hope in the future we will have more "common" girls. When the child is sleeping she must be crowded around with pillows for fear she might attempt to use her muscles and roll over and give an ungraceful kick when the nurse is not by to curtail the movement. As soon as possible baby is placed upon her feet and encouraged to walk to show how smart she is. This craze for smartness is the curse of this age.

In girls the evolution from one type of animal to another should be made slowly, not alone to give the higher brain a chance to develop by the pronate posture and the position required in creeping, which makes the anterior lobes the most dependent part, but also that the uterus and its ligaments may be properly developed so that they may stand the strain brought upon them when the girl assumes an erect posture. From my study of the development of the uterus I expect and have demonstrated by examination, that a girl who has never learned to creep has a flexed or infantile uterus. In creeping, the pelvis being higher than the chest, the force of gravity carries the intestines toward the diaphragm, and in this way pressure is removed from the undeveloped uterus and it unrolls and assumes the normal position. A girl naturally creeps a little space, rises to her feet by some object of support and then drops to her hands and begins creeping again, in this way alternately relaxing and stretching the uterine ligaments. Could there be a more perfect way to strengthen ligaments of any kind.

But our evolution has carried our girl through the necessary kicking, rolling and crawling of infancy, on the floor in winter and out of doors in the sand pile or on the seashore in summer, to girlhood. She has not been kept in one position long enough to allow compression of any organ, and if for any reason there seems to be a lack of development anywhere we have used all means, by posture or otherwise, to send a good supply of blood to more fully nourish the weak part.

We do not now seek to unduly develop the brain to make her brilliant, as force-plants are short-lived, but we urge her to rival her brothers in all out-door sport which will develop vigor of limb and strength of muscle, then she is as nearly fitted as possible to enter the high school, to go through the cramming, jamming process to reach what we call an education. This process crushes out the lives of many of our sweetest and best girls; but no matter, our school system must be preserved at any cost.

Our evolution has developed our girl into such a little perfect animal that she may endure (although I wish it were otherwise) the strain of sitting on a bench at a desk for long hours to have crowded into her brain material which must be jammed out again, because, forsooth, the brain is not large enough to contain it all; and in the haste there is not time for each cell to grasp the part which it should store, before more is given it to do. Occasionally we find a child whose brain will store all given it, but in most cases it is a dismal failure.

Can not some social economist evolve a plan by which the brain can be fed and developed to think and reason without this great waste of nerve force? Counting this loss alone the cost of our school system to the State is something enormous, and not in any way commensurable by the results attained. But if our girl must go through this grind she must be prepared for it in the best way possible.

To supply the higher brain so that it may not suffer unduly we must suppress other nerve activity. A great deal of nerve energy can be economized by delaying the evolution from girlhood to womanhood.

This can be done by proper hygiene and medication. All sensational literature should be excluded from a girl's library.

Girls should become accustomed very young to cold plunge baths. A few minutes' rest after returning from school, lying down with the pelvis on a higher plane than the shoulders, or in the knee-chest position, minimizes the effects of the prolonged sitting in the school room. Plenty of vigorous exercise in the open air is needed to expel the school room dust and carbonic acid and invigorate the blood by the deep draughts of oxygen, which spirited exercise carries into the remotest recesses of the lungs. We see no reason why race running, rowing contests or ball playing should be given over to the boys. In these the element of contest adds more vigor to the game, but in school contests which bring the girls at an early age before the footlights there is no compensation for the undue excitement, and therefore is to be deplored. If military drill is beneficial to the boy, then it is doubly so to the girl, as her organs sustain more injury if she does not walk right and carry herself properly, and the girl is in more need of the discipline, as one of the evils of the present method of girl-raising is the absence of control. Bicycle riding is yet too new an experiment for us to fully determine whether it would be beneficial to growing girls or not. We think it might be if taken in moderation and proper position, but it must be injurious if carried to excess or taken in the stooping position with an improperly arranged saddle. We can see how it may be beneficial in developing self-control. Girls are allowed to think it womanly to scream and become hysteric at every trivial incident. If learning to ride a bicycle will correct this it will have done a grand good work.

Medication: If the lassitude and indisposition to work, with the wearing pains which sometimes accompany the evolution from girlhood to womanhood, begins to appear, then use calmatives such as viburnum prunifolium, cimicifuga racemosa, and above all I have found helenin, the alkaloid of inula helenium, especially valuable in controlling erotic excitement. Above all teach the mother that it is not necessary for her little immature girl to be subject to this nervous strain every month, but that it is necessary that she be kept strong and well.

DISCUSSION.

Dr. C. G. SLAGLE, Minneapolis—If the advice of that paper were heeded we would have fewer delicate girls. Too much novel-reading, too much "culture and refinement," as they call it, causes too great strain on the nervous system. There should be very little difference between the sports or pastimes of girls and boys up to the age of 10 or 12. Until then the girls should be allowed more freedom, within proper limits, than they usually enjoy. Their nervous system should be better protected. This thing of forcing babies to be smart, forcing development, intellectual development especially, is certainly very dangerous. I think there can be no question that if most of our nervous, weakly girls could be induced to use the bicycle in moderation it would be very beneficial. The best article upon this subject was written recently by a celebrated doctor of London. He contends, bicycling in moderation, with the proper saddle, in the erect position, is beneficial to most and particularly to delicate women. In Minnesota, the climate of which is generally considered very healthy, we have considerable chloro-anemia. I find from the history they are too passive, have been pampered and petted too much, allowed to have their own way and not given exercise. Their energy is gone, if they ever had any, so you can not induce most of them to ride the bicycle. They want to lie in swings and read light literature. Their is something about higher civilization particularly enervating to girls.

Dr. EDWARD H. SMALL, Pittsburg, Pa.—If any of your patients, particularly girls, speak to you about bicycling, tell them to always have the handles at least two inches higher than the seat, then the rider can not lean over. Tell the girls to keep their arms well back and then their chest can not be hindered in development. In Pittsburg most of the girls ride bicycles, skate, etc., and chloro-anemia is not frequent.

Dr. A. C. COTTON, Chicago—I have not thought before of the children developing the anterior lobe by creeping on the hands and feet. Often the baby is undoubtedly relieved of some discomfort by being laid over the knees with the head dependent. Yet you know you can hold the baby to the shoulder and by applying pressure over the abdomen the pain will be relieved.

Dr. HARRIET E. GARRISON, Dixon, Ill.—I hoped to be able to present some photographs of children I have been developing along this line. They have very well developed heads. This should not be overdone, but there is certainly a great deal in the position of the child in early life.

HIGH PRESSURE PROCESS OF TEACHING IN OUR PUBLIC SCHOOLS CONSIDERED FROM A MEDICAL STANDPOINT.

Read in the Section on Diseases of Children, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5–8, 1896.

BY W. H. SHORT, M.D.

LA GRANGE, IND.

There are different temperaments and organizations in our school children, and of necessity it would be impossible to adopt any method of teaching that would reach all in a satisfactory manner; no one course or routine would be perfectly satisfactory to the highly nervous child and apply equally to the lymphatic and sanguine temperament. But we ought to be able to so conduct our schools that we may do the greatest good to the whole number.

Our present school system is a high pressure process with a constant tendency to add more branches, so that little children have five or six studies and with department method, as many teachers. Children of eight or nine years of age are urged to high intellectual effort and are expected to master studies which a few years ago were only attempted by children fourteen or fifteen years old. Are we thus doing the best for the coming men and women?

We have certain unmistaken effects among our school children, and there must be a cause. Who originated such an elaborate course and what was the object?

It evidently was not by those who were competent to judge of a growing child's endurance. Writers and publishers of our text books are influencing our legislatures to inflict such herculean tasks upon the youth of our land. We readily see why this course is being adopted so generally. Shall we stand idly by and allow the children to be thus wrecked mentally and physically?

Can a little child study five or six branches and comprehend them? And if he can not and is oversensitive, will it not affect his nervous system and secondarily his whole organization?

Can the scholar develop into a well organized being by thus overpowering the child with so much brain work? We have often observed this trying ordeal among the nervous class, during monthly examinations; the scholar becomes restless at night, fails to take sufficient nourishment, becomes constipated, complains of

being tired with a constant headache which in its incipiency, is generally relieved by rest and out-door life. There are many causes in and out of the school room which have a tendency to increase certain diseases, but our present school system increases nervous diseases with all their horrors, often worse than death, and often close in the wake of disordered nervous systems follow tuberculosis which ends the school work of many who promise so much in early life.

The highly sensitive are in great danger from overwork, while those less susceptible do not worry and thus retain their balance, recuperate and throw off influence of school and studies, as soon as at play. How different with the nervous child, who when overtaxed can not throw off anxieties and is constantly expending his nervous energy. We first have slight ailments to treat, but soon the child does not recover from his trouble so easily. The headache becomes more persistent until we finally have congestion of brain, epistaxis, increased digestive trouble with more or less anemia. With the child thus affected his work becomes more irksome and he now requires urging to keep up with the classes. Repeated attacks soon produce a weakness of blood vessels and nerve centers so that slight causes precipitates one of these attacks.

Such children soon become restless and emotional and easily excited or depressed. The girl is now in a condition to be easily afflicted with hysteric trouble which we have so often seen as a climax of school pressure; and the boy thus goaded on does not fare better, for he is in danger of resorting to habits that endangers soul and body.

There can be no doubt that when the sensitive are thus over-worked, we frequently have the epileptic trouble developed. Even if we do not have such serious trouble follow, many are so affected that they are unhappy and unable to compete in life's great battle. Many of our school children are obliged to wear glasses and this is largely due to this same high pressure process.

The eye must have rest, and the child who is compelled to work hard during school hours and until late at night can not thus accommodate it. Thus, not only one organ or function becomes involved by this great strain upon the developing child but every part of the organization is not only endangered but many valuable lives sacrificed in order to satisfy a false delusion called education. With the present tendency to keep adding more branches each year to our course of study we will have more irritable brains to treat with all its sequelæ.

Have any of our really great and strong men or those who have achieved greatness been thus educated? Some of our greatest men only had a knowledge of the common branches, until well matured, and with some practical knowledge of life, a good physical organization and an abundance of good common sense were enabled to honor the highest positions that fame and fortune could willingly and justly bestow.

The present over-pressure process of teaching is having a deleterious effect on our school children in many ways. Not only is disease thus produced directly but we are injuring their reasoning powers in not allowing them to develop into strong physical beings. A child thus overtaxed may arrive at manhood, or womanhood but will never be able to compete with those who are allowed to develop mentally and physically co-equal. The child who is carefully taught only such branches as his mind can comprehend, and new studies undertaken only when he is competent to understand them will, other things being equal, accomplish more in the literary world or achieve greater success in other spheres of life. He will be saved untold suffering and not become a burden to our commonwealth. If we continue to crowd our children through the public schools without reference to their physical or mental ability we must increase our burdens, for many are drifting into our public institutions for treatment.

If we do not call a halt some will have to seek knowledge in schools for the blind, others find refuge in our asylums for the insane, while we will be obliged to establish an institution for a class of nervous individuals who will become so vacillating and unbalanced, that society will not tolerate them.

We are having more cases of acute tuberculosis among those who are lowered in vitality by this overpressure. They can not resist or throw off ordinary diseases as they ought. As we observe so many falling by the wayside, unable to complete a satisfactory common school course, owing to our present mode of teaching, we are assured our system is too complicated and obscure, and should be so remedied that all may be enabled to take a course that will fit them for the ordinary vocations of life.

Our teachers should be men and women who understand human nature and be able to develop the scholars' faculties without promise of reward or menace.

The child who is always on a high tension from such influences can not do good work mentally and is injured physically. If this high pressure process continued through the growing child's education, it must cause a great sacrifice to our coming men and women. While if our school children are developed by a judicious course they will attain the greatest success in the various vocations of life.

As physicians and philanthropists we should interest ourselves in this method of teaching and ascertain if a better way is not feasible; and while trying to remedy this great evil, not lose sight of the many other causes that are working deleterious effects among our school children. We assert that if the children are allowed to develop co-equal physically and mentally, and only as their delicate organizations will permit, they will become stronger men and women and thus help solve one of the great problems of the coming century.

A CASE OF DOUBLE EXOPHTHALMUS.

Read in the Section on Ophthalmology, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

BY H. BERT ELLIS, M.D.

LOS ANGELES, CAL.

At 1:45 P.M., Feb. 11, 1895, I was summoned to see a man. The demand was urgent, as the patient was "bleeding behind his eyes." Before 2 o'clock I arrived at the place and found the patient on his back on the floor, with blood trickling from both eyes and ears. The right eye protruded from the socket, beyond the lids; the left also protruded from the socket, but the lids covered most of the ball, the palpebral slit being open only about a quarter of an inch. The intraocular tension of both globes was of stony hardness and the pressure from behind on the balls was so great they could not be made to recede at

all, and this pressure was so uniform that voluntary movement of the eye in any direction was impossible. The displacement was directed forward, the eyes looking straight in front. Both anterior chambers were filled with blood, completely obscuring the irides and pupils. Blood was oozing from all portions of the conjunctivæ, but there seemed to be more hemorrhage beneath that portion which lay in the horizontal diameters of the balls, the most profuse being between the external canthi and the corneæ. It was my first impression that there was a double aural hemorrhage, as blood seemed to be flowing from both external auditory canals. But neither the man's position nor condition was favorable to a careful examination at the time.

No evidence of traumatism had been found, excepting a slight bruise on the forehead where the man had evidently struck the floor, when falling from the lounge. I could find no signs of violence.

The history of the case prior to my arrival was briefly as follows: Mr. M., aged 35 years, who had been in the block some nine to twelve months, was temperate and spent most of his evenings in his rooms reading. For the past three weeks he had been drinking to excess, and for ten days had been intoxicated. On the 8th he commenced to sober off (taking as he afterward told me 12 ounces of Fellow's hypophosphites in two days). Becoming very nervous and restless on the evening of the 10th, he called in Dr. Clark, who administered ½ grain of codein, which produced a good night's rest. Monday morning, without the knowledge of anyone, he sought the nearest saloon, where he obtained whisky; the exact quantity is not known, but it probably was not very much, for at 12:45, when Dr. Clark called, he was apparently sober.

At 1:10 P.M. he seemed quite well, but nervous; at 1:15 P.M. the people in the vicinity were startled by loud and agonizing screeches. The proprietor of the block at once summoned Dr. Clark, who was in the building. They found Mr. M. on the floor, on his knees and elbows, with a finger in each ear, shrieking with pain. Blood was flowing, apparently, from both eyes and ears, and the eyeballs were protruding. Dr. Clark put him on his back and gave him a hypodermic of morphin, ¼ grain. This quieted him in a few minutes. When I arrived his pulse was 150, regular, but rather weak; respirations 16. At 2:30 he was given another ¼ grain of morphin, his pulse dropped to 120. He was quiet and his brain, at all times, was sufficiently active to answer all questions intelligently, and he retained perfect use of all his voluntary muscles. The diagnosis was uncertain.

Fearing some exacerbation of pain or further hemorrhage, he was put to bed without being undressed, and given 1 dram doses of fluid extract of ergot every two hours, ¼ grain doses of morphin, to keep the pain under control, and 1-100 grain doses of digitalin, hypodermically, to slow and strengthen the heart's action. Locally, hot cloths wrung out of boric acid solution were applied.

At 4 P.M. I again visited the patient. At this time both eyeballs were outside the lids, no motion of balls, but on attempting to move them, there was the faintest movement of the left upper lid. Tension + 3, hemorrhage the same as at first visit, an oozing from the conjunctivæ. An unsatisfactory examination of the ears showed a perfect right tympanum and in the left a mere point in the anterior inferior quadrant, which looked as though it might be a perforation.

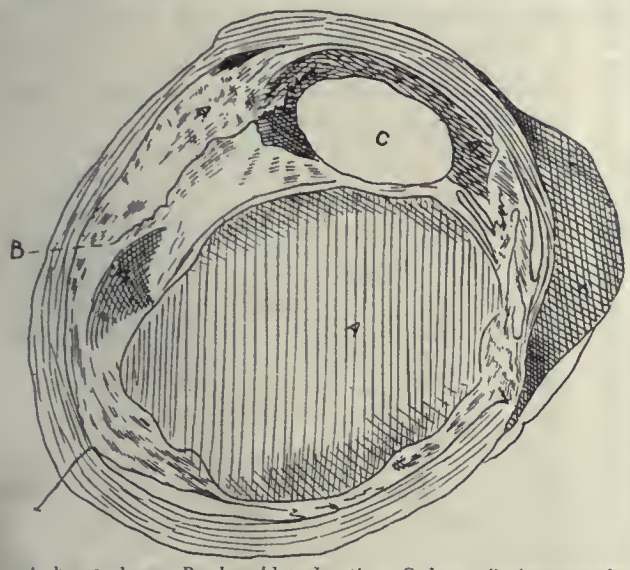
On the 12th the eyeballs were beginning to recede and to soften a little. Another examination of the ears was made, which decided that the point was not a perforation but simply a spot between calcareous deposits in the tympanum.

Until this point was decided I had not been able to hazard a diagnosis, but with the decision that the blood which apparently came from the ears was only that which had flowed into them as it trickled down the face from the eyes, I felt that the diagnosis was simplified. At first I thought that there had been an aneurysm of each of the orbital arteries which had ruptured almost simultaneously, due to stimulating effect of the whisky and strychnin.

In the second place, it was possible for an aneurysm of the right orbital artery to exist just after it branches from the internal carotid, within the cranial cavity but extra-dural. This would cause pressure in the right orbital cavity first and later in the left, as the flow of the escaping blood would be in the direction of the least resistance. This theory as to the origin of the trouble at once raised the question: If the hemorrhage was intracranial why did we not have brain symptoms, a slow pulse, impairment of motion to some extent or in some part of the body, disturbed sensation or a clouded intellect? Instead, we found a rapid pulse, 150 at the time of the accident, 120 later in the afternoon, 100 the next day. Motion was perfect and no disturbed sensation. His intellect, while not at its best, was very far from showing indications of a brain lesion. He would answer questions briefly but clearly; his memory, in so far as the accident was concerned up to the 14th, was practically a blank. From an anatomic standpoint, however, I believe it would be possible to have an extra-dural hemorrhage at this point, if the dura mater were sound, which would cause pressure only within the orbital cavities. On the morning of the 14th the eyes, although causing a hideous expression, had receded considerably, had lost their great tension, and the conjunctivæ and corneæ were breaking down, in fact, pus was present in the anterior chamber of the left eye, but the man's physical condition was growing worse. Fever in the afternoon, pulse rapid and irregular, considerable distress about the orbits but not amounting to actual pain; he was suffering most from his excessively nervous condition.

I advocated the removal of both eyes at once and performed a double enucleation on the 15th. After the operation he began to improve in general vigor, and March 9, about a month from the the date of the accident, he started for his home in Ontario, wearing a pair of "enamels" and feeling as well as he had in years. A couple of days after the operation he gave me the following history: He was a Canadian, single, 35 years old. His vision had always been good, but he had suffered periodically from nervous headaches and occasionally had severe pain in left side of head. For six or eight years he had had an external and internal pterygium of left eye. Occasionally he became intoxicated and on such occasions both eyes would become very much congested and the mucous membrane seemed to extend out over the cheek, but when he would abstain from stimulants his eyes would become normal. One year previous to the accident, while at Seattle, Wash., he had been on a protracted spree, which ended in a condition similar to that for which he sought Dr. Clark's services. He was then

treated for acute mania and was restored to his normal condition in a couple of weeks. After his attack in Seattle he drank no spirituous liquors for a year, and had on previous occasions abstained four or five years at a time, for he had found by experience that he could not use liquor at all without using too much. During the past year he had been using Warner's Safe Cure, thinking that his kidneys were out of order. For the past three months his health had been poor; everything that he did required an effort and ten days before the accident in order that he might keep up with his work he took some wine. In a few hours he was drunk from the amount of port wine and whisky that he had imbibed, and for seven days remained intoxicated, eating nothing; at the end of that time he drank four bottles of ginger. He was cold to his knees, his jaws were set and he could not move his arms. After the first drink he seemed to be irresponsible and had no idea of how time passed. After the seven days' spree he stopped drinking absolutely, but was troubled with hallucinations and illusions, against which he struggled for twenty-four hours. Sunday morning he was feeling so weak and



A, hemorrhage; B, choroid and retina; C, lens. Retina was also found in hemorrhage.

miserable, with no passage of the bowels in five or six days, he commenced on a bottle of Fellows' hypophosphites and in twenty-four hours had used 12 ounces of it, which represented 1 3-5 grains of strychnin. Sunday night he was still feeling so distressed that he called in Dr. Clark, who gave him sufficient codein (I believe) to assure him a good night's rest. Monday he was very excited, and when they brought soup to him at 1 o'clock he would not eat because he thought it was poison. While lying on the lounge he had a spasm of the stomach and with the spasm a blackness came over his eyes; he fell from the lounge, but saw the carpet as he fell. He thought that he had gone to hell and that his brain was full of little devils. With the great pain of the spasm he lost control of himself and he tried to get his fingers into his brain through his eyes, but that caused so much pain that he tried to reach his brain through his ears, then he recollected nothing more till an hour and a half later.

After the eyeballs were removed they were hardened in Wickersham's solution and later in formalin. They were carefully cut, stained and examined microscopically by Dr. Alex. Bruce of Edinburgh. Both the eyes were practically the same, and the accompanying diagram is a drawing from one of the sections. This shows the parts very much displaced, the aqueous and vitreous spaces filled with blood, subconjunctival hemorrhage and blood separating choroid and retina from the sclera, with parts of the retina in the hemorrhage. But this gives us no definite information as to the cause of the accident. The pathologist after hearing the imperfect history writes that "the condition was a result of a sudden thrombosis of the sinuses, and of this condition I understand there are some cases on record."

Personally, I am unable to explain the cause of the conditions satisfactorily, although I incline to the theory of his having gouged them out with his thumbs or fingers, but if he did I do not understand why the intra-ocular tension should have been so great. If due to double aneurysm, why was there no aneurysmal bruit and no pulsation, and if due to double thrombosis of the sinuses why should there not be more general disturbance?

REMARKS ON THE CAUSES OF GLAUCOMA.

Read in the Section on Ophthalmology, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

BY LEARTUS CONNOR, A.M., M.D.
DETROIT, MICH.

Judged by its literature, the causation of glaucoma is unsettled. No effort to harmonize undoubted facts has met with general support. Whether glaucoma is a deformity or a disease, remains an open question. Thus Priestly Smith and his followers claim that glaucoma is a deformity of the eyeball, that an engorgement of the blood vessels in the posterior chamber pushes forward the lens and crowds the ciliary body and iris into the anterior angle, effectually blocking the outlet from the eye for the intraocular secretion. From the resultant intraocular tension he deduces the phenomena of primary glaucoma. The failure of this view to account for glaucomatous attacks in the young, in persons having no iris, in cases of intraocular tumor or dislocated lens, etc., has prevented its universal acceptance.

Of those holding that glaucoma is a disease, part affirm that it is purely local; and part that it is the local expression of a constitutional affection.

Von Graefe called simple glaucoma "amaurosis with excavation," regarding it as quite distinct in origin and course from glaucoma. Iridectomy failed to exert any appreciable influence upon its progress, in contrast with its wonderful power in checking the destructive force of acute inflammatory glaucoma.

Previous to his time glaucoma was regarded as a local inflammation, and treated with antiphlogistics, or as an arthritic disease; the result was the same in either case, viz.: total loss of vision. Not content with the empirical fact that iridectomy would cure a glaucomatous outburst, ophthalmologists have sought out its mechanism and the processes leading to it. The questions raised by this study are most intricate, far-reaching and difficult of solution. Thousands of workers have each contributed something of a positive or negative nature, but much still remains undone. The object of this paper is to briefly discuss a few points bearing upon the causation of glaucoma.

1. An obstruction to the outward flow of the fluids

in the posterior chamber is the most uniform characteristic of an acute glaucoma. Hence the importance of a clear idea of the normal flow of these fluids, and the changes made by the glaucomatous disease. The course of the blood is readily determined, in health, by the course of its vessels. Elaborate experiments have seemed to show that the oblique course of the efferent veins, through the sclerotic, combined with such disease of the veins as partially occluded their caliber, obstructed the outflow and so increased the intraocular tension, but this view has not obtained large recognition. That a variation in the caliber of the blood vessels does occur in glaucoma is evident, but all the facts seem to place these secondary to obstruction to the outflow of the secretions.

Knies, Webber and others have experimentally shown that the aqueous is secreted in the posterior segment of the eye and passes anteriorly through the connective tissue of the circumlental space, Fontana's spaces, Schlemm's canal, and the sclerotic into the capsule of Tenon. In this course the outflow is through connective tissue, and tissue matrix, not reaching spaces lined with epithelium until it enters the capsule of Tenon and the efferent lymph spaces of the subconjunctival tissue. Knies has shown that dissolved substances may in addition pass through the lens capsule and Descemet's membrane, but not formed or solid matters. Posteriorly, he has shown that the secretion of the posterior chamber escapes through the connective tissue spaces of the optic disc. The obstruction to the outflow of this fluid by a change in its nature has been the subject of elaborate experiments by Knies as detailed in *Arch. Oph.*, Vol. xxiv. Aseptic irritants were injected into the posterior chamber, that formed coagula in the secretion which obstructed the outflow spaces, producing an increase of ocular tension, dilatation of the pupil, and cloudiness of the center of the cornea. On removing the eyes he found both anterior and posterior outlets obstructed by the changed secretion. Hence he thinks that glaucoma is an irido-cyclitis, that secretes a noxious fluid, which clogs the meshes of the outflow connective tissue spaces. Experimentally this change of the secretion in the vitreous was temporary, but in the irido-cyclitis of glaucoma, he thinks that the secretion of noxious fluid is of longer duration and so the symptoms of glaucoma longer continued.

The study of glaucomatous eyes which have been removed, before total destruction, has shown an actual change in the connective tissue spaces of the outflow channels. The fibers have been found thicker and shorter, encroaching upon the spaces, and often entirely obliterating them. It is not possible to remove an eye in the early stage of glaucoma, or to find one in a person dying of acute disease, but in those studied nearest such a time, the changes in the outflow spaces have been found. Other changes have accompanied these, but we pass them for the present as we desire to state the fundamental idea in its simplest form. When we examine carefully the persons having glaucomatous attacks, we find that in many there is evidence of gout, either acquired or inherited; of rheumatic gout, rheumatism, syphilis, of those whose entire bodies have been surcharged during many years with badly assimilated products. In many of these we find evidences of interstitial diseases in other organs than in the eye. It is quite fair to infer that the impure blood produced by these constitutional diseases, may affect the connective tissue outlets. Given then an obstruction of the connective tissue outlets of the posterior chamber by an ophthalmitis affecting the connective tissue, due to impure blood, and any one of the so-called exciting causes of glaucoma may so change the secretion of the posterior chamber as to clog the outflow spaces, and so induce a glaucomatous attack. Our knowledge of general, so-called, blood diseases, added to Knies' experiments, and well-known studies of glaucomatous eyes, makes a rational chain of events leading up to an attack of glaucoma.

2. The following considerations place this causation of glaucoma in a clearer light. Thus outbursts of glaucoma are most frequent during and following middle life. This fact admits of two interpretations. *First*, Priestly Smith argues, that the lens becomes hardened and enlarged by age, so that it more entirely fills the circumlental space. Farther, he thinks that glaucoma occurs mostly in the hyperopic, in eyes in which this space is already abnormally small. In such an eye a relatively slight disturbance of the circulation of the posterior chamber suffices to push the lens forward, to crowd the iris against the anterior angle of the eye and to prevent the outflow through Fontana's spaces. The so-called causes of glaucoma, according to this view, produce an engorgement of the blood vessels of the posterior chamber, and so push the lens forward, when owing to a deformity of the parts the anterior angle is closed, and a glaucomatous attack induced. *Second*, a broader view of the relations of glaucoma to age, adds to the changes in the lens, changes found in other portions of the body. One has but to make a very superficial study of individuals during and after middle life to find that all the conditions are present for the promotion of connective tissue degenerations, as well as vascular, secretive and nervous. Individuals continue to eat as when they needed food for growth and development, as well as for the actual work of each day and the maintenance of existence. This excess of food fails to be perfectly digested, and so never becomes a part of the living tissues, but is driven about the blood, lymph and secretory spaces, in its course disturbing the wholesome activity of each part. Secretion and excretion are more or less disturbed, so that effete materials are retained within the body, thus increasing the disturbing and dangerous elements of the circulating fluids. When the connective tissues have been subjected for years to this constant irritation, and auto-infection it is not surprising that there results a group of interstitial or glandular diseases. Certainly we ought not to be surprised, if a few among the whole mass suffered from a degeneration of the outflow connective tissue spaces of the posterior chamber, and so became liable to an outburst of glaucoma, when some especial cause rendered the secretion of the posterior chamber, so noxious as to occlude the contracted spaces.

Another factor of age, intensifying that already mentioned, is the diminished muscular activity of advancing years, by which the utilizing of excess of food is diminished. secretions and excretions made less active, and so the accumulation of impure blood accelerated. Many other elements might be added. all proving that impure blood is the vice of middle life, a vice dependent upon numerous physical, mental and moral factors, but all laying the foundation for some organic disease. Why in one, interstitial nephritis occurs, in another interstitial hepatitis, in another

spinal sclerosis, and in another that disease of the connective tissue outflow spaces of the posterior chamber, is unknown. Possibly the same individual might have the entire list if he could live long enough.

Since diminished spaces in the connective tissues of the outflow channels is the factor which makes operative the so-called causes of glaucoma, then a child may inherit from gouty or rheumatic parents such diminished spaces, and so be attacked with glaucoma.

3. But aside from age, certain diseases are certainly closely allied to the causation of glaucoma. In several recent papers Dr. Richey has admirably discussed this point, showing the relation between the manifestations of gout, gouty rheumatism, etc., and glaucoma. He regards simple glaucoma as the basis of all forms of primary glaucoma. In each an interstitial ophthalmitis exists, originating as other interstitial diseases. The varied forms of the disease he ascribes to the part of the eye attacked, the rapidity of its progress and the order in which different portions are disabled by the disease.

In simple glaucoma the connective tissue in and about the optic disc is first affected by the noxious elements; contraction of the tissues follows, leaving more or less extensive excavation of the optic disc, and destroying in varying degrees the optic nerve fibers. The central retinal vessels drop to the sides of the excavation, and by their peculiar appearance, when seen by the ophthalmoscope easily prove the presence of the excavation. If in such a case the anterior connective tissue spaces become constricted, a slight disturbance of the secretion of the posterior chamber may suffice to clog the outflow, and produce a case of acute, sub-acute or chronic inflammatory glaucoma, according as the obstruction be sudden and complete or slow and incomplete. The fluid pent up in the posterior chamber pushes forward the lens against the posterior wall of the cornea, the ciliary body against the anterior angle; dilates the iris, renders it immovable and crowds it into the anterior angle; increases the tension of the eye ball; renders the cornea steamy and insensitive; dilates the anterior ciliary vessels, and induces a group of subjective symptoms, varying with the stage and degree of the blockage. In hemorrhagic glaucoma the events already noted are complicated by the rupture of weakened blood vessels within the posterior chamber.

In many cases of acute glaucoma there is no cupping of the optic disc because its connective tissues have not been attacked, the ophthalmitis being limited to the anterior outflow spaces. It would seem that the relationship of chronic humeral diseases to glaucoma is very important.

Dr. Jonathan Hutchinson (*Oph. Rep.*, Vol. ii) says that there are many different forms of inflammation of the eye, or parts of it, which are in connection with gout and gouty rheumatism. He divides them into two groups: 1. Those which go with acquired humoral or renal gout. 2. Those which depend upon inheritance of structures, damaged or specialized by gout in predecessors. The differences between these two classes is very marked. In one the attacks are of a transitory nature, acute and attended with much pain. In the second group there is great tendency to chronicity and persistence, though there is a tendency to temporary recovery and recurrence. The invasion is often insidious, but the disease is usually in the end destructive. These two groups admirably describe the characteristics of acute and chronic glaucoma.

If we seek the mechanism by which these diseases induce glaucoma we have but to remember that in them the connective tissue outlets of the eye are constantly bathed in the secretion formed from impure blood, just as we found in the case of the over-fed, badly fed, over-worked, under-exercised person of middle life or beyond. In both the connective tissues of the outflow spaces undergo organic changes that admit of their readily clogging, as the secreting fluid of the posterior chamber is altered by any one of the many existing causes of the glaucomatous outburst. Dr. David Webster (Trans. Amer. Oph. Society, 1885) reports a case in which a glaucomatous outburst followed a very hearty meal, and another from the eating of a peach. Dr. S. D. Risley reports a case in which certain acid fruits would surely excite such an attack, the special fruits were the peach and grape.

The one condition present in all cases of primary glaucoma is a contraction of the outflow channels; the one cause of this contraction is a hyperplasia due to the long continued irritation of the secretions from impure blood; the disorders inducing such blood are many, to some of which we have called attention, as the pollution incident to over-eating in middle life, gout, gouty rheumatism, syphilis, etc.

The one factor which is essential to the precipitation of an outburst of glaucoma is such a change in the secretion of the posterior chamber that it will clog the meshes of the outflow spaces. This changed secretion may be due to many causes, as imprudence in diet, to mental worry, violent emotion or shock; to overstrain of the eye, as in uncorrected astigmatism or presbyopia; to circulatory disturbances, as cardiac weakness; chronic cough, vomiting, stooping or straining; to mydriatics, etc. No one of these events has been known to induce, in a sound eye, an outburst of glaucoma; otherwise they would be of common occurrence, because these events are incident to the course of nearly every person's daily experience.

CONCLUSIONS.

1. Glaucoma is a disease rather than a deformity, like hernia or astigmatism.

2. The disease glaucoma has two distinct factors: one inducing changes in the connective tissues of the body, including the outflow spaces of the posterior chamber of the eye; the other so altering the secretion of the posterior chamber that it clogs the crippled outflow connective tissue spaces.

3. The first factor results from the long continued action of impure blood upon the connective tissue elements of the outflow spaces, the second from a variety of conditions acting through the nervous vascular, digestive and muscular systems, or through local strain of the eye, as in presbyopia, uncorrected astigmatism, or intraocular tumors, dislocated lens, or from the use of mydriatics.

4. Impure blood may result from many distinct diseases, as gout, rheumatic gout, syphilis, or from chronic overloading of the body with food in excess of its assimilative powers.

5. In simple glaucoma the connective tissue at the optic papilla is so attacked as to induce an excavation of the optic disc. If the anterior outflow space remains patent, there may be no symptoms except diminishing field of vision and the excavation, but if the anterior outflow becomes obstructed, increase of

tension and other glaucomatous symptoms appear.

6. In acute inflammatory glaucoma the anterior outflow spaces are suddenly closed, inducing all the typical symptoms of a glaucomatous outburst.

7. In sub-acute glaucoma the obstruction to the anterior outflow is less sudden and complete, and hence the symptoms are less severe and startling.

8. In chronic inflammatory glaucoma the obstruction is more complete and permanent, and so the effects are more hopelessly destructive—glaucoma absolute marking the final stage when vision is totally lost.

9. In hemorrhagic glaucoma the outburst is complicated by rupture of weakened intraocular blood vessels, so that hope of relief is slight.

10. In secondary glaucoma the same obstruction to the outflow channels occur. This may be due to an intraocular tumor, a dislocated lens, a lens swollen after decission, or to occlusion of the pupil, etc.

103 Cass Street.

SOME QUESTIONS RELATING TO GLAUCOMA.

Read in the Section on Ophthalmology at the Forty-seventh Annual Meeting of the American Medical Association held at Atlanta, Ga., May 5-8, 1896.

BY ALEX. W. STIRLING, M.D., C.M. (EDIN.), D.P.H. (LOND.).

ATLANTA, GA.

I propose to bring forward for discussion certain parts of the subject of glaucoma, which though far from novel, yet appear to merit, from their importance and the still divergent views concerning them, a constantly recurring investigation. These questions are:

1. Is glaucoma always preceded by papillitis?

2. Are certain doubtful cases of chronic glaucoma with an apparently normal condition of the anterior segment of the eye, unaccompanied by any sign of spinal and cerebral disease, but showing what is known as the true glaucoma cup; are these really glaucoma, or are they optic atrophy?

3. Should all cases of primary glaucoma be operated upon?

4. What is the cause of the cataract which occasionally appears in eyes which have just undergone operation for glaucoma?

Question 1.—Those who hold that papillitis is a constant accompaniment of the early symptoms of glaucoma should be divided into two classes, viz., those who assert that it actually precedes the glaucoma, and those who refer to it merely as invariably present in the initial stages of the disease.

An abnormal condition of the blood vessels on the disc, with edema, is described by many well-known authors, and is no doubt familiar to most as a symptom of confirmed glaucoma, and may be dismissed as a possibly perfectly natural result of the glaucoma pressure.

But it is otherwise with the assertion that papillitis is a constant precedent of glaucoma. Klein supported Jaeger in this contention; Mauthner[1] thought the optic nerve was so softened by a morbid process secondary to choroiditis as to cup later under normal tension; Brailey and Edmunds[2] had reason to believe that in primary glaucoma "neuritis" precedes the increased tension, and that an inflammation is also present in the ciliary body and iris; Gruening[3] recognized a congested disc as visible along with the first premonitory symptoms in certain cases; Knies[4] has observed: "Among the earliest and most characteristic appearances . . . I found marked hyperemia and edema of the optic nerve. This appears to be the regular beginning which passes in weeks into cupping"; Bitzos[5] asserted that "one can accept as an absolutely certain fact" that glaucoma begins "by a papillitis constituting a lesion which is primary and at the same time fundamental," and that during this stage, before the advent of *plus* tension or of any outward sign, the cases being frequently discovered by accident, there is diminution of visual acuity and in the dimensions of the field.

If we admit that glaucoma is always necessarily preceded by optic neuritis (which has certainly not been universally observed), it practically follows either that the condition of the optic nerve blocks a path of exit for fluids from the eye in such a manner as to cause forward displacement of lens and iris, with secondary obliteration of the normal filtration area in the corneo-iritic angle, or that glaucoma is an inflammatory disease with iritis secondary to, or accompanying, the papillitis. Now, experiments have shown that only a very small proportion of the ocular fluid leaves the eye in the region of the optic nerve; and we also know that in ordinary undoubted optic neuritis glaucoma may be said never to follow either in the inflammatory or atrophic stage; and even if we were, for the sake of argument, to admit that, normally, a large amount of fluid has its exit in this region, it would yet be hard to see why its blockade should cause that adhesion between cornea and iris so nearly universal in glaucoma. We should rather expect merely a more rapid drainage at the angle.

Against the theory that glaucoma is an inflammatory disease and that the corneo-iritic adhesion is due to an iritis, a theory upheld especially by Knies, one might quote the opposite opinion of Bowman, expressed thirty years ago, and of De Wecker and many others since then, as well as that of the elder Critchett, Priestley Smith and Fuchs, that it much more nearly resembles a strangulated hernia. The following facts might also be arrayed against the inflammatory theory: Glaucoma with glaucomatous cupping, found in cases of mechanical obstruction to outflow through the corneo-iritic angle from affections limited to the anterior part of the eye, as from dislocated lens, in which case the tension may rapidly rise and fall according to the position of the lens, or, from hereditary ophthalmia, the result of malformation in or near the angle of the anterior chamber; the suddenness of the early attacks and their disappearance; the fact that an operation, and that on the anterior part of the eye, can quickly and permanently remove the symptoms; as well as the fact that a drop of some mydriatic may cause an acute attack in an eye previously absolutely free from inflammation.

Question 2.—The cases referred to are those designated "amaurosis with optic nerve cupping," by von Graefe; "glaucomatous optic nerve disease," by Edward Jaeger; and "excavation atrophy," by Stellwag, and which have been by some ophthalmologists, separated from other forms of glaucoma, but by others of equally high repute held to be merely one extremity

[1] Manthner: Archiv. Ophth., N. Y., vii, 1878, p. 178.
[2] Brailey and Edmunds: Loudon Ophth. Hosp. Reports, x, 1880, p. 86.
[3] Gruening: Trans. Am. Ophth. Soc., 1889.
[4] Knies. Centralblatt f. All. Path., April, 1890.
[5] Bitzos: Annal. d'Ocul., vol. 112., 1894, p. 92.

of a continuous chain of connecting cases which terminate in the other direction in glaucoma fulminans.

I desire to take the position that these cases should be looked upon as glaucoma, and I presume that there would be no difference of opinion concerning such of them as might show even temporary increase of tension, or any symptoms in the iris which might point to peripheral corneo-iritic apposition. It will also be agreed that there is no known reason why glaucoma and primary optic atrophy should not coexist in the same eye But leaving out of the question all such cases, the following appear to be reasons why "simple" glaucoma may be looked upon as real glaucoma and not as optic nerve atrophy.

It has been asserted by Schweigger that unless increase of tension is distinct this symptom is of no value for diagnosis, as one can easily discover *plus* tension if one have faith enough. But it is well known that the normal ocular tension varies with the individual. We may, therefore, consider it as certain that a tension which is normal for some eyes is *plus* for others, that it is just as easy to omit to find a real *plus* tension as to imagine one which does not exist, and conclude that in certain cases, which appear to palpation normal, there is in reality a heightened tension. This argument is supported by the fact that it is not a very infrequent thing to find cases recorded by ophthalmologists of the first rank, in which at the the same moment and in the same eye there coexist the apparently incongruous conditions of glaucomatous halos or rainbows and normal tension, the former having been proved to result from a very slight edema of the anterior layers of the cornea due to a rise of intraocular pressure.

The statement was made by Zentmayer and Posey, in connection with their examination of 167 cases of simple glaucoma, noted in the clinics of Norris and Oliver, in Philadelphia, that shallowing of the anterior chamber was found in glaucomatous eyes where there was not yet excavation, while the converse was not true, for every eye which had an excavation had also a shallow anterior chamber. By a shallow anterior chamber they evidently meant pathologically shallow, and their statement appears to indicate that *plus* tension, relative to the eye involved, as witnessed by the shallow anterior chamber, was or had been present in all these cases in which the disc was cupped.

One should also bear in mind that it is easy to fall into error concerning the condition of the anterior chamber. It is generally inferred that whenever it appears to be of normal depth there can be no peripheral apposition between cornea and iris. But the periphery of the iris and of the posterior surface of the cornea are quite hidden from view by the anterior margin of the sclerotic, and a deep anterior chamber has been proved to be quite compatible with corneo-iritic adhesion. It has also been shown (and such sections I have in my possession) that the iris sometimes makes an abrupt backward bend at the point at which it separates from such a corneal adhesion, which hides more effectually the true condition of affairs. On the other hand it would be hard to prove a normal state of the filtration angle, because such doubtful eyes as those under discussion are not excised, and even in the rare cases in which the angle is found open, in primary glaucoma, signs are frequently present that this patency has resulted from the excision of the globe.

It has been abundantly shown that high tension occurs at one time or another in the vast majority of cases, that it may be present only very temporarily and at long intervals, and also that such cases, or others in which it happened that apparent *plus* tension had never been found, have not infrequently ended in acute glaucoma. There is also the possibility that, like other bodily functions, the circulation through the eye may vary very considerably in the twenty-four hours, and that tension may be high when the patient is beyond observation, in the evening when he is tired, or even that the recumbent position may affect it in one way or another.

We know that there is, in all probability, an automatic action, within the eye, whereby a rise in intraocular pressure has the tendency to again bring the tension down to normal, through pressure on the uveal vessels preventing farther secretion from them. It would appear as if in the quietest forms of simple glaucoma the blood pressure was so low that a comparatively slight rise of intraocular tension would attain this result, little fresh fluid being poured into the eye so long as the pressure outside the vessels remained of sufficient force, and the hypothesis of an intermittent rise and fall in pressure appears to me reasonable. Nettleship has already stated that the condition, as regards tension and organic changes in chronic cases, may perhaps be sometimes due to feeble circulation or loss of arterial elasticity.

The acuity of the onset of symptoms would therefore appear to bear a direct relationship to the vascular tension in the uvea, or else the cause of their appearance to be of a rapidly fluctuating character.

It might not be unreasonable to suppose that when the corneo-iritic filtration area is blocked and the tension in the vitreous is higher than that in the uveal vessels the capillaries in the ciliary region, which are wont to carry fluid to the vitreous, may then assist in removing fiuid from it.

A further argument in favor of the glaucomatous nature of these cases is the growing feeling that iridectomy is beneficial and should be employed for their relief.

I have purposely avoided reference to certain supposed points of difference between simple glaucoma and some forms of optic atrophy, the form of the visual fields, variations in peripheral color vision, and in the "light difference" and "light minimum," in color of the disc, in size of retinal veins, in pulsation of the retinal artery, in the pupil, etc., for I have looked at the subject from another point of view.

Question 3.—The question will naturally be looked at from two standpoints—that of practical experience and that of pathology. Experience at the present day appears to favor operation, but much depends on the operation chosen and upon the method of its performance.

In certain cases operation is by some considered to be contraindicated; such as glaucoma due to mydriatics, which is frequently permanently cured by myotics; chronic glaucoma in patients whose health is poor from age or disease, but this is doubtful policy, and such cases of simple glaucoma as appear to benefit from myotics, and can be kept carefully in view.

From the pathologic standpoint the wisdom of the earliest possible operation is apparent to those who look upon glaucoma as an interference with the functions of ocular excretion, and the objects of treatment, whether by drugs or operation, to be the opening up of closed exits.

When forward displacement of lens and iris are found denoting that the obstruction lies at the lento-zonular level, a preliminary posterior sclerotomy to permit of their retraction, as advised by Priestley Smith, suggests itself as a suitable procedure, to be immediately followed by iridectomy, sclerotomy, or one of their modifications. The object of these operations is to produce a permanent path of exit for the intraocular fluids, either by opening up the normal filtration angle, and so removing the iris as to prevent the possibility of the recurrence of the closure, or, where this is impracticable, to provide a sufficient substitute.

We know that in the earlier periods of glaucoma the iris is in contact with, but not adherent to, the corneal periphery, and cure may be effected, as has been pointed out by Treacher Collins, by the mere escape of aqueous or by the dragging on the iris during its removal; but iridectomy should have in view much more than this. As frequently or generally performed, the iris is seized by forceps and then cut off, with the result that sufficient remains to again block up the exit. The better way is to tear the iris from its junction with the ciliary body, where it is flimsiest, from one end of the wound up to the other, and failure to do this has been the most prolific cause of non-success. Indeed, in forming an opinion as to the benefits of iridectomy one should be careful to distinguish such operations from those in which the iris is merely snipped away.

When iris and cornea are so adherent that they can not be separated, *i. e.*, in chronic, long-continued cases, our hope lies in the formation of subconjunctival fistulæ. When these are permanent and successful they are lined by atrophic iris which keeps the wound from healing. Where this adhesion is known to exist an opening into the posterior chamber through the iritic root as advocated by Treacher Collins, Nicati and Knies, has the best prospect of success, and the V-shaped incision of Nicati, which also freely divides the base of the iris, but upon which I can not speak from personal experience, appears to be attended by excellent results. In those cases in which the actual position of the angle may at first be doubtful, and in which an iridectomy proves useless, Nicati's incision downward might well replace the secondary sclerotomy so frequently employed.

Vincentiis of Naples claims for his operation of tearing or cutting away the iris from the cornea with a sickle-shaped needle that, when these tissues are adherent it acts in a manner superior to either iridectomy or sclerotomy.

In concluding this question I would advocate the earliest possible operation in practically all cases of primary glaucoma (at the same time that attention is given to the general health) independent of contraction of the field, and so long as there is any vision to be saved or pain to be relieved; and that the better eye should first be treated, because in it there is more to lose by delay, and because in the event of only moderate success, or worse, with the first eye, the patient may be disinclined to return on account of the second.

Question 4.—It has been stated by ophthalmic surgeons of the highest order, among whom is one who has done some of the best work in recent ocular pathology, that the cataracts rapidly following upon iridectomy are always due to a wound of the capsule of the lens received in the course of operation. That the possibility of this is one of the serious objections to operation for glaucoma, that it may readily happen in the hands of the most skillful, especially when the cornea is small and the anterior chamber shallow, and that the wound may arise not only from the edge of the knife, but also from the back of a "Graefe," from the iridectomy forceps, or during reposition of the edges of the coloboma, will, I think, be readily admitted.

But it is more pleasant to the feelings of the surgeon, who, after the greatest care to avoid the lens, and in the belief that he had done so, yet shortly discovers a rapidly growing cataract, to know that other explanations of its occurrence may be forthcoming; and these, I think, are not difficult to find.

To begin with, any one who will carefully examine the lenses in a series of apparently healthy senile eyes under a mydriatic will observe that in no small proportion of them he can discover peripheral striæ, not the normal striæ of the section of the lens visible by transmitted light in the eyes of many old people, but due to true cataractous change. In glaucomatous eyes these have been noticed in a still higher proportion.

In such eyes, or even in eyes without such lenticular change, it can scarcely be considered unreasonable to hold that the sudden alterations of conditions resulting from the emptying of the anterior chamber may have just as much effect in producing or in ripening cataract as has the well-known method of friction on it, directly or through the cornea. For those changes are very considerable: The zonular attachments are strained by the forward movement of the lens, and the lens may even come in contact with the cornea, while one must expect its nourishment to be seriously interfered with by the rapid passage from the eye of the fluid upon which its welfare depends, a fluid which also, as Nicati, Greef and others have shown, undergoes a change in composition upon the first opening of the anterior chamber.

A CLINICAL NOTE ON THE USE OF PYOKTANIN.

Read before the Section on Ophthalmology at the Forty-seventh Annual Meeting of the American Medical Association held at Atlanta, Ga., May 5-8, 1896.

BY H. B. YOUNG, M.D.

BURLINGTON, IOWA.

My experience with pyoktanin probably differs little from that of your own in those suppurative troubles of the eye and ear for which it has been considerably lauded, *i.e.*, occasionally very satisfactory, but more often disappointing, if not indeed aggravating. In fact after many disappointments I practically discarded it from my list of remedies as I have no doubt many have done.

About two years ago, however, after an unsuccessful attempt to treat a case that I had diagnosed as phlyctenular conjunctivitis, by the classical method, viz.: Pagenstecher's ointment, calomel dust and mydriatics locally, plus alterative and tonic medication internally, pyoktanin in 1-1000 aqueous solution locally was accidentally suggested. To my surprise the case improved rapidly under it and was soon well. A month later the patient, an anemic girl of 15 years, returned with a fresh efflorescence. Again was the Pagenstecher's ointment and calomel dust distinctly irritating and the pyoktanin promptly effective. Following this at irregular intervals the efflorescence recurred and was promptly subdued by the pyoktanin. In the meantime a younger sister of this patient

showed the same conditions, had the same treatment with the same result.

From this time all cases of conjunctivitis lymphatica were treated in this way and it was noticed that those were soonest benefited in which the efflorescence was marked by lachrymation and congestion of the palpebral conjunctiva, while the elevations at the limbus showed irregular outlines and little disposition to surface softening.

Why there should be this difference or why the pyoktanin should, in any case of this character, be as effective as the time honored mercurials I do not know.

Pharmaceutically the mercurials were as perfect as possible. The Pagenstecher's ointment I prepared by a method which could hardly be improved, as the product stands the test of inspection through a powerful lens. And the calomel was of the best quality, thoroughly dried and lightly dusted.

The pyoktanin was Merck's, dissolved in water which had been boiled thoroughly. A fresh solution was prepared when any change was noted in the color.

DISCUSSION.

Dr. G. C. SAVAGE, Nashville—Just before leaving home I prescribed pyoktanin for three cases of phlyctenular conjunctivitis and as Dr. Price has just entered the room I should like to know from him what the result has been.

Dr. PRICE—The only one of the patients that has returned is doing well. It was a bad case and had shown no improvement under a week's use of the yellow oxid.

FRANKLINIZATION AS A THERAPEUTIC MEASURE IN NEURASTHENIA.

Read in the Section on Neurology and Medical Jurisprudence at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5–8, 1896.

BY MARGARET A. CLEAVES, M.D.

Director of the New York Electro-Therapeutic Clinic, Laboratory and Dispensary; late Instructor in Electro-Therapeutics, New York Post Graduate Medical School; Fellow of the American Electro-Therapeutic Association, Member Société Francaise D'Electrothérapie, Fellow of the New York Academy of Medicine, Fellow of the Medical Society of the County of New York, Fellow the American Medical Association, Member the New York Electrical Society.

NEW YORK.

Looking at it from a purely scientific point of view the recognition under the head of neurasthenia of the many and varied expressions of nerve weakness is most unfortunate, and must have a tendency to hinder that investigation into the true nature of the underlying conditions which is absolutely essential to the advancement of the science of medicine. On the other hand this recognition has led to the establishment of excellent therapeutic methods, which, however, are so familiar as not to need enumeration here.

Among them Franklinization takes an important place, and although it is the oldest form of electric treatment, its value is not yet fully appreciated by the profession.

It is not within the scope of this paper to discuss the nature of neurasthenia, interesting as the subject is, suffice it to say that neurasthenia in an acquired form, may be regarded as primary or secondary; primary when due to the immediate effects of nervous overstrain or to a primary toxic disorder of nutritional processes, and secondary when consequent upon other diseases having a general pathologic diathesis with its peculiar and exhausting toxic influence.

The nutrition of nerve cells is primarily at fault, and they break down even under slight overstrain, whether of work or mental anxiety. They lack in stability, and are incapable of ridding themselves of the results of physiologic activity. The toxicity thus induced plays an important rôle in the production of the varied manifestations of physical and mental discomfort to which the neurasthenic is subject.

The problem before us in the treatment of neurasthenia is to prevent undue waste of nervous substance from excessive fatigue as well as to eliminate the toxic influence of self-produced waste products. To this end whatever can be done to establish and maintain the highest nutritive activity is absolutely imperative.

Whether we regard the neurasthenic condition as due to exhaustion, starvation or poisoning of nerve centers its treatment by means of Franklinization is absolutely rational.

There is nothing of the occult about it, nor can the action of general Franklinization either by means of the convective or disruptive discharge be, in any sense, attributed to suggestion, hypnosis or to some subtle influence upon the nervous system. The same effects can not be reproduced by such methods.

The grand function of all electric treatment is to promote nutritive processes, and in general Franklinization there is no exception to the rule. On the contrary, by reason of its physical characteristics it is the most efficient of the varied manifestations of electric energy. The ease with which it can be used, requiring no preparation nor tedious detail in its administration as do other currents, renders its application very acceptable to patients.

The influence of high frequency and high potential currents upon nutrition has been established by observations in physiologic laboratories and in clinical work.

In all neuroses there are abnormal chemic conditions of the tissues and aside from the influence of heredity, deficient constructive and deficient destructive metabolism are the two prominent factors therein. The need therefore in our therapeutics of a means which will influence a more nearly normal metabolism is imperative. The rationale of general Franklinization lies in its ability to set up processes resulting in the production of physiologic effects.

The increased activity of an organ is indicated by the increased amount of blood circulation. When an organ is completely inactive, as in the case of a paralyzed muscle or the peripheral end of a divided nerve, the amount of blood and the nutritive exchange of fluids diminish within these parts. Thus thrown out of activity they become pale and relaxed, and ultimately undergo fatty degeneration. If cells are imperfectly deprived of their detritus they do not appear to take up oxygen readily, consequently are not adequately nourished and undergo degenerative changes.

The average neurasthenic patient is not in a condition to take the active exercise necessary to bring muscular tissues into activity so as to profoundly influence circulatory changes. It is impossible to change the nutritional state of cells without a profound stimulating action. The general circulation in these conditions is impaired, while vascular changes in the nervous system exist. These are of the nature of a cerebral hyperemia and probably hyperemia of the spinal gray matter as well. The vaso-motor

neuro-mechanism is believed to be at fault. The extremities are cold and the heart's action feeble. If the blood stream does not circulate with normal activity new material is not supplied to the tissues, nor is effete material removed from them. As a general rule the stimulation is more energetic, the more rapid the variations of the electric current applied to the nerve (Du Bois Reymond).

In the great variations of potential which the patient subjected to general Franklinization experiences, may be found a reason for its profound stimulating effect. A constant and inconceivably rapid variation of potential characterizes every Franklinization, whether by means of the convective or disruptive discharge. And this variation must result in profound stimulating action upon nerve cells, enabling them to alter their nutritional state.

In employing currents of great frequency the organism is traversed without manifesting any reaction. If the frequency of these currents were lowered their energy would be destroyed in so far as the production of characteristic physiologic effects are concerned.

It is believed by D'Arsonval that these currents exercise upon nerve centers and upon muscles the action studied by Brown-Séquard under the name of *inhibition*. The tissues traversed by them are those less susceptible to the ordinary excitements. The physiologic effects demonstrated by D'Arsonval and others would indicate that currents of high frequency have a profound influence upon the organism affecting nerve centers, however deeply placed, even though the application electrically alters or disturbs the superficies of the body alone.

The vaso-motor nervous system is also strongly influenced. After an experiment upon the human organism with these currents has been long enough continued there can be seen upon the cutaneous surface dilated capillary vessels and the skin is found to be covered with perspiration. There is also an increased intensity of the respiratory combustion. The excretion of urea is increased and uric acid, if present, diminished, or on the other hand a normal or more nearly normal relation is established between them. The ultimate effects are upon all the nutritive processes. Oxidation is furthered and metabolic changes hastened.

By means of the disruptive discharge or spark a profound perturbatory effect is produced. Whenever a spark impinges there is produced an effect upon the vaso-motor nerve followed at first by a vaso-constriction as evidenced by the pearly white or goose-flesh appearance of the skin. This in turn is followed by a vaso-motor dilatation evidenced by redness of the skin. If for any reason there is a localization of the disruptive discharge there may be produced a distinct dermatitis as the result of the application. Also as a result of the disruptive discharge more or less profound muscular contraction is produced according to the character of the spark, larger and more extensive with the long spark gap; shorter, sharper and quicker with the lesser spark gap.

The rôle of muscular activity is one that is well established, and the effect is to produce an increased activity of the blood stream within the muscles of an intact body. The blood vessels dilate so that the amount of blood flowing through them is increased. At the same time the motor fibers are excited, the vaso-motor fibers are also. Muscular contraction is attended by the production of heat. This is greater or less according to whether these contractions are many but small, or fewer and larger. In the latter case more heat is generated. This shows that larger contractions are accompanied by a relatively greater metabolism than small contractions, which is in accord with clinical experience.

Then again, we have to deal with the two-fold influence of the nervous system upon metabolism. On the one hand it acts indirectly through its effects upon the blood vessels, by causing them to contract or dilate through the agency of the vaso-motor nerves, whereby the amount of blood supplied, as well as the blood pressure, are influenced. But metabolism is still further influenced, independently of blood vessels, through the trophic nerves.

The afferent supply of blood current carries to the tissues the proteids, fats, carbohydrates and salts from which the tissues are formed, and any interruption of the arterial supply diminishes the supply of nutriment. On the other hand, the efferent stream carries away decomposition products from the various tissues, more especially urea, CO_2, H_2O and salts, and transfers them as quickly as possible to the organs through which they are excreted. With the supply of nutrient material thus provided and the removal of the products of organic life, the vagaries, morbid fears, melancholias even, the aching and weariness as well as the hyperemias, are relieved.

The convective discharge is the treatment *par excellence* for neurasthenic patients. By it is meant what is commonly known as the static spray or breeze. It is in reality a succession of infinitesimal sparks as obtained from the powerful Holtz machines, which passes into a continuous stream between the two discharging rods or the insulated patient and the administering electrode. This discharge is non-oscillatory in type and, so far as can be seen from its physical nature, produces but superficial effects. The effect, therefore, upon the interior of the body is by a secondary influence, produced primarily upon the superficies, by which it becomes electrically altered or disturbed. If the charge is mild, this convective discharge will only be felt as a cool wind, but when these machines are working to their full capacity, and particularly if the patient holds the chain in the hands, establishing connection with one prime conductor of the machine, there is a marked tingling, stinging and pricking as of many needles. By localizing this discharge to any point desired, the seat of an obstinate pain, there can be produced an extensive redness and blistering (dilated capillary vessels) of the skin, and in sensitive conditions of the spine where there is pain on pressure, I am in the habit of continuing the localization long enough to produce this effect.

When a piece of woolen cloth or a patient with woolen clothing is placed upon the platform in contact with the distributing chain and subjected to a localized convective discharge, the clothing or the fabric is microscopically[1] burned as though by many minute coals of fire.

Ordinarily, the passage of one coulomb of electricity through a circuit in one second of time means a rate of flow or current strength of one ampere, on the average during that time. If[2] this coulomb passes through the circuit in one-thousandth of a second,

[1] With my large 8 plate, 30 inches in diameter, Holtz machines, this burning is not only microscopic, but macroscopic as well.
[2] Houston and Kennelly: Electricity in Electro-therapeutics.

the mean current strength would be 1,000 amperes, and if in the millionth part of one second the mean current strength would be 1,000,000 amperes. For this reason the total quantity of electricity, in a pair of leyden jars for instance, or in the case of a working conducting circuit where the patient represents the one leyden jar and the grounded area the other, even when charged at a pressure of thousands of volts, is very small; yet owing to the great frequency or rapidity with which this charge is passed through the circuit, the current strength during that time may be considerable. The action upon the woolen fabric would indicate that such is the case. The patient in this conducting circuit is doubtless traversed by an alternating current of greater strength than would be borne without pain under ordinary conditions.

In the convective discharge there is produced an effect upon the nervous system, affecting the vaso-motor nerves, causing first a vaso-constriction, as evidenced by the sense of chill and shivering when first subjected to its action, followed by a vaso-dilatation, with an ultimate equalization of the blood stream. Under the influence of the convective discharge the activity of the skin is increased with perspiration, most noticeable in palms of the hands; the temperature, if subnormal, is raised, if abnormal reduced, while the heart's action is regulated. Corresponding circulatory changes are established, as shown by the number of pulse-beats before and after the discharge, the change in volume and the sphygmographic trace. Such physiologic effect can not be produced without causing a change in the patient's condition and inducing a feeling of well-being.

The pains and weariness, the morbid fears and fixed ideas disappear under these more nearly normal conditions, but the disappearance at first is only temporary. The changes set up are not sufficient to endure perhaps for more than a few minutes, a half hour; in rare instances, twenty-four or forty-eight hours. More work must be done before nutritive changes are established to such a degree as to prevent a recurrence of former conditions. The flagging energies are aroused by the stimulating influence of the application, which, however, if not persisted in, is as valueless as the whip and spur to the exhausted horse without rest and food.

In the desultory and unscientific way in which Franklinization has been used are to be found the reasons for its failure. Only with a large clinical experience is it possible to reach definite conclusions as to the manner of its application, the length and number of seances, and to formulate a law governing its administration. Personal idiosyncrasies, as well as the duration of the disease and the manner of its manifestation, must be considered.

Moral means must never be lost sight of; in addition to the general Franklinization, the rest or exercise, according to the character of the case, is of paramount utility.

In the treatment of neurasthenic conditions by means of the Franklinic current, I find that I can secure without enforced rest and seclusion the return of health to a considerable class of neurasthenic patients, with greater independence of character and increased volition, than is possible by means of the rest cure and massage. These last named measures have their value, but to a large number the seclusion, the dependence upon others for every thought almost, certainly for every volitional act, is pernicious in the extreme. Habits of invalidism are fostered, with fixed ideas as to the suffering and disability endured, which means a changed nutritional power on the part of nerve cells.

In a paper upon the "Psychical Treatment of Neurasthenia," by Dr. J. J. Putnam of Boston,[3] the influence of general Franklinization upon temperature and pulse in neurasthenic patients is considered. He shows a similar influence with the patient placed upon the platform and no connection made, but the machine still in motion as in the ordinary application of the convective discharge. The conclusion that he seems to draw therefrom is that the changes in temperature and pulse are due to some subtle influence upon the nervous system, rather than from the Franklinization. He does not state whether in the latter instance the machine was in a state of charge or not; the inference must be that it was. Such being the case, the patient still remained in the electro-static field even though the insulating platform was not connected with the source of energy.

From the physical laws governing electricity at these potentials it is absolutely impossible to keep it within bounds. There is a constant leakage from the metal finishings of the machine, and a disturbance is created in the entire atmosphere of the room. Henry has shown that a spark from an electric machine extends its influence to a distance of many feet. Physiologic effects may be obtained by standing in the vicinity of powerful dynamos in operation, and physicians from various sections of the country have told me of sending their sleepless neurasthenic patients to electric power houses that they might have the benefit of the electric disturbance thus created.

But there is also another influence at work. It is absolutely impossible to have an electro-static machine in operation without the production of ozone. Chemic tests demonstrate the existence of ozone in the atmosphere, and it is shown that it exists in greater quantities in the country than in the city, at the sea shore and in the mountains in still greater abundance, notably in the best climatic resorts of high altitude. It is, no doubt, one great source of the healthful influence of such places. Near the backbone of the mountain range of the Blue Ridge in North Carolina, it is so abundant as to be constantly apparent by its peculiar odor. Its increased chemic activity renders it more effective than oxygen. It is not necessary here to speak of its intense oxidizing action, antiseptic properties and power of destroying offensive odors. Recently its physiologic effect has been very carefully studied by M. M. D. Labbe and P. Oudin and published in the *Bulletin Officiel de la Société Francaise d'Electrothérapie* for November, 1894.

These observations showed, even after ten minutes inhalation of ozone, an increase in the amount of hemoglobin of from 1½ to 2 per cent. Subsequent examinations, made several days later, demonstrated that the increase persisted. The examinations were made by means of the spectroscope. There was also a proportionate increase in the number of red blood corpuscles and a progressive diminution in the number of white, and the conclusion arrived at both from physiologic experiments and clinic results was that ozone most powerfully modified the blood and nutri-

[3] Boston Med. and Surg. Journal, May 23, 1895.

tion, resulting in the establishment of health. One of the sources for its production are the large Holtz or influence machines used in medical work.

When the influence machines in my office are in motion, the electro-static field extends not only over the entire floor occupied by the machine, but to the basement below, sparks being drawn from the gas pipes, etc. The electro-static field is enormous in its extent, and while we secure our best results from the use of an insulating platform, it is not necessary to obtain physiologic effect.

By the action of the electric spark upon the air a synthesis is produced whereby we have ozone formed. At least a part of the benefit derived from general Franklinization by means of the convective discharge is due without doubt to the production of ozone, and in Dr. Putnam's cases this influence could not have been eliminated, as the ozone pervades not only the atmosphere of the room where the machine is placed but adjoining rooms as well.

During three years' work at the Electro-Therapeutic Clinic at the Post-Graduate Medical School the nurses who were sent to the clinic for two or three hours three times a week to assist in the work, spoke to me of a general physical improvement of which they were conscious, with relief from menstrual pain and improved sleep. Their appearance indicated a nutritional gain. Different nurses made these statements from time to time during their term of service, and after my attention was called to it I was in the habit of watching them closely, taking their weight, etc., and inquiring as to physiologic functions, in order to establish the correctness of their reports.

In dealing with this form of electric energy we must remember that on account of its high frequency and high potential it pervades all space around the conductor. The metallic prime conductors, the conducting rod connecting the same to the platform, merely provide a surface from which the charge can enter and influence the air around it. The charge really resides in the air, or more strictly in the air and ether surrounding the body. The energy is distributed through all the ether in the room, although not equally. The greatest current density exists upon the insulating platform and about the body of the patient; after that in the space near the machine, and consequently the greatest difference of potential would be maintained in the former instance, with a greater and more effective convective discharge.

I can sit upon an insulating platform entirely disconnected from the machine and still demonstrate that I am in the electro-static field by the movement of a silk thread toward and to one prime conductor. With the platform disconnected, and the machine grounded as in ordinary use, there is not only a convective discharge that is apparent by the usual physical phenomena, but a disruptive discharge can be produced by approaching any part of the body to the electrode connected with the ground or the prime conductor. This discharge is of the non-oscillatory type. Therefore the observations to which I referred are not convincing.

THE TECHNIQUE OF ADMINISTRATION.

In connecting a machine for use it should always be grounded. The insulating platform is connected to one prime conductor by means of the conducting rod, while the other is connected by means of a chain to some suitable ground in the room or near by, as for instance a gas or water pipe.

The disruptive discharge when the machine is not grounded, is of the non-oscillatory type, as is indicated by its thin, blue straggly appearance. It has a biting and irritating character, which renders it extremely objectionable to the average patient, especially the neurasthenic.

Grounding the machine enlarges the area over which a charge may be distributed before it is discharged by its spark, and practically amounts to the use of large condensers, *i.e.*, Leyden jars. It increases the electrical capacity; there is not only a greater charge, but a greater discharge, whether convective or disruptive. The character of the discharge is changed in some instances from an non-oscillatory to an oscillatory one, while in others there is produced a more typical oscillatory discharge. The disruptive discharge thus obtained is vivid, clean and thick and not inclined to break up nor irritate as the spark obtained from the direct method. This is due to the change in the character of the discharge, from an non-oscillatory to an oscillatory one, and in this physical fact is found the reason for grounding our machines for medical work.

Until recently the question of insulation was regarded as an important one, as the physiologic action of the different insulations, *i. e.*, positive and negative, had not been accurately determined.

Some six years since Damian of Paris made a series of observations upon temperature and pulse and the urine to determine what, if any, difference there was in the different insulations. The published statement showed that with the positive insulation there was a regulation of the temperature and heart's action, an increase of urea and diminution in uric acid; while with the negative insulation these changes were less marked in so far as temperature and pulse were concerned, and that the volume of the urine was increased, but no change in its organic constituents.

Within the past five years I have made a great many observations upon the physiologic effect of positive and negative insulations in order to determine if possible the therapeutic indication. Those with the positive insulation upon temperature and pulse were made at the Electro-Therapeutic Clinic of the Post-Graduate Medical School and upon urine in my private practice; while those with the negative insulation were made in the New York Electro-Therapeutic Clinic, Laboratory and Dispensary. In both instances the physiologic effect has been the same, viz., a regulation of temperature, raising a subnormal, lowering an abnormal; a regulation of the heart's action with corresponding circulatory changes, and an increase of urea and diminution of uric acid.

This is in accord with the physical laws governing the Franklinic current. It does not matter, therefore, which prime conductor, whether positive or negative, is connected with the insulating platform, nor which is grounded. As a matter of fact, the spark with the negative insulation is much less biting, sharp and stinging in character, therefore it is preferable for sensitive patients.

The patient is placed upon the platform and the machine set in motion. Patients are often timid at first and need reassuring. Everything that would jar, shock or disturb is to be avoided. It is therefore best to allow the patient to sit quietly upon the insulating platform, without placing the stand holding the electrode near the platform, or using an electrode in the hand connected with the grounded area. Profoundly

neurasthenic patients are easily alarmed and their confidence destroyed at the outset by so doing. As a patient sits upon the platform, he is in a condition of charge and may be likened to a leyden jar. The grounded area of the other prime conductor may be likened to another leyden jar. The patient's potential is raised and any movement, no matter how slight, results in some discharge or equalization of the difference of potential as he comes in contact with the stress existing in the air about him. Therefore it is impossible to regard the condition as simply one of charge, for in reality a mild convective discharge is taking place all the time. The completeness of this discharge is greatly increased by approaching the stand, holding the electrode and connected to the ground, to the patient, or by swaying the pointed electrode back and forth over the entire general surface of the body. At first the automatic application is best, for with the electrode in hand, even if great care is observed, the difference of potential is often unintentionally overcome by reduction of distance, resulting in a disruptive discharge in the form of a spark which greatly disturbs the patient.

Nervous patients will sit quietly on the platform in a condition of "charge," or even with an electrode at rest at a fixed distance, when if it be moved gently to and fro by the operator they will become exceedingly nervous and apprehensive, shrinking in a blind terror from the application. Tact and patience will later enable the operator to use the electrode for a general application or any desired localization. As confidence is established the strength and consequently the effectiveness of this convective discharge may be increased by having the patient hold in the hands the distributing chain, thereby placing him in direct connection with one prime conductor of the machine; then by approaching the electrode fixedly placed in the stand, or in the hand toward the patient, he is placed under the influence of a strong convective discharge which is known as the *needle spray*. From this we proceed to a friction spark, produced by rubbing the patient lightly with the ball electrode. This must be swiftly done or else it will be intolerable. The sensation is as of thousands of hot needles, but if well done is followed by such distinct relief in the average case as to be uncomplainingly submitted to. The effect is a revulsive one and there is sent through the peripheral nerves an influence to the nerve centers most beneficial in its effect. It is a well known fact that by peripheral excitation the nutrition of ganglionic cells is altered. Applications by means of long percussive sparks should follow upon the "charge," "spray," "needle spray" and friction spark, and often in neurasthenic patients should not be used at all. When the need for strong far-reaching muscular contractions exists, the disruptive discharge should be resorted to.

As a rule neurasthenics do not tolerate the disruptive discharge. It has too powerful a perturbatory effect, producing as it does profound contraction of muscular tissue. After its use patients are exhausted, trembling, and later on sore and bruised, unable to sleep and so profoundly shaken up as to be unwilling to submit to another treatment. This is especially true of the neurasthenics of the exhausted type. But where the condition of nerve exhaustion is really one of infection from self-poisoning, or where the nutrition state has been improved by rest, forced feeding, massage and seclusion even, without corresponding improvement in the mental manifestations, the disruptive discharge is indicated after toleration has been established. In Franklinization it is necessary to remember that exercise should always be kept within the limits of fatigue.

In all cases the treatment should be begun by means of the convective discharge. It is characteristic of living tissues to respond to stimulation, but that stimulation must not necessarily be applied in the form of profound shocks. Leave the severe measures until later in the treatment of these cases.

In sexual neurasthenia, with impotence or irritation, the localization should be to the lumbar and sacral plexuses and by means of the director electrode to the perineum carrying the electrode as far forward as the anatomic structures permit. When we bear in mind the number of nerves which center in the perineum, the beneficial reflex effects from so powerful a stimulation can readily be appreciated.

In the beginning of the treatment with the Franklinic current, in neurasthenia, the earlier seances should preferably not last more than ten minutes, as there is danger of inducing an over-stimulation. This should always be avoided. If it is found that a ten minutes' sitting is well borne, the next sitting may be slightly lengthened, and when a patient's toleration is fully established it may be extended to as much as thirty minutes. The crown electrode, fixedly attached to the electrode stand, should be placed over the hand during the first of the sitting, while the latter part of the application should be made by means of the point to the entire general surface of the body, localizing it to the spine, especially the nape. In those conditions where there is a tendency to a passive congestion of the brain, the application should be made by means of the point adjusted so as to localize the discharge to the spine, preferably the nape, in order to obtain an influence over the vaso-motor center. Sometimes in cases where such congestion exists the use of the crown electrode intensifies the discomfort and patients will complain of a full, bulging feeling in the head, which is most undesirable. When it is found that the convective discharge is well borne, which will be indicated by an improvement in the temperature, in rate and volume of pulse, in the moisture of the skin, naturally much less marked than with the disruptive discharge, also by a sense of well being and often times a sensation of quiet with a desire to sleep, then if the indication exists for a profounder revulsive effect, the friction sparks may be used to the entire general surface of the body, the localization being as before to the spine and especially to the nape for the influence upon the vaso-motor center.

As to the frequency of the application. In most neurasthenic patients and particularly the exhausted type, daily seances at first are preferable. The gain is surer and the time of treatment shortened by daily applications for the first week, two weeks, or possibly a month or six weeks. Rarely should the maximum time be exceeded however. The period of time for daily seances is to be determined by the persistence of the relief established from a single treatment; as soon as it is found that the relief established continues over twenty-four hours, then the treatment should be given every other day and subsequently as the improvement maintains itself for a longer time every third day to once a week, and finally to a discontinuance of the application. It is not possible to lay down a fixed

rule for the length of time that a patient should remain under treatment, because the recuperating power of some of these cases is very much greater than others; while their environments differ to such an extent as to modify the effect. The indications, however, for the discontinuance of the treatment, the nutritional gain and relief from symptoms are very clear.

The work can only be done slowly and as soon as the organism ceases to respond to the stimulation which has been used, and which has for the moment set up more nearly normal chemic action, then it should be repeated. Nothing is gained by waiting after that time comes, and much is lost. In the exhausted type of neurasthenics daily seances are necessary. Patients judge very clearly as to when less frequent applications are desirable. During the period of great exhaustion, physical and mental, the craving for the electro-static bath is very great. As nutritive changes are set up, followed by increased strength and energy, these patients are able to go on with comfort for a period of two or possibly three days without treatment.

Nerve cells undergo certain changes in the course of their functional activity which can only be interpreted as those of fatigue and we must remember that in neurasthenia we have to deal with nerve cells unable to get rid of fatigue or toxic products. They may be said to have undergone the "molecular or chemic variation," and as a result have an "exhausted or changed nutritional power." The whip and spur must be applied as soon as they lag. But we must understand clearly that while there is a stimulation, it is not an evanescent effect, but one that results in chemic changes tending to the establishment of nutrition and healthful function.

It must be constantly born in mind that it is work which is being done in the tissues of the body, and that the indications for the repetition of that work lies in the permanency of its results.

When we connect a sphere[4] to a terminal of an electro-static machine having an electro-motive force of say 200,000 volts, it will receive a comparatively large quantity of electricity, which will be a certain fraction of a coulomb. Suppose the charge communicated to the sphere be 1-1,000,000 of a coulomb, delivered at a pressure of 100,000 volts. In that case the work delivered to the sphere would be equal to 0.1 of á joule or 0.0738 foot pound.

This energy is received by the air and ether surrounding the sphere and held there during the maintenance of the charge. It is distributed throughout the room, although not equally. A certain fraction of a joule is charged in each cubic inch of space, the greater amount being in the immediate neighborhood of the sphere and lessening with distance from the same. Just the same thing happens with the patient on the insulating platform connected either directly or indirectly to the prime conductor. The air and ether about him receive the energy and the work in this instance is delivered to the patient, representing work of so many foot pounds or fraction thereof according to the electro-motive force and coulombs furnished. The charge is passed into the ether by electric displacement. This takes place along defined lines or curves which are called lines or curves of electro-static flux.

After ten minutes' application the patient is very apt to volunteer the statement: "I feel so quiet and sleepy." When this condition exists it is an indication for ending the seance. In my office I am in the habit of having such patients lie down or rest before leaving for their homes, and if they feel inclined to sleep encourage them to do so. Upon examination such a patient's skin will be found warm, moist in the palms of the hands, the temperature which before treatment was subnormal raised more nearly to normal, the pulse either raised or lowered, as it was slow or rapid before, but invariably with improved volume while a sense of general well-being is experienced. This beneficent influence may persist for an hour, even less, or it may last until the next day, seldom longer after a first treatment.

Rarely do I allow such patients to talk during the time of administration, and for that reason I prefer to use an electrode connected permanently with the stand, rather than one in the hands of the operator. One need only bear in mind the pathologic condition, the nature of the agent being used and what it does within the tissues, to appreciate the necessity of perfect quiet and relaxation in order to secure the best results. Work, as we have seen, is being done. Nerve cells must participate in the activity, whatever its ultimate nature, and by reason of this activity, energy is given them with corresponding ability to perform healthful functions. This should be expended in that direction and not in an effort at cerebration or muscular movement. Such effort can be made judiciously later on.

There should always follow the treatment a sense of "glow" or warmth, and a feeling of well-being. The vaso-motor nerves are stimulated, the cutaneous vessels dilated and activity of the skin established. No treatment should be persisted in when this reaction takes place. The perspiration appears first upon the palms of the hands, then upon the forehead, upper lip and finally, with the use of the disruptive discharge, all over the entire body.

In rare instances it happens that instead of the desired reaction of cutaneous vaso-motor dilatation a vaso-constriction is established with contraction of the peripheral vessels, goose-flesh and coldness of skin; the surface is pale, the patient chilly and mentally irritable, uneasy and apprehensive, indicating that the blood vessels of the brain are also in a state of contraction. Continuous treatments may abate this condition, but I have known it to persist to the extent that it seemed best to terminate the sitting, leaving the patient apparently unbenefited. This state of affairs is most commonly observable in neurasthenics. The best way to avoid it is to begin treatment very gently by aid of a mild convective discharge or "spray," and later on in the same sitting to use a stronger convective discharge or the "needle spray." This class of patients do not do so well under the disruptive discharge until the nutritional change has been established. If good reaction follows the use of the "needle spray," they may be gradually accustomed to Franklinization by means of the disruptive discharge or "spark" applied preferably to the spine at the first sittings.

It is common for neurasthenics, after the first treatment by the disruptive discharge, to experience an overpowering sense of lassitude and sometimes extreme muscular soreness. This is no doubt due to the release of degenerated and toxic substances.

Two classes of cases are appended. The first from 1

[4] Houston and Kennelly: Electricity in Electro-Therapeutics.

to 16 are dispensary patients for whom change in environments, food, habits, etc., was not made, and for whom no medication was used. The second, 1 to 8, are private or office patients for whom such medication was used as was indicated, as arsenic and iron, cascara sagrada in constipation and sodium bromid in the restless, sleepless and excitable cases. The action of Franklinism is to increase the activity of drugs and very small doses are used.

The nutritional improvement established is progressive and enduring. In my experience if overstrain of any sort induces a relapse, it is but a modification of the primary condition and disappears quickly under treatment.

One of the first results obtained from the judicious use of the Franklinic current is relief from insomnia. In five years I have not prescribed a hypnotic save on one occasion for a business man who could not take time to come for treatment. I am in the habit of giving 10 to 15 grains of sodium bromid three times daily for the first few weeks of treatment in order to prevent undue expenditure of the energy until such a time as the nutritional changes are established. In cases of obstinate insomnia among dispensary patients nothing is given or permitted save the general Franklinization with careful localization to the spine, especially the nape, and preferably with the frictional spark. The results in the latter class of cases have been good. It must be borne in mind, however, that the extremely nervous, restless and irritable type of neurasthenic patients, are more frequently met with in private than in dispensary practice.

The constipation from which neurasthenic patients in common with many others suffer is almost invariably relieved by the Franklinic treatment; the relief resulting in consequence of improved nutrition. The nutrition of the whole can not be established without the nutrition of a part. Disease is arrested, modified or cured by curing the patient.

In conclusion permit me to repeat that the grand function of Franklinization is to improve and restore nutrition not only of a part but of the whole, a function which indicates a usefulness as wide as the domain of medicine. By reason of this function Franklinization is a means of inestimable value in the treatment of neurasthenia.

DISPENSARY CASES.

Case 1.—O. F. B., male; age 56, physician, March 23, 1892. Cerebrasthenia with insomnia. Duration two years. Insomnia most marked symptom; resorted to 10 grains of sulfonal from one to four times weekly. Sleep obtained much broken, waking every hour or two. Nutrition poor.

Treatment: Franklinic current, positive insulation, frictional sparks to spine, localized to nape (insomnia), needle spray to head. Ten treatments given, extending over three weeks. The night after first treatment had seven hours of uninterrupted sleep. Improvement continued, characterized by marked nutritional gain, improved appetite and sound, refreshing sleep.

Case 2.—T. C., male; age 42; single; clergyman; June 8, 1892. Neurasthenia, cerebro spinal. Four years' duration. Insomnia; occasional frontal headache; languid and distressed, easily moved to tears; appetite fair, distress and acid eructations after eating; flatulence; bowels regular. Excessively thin.

Treatment: Franklinic current, positive insulation, needle spray to general surface, frictional sparks to spine and epigastrium. First treatment badly borne, inducing a fit of weeping. Three treatments given, extending over two weeks. Interval between the first two, twelve days. The night after the first treatment patient slept well, also the following night, and felt better during the interval. Sparks were better borne at third visit and patient expressed himself as feeling light and buoyant in consequence of the treatment. The patient made a good convalescence.

Case 3.—R. D., male; age 29; designer; Sept. 23, 1892. Neurasthenia. Duration one year. Unable to sleep until 3 o'clock in the morning; irritable and inclined to be morbid. Spine-ache, cervical, dorsal and lumbar. Appetite fair; tongue coated; digestion impaired; bowels regular. Weight 125 pounds.

Treatment: Franklinic current, positive insulation, long percussive sparks to spine and general surface, to epigastrium, also long and frictional to nape. Forty-two treatments given, extending over six months. Immediate results from first treatment; less nervous and a more buoyant feeling. At second visit reported that he was sleeping better. At end of two weeks less depressed; sleep improved, also appetite. At end of third week had gained three pounds, at end of fifth week four pounds, and at end of three and a half months seven pounds. Continued his work during treatment. Discharged, recovered.

Case 4.—W. A. J., male; age 57; married; hotel keeper; July 5, 1893. Neurasthenia. Extreme nervous shock following an accident twenty-five years prior to admission. Not well since. Complained of loss of power in left arm and hand. Pain from occiput down to lumbar enlargement; no spinal lesion. Sleeplessness.

Treatment: Franklinic current, positive insulation, long percussive sparks to entire surface of body, localized to spine and affected arm. Returned for second treatment July 7, 1893, when he complained that it had made him worse; said he felt sore and tired all over, as though beaten, but that he had slept all the previous night and again during the entire morning. This case is reported simply to indicate the necessity for a more gentle application to a neurasthenic patient at first.

Case 5.—N. C. M., female; age 27; single; saleswoman; Dec. 9, 1891. Neurasthenia with hysteric symptoms. Not well for eight years. Contracted gonorrhea eight years prior to admission; acute attack three weeks' duration; abscess in groin, opened externally; six months later pregnant, abortion procured at two months; four years ago pelvic trouble; irritable bladder from that time. In August last, gave birth to a living child; less well since. On admission headache; backache, especially lumbar and sacral, pain in right groin and dragging sensation; marked irritability of the bladder; capricious appetite; distress and heaviness after eating; constipated bowels; extremely nervous; sleepless, depressed and hysteric. Tenderness on pressure over spine, entire length. Uterus normal; ovaries neither enlarged nor sensitive; sensitiveness on pressure over fundus of bladder; general nutrition fairly good.

Treatment: Franklinic current, positive insulation, long percussive sparks to spine, localized to nape, lumbar and sacral plexuses, hepatic area and abdominal walls and entire general surface. Sixty-six treatments given, extending over eleven months. At fourth visit, sleeping better; slight improvement in digestion. Improvement slow, marked by many relapses into former condition. Eventually, however, a marked improvement in general health was noted, with increased strength, lessened nervous irritability, better self-control; regular bowels; diminished pelvic discomfort. June 10, 1892, went into the country for two months. Seven applications were given after her return, when she discontinued her visits in better health than she had been for many years.

Case 6.—C. R., male; age 32, married; carpenter; Feb. 8, 1893. Neurasthenia, with hypochondric symptoms. Duration two years. First noticed sense of pressure across chest; unable to breathe freely; breathless upon exertion. Past year difficulty of breathing, nervous, pain at back of neck, and entire length of spine; appetite fair; distress after eating; bowels regular; occasional frontal headache; depressed and self-centered; unable to work with any regularity; circulation poor; all organs interrogated, but no lesion discoverable.

Treatment: Franklinic current, positive insulation, long percussive and frictional sparks to spine and general surface, localized to nape and to epigastrium. Eight treatments were given extending over one month. At second visit felt much better. At fifth visit circulation much improved. At seventh visit improvement much more marked; no depression; "catch" in back gone, also difficulty in breathing; no epigastric heaviness. One more treatment given and patient discharged, recovered.

Case 7.—J. R., male; age 29; married; butcher; March 24, 1893. Sexual neurasthenia. Not well for a year and a half. Morbid, depressed and self-centered. Twitching movement, first in left shoulder, then in right, then in back of neck, then in eyes. No trouble when quiet and not at work. Unable to "fix his mind" on anything; general health fair; appetite

good; bowels regular; sense of numbness front of thighs; knee-jerk normal. History of gonorrhea before marriage. Sexual excesses since.

Treatment: Franklinic current, positive insulation, long percussive sparks to spine and general surface, localized to lumbar and sacral plexuses, anterior surface of thighs, and with director electrode to perineum from anus to scrotum. At third visit reported much better after second treatment, with diminution of distressing sensations. At fourth visit less dejected, felt stronger. At fifth visit no muscular twitchings. Eight treatments given extending over one month and at last visit, April 24, 1893, could fix his mind on what he read or was doing; no muscular twitching, no distressing symptoms, skin clearer; expression bright and hopeful.

Case 8.—S. F., male; age 29; single; brass-polisher; July 10, 1891. Sexual neurasthenia; masturbation, nocturnal emissions, pain in back, lumbar and sacral; headache; appetite good; digestion fair; complexion muddy; anemic; heart irregular; no murmur, palpitation; sleepless.

Treatment: Franklinic current, positive insulation, long percussive sparks to spine and general surface, localized to nape, lumbar and sacral plexus, and with director electrode to perineum from anus to scrotum. Nineteen treatments given extending over four months. An interval of twelve days between first and second treatments; sleeping better; no emissions. Improvement continued, and on Nov. 16, 1891, visits discontinued, general health improved, sleeping well, relieved of pain in back and head. Second admission Sept. 1, 1893; well for one year after treatment. On admission, pain in back, lumbar and sacral—also in right sciatic; tenderness on pressure at sciatic notch, middle of thigh, popliteal space, in knee, calf of leg and ankle; sensation as though asleep; insomnia; nervous; badly nourished; bowels regular. Eight treatments given extending over seven weeks. Relief established at once and continued. Discontinued visits Oct. 20, 1893, recovered.

Case 9.—S. E., female; age 38; widow; seamstress; Sept. 6, 1893. Neurasthenia; three years duration; nervous, easily depressed; morbid fears; backache—sacral. Sleep broken, bad dreams; buzzing noise in left ear; afraid of dying; appetite good, gaseous eructations; bowels regular; weight 110¾ pounds.

Treatment: Franklinic current, positive insulation, needle spray to head and general surface for fifteen minutes with a few long percussive sparks to spine. Spray used at first to establish confidence. Nine treatments given extending over six weeks. At second visit looked brighter. At third visit patient said she was better. At fifth visit less depressed. Able to come to clinic alone. Weight 113½ pounds, gain 2¾ pounds. Digestion improved; daily movements; and on Oct. 20, 1893, patient discontinued visits. Improved.

Case 10.—B. T., female; age 20; single; reader; April 16, 1894. Neurasthenia; "irritable spine for eight years;" tenderness on pressure in dorsal spine especially about midway. Tired aching feeling in muscles of neck and shoulders; pain extended down both arms; legs and arms felt as though asleep; worse at night, sleepless and restless; depressed, badly nourished; gaseous eructations; irregular bowels.

Treatment: Franklinic current, positive insulation, long percussive sparks to spine and general surface localized to sensitive area in spine, muscles of neck, shoulders and arms. Sixteen treatments given extending over twelve weeks. Relief from first treatment lasted three and a half hours. Nutritional gain established; relief from pain, aching and weariness; bowels regular; sleeping well; no depression. Recovered.

Case 11.—M. K., female; age 26; nurse; April 8, 1895. Neurasthenia; duration six months; extremely nervous; weak; palpitation; gaseous eructations; bowels regular; amenorrhea for two months; pain in left ovarian region; general sense of exhaustion: distressing dreams; backache; poor circulation; irritable cough. Sensitiveness on pressure at lumbar spine. Mucous membrane anemic; heart and lungs normal.

Treatment: Franklinic current, positive insulation spray to entire general surface over a period of three weeks. Immediate result from first treatment; slept better; after fifth treatment felt very well; appetite good. To the sixth and seventh treatments were added long percussive sparks to entire general surface, localized to spine, lumbar and sacral plexuses and abdominal walls. Recovered. April 8, 1896, patient has kept well during the year and able to work.

Case 12.—K. L., female; age 29; married; April 19, 1895. Neurasthenia. Pain and weariness at back of neck; insomnia; headaches; nausea and occasional vomiting; hysteric attacks; neuralgic pains; prolapsed ovary removed two years since; less pain since operation; laceration of the cervix uteri.

Treatment: Franklinic current, positive insulation, spray to entire general surface for fifteen minutes, localized to spine and ovarian region. Three treatments given extending over a period of two weeks; to the third treatment was added long percussive sparks localized to lumbar and sacral plexuses, hepatic area and abdominal walls. With the first treatment. relief from constipation; head better; improved.

Case 13.—J. F. L., male; age 31 years; married; Sept. 6, 1895. Sexual neurasthenia with impotence. Twelve years ago gonorrhea, followed by stricture. Constant irritation of prostate; frequent urination; deficient muscular power; anemic; voracious appetite; bowels regular; drinks and smokes to excess; depressed; morbid fears; easily fatigued. Genito-urinary organs normal.

Treatment: Franklinic current, negative insulation, long percussive sparks to entire general surface, localized to spine and with director electrode to perineum. Three treatments given extending over a period of six weeks; improved.

Case 14.—N. female; age 41 years; widow; thirteen children; Sept. 20, 1895. Neurasthenia; depressed; introspective; tired in the morning; throbbing pain under right scapula and precordia; dizziness; bowels regular; heavy feeling in epigastrium after eating; pain and tenderness in knees; very nervous; sharp pain in left side during last menstruation; weariness and aching and a sense of weakness in cervical region extending into arms; anemic.

Treatment: Franklinic current, negative insulation, spray to entire general surface for five minutes, followed by long percussive sparks to spine, hepatic area, abdominal walls, epigastrium and extremities. Fifteen treatments were given extending over a period of two and one-half months with marked improvement from the first; pain in shoulder and knee relieved; marked nutritional gain; improved circulation; increase in weight and disappearance of symptoms.

Case 15.—M. F., male; age 41 years; married; farmer; Sept. 15, 1895. Neurasthenia; morbid fears and depressed. Eight years since had gonorrhea. No symptoms except dragging sensation in perineum and testicles. No lesion other than a perineal eczema.

Treatment: Franklinic current, negative insulation, long percussive sparks to entire general surface, localized to spine, especially to lumbar and sacral plexuses also with director electrode to perineum. Twelve treatments given extending over nine and one-half weeks; after second treatment less discomfort. Disappearance of depression, morbid fears and tendency to introspection. Recovered.

Case 16.—J. P., male; age 25; single; wire weaver. Oct. 11, 1895. Neurasthenia, sexual with impotence. Duration four years; weak feeling; short breath on exertion; has had gonorrhea; painful micturition, irregular in quantity; impaired vision; falling of hair; seminal emissions two or three times a week and no muscular power; varicose veins of scrotum; morbid fears, depressed; introspection.

Treatment: Franklinic current, negative insulation, long percussive sparks to entire general surface localized to spine, especially lumbar and sacral plexuses and with director electrode to perineum. Nine treatments given extending over a period of eighteen days. Recovered.

Case 17.—C. W., male; age 29 years; married; laborer; Oct. 24, 1895. Sexual neurasthenia. Five years ago sexual indulgence excessive; for last four years mucous discharge from urethra; last six months backache; headache constantly for last two months. For one year sexual desire diminished; tired and drowsy on rising; forgetful and despondent; bowels constipated.

Urine analysis: Specific gravity 1012; granular casts; urea 1.2 per cent.; acid reaction.

Treatment: Franklinic current, negative insulation, long percussive sparks to entire general surface, localized to spine, especially to lumbar and sacral plexuses, hepatic area and abdominal walls and with director electrode to perineum. Four treatments extending over a period of one week; relief from pain in back; stronger. Urine analysis, specific gravity 1024; acid; no casts. Urea 2.4 per cent.

OFFICE CASES.

Case 1.—A. H., March 12, 1895; age 51; widow; superintendent of hospital. Neurasthenia; duration four years; menopause at 49; anorexia; nausea and vomiting; flatulence; constipation alternating with diarrhea; headache; spine ache; cervical and dorsal; insomnia; nervous and depressed.

Treatment: Franklinic current, positive insulation, needle spray to entire general surface, localized to spine and epigastrium for fifteen minutes. Twenty treatments given extending over a period of one and one-half months. To the sixth and following treatments were added long percussive sparks to spine, nerve trunks and distribution. April 22, 1896. This

patient has been actively at work during the past year and reports to me under present date that she is well.

Case 2.—Mr. H.; Feb. 14, 1895; age 40. Neurasthenia; duration two years; morbid; depressed; nervous and melancholy; insomnia; anorexia; impaired digestion; constipation; thin; impaired strength.

Treatment: Franklinic current, negative insulation, needle spray with crown electrode for ten minutes and long percussive sparks to entire general surface; twenty treatments given extending over a period of two months. After the first treatment no change; looked cold, wan and apprehensive; reaction not good. The disruptive discharge badly borne and discontinued; second treatment needle spray to entire general surface for fifteen minutes; to third treatment added frictional sparks localized to spine from nape to lumbar enlargement for two minutes. At tenth treatment long percussive sparks given. Patient did not sleep so well. No doubt over-stimulated by the action of the sparks, but as in my judgment the time had come when the disruptive discharge was indicated I persisted in the use of long percussive sparks to the entire general surface localized to spine, especially nape, lumbar and sacral plexuses, hepatic area and abdominal walls. Marked and continued improvement: April 9, almost complete disappearance of symptoms; sound and refreshing sleep; good appetite; good color; increased strength: less nervous; bowels regular; slight gain in weight.

Case 3.—Mr. J. B. H.: March 19, 1895; age 48. Neurasthenia. Within the last ten or fifteen years has broken down several times from over-strain; two days since felt worse than usual, took a drink of whisky, went out, fell down, got up and wandered about, knowing nothing of his whereabouts. Not an intemperate man. Congestive condition at base of brain; sense of fullness in left ear and on left side with inabilty to move head around quickly without pain; vertigo, sometimes falls; when walking sense of falling; two years ago marked weakness of left side amounting to paresis for twenty-four hours; gradually improved; marked tremor of right arm and hand: insomnia; exaggerated mental activity; knee-jerk slightly diminished; general health good; some backache, lumbar and sacral: is obliged to consider his coördination, pupils respond to light and to accommodation; far eighted.

Treatment: Franklinic current, positive insulation, needle spray for fifteen minutes, followed by long percussive sparks to entire general surface, localized to spine, from occiput to lumbar and sacral plexuses, sciatic nerves and distribution; frictional spark to nape. Treatment induced free perspiration followed by relief from pressure at base of brain. Twenty-two treatments given extending over a period of six weeks. Improvement with first treatment; improvement continuous, and after one month relieved of former symptoms and better than before the acute attack in March. May 29, recovered.

April 22, 1896, patient has been well during the year.

Case 4.—J. W. P. Oct. 26, 1893. Male; age 41; single; teacher; neurasthenia with hypochondriac symptoms. Duration two years; sense of dizziness at first not localized, now occipital: pressure, sub-occipital; numbness, creeping in left side, arm, leg and side of body; sometimes on right side but not to such an extent as on left; intolerable sleepiness in the afternoon with slight rise of temperature; queer feeling in head relieved by counter pressure; darting pain in course of spinal accessory nerves, increased by excitement; constant consciousness of a feeling as though force pump sending blood down heels; excessively nervous; sensation of "lump" midway dorsal spine; feels suddenly now and then a touch here and there, sometimes hot and cold, then gone; sees double disks at times which coalesce; eyes astigmatic; sleeps very well, except when under excitement; dreams; profoundly depressed; great nervous irritability; morbid fears, thinks he will become insane; appetite good, gaseous eructations; no heaviness; bowels regular; knee jerk normal; stands and walks well; no incoördination; pupils respond to light and accommodation; palpitation on effort or with emotion.

Treatment: Franklinic current, positive insulation, needle spray for fifteen minutes, followed by long percussive sparks to entire general surface, localized to spine especially nape for five minutes. Forty treatments given extending over a period of six months and twelves days. Following first treatment relief of discomfort in head which lasted nine hours. November 21 no longer thinks of becoming insane; amelioration of pain in back of neck. Subsequently slight exacerbation due to an attack of "grippe." After recovery from "grippe" improvement continued; floor and ground do not wave under him; eyes accommodate better. April 29: Improvement established has been maintained during the past two years and a half; no return to former conditions.

Case 5.—D. I. P. Dec. 12, 1892. Female; age 36; married. Seven years since acute nerve exhaustion; since then backache, sacral; irritable bladder; leucorrhea; appetite capricious; nausea; distress and heaviness in stomach; flatulence, intestinal; constipation; hemorrhoids; headache, neurasthenic helmet and sub-occipital; sensitiveness to noise; emotional, easily moved to tears; profound depression; confusion; weariness in head; possessed of fear all the time; afraid to go out alone; thin, pale. Examination: immense cluster of hemorrhoids, external, largest size of walnut, ulcerated; half a dozen smaller ones; lacerated cervix; endometritis; hyperplasia; anemia; heart and lungs normal. Treatment: Franklinic current, positive insulation, spray to entire general surface with a few sparks to spine at first. Subsequently long percussive sparks to entire general surface, and frictional sparks to spine. Fifty-one treatments given extending over a period of six months and fifteen days; after nine days no depression; no headache; nervous fears very much less; appetite better; bowels acting better; from Dec. 12, 1892 to Jan. 5, 1893 gained three and one-third pounds; passed first menstrual period without local pain; sense of pressure and pain in varicose veins of right leg, usually exaggerated at menstrual period, markedly less. After one month's treatmeat she came alone to the office, first time she had gone out without some member of the family in six years; continued to improve so far as neurasthenic condition concerned notwithstanding the fact that she was absent from regular treatment from January 18 to February 20, during which time I operated on hemorrhoids. By the middle of March able to work and assume the care and responsibility of her family; May 9, normal movements for past ten days, before no action without medicine. After symptomatic relief was established in consequence of the nutritive changes set up by general Franklinization, uterine treatment was given with the continuous and induced currents according to indications. Recovered. October 1894, returned with nervous symptoms due to fright and excitement. After two week's treatment restored to former condition.

Case 6.—S. V. A., Oct. 5, 1895. Female; age 48; teacher; neurasthenia; duration fourteen years, broken down at that time; rested one year; menopause five years since; better at times; appetite fair; no indigestion; bowels regular; pain back of neck extends at times over head; occasional supra-orbital pain: insomnia; extreme nervous irritability; pricking sensasation all over, especially calves of legs; morbid and unreasonable over little things; feels like crying; bronchial irritation with cough; post-nasal discharge; slightly deaf; anemic.

Treatment: Franklinic current, positive insulation, spray to entire general surface for ten minutes, frictional sparks to spine, especially nape. Fourteen treatments given extending over a period of one month and four days; felt better from first treatment. Treatment suspended for a month or two; recommenced and continued once a week to date. Marked nutritional improvement; able to keep at work all winter. Relief from all distressing nervous and mental symptoms.

Case 7.—R. W. May 2, 1895. Female; single; neurasthenia with hysteric symptoms. Duration nine years; eight years since both ovaries and tubes removed; history of abscess since operation, discharged per rectum, pus, no blood; occasional backache; intestinal flatulence; constipation; during winter acute attack of stomach and intestinal indigestion; tired head; sensitiveness on pressure over cervical and lumbar vertebræ; paresis of facial muscles in October; insomnia; depressed; nervous; irritable; self-centered; excessively thin; worn and ill looking; worse in the morning.

Treatment: Franklinic current, positive insulation, needle spray to entire general surface, localized to spine and right sciatic. Thirty-six treatments given extending over a period of two months. After a week improved sleep; bowels more regular. To eighth treatment added long percussive sparks to spine, lumbar and sacral plexuses, sciatic nerves and distribution, to epigastrium and abdominal walls. Improvement continuoue; gained eighteen pounds under treatment.

Case 8.—A. H. W. March 16, 1893. Female; married; age 34. Neurasthenia. Not well since first confinement eight years ago; unable to stand; conscious of pelvic organs; bearing down: veins of both legs, anterior surface, enlarged. February 1891, operation on cervix and perineum. Backache constant, vesical pain; leucorrhea, increased by exertion or undue fatigue; post-menstrual exhanstion; headache; fullness of head; pressure at nape; distress in spine, especially dorsal; insomnia; nervous and excitable; irritable; despondent; appetite capricious; flatulence, gastric; constipation; anemia; circulation poor; appearance of faulty elimination.

Treatment: Franklinic current, positive insulation, spray to entire general surface for ten minutes, sparks to spine. At subsequent treatments long percussive to entire general surface localized to spine. Forty-five treatments given extending

over a period of four months; marked improvement from the outset. After two months walked one and one-half miles and took a bicycle lesson of twenty minutes without fatigue; no backache save when over-fatigued; appetite good; bowels regular. Recovered. June 28, 1894, confined.

April, 1895, operation, curettement and trachelorrhaphy. May 9, 1895, came under writer's care again. Incomplete union at site of highest stitch right side of cervix; perineum extremely sensitive; pelvic congestion; vaginal walls relaxed; anterior wall prolapsed; constant sense of discomfort, bowels constipated; liver inactive; skill sallow and pigmented.

Treatment: Franklinic current, positive insulation, needle spray to entire general surface, localized to spine for twenty minutes. Eleven treatments given extending over a period of one month and three days with disappearance of symptoms, as well as improved local conditions.

HOMICIDE IN THE UNITED STATES.

Read before the American Academy of Medicine.

BY PAUL BARTHOLOW, B.A., M.D.

PHILADELPHIA.

Murders are of very great frequency in this country. The number reported last year was 10,500, an enormous figure! We might, if there were not some reasons against it, take this number as the annual average, which in most countries is a fairly constant quantity. But here, owing to some conditions that I shall endeavor to particularize, the amount of homicide in any year, taken as a standard, does not give us the least reason for predicting that the succeeding year will be marked by a similar number of murders, neither many more nor less. In 1885, for instance, the homicides reported numbered 1,808; in 1890, 4,290; in 1894, 9,800, and I have just mentioned 10,500 in 1895. That is to say, there was nearly six times as much homicidal crime reported last year as in 1885, an increase almost in arithmetical ratio. In a word, the population loses every year from murder as much as from a battle or a plague. Such an amazing development of murder has never before been observed in any other country. There must be some especial cause or causes at work to produce such a result, but, before entering upon a discussion of these, let us undertake a comparative view of the above figures. We shall thus be enabled fully to appreciate their gravity. Let us take as affording a sufficiently vivid comparison, the amount of homicide perpetrated in war. The total killed in battle on the Federal side during the late war was in round numbers 49,000 (Medical and Surgical History of the Rebellion). That is an annual average of little more than 10,000 (the time being a period of nearly five years), or about the same as the total number of homicides reported last year. During the Franco-Prussian war of 1870, the Germans lost in battle 17,500 men, a figure that sinks into insignificance beside our total of homicidal crime, for the conditions favoring homicide in war are or ought to be vastly greater than the conditions favoring it in peace. (Oettingen, die Moralstatistik, p. 729.)

Again, let us compare last year's total of murders with the annual average of other countries. In order to make this comparison as absolutely true as possible, I shall adopt the method of estimating the total amount of murder during any given period, recommended by Bosco, who has studied this subject with the greatest care. In his own words, his method is described as follows: "As the composition of the population, with respect to age, varies in different countries, and as it has to be remembered that all the population under ten years of age has no share, at least under normal conditions, in the crime of murder, it has seemed to me a more exact method to calculate the proportion of murders to the inhabitants who are over ten years of age than to include the total population." (Quoted by Morrison: Crime and its Causes, p. 30.) I may mention here that with respect to this country, such a method of calculation is extremely difficult. The composition of the population varies greatly; in some States there is undoubtedly a preponderance of adults; in others, on the other hand, the proportion of children under 10 years of age is probably very high, in such regions as Pennsylvania and New York, for instance, where the birth rate is respectable and the casualties, inevitable amid such enormous trade and manufacture, are great and compose very material losses of adult population, we have powerful causes tending to raise the proportion of children under 10. It might be supposed that immigration, including chiefly adult males, would neutralize this result. Doubtless it does modify the proportion of children to adults, but not, I think, to any great extent. In fact, considering the high birth rate in those sections that receive the most immigration, and considering, too, that the rate throughout the country is normal, I think we shall not be far wrong in supposing that the proportion of children under 10 years of age is as great here as in England or Germany. Supposing then the population of the United States at the present day to be 65,622,000, which is reached by calculating the excess of births over deaths and the amount of immigration since the last census, when the population was put at about sixty-two millions, and taking off 20 per cent. of the whole as representing the population under 10 years, we ought to get the total population which under normal conditions, as Dr. Bosco puts it, might be physically able to commit murder. The total thus calculated is 52,478,000. Taking last year's number of homicides, and calculating the rate per 100,000 of population we get the high proportion of 20. Comparing this rate with the rate in other countries, according to Bosco's tables, we find that homicide is a fourth higher here than in Italy, nearly twice that of Spain, nearly five times that of Austria, nine times that of France, nearly twenty times that of England, Scotland or Germany. All this is bad enough. In order, however, to bring this high rate into greater relief, let us compare it with the rate in India. We have, as Mr. Morrison tells us, excellent statistics of Indian crime. It is, besides, a country that in point of size and severity of climate, resembles our own. We might, if it were not for some social prohibitive causes, expect a high rate of murder. But what is really the fact? In Mr. Morrison's words, "India stands to-day in the proud position of being more free from crimes against the person than the most civilized countries of Europe." Astonishing as it seems, India with its 185,000,000 of population over 10 years of age has an annual average of but 1,930 cases of homicide, scarcely one-fifth of the number last year in our population of 52,000,000! In other words, in India with its enormous population the rate of homicide per 100,000 of population is but 1.31, a percentage unmeasurably inferior to ours. Mr. Morrison ascribes this low rate of homicidal crime to the prohibitive influence of caste, but before undertaking a discussion of this subject, let us look at these figures from another point of view. The annual average of homicide in India is the whole number of cases

of murder reported and presumably the whole number committed, which is not the case with regard to this country. There is, therefore, this remarkable fact established with respect to crime in India, that we really know the amount of murder committed annually; not approximately (as we do of England and the United States) but as nearly as possible absolutely, and this amount, considered from this point of view, is but one-half that of England and but 1-34 that of the United States. I can not do better here than put the matter in Mr. Morrison's words: "The number of cases of homicide in India committed by persons over 10 years of age and reported to the police is smaller per 100,000 inhabitants than the number of cases of the same nature *brought up for trial* in England (italics mine). In order to appreciate the full importance of this difference it has to be remembered that in England a great number of cases of homicide are reported to the police for which no one is apprehended or brought to trial. In the case of the notorious Whitechapel murders, which horrified the country a year or two ago, no one was ever brought to trial; hardly any one was arrested or seriously suspected. These crimes and many others like them materially augment the number of homicides reported to the police, but they never figure among the cases annually brought for trial before assizes. As a matter of fact no one is ever tried in more than one-half of the cases of homicide reported to the police in the course of the year. In the year 1888, for instance, 403 cases of homicide were reported to the police in England and Wales; but in connection with all these cases only 196 persons were committed for trial. In short, double the number of homicides are committed as compared with the persons tried; and if a comparison is established between India and England on the basis of homicides reported to the police, the outcome of such a comparison will be to show that there are annually more than twice as many murders committed per 100,000 inhabitants over the age of 10 in England than there are in India."

I have said that in the United States there are every year thirty-four murders where there is one in India. The real number is probably much higher. But it is, unfortunately, very difficult to calculate this number, except approximately, for statistics of the number of persons tried as compared with the number of murders committed are, as far as I know, not to be had. But, fortunately, we possess statistics of the number of executions, and we may draw some inference as to the amount of murder in the country by ascertaining the proportion of executions to cases reported, and comparing this proportion as it exists in various countries. For it is generally known that the frequency of capital punishment is a tolerably accurate indication of the amount of murder prevailing; a high rate in the one being accompanied by a high rate of the other. If, then, we find that the number of executions, as compared with the number of cases of homicide, is relatively large, we might infer that murder in the country under consideration is really, and not apparently, of correspondingly common occurrence. And, incidentally, finding the proportion of executions to cases reported we might be able to estimate the number of cases tried, a better method it would seem, according to Bosco and Morrison, of calculating with accuracy the absolute amount of homicide in the country during a given period.

In such an inquiry we have to remember that the proportion of executions to trials must be small, unless we suppose that the cases of homicide reported are cases of willful murder—a rash supposition that may be dismissed. And we must also ask ourselves whether the death penalty, for any reason in law, is likely to be enforced in some countries in cases where in others it would not. Doubtless there is a difference in this respect between countries like England and the United States and countries like Germany and Austria. But this difference need not occupy us particularly if we find that the proportion of executions to cases reported is so much greater in the former countries as to outweigh any effect that the superior mildness of Continental law in this respect may have. Nor, again, need we be scrupulous in affirming our comparison if we find that with this higher proportion of executions there is admittedly a greater laxity in the administration of the criminal law, a laxity that may, and does, materially decrease the number tried, if not the very cases that would, under a better condition of things, augment the total of executions.

To proceed then with our view, we may take Germany, as furnishing of all other countries the most striking example of a high rate of cases convicted and an exceedingly low rate of executions. In that country, as in India, it is probable that very few cases are reported that are not tried and very few tried that are not convicted. In Germany, for instance, of 567 cases of homicide in 1882, there were 476 convictions and but 9 executions, or .02 per cent. of convictions. In England in 1891, 19 persons suffered the extreme penalty, about 12 per cent. In 1890, in the United States, there were 4,290 cases of homicide reported and 102 executions by law. Assuming that convictions amounted to one-fourth the number of murders reported, a generous estimate, and taking from that 127 cases summarily executed without trial, we have left 948 convictions, of which 102 or 10.7 per cent. were condemned to death. Thus, in other words, in Germany, where convictions are relatively frequent, we see a correspondingly low percentage of death sentences, while on the other hand, in England and the United States, where convictions are not so common, the amount of capital punishment is considerable, including, in fact, in England, about one-seventh of the cases tried. Even if we should dismiss the cases of murder reported in the United States on the ground that the report is inaccurate, and take merely the combined legal and illegal executions for a single year, the 303 of last year, for instance, as furnishing an estimate of the amount of murders in the country (it being undeniable that an execution, whether legal or illegal, is as good an indication as a trial that a murder has been committed), we should still have to record an enormous excess of homicide here over other countries. For what are 19 executions or 9, in comparison with 303?

It is impossible in fact not to believe that the high proportion of death sentences is an intimation not only of the gravity and prevalence of murder, but of some defect in the machinery of the criminal law, influencing judges to extreme severity in punishing crime when proved, and, not unlikely, as a means of consciously or unconsciously satisfying public vengeance. We might attain a stronger conviction of the truth of the foregoing estimate by comparing the numbers convicted with the numbers tried. There is a wide difference in countries in this respect. A very able student, Mr. Morrison, whom I have several times

quoted, observes: "In some countries very few convictions may take place in proportion to the number accused, while in other countries the proportion may be considerable. In other words, in order to arrive at an approximate estimate of the amount of murders committed in a country, we must consider how many cases of murder have been tried in the course of the year. It very seldom happens that a person is tried for this offense when no murder has been committed, and it may therefore be assumed that the crime has taken place when a man has to stand his trial for it. Estimating, then, the prevalence of murder in the various countries by trials, rather than convictions, it will be found that Germany, with a much larger percentage of convictions than England, has just as few cases of murder for trial. And the reason the number of convictions, as between the two nations, differs, arises from the fact that a prisoner's chance of acquittal in England is 100 per cent. greater than it is in Germany. It is not, therefore, accurate to assume that a greater number of murders are committed in Germany than in England because a greater number of persons are annually convicted of this crime; all that these convictions absolutely prove is, that the machinery of the criminal law is more effective in the one country than the other. To take another instance, more persons are annually tried for murder in Ireland than in France; but more cases of conviction are recorded in France than in Ireland. These contrasts show that, while the French are less addicted to this grave offense than the Irish, they are more anxious to secure its detection, and that a greater body of public opinion is on the side of law in France than in Ireland. . . . While thus showing that the number of trials for murder is the best test of the prevalence of this offense, it is not meant that the test is in all respects indisputable. At most it is merely approximate. One obstacle in the way of its entire accuracy consists in the circumstance that the proportion of persons tried, as compared with the amount of crime committed, is in no two countries precisely the same. In France, for instance, more murders are perpetrated for which no one is ultimately tried, than in Italy or England; that is to say, a murderer runs more risk of being placed in the dock in this country than in France. But the difference between the two countries is again to a great extent adjusted by the fact that once a man is placed in the dock in France, he has far less chance of being acquitted than if he were tried by English law. On the whole, therefore, it may be assumed that the international statistics of trials, corrected when necessary by the international statistics of convictions, present a tolerably accurate idea of the extent to which the crime of murder prevails among the nationalities of Europe."

In order to estimate the number of trials for murder in this country, and apply this test in its rigor we must look, in default of better means, at the statistics of our prisons. We can find these in the Compendium of the last census, namely for 1890. In that year the number of persons in prison for homicide was 7,500. As there reported in the years 1885–90 an annual average of more than 3,000 cases of homicide, it is evident at once that the proportion of persons tried and convicted of that crime as compared with the number of cases reported, is insignificant. Assuming that the persons in prison for homicide in 1890 were all recruited from the cases extending over the years 1885–90, which is hardly true as some of them must have been imprisoned at an earlier date, and assuming that as many cases were reported as were tried, during those years, we still have a large excess of trials over convictions, and, what is worse, we must conclude that a considerable number of undoubted murders, supposing that some one was tried for them, are not represented in the numbers of the prison population, nor can it be supposed that this deficiency is made up by the number of persons executed, a number far too small to make good the discrepancy. There is, of course, in every country an excess of trials over convictions. In England in the years 1882–6, 1.6 per cent. of the population was annually tried for murder and 0.76 per cent. convicted. In Germany during the same period 1.61 per cent., were annually tried and 1.35 per cent convicted. In the United States, basing our estimate on the number in 1890, and taking the annual average of committals during the years 1885–90 as 1,250, or in other words taking this as the number of convictions, although the real number must obviously be much lower, and assuming that the trials averaged half the cases reported during that time, we have an excess of trials over convictions of one-fifth; an excess of cases reported over convictions of twelve-fifths. Lastly, to take India, as a country most like our own in respect to climatic conditions, the most powerful influences in causing homicidal crime, we find the annual average of cases reported to be 1.31 per cent. and the annual average of convictions 0.46 per cent., an excess of cases reported over convictions of 2.8 or fourteen-fifths, an instructive result that points to a mild administration of the criminal law in India, a result too that incidentally shows us that a laxity in this respect is not necessarily in that country a provocative of crime.

And this brings us to the curious inquiry as to the causes of the prevalence of murder. We have just seen that though in India, as in England, the percentage of convictions is not high; yet India, as compared with England and the United States, is singularly free from crimes of blood. A hot climate, as Professor Ferri has shown, is one of the most potent causes of the prevalence of homicide, and we might expect therefore that India, as compared with England, would show a high percentage of murder. Yet this is not the case. As compared to the United States, where the climate is marked by harsh extremes and often unexpectedly severe weather, we might look for a lower percentage, but this too is far from being true. To what, then, is the difference due? It is most plausibly argued by Mr. Morrison and Sir William Hunter that the immunity of India from crimes of violence is due to the influence of caste; and, while, admitting the unfavorable effects of the Indian climate, they believe that caste is powerful enough to repress those effects. By looking at their arguments, we shall get I think, not only the most just and philosophical view of some of the deeper and more persistent causes of the crime of murder, but also an illustration, an analogy that may usefully be applied in determining the causes of murder in our own country. Let us take Mr. Morrison's view first. "The peculiar structure of society," he says, "is unquestionably the most satisfactory explanation of the high position occupied by the inhabitants of India with respect to crime. The social edifice which a people builds for itself is among all civilized communities a highly complex product, and consists of a great agglomera-

tion of diverse materials. These materials are partly drawn from the primitive characteristics of the race; they are partly borrowings from other and contiguous races; they are to a considerable extent derived from natural surroundings of all kinds; and in all circumstances they are supplemented by the genius of individuals. In short, all social structures, when looked at minutely are found to be composed of two main ingredients—race and environments; but these two ingredients are so indissolubly interposed that it is impossible to say how much is to be attributed to the one, and how much to the other, in the building up of society. But if it is impossible to estimate the value of the several elements composing the fabric of society, it is easy to ascertain the dominating idea on which all forms of society are based. That dominating idea, if it may for the moment be called such, is the instinct of self-preservation, and it exercises just as great a power in determining the formation and play of the social organism as it exercises in determining the attitude of the individual to the world around him. In working out the idea of self-preservation into practical forms, the social system of most people has hitherto been built up with a view to protection against external enemies in the shape of hostile tribes and nations; the internal enemies of the commonwealth—the thieves, the housebreakers, the disturbers of public order, the shedders of blood, the perpetrators of violence— have been treated as only worthy of secondary consideration. . . . . The structure of society in India is, however, an exception to the general rule. External security, or in other words, the desire for political freedom has, to a great extent, become extinct in wherever the principle of Brahmanism has succeeded in taking root. These principles have been operating upon the Indian mind for thousands of years; their effect in the sphere of politics excited the wonder of the ancient Greeks, who tell us that the Indian peasant might be seen tilling his field in peace between hostile armies preparing for battle. A similar spectacle has been seen on the plains of India in modern times. But Brahmanism, while extinguishing the principle of liberty in all its branches, and exposing its adherents to the mercy of every conqueror, has succeeded, through the caste system, in bringing internal order, security, and peace to a high pitch of excellence. This end, the caste system like most other religious institutions, did not and does not directly have in view; but the human race often takes circuitous routes to attain its ends, and while apparently arriving at one object, is in reality securing another. The permanent forces operating in society often possess a very different character from those on the surface, and when the complicated net work in which they are always wrapped is stripped from off them, we find that they are some fundamental human instincts at work in disguise."

"These observations are applicable to the caste system. This system, when divested of its externals, besides being an attempt to satisfy the mystic and emotional elements in the Indian heart, also represents the genius of the race engaged in the task of self-preservation. The manner in which caste exercises this function is thus described by Sir William Hunter. 'Caste or guild,' he says, 'exercises a surveillance over each of its members from the close of childhood until death. If a man behaves well, he will rise to an honored place in his caste; and the desire for such local distinctions exercises an important influence in the life of a Hindoo. But the caste has its punishments as well as its rewards. These punishments consist of fine and excommunication . . . . . Anglo-Indian law does not enforce caste decrees. But caste punishments exercise an efficacious restraint upon unworthy members of the community, precisely as caste rewards supply a powerful motive of action to good ones. A member who can not be controlled by this mixed discipline of punishment and reward is expelled, and, as a rule, an outcaste is really a bad man. Imprisonment in jail carries with it that penalty, but may be condoned after released by heavy expiations.'"

"These remarks of Sir William Hunter afford an insight into the coercive power exercised by the caste system on the Indian population. Without that system it is probable that the criminal statistics of India would present as high a proportion of crimes of violence and blood as now exists among the people of Southern Europe. But with that system in active operation, the evil influence of climate is completely neutralized, and India at the present moment enjoys a remarkable immunity from violent crime."

This admirable passage from Mr. Morrison displays in a very clear light the peculiar structure of Indian society. The chief difference from our present point of view between that society and ours is the fact that here the instinct of self-preservation has given away, as it has not in India, to the desire of possessing extreme political freedom. Here internal security, as compared with personal liberty, is of little importance; and although owing to the geographical position of the country the danger of its being disturbed by external foes is, indeed, very remote, yet, it does not seem so to the people, as the present prominence of the Monroe doctrine shows, who often are disposed to believe their external security is in jeopardy, not so much, it is true, from an invasion of armed enemies, as from the importation of ideas, hostile to the prevailing conceptions of personal liberty. As there is not this danger, except in the most remote degree, it would seem expedient to the people to turn their attention to the consideration of their internal security; but it being well understood that the attainment of a great degree of internal security would mean sacrifices of individual liberty, it is scarcely to be expected, the popular mind being really at bottom extremely conservative, that any change of an opinion in this respect will soon take place. In fact the importance of external security is as much exaggerated here as it is kept in abeyance in India, and thus we have the curious contrast of two countries, alike in possessing a severe climate, alike in variety and greatness of natural surroundings, yet presenting the widest differences socially and with respect to crime.

They are also utterly dissimilar with regard to industrial activity, which here is enormous and in India comparatively inconsiderable. The difference is important and, as it will be seen, partly explains the low proportion of Indian crime. For crime is found, according to the exact researches of Ferri and of Tarde, to be growing in steady relation to the growth of commercial enterprise; and, it is also now a matter of certainty that not only is there this close connection between crime and industrial enterprise, but there is besides, as Féré has shown, a triple relation established here, between crime, commercial activity, the *surmenage* of modern life and nerve disease. In other words Tarde has demonstrated that

the commercial classes in various countries contribute the largest proportion of crime; they are also, as Féré tells us, the most afflicted with nervous complaints, with the exhaustion of the nervous system, so inseperable in some degree or other, from a busy, modern existence, and so fatally linked in its graver forms, with morbid and criminal impulses. The agricultural and mechanic classes, on the other hand, whose pursuits are different, involving less anxiety and fewer temptations, prevent a smaller percentage of crime. The coincidence therefore of the unexampled growth of crime and of industrial activity is justly held to be something more than fortuitous.

It is the fashion to use the vague world "degeneracy" in connection with a condition of the nerves, supposed to be due to modern influences. When the word is employed as it is by Krafft-Ebing, Kurella and Lombroso to describe a peculiar instability of the nervous system, accompanied by definite anatomic variations from the normal type and also by peculiar characteristics of mind, it is undoubtedly indicative of a physical and moral predisposition to crime. A lesser degree of degeneracy, however, that acquired in pursuits too absorbing for the health and strength, may, and does, predispose to crime, especially to homicide, a form of crime committed for the most part by persons who have reached any of the stages of mental and moral deterioration. Nothing, indeed, is more conclusive with respect to the nature of this crime than the fact that an extremely large proportion of the persons convicted of this offence are found to be insane or mentally infirm. Thus of 441 persons convicted of murder in the prisons of England, 143 or 32 per cent. were declared unsound in mind. In short, we are assured beyond any question by these facts and many others that might be instanced, that people who suffer in any degree from maladies of the nervous system, are particularly addicted, as compared with the healthy, to murder; that industrial activity, if too absorbing and severe, may produce various gradations of degeneracy of the mind and nervous system, very often acquired, very often too, inherited, and furnish with its increasing growth one of the predisposing causes of the enormous development of murder in recent years.

There is another circumstance connected with this subject, that I am tempted to touch upon before closing this paper. It is that murder in this country is very frequently committed by persons who act under a notion that they are inflicting just and necessary vengeance. Such crimes, in which category we must place lynchings, happen for reasons of which the discussion belongs more to the sphere of law than medicine. But the distinguishing mark of these crimes for us is that they are *national*, that is to say, they are caused by the exigencies of a race, not yet in perfect harmony with its environment, that does not seem to know, in fact, the *economy*[1] of crime. I say *race*, for it is undoubted that, in the regions in which illegal executions are most frequent, a definite nationality has been formed, different in many respects from any type of the Old World.[2] In other parts of the country the differentiation of the European races in America from any European type is rapidly proceeding, if, indeed, it has not already been consummated as was long ago observed by M. de Quatrefages.. I am inclined to think that a large amount of crime is the result of the play of forces, social and physical, that are at work in this process of differentiation; and until these forces are met on the part of the inhabitants with a better comprehension of how to combat their evil influences, until it is known that the fever of business must subside, that the severities of climate must be mitigated, the excesses of political passions controlled, we may expect, what we have now in frightful amount, an increase in crime.

[1] Broca: Hist. de la Soc. d'Anthropologie de Paris, 1863, p. 37.
[2] Krafft-Ebing: Psycho-pathologie, p. 2.

MEDICAL VIENNA AND HEIDELBERG.

NOTES FROM MY SKETCHBOOK.

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Several surprises were in store for me at Vienna. As I approached the city by way of the Danube, a day's sail upon which is as fascinating and full of historic reminiscences as a trip up the Rhine, I began to wonder whether a certain "waltz king" were not the victim of achromatopsia; for the "beautiful blue Danube" is most emphatically a bilious brown in tint. Again when I discovered that the capital of Austria is not on the Danube but a long way back from it on a very muddy canal and a very much muddier creek, my confidence in the veracity of a certain old schoolmaster received a rude shock. To this insignificant creek, the Wien, does the proud city of the Hapsburgs owe its name. Once more to my utter astonishment I found that the great city of Vienna, the real Vienna, is only about a mile long and a half-mile wide, while its apparent bigness is due to the incorporation of some thirty-six or more large suburbs immediately adjoining it. From these suburbs the streets all converge, like the spokes of a wheel, toward the picturesque old cathedral of St. Stephen in the heart of Old Vienna. Unlike most other cities, the aristocratic portion, where the royalty, the nobility and the wealthy have their residence, is the most ancient. The antiquity of this part of the city is revealed in the narrowness of its streets, the height of its buildings, its well paved but undulating thoroughfares, and its numerous dark alleys and covered byways. A touch of orientalism is seen everywhere. Encircling Old Vienna and occupying the site of the ancient ramparts, is a broad and magnificent boulevard, known as the Ringstrasse and adorned with parks, fountains, monuments, statues, and some of the city's finest examples of architecture, among them the splendid University. The circle of suburbs stretches away beyond the Ringstrasse. There is a wealth of history and legend in Old Vienna; its very life teems with music and art; its people are interesting to know and study; its customs are unique. Excepting Paris, Vienna is probably the most beautiful city in Europe. Its architectural elegance equals the brightest visions of the most florid imagination. The first sight of its pomp and splendor so overwhelms the medical visitor with astonishment, enthusiasm and admiration, that it takes him several days to acquire sufficient calm and courage to look up the hospitals and gaze once more upon filthy sores and ugly tumors. But, alas, it must be! Marble palaces, Gothic cathedrals, Greek temples, art galleries and museums, royal operas, Hofburg theaters, flower gardens and entertaining music, brilliant arcades, curious statues, magnificent monuments, fretted fountains, gorgeous shops and quaint markets, all must be passed by one who

would know somewhat of medical Vienna and who has but a few days to learn it in. Medical Vienna, both educational and eleemosynary, is full of interesting history and practical suggestion. Go not then to the city of Marcus Aurelius and Maria Theresa, the carnival city of wine, woman and song, the city of the mystic meerschaum and the home of beauty and art, to study its medical life, unless you go as a student to take up a long residence there. If you go for a few days only, its wealth and magnificence will so enrapture you that your hours will have vanished ere you have had an opportunity of getting even a glimpse of the great University and the vast Imperial Hospital.

As everybody knows, Vienna leads the world at present in general medical education. The mere mention of such names as Billroth, Ludwig, Nothnagel, Chrobak, Schauta, Exner, Benedikt, Kaposi, Politzer, Obersteiner and others, is enough to confirm her preeminence. And yet it was not always thus, for she was long outshone by France and Germany. In neurology and psychic medicine Paris even to-day holds an exalted position; while in pathology and therapeutics Berlin has scarcely a rival. The reasons for the preëminence of Vienna are many. One is the cosmopolitan character, size and wealth of her population. The generous support and favor of the government in educational matters is another. Above all, however, is the unusual concentration of learning in the capital and its matchless University. In Austria university education is pretty much the same as it is in Germany. I will have somewhat more to say about it in my sketch of Berlin. Even in Germany, where learning is so intensely cultivated, the twenty-one universities drain the educational resources of the empire more than do the seven universities of Austria. In both countries the university is a government institution and one of its four or more faculties is always that of medicine.

Within sound of the famous Strauss concerts in the Volksgarten and almost under the shadow of the lace-like Votivkirche rises the superb building of the University. A stone's throw from it are the Rathhaus, as fine a specimen of gothic as one can ever see, the Parliament Building in the style of the pure Greek, the gem-like New Hof-theater, the Law Courts constructed after the most elegant renaissance manner, and many other great buildings, museums and monuments. The Franzensring is a veritable architectural paradise. The designer of the University was Ferstel, one of a brilliant coterie of artists who have added luster to the fame of the royal city. Its style is almost pure renaissance. Immense in size, massive in appearance, and compact, it is nevertheless graceful, chaste and attractive. Its sides are generally plain but its front is broken with galleries, facades and retrenchments. Its cornice is adorned with exquisite moldings, pediments and statuary, while its roof is varied with a large central dome and several smaller domes and cupolas. Its interior is quite as rich and ornate as its exterior, free use having been made of variously tinted marble. The University of Vienna is one of the oldest among the Germanic peoples, having been founded in 1237. Greatly to its advantage, it was reformed under Maria Theresa by her celebrated medical adviser Van Swieten. This famous old courtier physician seems to have been a pretty energetic fellow in his day. He was born at Leyden in 1700. He studied at the university of his native city and that of Louvain, ultimately becoming a pupil of the immortal Boerhaave. After serving for a time as professor in the University of Leyden, he was forced to resign on account of being a catholic. At once Maria Theresa invited him to Vienna. This was in 1745. He was appointed physician to the Empress, director-general of medicine in Austria, imperial librarian, professor and a baron. He wrote much upon surgery, military medicine, epidemics and other related matters. His death occurred in 1772. Such was one of the liberally educated, representative, old-time physicians who in their immense learning, untiring industry and wide capability stand as a permanent protest to the narrow, technical specialized doctor of the present day. As I stood beside the grave of this famous old doctor in the small but elegant church of the Augustins and in the midst of many magnificent monuments and mausoleums, notably the world-renowned one executed by Canova in memory of the Archduchess Maria Christina, I thought of the honors and dignities conferred upon medical men abroad and compared them with those conferred in America. I fear my head drooped a little and I confess my reflections as a member of the American profession, were anything but self-congratulatory. In every great city of Europe, streets are named, statues erected and public monuments consecrated to the memory of eminent medical men. I began wondering whether the fault lay entirely with our peculiar form of government, or we ourselves were not to blame in a very large measure. I wondered if our numerous ill-prepared colleges, our low standards of medical education, our senseless desire for cheap notoriety, our tolerance of 'isms and 'pathies, our ofttimes badly-concealed efforts to maintain a professional air with a trade-and-barter method of conduct, and especially our too frequent attacks of professional jealousy and absence of laudable *esprit de corps*, were not after all more in the way of preventing the American people honoring our profession as they should. In the midst of these reflections I strolled sadly out of the church, but took comfort in the thought that the last few years had raised our standard of medical education somewhat and promised better things for the future.

The old university used to be in the vicinity of St. Stephen's church, in a building now occupied by the Academy of Sciences founded in 1846. When it was transferred to its new location it became the center of the educational quarter of the city. The General Hospital, long used for medical teaching, was already there. A short distance beyond were the extensive gardens and superb buildings of the insane asylum for 600 patients. In a neighboring street rose the chemical laboratory, a beautiful renaissance structure designed by Ferstel; while farther along in the same street stood the Josephinum, or Academy of Medicine and Surgery. The latter was founded in 1784 by the Emperor Joseph II. for the training of military surgeons, but afterward he changed his plans. The building to-day contains a remarkable collection of wax preparations illustrating anatomy. In an adjoining edifice, formerly used for the manufacture of implements of war, are the anatomic and physiologic departments. Several military barracks are scattered about the vicinity; while in the midst of them all, occupying the center of a large open platz, rises the magnificent, gothic, highly-ornamented Votivkirche.

The study and practice of medicine in Vienna seems always to have been a matter for the considera-

tion of the state. This may be one reason why the standard of medical education there has always been relatively high. The religious orders have had more of a voice in all educational matters in Austria, otherwise the educational methods have closely simulated those of Germany. It is curious to note that some old statutes of Vienna declare that "medicine is a truly rational science, both as to its theory and its practice." Some modern lawmakers in America, I suspect, do not hold the same opinion! If the applicant for honors were already a master in arts, he was expected to have heard lectures in the medical faculty for at least two years. He would then be entitled to the baccalaureate degree, provided he had heard lectures upon Joannicius, Avicenna and some general work of practice, like that of Rasis Almansor. If he were a candidate for a licentiateship and were the possessor of a degree he was required to attend lectures on medicine for five years. If the authorities found him fit in knowledge and character, devoid of canonical impediments, and *not too effeminate of countenance*, he might receive his degree at the age of 26 but strictly not until he was 28. If princes applied for a degree and were found wanting, they were refused on the ground of the statutes. The promotion of licentiates to the doctor's degree was for many years ordered by law to take place in St. Stephen's cathedral, where the new doctor was expected to deliver an address in praise of medicine and afterward a lecture upon Avicenna, Hippocrates or Galen. In spite of the comparative ignorance of that day, how much more seriously was a medical education regarded than is too often the case now! Given the same governmental control and intelligent support that it enjoyed then, with its modern superiority in knowledge, how much more exalted and effective would be the profession of medicine to-day than it actually is!

Practical medicine has always had a stronghold in Vienna. As early as the seventeenth century the city contained a large number of hospitals. Its progressiveness is shown in the fact that the first asylum in central Europe, for the exclusive care of the insane, was established here in 1784. To-day it possesses the largest general hospital in the world and about twenty-four other hospitals, four of which are public institutions, while the rest are more or less private concerns. With a population of about 1,100,000, its hospital beds number four and a fraction to every 1,000 inhabitants. The oldest hospital in the city was the Borough Hospital of the Holy Spirit, founded by Frederick the Combative in 1240. In 1532 this was removed to the convent of the Clarissa nuns and, like most similar institutions of the time, combined the attributes of a hospital and almshouse. It continued to be the chief important charitable organization of the city for the next 300 years. At one time it sheltered 3,000 souls. It was still an important institution in 1754, and was made the seat of a medical school in 1756. The reputation of the medical school had already long vied with that of Bologna, Paris and Padua. In 1394 St. Mark's Hospital was erected by a private individual, but it was upon two occasions destroyed by the Turks. The Emperor Joseph decided in 1780 to abolish the numerous small hospitals throughout the city and to incorporate them into one large establishment. This was a wise move on the part of the government, for at the time there were the Crusaders' Hospital built by the Knights of the Order for twelve patients, the Military Hospital previously used as a lazaretto, the Contumazhof, the Bæckerhænsel with its 300 beds for the use of convalescents from the Borough Hospital, the Imperial for the employes of the Court, the Spanish, the Trinity and the Strudel Hospitals. In the amalgamation of these various institutions, the



UNIVERSITY BUILDING, VIENNA.

monarch appropriated the old workhouse which had been founded nearly a hundred years before by Leopold I., and established beneath its roof the medical school as well as the new hospital. The building had at first been used as a Hôtel des Invalides for retired soldiers and their families. Additions and alterations were made and the whole opened, in 1784, as the General Hospital, or *Allgemeines Krankenhaus*, which has since become world-renowned. For a long time it contained departments for maternity cases, lunatics, foundlings and the sick in general. In 1834 extensive additions were made to the hospital and again in 1862. The maternity cases, the lunatics and the foundlings were separated and placed under a different management in 1860. In 1887 the hospital contained 2,000 beds and treated some 25,796 cases. Surgery has always been an important feature of its work.

A few details in regard to the management of this great and model hospital may be of interest. The government controls it and the same management includes the care of the Royal Rudolph with its 860 beds and the Royal Wieden with its 597 beds. The General Hospital has a director, who draws a salary of 3,800 florins (the florin being equivalent to about 49 cents of our money), and a superintendent. The medical staff is paid by the directors out of the hospital funds and includes five senior physicians and five senior surgeons. Each has three assistants. There are 16 dressers. The senior members of the staff get a salary of 1,800 florins per annum without residence. The nursing staff numbers 226, all of them being lay women except 12 male attendants. The nurses average about 1 to every 10 patients. Their compensation is from 12 to 16 florins per month, with board, washing and uniform. Members of certain religious sisterhoods attend to the nursing in the Rudolph and Wieden. The General Hospital is of course a public charity but it receives three classes of paying patients, namely, those who desire the best accommodations at 5 florins per day, those who can give 2 florins, 50 kreutzers per day and finally those who are satisfied with the accommodations afforded for 1 florin, 7 kreutzers per day. Incurable and obstetric cases, as well as children under 4 years of age, are not admitted. The expenses of the institution are met by a Royal Hospitals fund and a reserve fund, both of which are made up from various sources such as interest upon the original capital invested, legal tolls and duties, payments from patients, subscriptions and voluntary donations.

The Allgemeines Krankenhaus covers an area of nearly 25 acres and consists really of a series or conglomeration of hospitals. There is nothing to be said of it architecturally. It is an old-time structure and when I first visited it, toward the latter part of a clear afternoon, I could scarcely believe that I had actually arrived in front of the world-renowned institution. Plain, low and unornamental, it produced in me a feeling of intense disappointment. A photograph of it would scarcely have been worth the trouble of taking. It is an immense rectangular structure surrounding a spacious courtyard and having various irregular, inharmonious wings attached. As I afterward strolled through many of its halls and wards, having been favored with letters of introduction to several members of its staff, I was impressed with the cleanliness and precision with which everything was done in spite of the many inconveniences and ancient construction. Without doubt, it is, except architecturally, a model hospital. Of course were a new building to be erected many improvements would be required for the sake of light, air, ventilation and general cheerfulness. As is the case with many other hospitals in Europe, antiquity must be pleaded as an excuse for shortcomings. Small windows, low corridors, curious old-fashioned doors, rambling halls, musty dark corners, irregular floors, cracked walls and narrow apartments are not entirely uninteresting, for they speak of the past with its suggestiveness of quaint story and feudal history. But in a modern hospital they are not altogether compatible with the modern ideas of surgical requirements and hygienic perfection. The wonder is that in these old hospitals such splendid results are so often attained. It bespeaks unusual attention to details, a systematic exactness and an exceptional skill on the part of the attendants. And after all that may be one of the causes of the supremacy of some of the foreign schools of medicine. The continuous bath for the treatment of skin diseases is a feature in the clinical work of the General Hospital. Besides this hospital mention should be made of the Inquisiten with its 163 beds, the new and attractive Favoriten with its 560 beds and the St. Anne's. Vienna is supplied also with a most excellent Smallpox and Epidemic Hospital, the latter having been erected at the time of the cholera outbreak in 1873 and the first to be constructed in the pavilion style, at a cost of some £39,000. It contains about 300 beds.

HEIDELBERG.

One marvels how a town of only 22,000 inhabitants, and a singularly salubrious town at that, can possibly furnish a sufficient variety of diseases for the maintenance of a school in practical medicine. And yet Heidelberg, known among tourists chiefly for its fine old German castle, its great tun and its dueling students, is one of the most celebrated seats of medical education in all the German empire. It contains a hospital of nearly 400 beds and the medical faculty of its famous university ably maintains the ancient renown of the school. Such distinguished names as Tiedemann, Gegenbaur, Kuhne, Czerny, Erb and Vierordt would add luster to the name of any university. Many a traveler has departed from Heidelberg, after viewing its principal sights and hunting high and low in vain for the university of which he had heard so much, with possibly a feeling of doubt and disappointment as to the veracity of Dame Rumor. To know scholastic Heidelberg one must reside a short time there. The town itself consists chiefly of a single long street, lined on both sides with many an interesting old building, quaint shop, open plaza and curious church, all crowded together as in a vise between the swift flowing Neckar on one side and the wooded Geisberg, with the famous Schloss halfway up its declivity, on the other. Minor streets and byways of course branch off from the main thoroughfare and here and there revive memories of Goethe, Schiller, Martin Luther, Jerome of Prague, Tilly, Gustavus Adolphus and other great names in history, science and romance. Not only is the situation of the town one of the most picturesque in Europe, but its history is one of the most exciting. Scarcely less fascinating, however, is the story of the university, which, next to the universities of Prague and Vienna, is the oldest in Germany.

One day as I was sauntering about the town, having

in despair almost relinquished my efforts toward finding the university, I was made aware of the presence of an unusual number of student-like fellows hurrying hither and thither in the Ludwigsplatz. I imagined I must at last have arrived in the neighborhood of the school. I looked sharply about me and began getting my letters of introduction ready, but I saw no magnificent edifice anywhere, and so concluded I had again lost the trail. As I was passing through a narrow street, hoping to encounter some one who would revive my hopes by giving me the desired information, I happened to pass a small open doorway in a long, low, insignificant building that did not seem at least to be a private residence. I entered, and what was my astonishment to find, after reading some inscriptions in the vestibule, that at last I was within the walls of the great University of Heidelberg. It came home to me then and there with tremendous force, that buildings do not make universities. Could it be possible, I mentally exclaimed, that the grand old school of Heidelberg occupied no more pretentious structure than this! Truly was it said that the university building is very much like a huge model lodging house in a bad state of repair, being merely a large, plain stucco structure at one side of a bare open platz, appearing as desolate as Gray's Inn Square upon a Sunday. In size and beauty (if, indeed, it may be said to have any) the university is quite eclipsed by its neighbor across the square, the museum. There are no grand open doorways, no Corinthian columns, no majestic peristyle, no towering domes or cupolas, nothing but four flat walls. The anatomic and chemic departments are in another part of the city, and housed in fairly artistic buildings in comparison with the university itself. I would that space allowed me to do more than simply outline the history of this fine old seat of learning, one of whose most important departments is that of medicine, for as I strolled about it and learned more of its life, I grew fonder of it. It was founded in 1386 by Rupert I., purely as an ecclesiastic institution. The Bishop of Worms was its first chancellor, and its faculty consisted entirely of priests and members of the monastic order. Hence it stuck like a leech to the old scholastic doctrines during the troublous times of the Reformation, and always opposed itself to the new learning which later on had its head and source up in the castle. Only in the last century has this favored old school awakened to the progress of the world, and in that short time made itself a reputation for brilliant scientific discoveries. When we recall its stagnant conservatism, what a wealth of sarcasm there is in Pope Urban's bull of 1385, wherein he states that the "town of Heidelberg, which in view of its healthy situation and air and its fertile surroundings, is admirably adapted to form a universal fountain of the sciences." The first statutes of the university were drawn up by Marsilius von Inghen, a former instructor in the University of Paris. The students were required to attend the lectures daily on pain of losing their rights of membership and final certificates. The highest salary paid to any professor was given to Marsilius, and consisted of about £20. The tutors usually received £5 or 50 florins, a pretty handsome sum, I presume, for that day, but scarcely enough for shoe polish in this! Great privileges had this old university. Note some of them for curiosity's sake. All attendants, as well as all who were brought in contact in any way with this "beloved daughter" of Rupert I., such as booksellers, bookbinders and servants of the tutors, were amenable to the jurisdiction of the university only and were exempt from all taxation.

By a commission, the board of the students for one week was to be about three farthings. Three farthings, think of it! The good folk of the village who cared to board any of the students were not required to pay *octroi* or city toll duties. And again, if any of those old Heidelbergers laid violent hands for any purpose whatever upon those precious students, they were obliged to pay a "fine of 60 florins and damages." Every year the magistrates were compelled to take oath that they would not infringe upon the rights of the fondling of Rupert. A pretty mess all these favors soon concocted and as a result *students' wars* and other "great uproars arose" until old Rupert himself had to hasten down the hill and force the town to behave itself. In all sorts of ways the succeeding electors petted and nurtured this spoilt child of theirs and how little did it give in return! Nothing but a lot of theologic truck and a fierce opposition to the advancement of knowledge. At last the electors became tired of all this and one of them, Otho Henry, he who built the charming Heinrichsbau of the castle, "resolved to make the university flourish again even though it should cost him his last farthing." This Henry had vim in him and no scholastic nonsense was able to turn him from his purpose of awakening once more the spirit of intellectual progress. Inviting Melancthon, the companion of Luther, to join him, a quartette was formed, including Henry himself, Melancthon, the councillors Ehem and Propus, to whom was also added the classicist, Micyll, to undertake the remodeling of the school. Success attended their efforts and the ancient scholastic methods were abolished. The library was enlarged and the whole institution placed on a firmer basis. Many famous scholars and teachers occupied its chairs. When Heidelberg was destroyed in 1693 during the war, the university was also burnt. The faculty fled for their lives, but continued their lectures at Frankfort and Weinheim. In 1700 the university was reëstablished but during the eighteenth century it was again under the influence of religious conservatism. During the Napoleonic upheavals it received a terrible blow, but in 1803 the Elector of Baden revived it again and placed it on a new foundation, since which time its reputation has steadily increased until now it is one of the noted schools of Europe. The medical department has awakened to new life, and such men as Czerny and Erb and Kuhne have brought it fame. The students of Heidelberg are always proud of their school. To-day they retain many of their privileges, and the easy going burghers are judiciously gracious to them. Dueling is one of the drawbacks, but the abolition of that is under consideration. The merry celebrations, the jovial concourses with rollicking songs and huge tankards of beer, make college life in Heidelberg an episode in one's existence never to be forgotten. Whatever trials he may have passed through, however far he may have wandered, whether high or low be his station in life the old alumnus of Heidelberg recalls with indescribable delight the democratic days of his youth when shoulder to shoulder with emperors' sons, princes and future savants he drank his beer, roved over the neighboring mountains and imbibed the pleasures of knowledge in his dear old alma mater beside the swift-flowing Neckar.

As many American physicians visit Europe, and as medicine is the same there as it is on this side of the water, I thought the limited space at my disposal would probably be more interestingly occupied with these brief notes upon Vienna and Heidelberg than with a description of familiar clinics and technical details.

4544 Lake Avenue.

SELECTIONS.

Obstruction of the Bile Duct.—At the annual meeting of the New York State Medical Association, Oct. 14, 1896, Dr. Henry O. Marcy of Boston contributed an interesting paper upon the "Surgical Relief of Obstruction of the Common Duct by Biliary Calculi." He gave a review of his special studies upon biliary obstruction, which commenced in 1876, with detailed reports of cases, occuring in 1880 and 1881, where he urgently advised operative procedures for the relief of biliary obstruction. Postmortem examination showed that the causes of the obstruction was a biliary calculus lodged in the common duct. Operative interference was refused since there was no record of surgical procedures having ever been attempted for this purpose, and the agreement of the consultants that it was probable that the obstruction was in the common duct. Autopsy showed that operative interference would have been not only possible, but that the conditions were favorable for surgical interference. Dr. Marcy performed his first operation in July, 1887, and although unsuccessful in the removal of the gallstone, because of intestinal adhesions, the calculus was dislodged and the patient recovered, followed by a short period of relief. Later the autopsy demonstrated that the calculus was in the common duct with a limited range of movement. Afterward Dr. Marcy criticized his operation, believing that the duct might have been opened and the calculus removed, followed by immediate suture of the wound in the duct, with a reasonable degree of safety. Dr. Marcy gives a careful detailed history of his first case of successful operation for the removal of a calculus from the common duct which occurred in his private hospital Oct. 26, 1889. Here the calculus was imbedded in the common duct so firmly that the backward pressure of the bile through the cystic duct had caused the gall bladder to be so enormously dilated that its contents measured ten ounces. Other methods of removal having failed, the gall bladder was divided with scissors through its cystic portion, until the calculus was reached and removed. This was nearly globular, about the size of a large filbert, which weighed fifty-nine grains when dry. The entire wound in the viscus measured four inches. It was immediately closed with a fine, continuous tendon suture in three layers, the first including the mucous membrane, the second the entire wall, while the third was taken from side to side as a parallel suture which, when drawn upon, evenly intrafolded the peritoneum over the wound, itself completely buried from sight. The abdominal wall was also closed in layers with tendon sutures, without drainage. The patient made an easy, uninterrupted recovery and continues well at the time of writing. Dr. Marcy's first publication upon this subject was read at the meeting of the American Medical Association, held at Nashville in May, 1890. He reports his subsequent experiences as more than satisfactory and gives his fullest approval to the advisability of surgical relief in biliary obstruction caused by a calculus in the common duct. Dr. Marcy's paper is of the greater importance, since he was the first to attempt the operation, and the first to operate successfully for the removal of a biliary calculus in the common duct. Courvoisier, to whom the credit of the first operation has been given by one writer, performed his first operation Jan. 22, 1890.

Malignant Tumors Treated with Toxins of Erysipelas and Bacillus Prodigiosus; Series of 160 Cases.—In the *Bulletin of the Johns Hopkins Hospital*, August, appears a discussion of Dr. W. B. Coley's toxin treatment of malignant growths. Dr. Coley showed that his experience had extended over a period of more than four years, that the tumors sent to him for treatment were for the most part such as had been pronounced inoperable by leading surgeons, and that the diagnosis of malignancy had been determined, in practically all the cases, by a competent microscopic examination.

An analysis of the cases treated showed that 48 were round-celled sarcoma, 13 spindle-celled, 7 melanotic, 2 chondro-sarcoma, 3 mixed celled, 14 sarcoma, special type not known. Total number of cases of sarcoma 93, carcinoma and epithelioma 62 cases, sarcoma or carcinoma 10, tubercular 2, fibro-angioma 1, mycosis fungoides 1, goitre 2, keloid 1. Of the cases of sarcoma, nearly one-half showed more or less improvement; the variety that showed the greatest improvement was the spindle-celled, that which showed the least, the melanotic. Next in order of benefit was the mixed celled—round and spindle; then round celled, while osteo-sarcoma closely approached the melanotic in showing but little change. In a series of nine cases of melanotic sarcoma, no improvement was noticed in six, very slight in three. Most of the cases of osteo-sarcoma failed to respond to the treatment, many showed slight improvement and one case, a very large osteo-chondro-sarcoma of the ilium, apparently disappeared and the patient remained well for nearly a year, when a recurrence occurred. One case of round-celled sarcoma of the neck of very rapid growth showed very marked decrease during the first week's treatment, after which time it continued to grow in spite of large doses of toxins. The writer stated that he did not expect the profession at large to accept without question and criticism such remarkable results as he had reported, and for that reason he had related with some detail the successful cases in the hands of other surgeons who had employed this method. He was of opinion that a series of upward of twenty successful cases of inoperable sarcoma (four of which had remained well upward of two and a half years), the diagnoses of which had been established beyond question according to accepted methods of diagnosis, ought to be sufficient to demonstrate the real and positive advance that had been made in a field which, up to this time, had been regarded as absolutely hopeless. He did not doubt that there were those who would still remain skeptical about the value of the toxins in spite of the evidence presented. Such persons must either fail to see any logical connection between the accidental erysipelas and the toxins, or they must go even farther and deny that there are any authentic cases of malignant tumors that were cured by accidental erysipelas. The only explanation they can have to offer for the results which can not be questioned is, that in all the successful cases there must have been an error of diagnosis.

Remarks by Dr. W. H. Welch: "I have been much impressed by this personal statement from Dr. Coley, and I see no way of gainsaying the evidence which he has brought forward, that there is something specifically and genuinely curative in his method of treatment. A single undoubted cure of a demonstrated cancer or sarcoma by this treatment would be enough to establish the fact that the treatment exerts some specific curative effect, for the spontaneous disappearance of undoubted malignant growths of this character is almost unknown. Dr. Coley has, however, presented to us positive proof of the cure, not of one only, but of several cases of malignant tumor by his method. Although I suppose in any given case the chances of cure by this method are at present not great, still the demonstration that cure is possible gives every encouragement for perseverance in this line of investigation and work, and for efforts to perfect the method of treatment. It is interesting to learn that the most strikingly beneficial results have been obtained in the treatment of spindle-celled sarcomata. There are certain kinds of sarcomata which some pathologists are inclined to rank rather among the infectious tumors than among the genuine tumors, in the sense in

which these terms are used by Cohnheim; but it is rather certain sarcomata of the lymphoid type than the fusiform-celled sarcomata which are thus believed to be possibly outside of the class of genuine tumors, according to Cohnheim's classification. As Dr. Coley suggests that the variations in his results may depend in part upon variations in the virulence of his cultures, and as it is well known that streptococci vary notably in virulence, I would like to ask if he has as yet utilized the methods of Marmorek in order to obtain cultures of uniformly high degrees of virulence. Dr. Livingood in my laboratory has confirmed the results of Marmorek and succeeded repeatedly by his method in transforming streptococci of low virulence into those of very exalted virulence. It seems to me that it would be practicable and most interesting, and possibly demonstrative of the specific effects of the treatment, if Dr. Coley, in carrying out his researches, would occasionally cut out small bits of tissue from the tumor and by their examination endeavor to determine the details of the process of cure."

In closing the discussion, Dr. Coley stated further:

"About removing specimens during the course of the treatment, as suggested by Dr. Welch, I will say that I have done that in a considerable number of cases. In many of these cases a marked fatty degeneration and necrosis of the malignant cells were clearly visible under the microscope. I shall try to show these changes in micro-photographs of the sections. In regard to intra-orbital sarcomata, I have not had an opportunity of treating such cases before removal of the eye. I have had four or five cases of recurrent tumors in the orbit after the eye had been enucleated. The effects were very slight, if any. They were all melanotic or round-celled sarcomata. As to the safety of the treatment, I think that if the cases are selected with some judgment the injections can be used with almost perfect safety. I have had three cases in which I am sure death was hastened by the use of toxins. In one case I ought not to have used the treatment. There was an enormous sarcoma of the scapula and chest wall. The patient was so much emaciated that he could not have lived more than a couple of weeks, but with two very minute doses of the weaker solution of the toxins he lived only three days."

PRACTICAL NOTES.

Rupture of the Liver.—Vanverts reports two cases of rupture of the liver, one fatal from hemorrhage in an hour and a half and the other after twenty-four hours. He considers that possibly the latter might have been saved by a prompt laparotomy. In one case the left lobe was almost entirely detached.—*Presse Méd.*, October 7.

Gersuny's Sign for Differentiating Stercoral Tumors.—Gersuny states that if it is difficult to distinguish between a tumor and a hardened mass of fecal matters, certainty can be obtained by compressing the protuberance of the tumor with the ends of the fingers, gradually increasing the pressure until it is very strong, and then gradually diminishing it without removing the fingers. As the mucosa pressed against the stercoral mass sticks to it and is then released by the removal of the fingers it produces a peculiar sensation easy to distinguish, and use as a means of differentiating such a mass from a real tumor.—*Semaine Méd.*, October 7.

Fractures of the Trachea and Larynx.—The Cauvin case recently decided in France calls attention to the fact that the trachea and larynx are very easily fractured, especially in the old; a slight accident or moderate violence is sufficient. A woman of 82 was strangled, and the three first rings of her trachea fractured. A girl of 15 was the other inmate of the house, but she denounced the heir as the murderer, and as it seemed impossible that a young girl could have caused the lesion unaided, the heir was condemned and an appeal to a higher court only confirmed the decision. While he was awaiting removal to the penal colonies, the girl confessed and proved that she had unaided committed the murder.

Creosote Pills for Phthisis.—Romeyer and Testevin recommend the formula below as borne well by the stomach and free from the disagreeable odor of creosote: Creoso-magnesol, 10 centigrams, with honey sufficient to make 100 pills. Six or eight to be taken during the day. The creoso-magnesol contains 80 per cent. of creosote, and is made by dissolving 20 grams of potassa in 10 grams of distilled water in a porcelain mortar. Eight hundred grams of (beech) creosote are then added and worked into an emulsion, and finally 170 grams of freshly calcined magnesia. The mixture hardens in a few hours, thirty-six at most, into the proper consistency for pills; if too hard it can be pulverized in the mortar and mixed into a paste with honey.—*Semaine Méd.*, October 7.

Addison's Disease Cured by Extirpation of one Suprarenal Capsule.—Hadra removed a tumor "the size of a small apple" from a woman of 55, situated directly on the spine, on a level with the stomach. It was causing great pain, dyspnea, night sweats, emaciation and extreme muscular weakness, with edema of the feet. Examination after removal disclosed that it was nothing else than one of the suprarenal capsules affected with tuberculosis, and the complications a case of Addison's disease without the pigmentation, which is not always present.—*Semaine Méd.*, October 7.

Cure of Local Cutaneous Tuberculosis by Bier's Congesting Method.—The remarkable fact that persons with mitral insufficiency are so rarely affected with pulmonary tuberculosis, suggested the idea to Bier that tuberculosis of the joints might be benefited by producing artificially a similar sluggishness in the parts affected. The principle is that the bactericidal effect of the blood is more pronounced the longer it is in contact with the bacteria and the more abundant the supply where they are located. Jacoby now proposes to apply it to the early stages of pulmonary tuberculosis by appropriate positions, partial hot baths and massage of the thorax. Woltersdorf describes his experience with it in the *Deutsch. med. Woch.* of October 8. It resulted in absolute cure in his case. He cut his finger during the necropsy of a consumptive in 1892, and local cutaneous tuberculosis developed at the spot, which resisted the usual treatment. He kept postponing the radical measures his friends advised until the leisure time that never came, but two years afterward he became engaged, and according to the German customs he began to wear a betrothal ring. This was worn on the affected finger and caused much pain at first and congestion. He concluded it was a fine opportunity to test Bier's method, and was able to announce its success in six months, as the tuberculosis gradually disappeared, until in a year there were no traces of the lesion. He concludes by suggesting its application to lupus faciei by ligating the vena facialis.

Papillo-retinitis in Chlorosis.—In a recent number of the *Deutsche Med. Wochenschrift* appears a paper by Diabella on this subject. It describes the case of a female patient aged 21 years, who began to menstruate in her fourteenth year. Her periods came on irregularly, and she developed a certain degree of chlorosis which did not quite disappear in spite of treatment by iron. In the autumn of 1894 she began to suffer from left-sided headaches and was generally out of health, and in the spring of 1895 she developed great weakness again. Menstruation, which had been interrupted, was reëstablished and immediately after this there was impairment of vision and later diplopia. On admission to hospital in April there was marked anemia with reduction in corpuscles and hemoglobin, papillo-retinitis on both sides and paralysis of the left external rectus. There was a loud hemic murmur. Under treatment with iron and rest in bed there was rapid improvement in the general condition, and by the end of May her color was natural, the murmur could no longer be heard and there was a marked improvement in the state of the blood as regards both corpuscles and hemoglobin. There was also a distinct subsidence of the condition of the optic disc and fundi, and when the patient presented herself again in September these appeared absolutely normal. The author considers that the physical strain and the reëstablishment of menstruation, which preceded the onset of the ocular symptoms in this case, were the means of evoking them in a patient predisposed to disturbance by the long-standing chlorosis, in a manner analogous to that in which similar changes are said to take place after severe loss of blood.—London *Lancet*, September 19.

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SATURDAY, NOVEMBER 14, 1896.

THE POISONING OF A PEOPLE.

In our zeal to prevent the infection of the individual and to protect against epidemic outbreaks in the community we are blind to a pathologic process going on around us of the most stupendous proportion and with the absolute certainty of frightful consequences—the poisoning of the entire race—the slow, sure infiltration of a subtle venom, as discernible by symptoms as the solitary case of a toxic dose of opium or arsenic, or the local scourge of a visitation of cholera or yellow-fever.

When the nation was young, the tiny stream of foreign immigration, like a little clouded rivulet adding its scarcely appreciable substance to the broad extent of crystal waters, was swallowed and however muddy its source its particles were soon lost in the multitude of the clean and strong by which it was overwhelmed. To-day a thousand sewers are pouring turbulent streams of fetid, pestiferous slime into the once clear sea and already the ceaseless, discolored and unclean inflowing is showing its baneful presence. Shall we patiently abide the complete surcharge and then awake to the fact that any remedy is too late?

In an article on "Immigration and Crime," in the *Popular Science Monthly* for September of this year, SYDNEY G. FISHER declares that: "The criminal influence of the alien with its steady increase can be traced back in our history for the last sixty years." Our system of foreign immigration, he says, first began to reach serious proportions in 1820, and its effect on manners and morals soon attracted attention. The native American party arose some time after 1840. Revelations of pauperism, crime and corruption became more apparent from 1830 to 1850. In those days, "when the foreign population was only one-eighth of the whole, it furnished 2,000 more paupers and 1,000 more criminals than the other seven-eighths. Every 32 foreigners produced a pauper and every 154 a criminal, but it required 317 natives to furnish one pauper and 1,619 a criminal." The following table from the census of 1880, based on a ratio to 1,000,000 of population, exhibits the proportion of foreign to native paupers and prisoners at that and the preceding three decades:

		1850	1860	1870	1880
Paupers	Native	1,765	1,849	1,635	994
	Foreign	5,986	7,843	4,095	3,438
Prisoners	Native	207	371	733	1,054
	Foreign	1,074	2,161	1,568	1,917

According to the census of 1855 of the State of Massachusetts, which is exceptionally exact in its vital statistics, the foreign born in that State were 21.1 per centum of the whole population, and yet they furnish 44.03 per centum of all the paupers, 40.06 per centum of all the prisoners and 30.87 per centum of all the convicts.

The national census of 1890 shows that the native white element of the population is 54.87 per centum of the whole, but it produces only 43.19 per centum of white prisoners; and the foreign white element is only 32.93 per centum of the whole, and yet provides 56.81 per centum of the white prisoners. It also shows that no small proportion of the murders committed by the natives was due to the example and presence of foreigners.

"The foreign-born population in this country contributes, directly or indirectly, in the persons of the foreign born or their immediate descendants very nearly three-fifths of all paupers supported in almshouses; although less than half the whole population it furnishes more than half the paupers." (Census Bulletin No. 90.)

The fathers of the Republic, Mr. FISHER further shows, were entirely opposed to promiscuous wholesale immigration. The importation of paupers, vagrants and criminals, together with hundreds of thousands of men and women capable only of cheap manual labor was foreign to their thoughts, or if they contemplated it at all, it was only to revolt against it. WASHINGTON wrote: "My opinion with respect to immigration is that except of useful mechanics and some particular descriptions of men or professions, there is no need of encouragement; while the policy or advantage of its taking place in a body may be much questioned." Again: "It is not the policy of this country to employ aliens, where it can well be avoided, either in the civil or military walks of life." And JEFFERSON: "They will bring with them the principles of the governments they leave, imbibed in their

early youth, or if they are able to throw them off, it will be in exchange for an unbounded licentiousness, passing as is usual from one extreme to another." MADISON, who FISHER says, favored immigration more than any others and introduced the first bill to encourage it, always insisted that he intended to bring over only the *worthy part of mankind*, and said in a letter written in 1813: "It is not the provision of our laws or the practice of the government to give any encouragement to immigrants, unless it be in cases where they may bring with them some special addition to our stock of arts or articles of culture."

Let us note a few symptoms of the morbid inoculation that has been permitted, notwithstanding these patriot words of warning:

The professional beggar is becoming as familiar an object in our streets as in his Neapolitan or other European home. Deformed children, decrepit crones, and ragged graybeards, crouching on the sidewalks, assail the passer with well-trained wailing voices. Want and privation we have always had with us, but the whine of the mendicant trade has only lately been heard and the heart-rending, up-turned face of apparent agony on some hideous body never before seen. If tolerated a little longer we may soon expect the revolting spectacles of European cities to be duplicated, as well as the establishments in which infants are mutilated and prepared for street or freak museum display. The staple attractions of the illustrated weeklies are "Weary Willies" and "Meandering Mikes," ragged, filthy and loathsome, whose preachings of idleness and thievery are intended to be humorous, but ought to be abhorent. The word "tramp" has acquired as recognized a significance as some of the novelties of the medical dictionary.

Gallantry toward women has always been the characteristic of the native American, but it is now a daily exhibition on street cars of churlish young men of unmistakable foreign type, with vulgarity stamped all over them, who sit while feeble women old enough to be their mothers cling to over-hanging straps and are swung violently by the swaying of the cars. The public conveyances are crowded with coarse, unclean alien laborers, whose first lesson in liberty has been a license to be brutish and insolent. The manly suavity of the American mechanic, however uncultivated, marking him as an innate gentleman, is fast disappearing before vulgarity and indecency. Ignorance, superstition and brutality breed vice, and the readers of the newspapers can not fail to note the prevalence of revolting crimes whose perpetrators have names unpronounceable by Anglo-Saxon tongues.

Within a month the great city dailies have published accounts of youthful Fagins, whose rude pictures evidence their race, who were organized to teach still younger lads to steal; of Italian girls, who first sacrifice with little compunction their pretense of virtue and then stiletto the recreants who had undone them easily enough, or the rivals who had supplanted them; of Russian rabbis who marry and unmarry their ignorant compatriots in defiance of the law; and of Hungarian brutes who snarl and fight and tear and rend the woman, made wife as the beasts mate, and ruled by blows and kicks and deadly weapons. The bright, inquisitive children of reputable households pick up the morning papers as their fathers discard them and read the revolting reports of theft, riot, pillage, murder, rape, incest, adultery and bigamy committed by men and women with strange names. To specify instances in detail would exceed our space. M. M., longshoreman, beat his 7-year-old daughter and dragged her by her hair fifty feet and when arrested claimed she was his child with whom he could do what he pleased; E. G., married in Hungary, was divorced by a rabbi, who, when she was arraigned for bigamy, remarried her to her first husband—both woman and rabbi escaping punishment; F. L., an Italian blacksmith working in the New York navy-yard, tells his wife to dress in her best to go to Brooklyn after breakfast, "going to Brooklyn" meaning among the low caste (American citizens!) to be taken in a hearse to Calvary Cemetery, for which he prepared by killing her; L. N., a boy, kills the younger pupil of his same race for withholding the profits of a petty theft; G. F., appropriates a 14-year-old Sicilian girl, whom he sold to another brute, who rented her, at so much an hour, to his friends.

The Immigration Investigation Commission appointed by Congress June, 13, 1894, of which Hon. HERMAN STUMP of Maryland is chairman, is seeking to exclude paupers. How unsuccessfully the revelations of the New York Board of Health show: "Squalid quarters, where none of the filthy families speak English"—"a notorious Italian district, famous for midnight rows in which the stiletto always plays a prominent part"—"a single tenement running the entire block, with people enough to populate a New England village"—"one roof covering a hundred families, who screech 'no sika baba' in reply to the inspector's inquiry, looking upon him as an emissary of the evil one." In one day the board of health condemned fifty-two rookeries, in which "the filthy conditions shown to exist seemed to preclude the possibility of existence." In two houses in Cherry Street 472 persons were herded in quarters unspeakably wretched. There were 702 human beings found in "dingy rear tenements, never penetrated by the light of the sun nor by a puff of fresh air." In a rear tenement on Mulberry Street, for the last five years, there has been a death rate of 75.05 per 1,000, and in other places it has risen at times to 135.5 per 1,000, the average of the city having been 22 per 1,000. As Dr. ROGER S. TRACY, register of statistics of the board of health declares: "Where these high death rates prevail

are centers from which contagion can not fail to spread."

Comment on these appalling facts is unnecessary. Intelligent Americans, both native and naturalized, must know that these loathsome dives are dangerous to the entire community. A gentleman riding home on a street car from the Cotton Exchange sacrificed a new suit and scoured himself raw to get rid of the lice a dirty Pole, against whom he had been wedged, literally showered upon him. What sacrifice of clothes or scouring of skin could have rid him of the syphilis, tuberculosis or skin disease he might just as readily have contracted? It is claimed that the heretofore dominant physical traits of the Anglo-Saxon are disappearing under the admixture of alien races. Whether or not this be so, there is danger that both the mental and bodily characteristics of the masses will be affected by the overwhelming influence of excessive unassimilable importations.

PARASITE AND HOST.

Can impudence, stupidity and selfishness go farther than in the following "case"? Not long ago a commercial firm enjoying the undisturbed honor of being a parasite upon the medical profession, requested medical men to give without any sort of compensation, their contributions of medical literary articles to the journals published by this lay firm. Sometimes it even went so far as to make the contributor pay for reproducing the illustrations to the article. The very agreeable contributor gave the result of his scientific work to the non-professional publisher in order that the whole profession might learn anything that could aid it in its struggle with disease. The single desire of the physician in contributing to medical journals is to secure the greatest possible professional publicity for his article. What then must be the amused and disgusted contempt of the medical man when he learns that the proprietors of the journal to whom he has given (and even paid for publishing) his article, turn upon him and by virtue of the privilege accorded claim sole proprietary rights, refusing other journals the right to quote from the article, to reproduce illustrations, and refusing the author and giver any power over and any further dissemination of his scientific results by printing! Can contemptibleness be more contemptible?

The excuse offered by this old parasite, to his host, is that he "does not like the business methods" of another and newer parasite. The deliciousness of this excuse is heightened by the fact that the new parasite treats the medical contributor with remarkable liberality and courtesy, and thus threatens the old monopolist, famous for avarice and discourtesy, with some business dangers. The old parasite, which so unmercifully has bled his host in the past, can not think of allowing a more gentlemanly competitor.

But has the medical profession nothing to say about a matter so intimately touching its own rights and duties? Is it not about time that the host awakened to a sense of shame, and that he should revolt against the monopolist parasite which has sucked his juices and strength so long and so uninterruptedly? There were 33,000 copies of the first edition of Quain's Dictionary of Medicine sold, and yet, it is said, the authors and contributors never got a penny of the wealth this book brought the lay publisher. All through the history of American medicine, physicians have supinely, humbly, tremblingly begged the lordly lay publisher to be allowed to present him with their literary labors, even paying for the privilege (at least for the illustrations), and while the publisher grew rich the poor author never got a cent, or at best only a nickel flung him in pity. And the publisher went on gathering his millions!

On top of such indignity now come some of these old monopolists and tell the author of articles presented him that he, the author and the medical profession must not dare to abstract, quote from and reproduce his own article in other periodicals or publications. An instrument or method of operation has been devised, let us say, by a physician, of great value in the saving of human life; the deviser describes and illustrates the same in a lay periodical, giving the periodical the article and paying perhaps for the illustration. This periodical at the highest estimate can not be seen by one-twentieth or one-fortieth of the profession. The author and deviser of course wishes the entire profession to know of his discovery, but the lay publisher, who has been allowed to publish the article first, says: "Oh, no! This is my property! My competitor, whose business methods I do not like, must not reproduce this article or illustration for you; you have no rights in it; I must make all the money I can out of it. People must buy my periodical if they want to know about your professional progress. Especially must I keep down more liberal-minded rivals!"

Now, with the rivalries and jealousies and business methods of lay publishers, so far as relates to themselves, we as medical men have no care or concern, but when an avaricious publisher seeks in the interest of a narrow commercialism and jealousy to limit the circulation of medical literature, certainly the medical profession must have a word to say. With books, for the material of which a price has been paid the author, the matter is different, but as regards the weekly journals which pay authors nothing for contributions (not even reprints) we wish to protest that the parasite must not dictate to the host. The literature thus given belongs to the author and the medical profession and any such impudence as refusing to permit the use of such literature is a silly impertinence that must be sharply cracked over the knuckles. Whenever such greed makes itself manifest medical men

generally should know of it, and if they prefer to thus limit the circulation of their studies it will be indeed strange.

It is such stupid selfishness as this, that, if persisted in and by any large proportion of lay publishers, must and should finally bring about the very desirable encouragement of journals and publishing houses by members of the profession themselves, and the starving out of the lay publishing houses and journals that have so long, so cunningly and so successfully fattened upon the generosity and indifference of medical men. The present is a time when a policy of greater liberality and a better justice on the part of publishers to authors is imperatively demanded. The contributions to medical journals owned by laymen must henceforth be paid for, or else they are the property of the author and for the use of the medical profession. The author who thoughtlessly limits the dissemination of medical truth by unconditionally giving it utterly without compensation to a publishing firm which shows by every selfish act and brutal word that its policy is to use that knowledge solely for its pecuniary advantage, to crush out rivals and to sell its journals—such a medical man is false to the Hippocratic oath and to every principle of professional ethics, as well as blind to his own self-interest.

Indeed, it is high time that the profession should take up the attitude of greater sympathy for journals entirely controlled by members of the profession. Its motto should be: "Literature of the profession, for the profession and (published) by the profession," and all contributions should be kept from journals devoted to a narrow financial selfishness, rather than to the progress of medical science. It is only in journals published as well as edited by professional men that there can be the hope of an honest review, a coming certainty of the realization of medical ethics, a possible exclusion of nostrum advertisements, etc. It is in this matter of reviews that the most disgraceful condition of affairs exist. The reviews in the ordinary lay-published medical journal are roaring farces, downright lies, or Pecksniffian hypocrisies. Some time ago a medical author that a publishing house was deeply interested in "booming" (because they published his books), wrote a book worse than bad; it was outrageous. No medical man would write anything but a negative or highly critical review of it. To one after another the book was given, and one after another review was not permitted to appear by the publishers, who owned body, soul and mind (if the latter two existed) of the poor invertebrate (medical?) editor, who finally had to insert in this *independent* and *scientific* journal an eulogistic review of a wretched book. How long will the profession be content to dance to such piping? Every physician who contributes gratis to a lay-published journal should stipulate that there is to be no limit set to the reproduction of the article or illustration by other publishers. The attempt to throttle professional progress by such an insane selfishness should be incontinently rebuked. Every medical writer should append a footnote and demand that there be inserted with it:

"The right of republishing this article or its illustrations is unlimited."

The JOURNAL copyrights its articles, but we have given the freest right to republish, provided only that our JOURNAL receives its proper credit.

KLEPTOMANIA AND "SHOPPING."

The case of Mrs. CASTLE (who has recently been pronounced a victim of kleptomania by the eminent English alienist, Dr. SAVAGE, and whose light sentence and speedy release demonstrate the validity of this diagnosis) renders of especial interest LACASSAGNE'S[1] recent study of the relationship of kleptomania to "shopping." Kleptomania, as a system of mental disorder, has long been recognized by alienists. MARC, who reported many cases half a century ago, recognized that people, in circumstances which should have placed them beyond temptation, stole from shops articles to them almost valueless, whose number and uselessness indicated mental disorder in the thief. According to many alienists, kleptomania is always a manifestation of degeneracy, an episodiac symptom-complex. There are kleptomaniacs of this type who steal purely for the sake of stealing. At the same time, as LACASSAGNE points out, in the vast majority of kleptomaniacs, kleptomania is a morbid manifestation of certain neuroses and psychoses rather than a psychosis by itself. In many cases of so-called kleptomania, stealing is a manifestation of viciousness or feeble morality. Kleptomaniacs steal, but not all thieves are kleptomaniacs. While the kleptomaniac impulse of stealing for the sake of stealing does occur, as a rule, determining psychologic and physiologic factors exist. Even the most seemingly absurd thefts often have secret determining causes, whose nature the thief fully recognizes. These "criminals on occasion" merit, as LACASSAGNE points out, the benefit of extenuating circumstances, for often there is no premeditation, but merely the absence of conflict with strong desire, which however is not a morbid impulse. The majority of cases of both kleptomania and these thievings, occur in the department stores. Women often steal there and there only. "Bargain" sales are hence determining factors of theft. The display fascinates the customer, provokes desire and causes an intellectual conflict which often in the strongest women leads at best to prodigal expenditure. Self-contained, economical housekeepers admit that they often succumb to temptation to waste more money than they dreamed of

[1] Jour. de Méd. de Paris, Oct. 25 1896.

spending when starting out. If such be the influence on sound women what must be the effect on pregnant, climacteric and menstruating women, hysterics, neurasthenics, morphin-users, alcoholics, invalids, senilities and other persons whose mental stability is not on a level with their social status. These "bargain" sale thieves are often no more insane than other thieves, from the delusional standpoint, but they have much less power of resisting temptation. BROUARDEL reports the case of a judge's wife who, while pregnant, stole a roast goose from a store restaurant. LEGRAND DU SAULLE has observed another judge's wife who, in a similar state, stole 300 neckties. LACASSAGNE examined a pregnant woman of the upper middle class who had stolen by dozens, pocket-books, knives, scissors, etc., which she hid away, without using, in a garret closet.

Kleptomaniacs are a vivid feature of ZOLA'S "Ladies' Paradise." Pure thieves use a pregnant woman as a shield. Three women, one pregnant, enter a crowded aisle of the "Ladies' Paradise." While the inspector is watching the pregnant woman, whom he suspects of the kleptomaniac propensities of her state, her companions steal and escape with impunity when the alarm is given, leaving the pregnant one to bear the burden and plead her state. The popular opinion of the irresponsibility of pregnant women thus shown, is of long standing. Dr. HARRIET C. B. ALEXANDER, in a paper read before the AMERICAN MEDICAL ASSOCIATION nearly a decade ago (JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, Vol. IX, p. 777) pointed out that as BEN JONSON'S plays show, Anglo-Saxon popular opinion early regarded the pregnant woman as irresponsible for her "longings." A most natural and just view, since on careful analysis of the mental condition of pregnancy, it is apparent that this is always affected by more or less morbid perturbations of the monarchic cerebral vaso-motor center, secondary to pelvic fluxionary changes, to irritative conditions, to exhaustional conditions and to pressure neuroses of cardiac, pulmonary, gastric, visceral, or peripheral neuric origins. The various "longings" of pregnancy arise from imperative conceptions either pure or dependent on perverted sensations, or from reversions to early habits of the race during reproduction. Legally, these mental states predisposed to kleptomania, either pure or resulting from a desire for possession dominating a weak will.

In many menstruating, most neurasthenic, all alcoholic, opiophagistic, hysteric, climacteric and senile women, the will is also so weakened that they are ready victims of imperative conceptions and morbid impulses.

Kleptomania appears in all great cities. London police and "go-betweens" have lists of kleptomaniacs. The "go-betweens'" lists contain about eight hundred women in easy circumstances, but very few men, a dozen at most. When a shopkeeper loses merchandise, he ascertains which of his kleptomaniac customers has visited him. He then asks the relatives by a cautiously worded circular letter, to pay for the lost article. Often the kleptomaniac has stolen nothing, but of this she is not certain and can not affirm her innocence. The relatives pay to prevent scandal. As a dozen families may pay for the same lost article, the shopkeeper profits by the theft. Mrs. CASTLE, being an American, did not appear in these lists and was treated as a mere shoplifter.

The procedure adopted in Paris is different. The offender is not stopped in the shop, since it would be easy to drop the stolen object or to say that she was going to pay for it. An inspector, plainly dressed, follows her to the street and quietly but firmly invites her either to go to the police or to return to a special room of the shop to be searched. French shopkeepers are of opinion that there are more kleptomaniacs than true thieves. They content themselves, as a rule, with compelling a restoration of the stolen articles. When an individual is detected they enforce a search of her rooms, which very frequently puts them in possession of the products of previous thefts. In Paris, out of millions of francs thus stolen yearly, but a few thousands are lost. The true thieves sell or pawn the stolen objects; the kleptomaniacs hide them away. In one case LACASSAGNE found 140 pocket-books hidden away. Paris kleptomaniacs are known to come at fixed hours. Some steal very skillfully and with incredible affrontery. One who stole bronze figures was detected only through the absurd crowding of her mantelpiece with bronze figures.

LACASSAGNE divides the "bargain" sale thieves into four types: Pure thieves, "collectors," mental instabilities and the insane. The "collectors" closely approximate ordinary thieves. Men occur much more frequently among them. They are often in easy circumstances or even rich. They steal without need and almost the same things for the pleasure of possessing them. Bibliomaniacs and other faddists can not leave a bookshop or other collection without buying. These "collectors" have the same pleasure in stealing desired objects. These people may be feeble-minded and insane, but, as a rule, merit the severity of law as much for their own sake as that of society.

The mentally unstable are those in whom the desire to take, quickly occurs and who yield without conflict. They are usually rich or in very easy circumstances. Their will weakens rapidly in the seductive surroundings of the "bargain" sale and yields readily to a motive more or less bizarre, but determining and obvious, such as vanity or coquettishness, even good sentiments. Others are seized by a vertiginous state caused by the noise and the crowd and become victims of a morbid impulse. After several yieldings to temptation they become inveterate thieves, can not

master their impulse and systematically, weekly even, they return to steal, in order to experience the same fright and intense distress in which they have a morbid delight. The desire becomes irresistible. On analyzing it they, horrified at themselves, experience the need of confiding their state to a friend. In spite of the most bizarre precautions against their penchant, they succumb. In some cases suicide then suggests itself. In other cases they find their tendency checked by legal procedures to which they voluntarily give themselves up. To settle, even from the standpoint of the patient's welfare itself, the question of punishability is therefore not easy. One woman, who bought forty dollars' worth at a department store, stole a sponge worth twelve cents. Another woman bought twelve dollars' worth and stole a three cent pocket-book for her cook. For this, she, a woman in easy circumstances, gave the following inventively stupid excuse: "I have stolen," said she, "because having bought so many things I thought this small return due me." The delusional insane are certainly irresponsible. Their thefts always present characteristic *naïveté*, puerility or morbidity.

LACASSAGNE, like BENJAMIN FRANKLIN, thinks "bargain" stores a serious social danger to the body politic. Many women who never have stolen and who would never steal elsewhere find themselves there bewitched and excited to take. It is truly a diabolic possession. In the midst of a hurrying crowd, in the odorous, overheated, wealth-suggestive atmosphere, the woman finds herself with clothing aptly adapted to hide stolen objects. At certain hours there are too few employes to serve the enormous crowd which waits its turn, touching and taking goods whose splendor and variety bewilder.

Certainty of detection would undoubtedly serve as a deterrent in many cases. As LACASSAGNE remarks, it would be better, especially for the mentally unstable women, to catch the thief rather than merely to prevent theft.

The "collector" type is as a rule perfectly responsible. "Book snatching" is a besetting vice of many bibliomaniacs, just as coin and stamp purloining attacks numismatists and philatelists.

While kleptomania in the United States is legally a defence for crime, it remains to be determined in each case whether kleptomania exist and whether it merely extenuate or completely absolve. Where states predisposing to mental instability exist, the burden of proof of sanity is on the State. In the "collectors" the burden would be on the accused. Stealing of relatively worthless articles, is, by itself, no evidence of insanity. Parisians think it "smart" to steal sugar and matches from restaurants. Not a few sane Americans think it is equally "smart" to steal rides on railroads. Deterrent influences must be carefully adjusted to each case, since, as LACASSAGNE shows, the chief object of certain women in stealing is to secure the voluptuous titillation that worry and fright over detection gives them. On the other hand certain victims of kleptomania must be held responsible if they persist in going to "bargain" stores when they have learned the danger of these to their mental stability. There is no need for new legal principles in these cases. The common law properly interpreted is, in English-speaking states, amply sufficient to protect the rights of the accused and the community.

DIPLOMA MILLS.

The *American Medico-Surgical Bulletin* in its latest issue editorially calls attention to a circular of a Milwaukee medical diploma mill that was received by a New York physician. The circular was apparently mailed from Chicago, and the *Bulletin* remarks: "If the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, edited and published at Chicago, where the above mentioned circular takes its origin, would start a crusade against this mill in the same fierce spirit that it displays occasionally when it attempts to besmirch certain of its contemporaries, it would be elevating itself to the plane where all expect to find it, and it would then rise to that high position that should be the chief aim of every scientific medical journal."

It is not the custom of the promoters of irregular and fraudulent schemes to carry on their nefarious practices in their own vicinity, as the editor of the New York publication is probably aware; the diploma mill in Milwaukee uses Chicago for a postal base and New York and other distant portions of the country for the field of its operations. Had the editor of the *Bulletin* read the JOURNAL more carefully he would have seen in the issues of April 25 and June 20, of the present year, not only that it had been noticed, but that, owing to that notice, legal proceedings had been instituted in Wisconsin for its suppression. The JOURNAL has not been remiss in the way so obviously hinted, and the insinuation is as uncalled for as is the direct charge that accompanies it. It is satisfactory, however, to learn that expectation, that requires an absolute reasonableness as a condition of its existence, is so high and universal as regards the JOURNAL.

Downright diploma mills can exist only surreptitiously in any part of the country; they have about the same standing as the green-goods manufactories that send out their temptation to crime throughout the rural districts of our country. There is another class of institutions that, while more legal and respectable, are only the more dangerous from that fact; they are the ones that, while ostensibly offering a full course of study, offer means and inducements for individuals to obtain credentials for entering the practice of medicine without proper preparation and

under false pretenses. That such institutions exist, and that they are recognized as reputable by some State boards is demonstrated, as an article in the last issue of the JOURNAL is evidence. It is not always easy to bring home the charges against these, but it is not the intention here to neglect them, or to abate in any degree the efforts for a high standard in our profession.

New York has a better medical practice act than many other States and it is reasonable to presume that it is fairly well enforced, but it is possible that the local medical journals could find abuses there that would merit their attention. The JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION is not intended to be at all a local publication, but is published for the whole country and will not knowingly spare existing evils and abuses in any section. It will gladly receive any facts that may be known that may aid in its efforts to do its part in bettering existing conditions. In acknowledging its indebtedness to the *Medico-Surgical Bulletin* for its rather belated suggestions, it regrets only that it was not offered in a more courteous manner and without the accompaniment of unjust accusations. That redoubtable publication will find food for reflection in the petition of the Attorney General of Wisconsin for the abrogation of the charter of the Wisconsin Eclectic Medical College. We may also take advantage of this occasion to announce that all circulars of this kind sent to us by members, and they have been numerous, have been promptly sent to the State officer named.

CORRESPONDENCE.

Lay Distrust of the Medical Profession.

NEW YORK, Oct. 29, 1896.

To the Editor:—Kindly allow me to make a few comments upon extracts from the editorials in the JOURNAL for Oct. 24, 1896.

"The lay world, as regards both private individuals and governments is so indifferent to or suspicious of us that while endowments, scholarships, etc., running into the millions exist for the encouragement of the study of languages, astronomy, theology, etc., yet medical education and medical students are left solely to self-interest, with almost no endowment to help what is the first necessity of human life—health and the eradication of disease."

It is not difficult to make an analysis of the situation and to arrive at a pretty clear logical deduction in explanation for this attitude of the lay world. The trouble lies within our own circle and may be divided into two chief factors.

Factor 1. Physicians guard the truth and the right so jealously that they instinctively attack all of their colleagues who are engaged in advancing the profession, because they fear the promulgation of untried doctrines. This is the working of a natural law, and it is our only means for preventing the development and spread of false and fanciful theories. We know that truth will take the resultant of opposing forces and come to the top. The men who are honestly and earnestly engaged in investigating and in lifting the mass of the profession to a higher level are quite willing to submit to attacks if they are working unselfishly and have put aside the vanity of personal feeling. The attacking party is usually composed largely of important men who have not given a subject so much attention as investigators have given it, and the lay friends of the attacking party, not comprehending the character of the contest, simply assume that the man who is advancing his profession is a pretty bad character or he would not be attacked. In the larger cities where hard headed business men often understand the situation, endowments are coming in regularly for medical educational institutions. We can point to some grand examples in New York. Millions will be given to the post graduate medical colleges in this country as soon as citizens of wealth and public spirit awaken to a realization of the fact that they can endow great charities and at the same time give the horde of busy physicians who wish to get abreast of the times, opportunities to go back to their homes equipped with newest and best methods for saving life and preventing suffering. Some of the paternal European governments give strong impulse and efficient aid to their scientific medical men. It is difficult though for laymen and governments to know whom they are to encourage, because of the known importance of men who oppose the views of leaders.

Factor 2. Physicians in their ambition to be useful and good are so jealous of any colleague who is outstripping them in good works that they fall into the careless habit of criticizing each other adversely in the presence of laymen without stopping to think of the consequences. Seven or eight physicians have perhaps heard of the old sentiment to the effect that "United we stand, divided we fall" but as these seven or eight physicians do not live in the same town they can not profit by this human experience. It requires a comprehensive type of mind and much self-culture and training to enjoy a constructive appreciation of the excellent work of one's competitors—of prophets in one's own country. There are physicians who have won this victory for their better natures, but the great majority fail in such endeavors and they attack a successful man in proportion to his success. When I am visiting a new city and wish to see good surgical work done I quietly hunt up the man who is being most abused by his confreres. The laity do not know of this trick, and if it is difficult for me to find the man in my own field whom I wish to know, how much more difficult must it be for a layman to get upon the right track.

"The opinion of the lay world is made still more plain by the facts of the oceans of patent or secret nostrums eagerly bought and devoured by it; by the long struggle still going on to obtain medical practice legislation to root out quackery, and by the audacity with which it supports medical sectarianism and quackery in the regular profession."

This again is our own fault. Elevate the standard of medical education. Help the people who are suffering and there will be no need for legislation against quacks and patent medicines. It is not quacks and patent medicines that people want. It is help for their suffering. That is what they are looking for and if the regular profession in any town can not give it they will turn anywhere for relief. I would do it myself. In the smaller towns members of the regular profession do not derogate the homeopathists a bit more than they do their own best men, carelessly if you please, but nevertheless with the effect of sending the laity over to the homeopathists freely.

"The British medical profession during the present century far from occupying a high social status has always been viewed askance by the present Queen and her uncles." This is the fault of the British physicians themselves. What a lot of them are tardigradous toadies. On more than one occasion when I have been engaged in conversation with some British physician who outranked most members of the nobility in true worth and usefulness, a prince or a duke has come into the room, and instantly my colleague's eyes would assume a distant far-away look, and his knees would give way by catalysis. I have often felt like killing the poor thing to put him out of his misery. He

was certain to be taken at his own estimate of his position. Men whom I had idealized and placed on pedestals came down within easy reach of me at sight of some prince or duke who was of no earthly account in the progress of the world and who could not even make a decent double shot on grouse. I presume that a nobleman instinctively feels like elevating such a toady by employing a method which endangers the integrity of he coccyx of the man who desires elevation.

ROBERT T. MORRIS, M.D.

Dermatitis from X Ray.

CEDAR RAPIDS, IOWA, Nov. 7, 1896.

To the Editor:—I have noted in the last two numbers of our JOURNAL references to the dermatitis produced by the Roentgen ray. Will you allow me to report a case which I know was directly referable to the X-ray, as I am the afflicted one myself.

Some seven or eight weeks ago I used my wrist in obtaining a successful skiagraph of the wrist joint three or four days in succession. The exposure was from ten to fifteen minutes each time and the ray was produced by Tesla's latent coil.

About ten days later I noticed a reddening of the skin which grew deeper until it became a purple. It was accompanied by great pain, excessive tenderness to the touch, considerable swelling and gave a perfect line of demarkation. Finally there was complete desquamation over the surface marked out at the commencement of the inflammation.

At this time, some five weeks since, the skin commenced to desquamate. I have a lesion about three inches long by two in width. The process of repair is very slow. The original lesion was about three by four and a half inches.

The best treatment I have found is the use of peroxid of hydrogen followed by a simple dressing powder such as aristol or boric acid.

I know this lesion was directly caused by the X-Ray as my wrist was not subjected to any other substance which could produce an inflammation.

Wishing our JOURNAL many years of prosperity, I remain

Respectfully yours,

G. C. SKINNER, M.D.

PUBLIC HEALTH.

Alcoholism in Children.—In addition to its effects in producing criminals, idiots and insane, alcohol arrests the growth. Children of alcoholic parents, trained to the early use of liquor, are stunted in their growth, and a French physician is inclined to ascribe to this fact the decrease in the standard of normal height shown by statistics in that country—*Bulletin de L'Académie de Méd.*, October 13.

The Decadent Birth Rate.—Maurel considers the chief cause of the decreasing natality to be the high living of the well to do classes, which induces the arthritic tendency with its lowered vitality. This is inherited by the offspring, and if they continue in the same mode of life as the parents, the natality diminishes in corresponding ratio, until the family dies out in the course of five generations of overfeeding. His ideas are founded on the statistics of his own province and elsewhere, which show that as the consumption of nitrogenous substances increases, the birth rate diminishes.—*Bulletin Médical*, October 14.

Continues Restriction of Use of Tuberculin.—Section 14 of chapter 496 of the Massachusetts Acts of 1895 is amended by act of 1896, extending until June 1, 1897, the provision that the use of tuberculin as a diagnostic agent for the detection of the disease known as tuberculosis in domestic animals shall be restricted to cattle brought into the State from points without, and to cattle held in quarantine at Brighton, Watertown and Somerville, except when the owner or person in possession consents in writing thereto, or a competent veterinarian, upon physical examination, condemns the animals as tuberculous.

To Report Accidents from Gas or Electricity.—Chapter 338 of the Massachusets acts of 1896 provides that the chief of police in any city or town and the medical examiner in any district in which a person, corporation or municipality is engaged in the business of manufacturing and selling gas or electricity for lighting or for fuel, shall make a written report to the board of gas and electric light commissioners of every accident caused by the gas or electricity manufactured or supplied by such person, corporation or municipality, whereby any person shall suffer bodily injury or loss of life or be rendered insensible, stating the time, place and circumstances of the accident. Such report shall be made by the chief of police within twenty-four hours and by the medical examiner within seven days after notice of said accident.

Can Require Removal of Dead Animals.—A city may by ordinance lawfully prescribe that unless the owner of a dead animal, even though the carcass be of some value, shall remove it, or cause it to be removed, beyond the city limits, within a specified reasonable time, and to a specified reasonable distance, the municipal authorities may deal with such carcass as a nuisance, and as such take charge of it, and make such disposition thereof as will best conserve the public health. So holds the supreme court of Georgia, in the case of Schoen v. City of Atlanta, decided Feb. 7, 1896. It is not, however, the court goes on to state, lawful to require that such owner, upon removing the carcass, or causing its removal, within the time allowed him for this purpose, shall deposit it beyond the city limits at such place only as may be designated by the municipal authorities, or that upon his refusing so to do the city will have it removed at his expense to that particular place, provided the removal intended by the owner contemplates the deposit of the carcass at some other place outside of the city not itself within a prohibited distance from the city line, and such disposition of it, when so deposited, as will in any event prevent its becoming a nuisance to, or otherwise injuring, any of the inhabitants of the city.

To Protect Health in Ohio.—Among the laws passed at the recent session of the Ohio legislature having the preservation of the public health in view, is one which provides that no dwelling or building, or any room or apartment of itself, in or connected with any tenement or dwelling or other building, shall be used, except by the immediate members of the family living therein, for carrying on any process of making any kind of wearing apparel or for the manufacture of cigars, cigarettes or tobacco goods in any form, when to be supplied to others for sale, unless such place be regarded as a workshop and made to conform to the requirements of having direct outside entrance, no opening into any living or sleeping room, sufficient light, heat and ventilation, proper water closets for each sex, and be kept in a cleanly condition. Another act deals with the manufacture of flour and meal food products. It restricts the hours of labor of employes in bakery or confectionery, prescribes as to storage of manufactured products, arrangements as to wash room, water and earth closets, drainage, plumbing, ventilation, height of walls, furniture and utensils, sleeping places, and declares that "no domestic animals, except cats, shall be allowed to remain in a room used as a biscuit, bread or cake bakery, or for the storage of floor and meal products." March 30, 1896, a new and somewhat lengthy law was passed to prevent the adulteration of vinegar. Finally, a supplement to section 6928 of the Revised Statutes of Ohio makes it a penal offense against the public health to feed to swine or animals of any kind used for human food the flesh of any old horse, or the flesh of any animal which has

become old, decrepit, infirm or sick, or of one that has died from such cause, or any offal or flesh that is putrid or unwholesome.

Boards of Health to Enforce Massachusetts Bakery Law.—A law was passed in Massachusetts, approved May 19, 1896, which provided, under penalty, that all buildings occupied as biscuit, bread or cake bakeries shall be so drained and shall be provided with such a system of plumbing as shall conduce to the proper and healthful condition thereof. Every room used for the manufacture of flour or meal food products shall have, if deemed necessary by the proper board of health, an impermeable floor constructed of cement or of tiles laid in cement, with an additional flooring of wood properly saturated with linseed oil. The side walls and ceilings of such rooms shall be plastered or wainscoted, and, if required, by said board, shall be whitewashed at least once in three months. The furniture and utensils in such rooms shall be so arranged that the furniture and floor may at all times be kept clear and in a proper and healthful sanitary condition. The manufactured flour or meal food products shall be kept in perfectly dry and airy rooms, so arranged that the floors, shelves and all other facilities for storing the same can be easily and perfectly cleaned. Every such bakery shall be provided with a proper washroom and water-closet or closets, with ventilation apart from the bakeroom or rooms where the manufacturing of such products is conducted; and no water-closet, earth-closet or closets, privy or ash-pit shall be within or communicate directly with the bake-room of any bakery. The sleeping places for the persons employed in a bakery shall be separate from the room or rooms where flour or meal food products are manufactured or stored. The board of health of a city or town in which a bakery is situated, or in which the business regulated by this act is carried on, shall enforce the provisions of the act, and shall cause copies of the same to be printed and posted in all the bakeries and places in which such business is carried on within their respective jurisdictions.

BOOK NOTICES.

A Treatise on Obstetrics for Students and Practitioners.—By Edward P. Davis, A.M., M.D. Illustrated with 217 engravings and 30 plates in colors and monochrome; cloth, pages 553. Philadelphia and New York: Lea Bros. & Co., 1896.

The practice of obstetrics has changed materially with the introduction of bacteriology. Aseptic midwifery is now the rule, and naturally all the treatises on obstetrics have to be rewritten from that standpoint, and thus the parturient woman of to-day escapes many of the accidents which were so common twenty-five years ago. The work includes chapters on obstetric diagnosis; differential diagnosis of pregnancy; the diagnosis of advanced pregnancy; the complete examination of the pregnant patient; the origin and growth of the ovum and the development of the embryo; the physiology of pregnancy; the pathology of pregnancy; normal labor and its management; labor resulting in the impaction of the fetus (impossible labor); multiple pregnancy; induction of labor; abnormal labor pains; hemorrhage before labor—concealed hemorrhage—placenta previa; eclampsia; sudden death during labor; labor complicated by disproportion between pelvis and fetus; labor in enlarged pelves; (justo-major); labor and contracted pelves (justo-minor); rachitic, flat; labor in rare varieties of deformed pelves; labor complicated by tumors of the pelvis and genital organs; septic infection; episiotomy, multiple incisions of the cervix; suture of tears of the perineum and of pelvic floor; the forceps; version and extraction; symphysiotomy, celio-hysterotomy (Cæsarean section); celio-hysterectomy, including Porro's operation; embryotomy; obstetric curettement; emptying of the uterus; abortion and premature labor; extrauterine pregnancy: the puerperal state and its complications; the repair of lacerations of cervix caused by labor; the repair of injuries to the pelvic floor and perineum; insanity and nervous disorders accompanying the puerperal state; lactation; normal infancy: the pathology of the fetus; injuries at birth; asphyxia; diseases of early infancy; incubation and artificial feeding; fetal abnormalities in size and form, monstrosities; diseases of infancy including acute dyspepsia and enteritis, dentition, the respiratory disorders of infancy; disorders of development in infancy, and tuberculosis. The jurisprudence of obstetrics include legitimacy of birth, infanticide, abortion, evidence of pregnancy in tedious child-birth, and the legal aspects of obstetric practice.

This is a carefully written book on the science and art of obstetrics and is thoroughly up to date. It is destined to become a favorite.

Diseases of the Eye. A Hand-book of Ophthalmic Practice for Students and Practitioners. By G. E. De Schweinitz, A.M., M.D., Professor of Ophthalmology in the Jefferson Medical College, etc. With 256 illustrations and two chromo-lithographic plates. Second edition, thoroughly revised. Philadelphia: W. B. Saunders. 1896.

With his well-known thoroughness the author has added a great deal of interesting new matter compiled from the recent literature, in order to keep the text-book abreast with the rapid progress of ophthalmic science. It will, therefore, deservedly continue to be a favorite guide-book among students and practitioners. But we are unable to understand how the keen-eyed scrutiny of the author could overlook a most unfortunate blunder which has crept into the chapter on the paralysis of the ocular muscles. Three illustrations are given a wrong signature and place; the illustration said to show the position of the double images in paralysis of the superior rectus, in reality represents the diplopia in paralysis of the superior oblique; while the illustration of the double images in paralysis of the superior oblique is really a representation of the diplopia in paralysis of the superior rectus; and the illustration of the double images in paralysis of the inferior rectus gives the position of the double images in paralysis of the superior rectus. These are very awkward mistakes; for even with the correct illustrations, the students generally find it pretty difficult to get a clear understanding of the subject from the w[illegible]n which the different forms of diplopia in paralysis of the ocular muscles are usually described in the text-books; but surely they will be dazed and thoroughly bewildered if the illustrations do not agree with the descriptions.

The publishers should at once try to rectify these blunders of the press room by inserting into all unsold copies an extra leaf correcting these errors, which mar an otherwise so excellent text-book.

Since writing the above we have been informed that the mistakes have been rectified in those books already bound by inserting an errata slip, and in those not yet bound by reprinting the pages and putting the cuts in their proper places. The publishers also have sent the errata slips to everybody who has purchased one of the books in which the mistakes occurred, so far as they were able to ascertain this.

Skiascopy and its Practical Application to the Study of Refraction.—By Edward Jackson, A.M., M.D., Professor of Diseases of the Eye in the Philadelphia Polyclinic and College for Graduates in Medicine, etc. Second edition, with twenty-seven illustrations. Philadelphia: The Edwards and Docker Co. 1896.

The quick sale of the first edition is the strongest indorsement of the favorable opinion we expressed on the merits of this little book one year ago. There are no material changes in the second edition; but we are pleased to note in several places slight changes in the phraseology, by which the author's ideas are expressed with greater precision and the possibility of a misinterpretation is obviated.

Charaka Samhita. Translated into English. Published by AVINASH CHANDRA KAVIRATNA. Calcutta: Printed by Girish Chandra Chakravarti (200 Cornwallis Street). Part XV.

We have before mentioned this venerable treatise, interesting not only because of its great antiquity, but to the medical historian as showing much of the ancient knowledge that is still current.

This fasciculus begins the division on Virnānam. The object of the Virnānam is to help the physician to acquire a knowledge of the tastes. The various tastes are enumerated, and Hindu dietetics is discussed as then understood. "Lesson III" in this fasciculus treats of "how the destruction of cities and towns and villages are brought about."

In the matter of gastronomy The Charaka Samhita says:

"It (food) should also consist of such ingredients as would not form a combination of hostile potencies."

"One should take one's food in a place that is agreeable."

"The food one takes should, again, consist of dishes every one of which is agreeable. One should not eat with haste; or taking up a long time; or talking or laughing the while."

"While eating one should eat with attention concentrated thereon."

"Lastly, one should eat after a proper survey of oneself" (that is, attention to one's state of general health).

In regard to plagues the book says:

"In the capital known as Kāmpilya, situated in the region called Panchāla that teemed with clusters of villages, and that was inhabited by many foremost of regenerate persons, the illustrious Punarvasu, the Son of Atri, surrounded by disciples, toward the close of the month of sweat (gharma māse), while engaged in a walk in the woods on the banks of the Ganga addressed his disciple Agniveca, and said: 'Verily, O amiable one, of the constellations, the planets, the moon, the sun, the atmosphere and fire, as also of the points of the compass, as existing in their natural state, conditions are observable causing perverse symptoms of season. From this, very soon, the soil also will not duly impart unto the herbs juice, energy, assimilable virtue and potency. Through absence of these an epidemic outbreak is certain to follow.'" Then follows a discussion of the etiology of epidemics, and it is seen that bad water occupies the first place.

Truly the world has changed little from the days of the Son of Atri, when the Sanskrit Vedas were the songs of the people not less than those of the priests.

Over the Hookah. The Tales of a Talkative Doctor. By G. FRANK LYDSTON, M.D. Illustrated. Chicago: Fred Klein Company. 1896.

Dr. Lydston's reputation as a good story-teller will be increased by the publication of this book, and those who have had the pleasure of hearing him tell a story will like the book all the better after having had that pleasure, for after all, a large part of the pleasure and charm of story-telling lies in the voice and manner of the narrator. Particularly is this true of dialect stories, where the skill of the linguist is shown not only in construction, but in orthoepy and accent. However, next to hearing Dr. Lydston tell a story, comes the pleasure of reading one that he has written or adapted, for his adaptations have a personal flavor about them that gives originality.

The hookah, be it known, is an Arabic pipe, consisting of a box in which tobacco burns, a vessel of water through which the smoke passes, and a long pliant stem or mouth tube. When the Doctor lit his hookah, the stories began.

As a rule, the author defends the profession throughout, but there are many sarcastic passages, and one might almost believe, severe hits at foibles belonging exclusively to certain well-known members of the profession. When the author's "Dr. Weymouth" is fairly launched on this subject he is very candid, sometimes caustic, but he is never dull.

The stories in the book are all character stories, and truthfully drawn. One that is absolutely new, is that of Major Meriwether, a curious compound of fuss and feathers, poverty and pride, bombast and braggadocio, egotism and simplicity, good-nature and cowardice. Dr. Lydston has made a very readable book, and if some of the stories of the frontier are rugged, it is because they are true to the characters of the mining camp, and to the rugged environment of the men themselves.

A Text-book of Special Pathologic Anatomy. By ERNST ZIEGLER, Professor of Pathology in the University of Freiburg. Translated and edited from the eighth German edition by Donald MacAlister, M. A., M.D., and Henry W. Cattell, A.M., M.D. Sections 1 to 8. New York and London: The Macmillan Co. 1896.

This is the third English edition of Ziegler, the first of which was published in 1884, but the great advances which have been made in pathology have been embodied in five German editions that have appeared in the meantime. So in this work the text has been recast to correspond to the latest German edition. The second volume, which will contain sections on the alimentary tract, liver and pancreas, respiratory and genito-urinary systems, the eye and ear, is in press and will shortly be published, after which it will be followed by a new translation of the part on general pathologic anatomy. This volume contains eight sections, as follows: 1, blood and lymph; 2, the vascular mechanism; 3, the spleen and the lymph glands; 4, the osseous system; 5, the muscles and tendons; 6, the central nervous system; 7, the peripheral nervous system; and 8, the skin.

There are 308 illustrations in this volume. The illustrations are of the style and appearance of those in Hamilton's Pathology. This work is very thorough and complete. The bibliography alone at the end of each of the paragraphs is worth to any student, writer, or other person interested in the subject, the price of the volume. The book is greatly condensed, there being no redundancy of matter or in the style of expression. It deserves wide publicity and doubtless will receive that generous support which has been accredited to former editions.

An American Text-Book of Physiology. By HENRY P. BOWDITCH, JOHN G. CURTIS, HENRY H. DONALDSON, W. H. HOWELL, FREDERICK S. LEE, WARREN P. LOMBARD, GRAHAM LUSK, W. T. PORTER, EDWARD T. REICHERT and HENRY SEWALL. Edited by WM. H. HOWELL, Ph.D., M.D. Illustrated, 1052 pages, royal octavo. Philadelphia: W. B. Saunders, and Chicago, W. T. Keener, Agt. Price (cloth) $6.

This book is published in the same general style and size as the text-book on obstetrics. It is on the collaboration method and has the natural disadvantage of the overlapping, but it undoubtedly gives a broader view than single authorship. Such works, however, can not fail to be detrimental in the long run to the interests of individual authorship, as each school represented in the book forces the book on the students of the college; consequently there is a taste of commercialism about all books written on this basis that is objectionable. We have heretofore refrained from touching on this topic, but believe the time has come for doing so, as however great the merits of the book, it is not in accordance with that freedom and liberty of action on the part of our teaching faculties that should exist in this country. This does not apply alone to the book under consideration, but refers to all works of its kind. This text-book is one of the most satisfactory of the series. It is highly scientific and free from padding, and has embodied in it the latest observations on the subject. The contents are as follows: Introduction by the editor, Dr. Howell; general physiology of muscle and nerve; secretion; chemistry of digestion and nutrition; movements of the alimentary canal, bladder and ureter; blood and lymph; circulation, respiration; animal heat; central nervous system; special senses; physiology of special muscular mechanisms; reproductions; chemistry of the animal body.

A System of Diseases of the Eye. By American, British, Dutch, German and Spanish authors. Edited by Wm. F. Norris, A.M., M.D., Charles A. Oliver, A.M., M.D., Vol. I Embryology, Anatomy and Physiology of the Eye, with 23 full page plates and 362 text illustrations. Philadelphia: J. B. Lippincott Co. 1897.

This is the first volume of a system of diseases of the eye written in the English language, and embraces the most advanced theoretical and practical views on the subject. The broad pages and large type make it a pleasure to the eye; while the beautiful illustrations are creditable alike to the author and the publishers. This is intended to be an encyclopedia on the subject of diseases of the eye and will be of service not only to ophthalmologists and special students, but for reference by the general practitioner as well. We notice with pleasure that the subjects of dioptrics, perception of light, binocular vision, have been given to Americans. It is well-known that in these subjects our countrymen have taken the lead. We notice the death of Dr. Rider, who wrote the chapter on the embryology of the eye, and who died before the issue of the volume. Professor Dwight of Harvard College has contributed an exhaustive chapter on the anatomy of the orbit and appendages of the eye; while Dr. Frank Baker of the University of Georgetown has a very scholarly article on the anatomy of the eyeball. We congratulate the editors and the publishers on the production of the first volume, and we believe that it will take its place at the very head of the extended works on this subject in English.

Water and Water Supplies. By John C. Thresh. London: Rebman Publishing Co.; W. B. Saunders, Philadelphia, and W. T. Keener, Chicago, Agents. Price $2.25 net.

In this day, when the question of water supplies is interesting health officers everywhere and the public generally, this book will be peculiarly timely and interesting. Its scope includes discussion of water, its composition, properties, rain and rain water, surface water, subsoil water, natural spring water, deep well water, river water, quality of drinking water, waters, impure water and its effect upon the health, the interpretation of water analyses, the pollution of drinking water, the self-purification of rivers, purification of water on a large scale, domestic purification, the softening of hard water, quantity of water required for domestic and other purposes, selection of sources of water supply, wells and their construction, pumps and pumping machinery, the storage of water, the distribution of water, the law relating to water supplies, rural and village water supplies, with an appendix.

The book will be found interesting and it is adapted to both popular and scientific reading. It is accurate in its statements and will be generally accepted by those interested as authoritative. For students and those preparing for examinations as medical officers of health we commend the book.

Text-book of Training Schools for Nurses; Including Physiology and Hygiene and the Principles and Practice of Nursing. By P. M. Wise, M.D., with an introduction by Dr. Edward Cowles, in two volumes, Vol. II. New York and London: G. P. Putnam & Sons. 1896.

In our notice of the first volume of this book we took occasion to commend it as being the best and most systematic text-book that has fallen under our observation, and we can only repeat the statement in glancing over the second volume, which is divided in thirty chapters, and contains thirty-eight illustrations. The chapters are as follows: 1, local applications, poultices, fomentations; 2, counterirritants, cupping, leeches; 3, enemata, suppositories; 4 and 5, bandages and bandaging, splints; 6, fractures, dislocations and sprains; 7, fever, inflammation; 8, hemorrhage; 9, wounds, burns and scalds, emergencies; 10, anesthesia and anesthetics; 11, surgical nursing operation; 12, poisons, bites, stings, etc.; 13, asphyxia, artificial respiration; 14, convulsions, apoplexy, coma, syncope, etc.; 15, nervous disorders; 16, insanity; 17, forms of insanity; 18, observations on care of the insane in the household; 19, duties of hospital nurses for the insane; 20, baths and bathing; 21, massage; 22, medicines and their administration; 23, forcible feeding, food for the sick; 24, special medical cases; 25, children's diseases; 26, convalescence, signs of death, care of the dead; 27, Pregnancy, physiologic signs and symptoms of abortion, miscarriage; 28, preparation for labor, necessity for antiseptic care, parturition, etc.; etc.; 29, care of the infant, and 30, gynecologic nursing.

In the appendix will be found a glossary of technical words and phrases and general index to the two volumes. The whole, as we have stated, form at present one of the best text-books of training schools for nurses that is on the market, in our judgment.

Text-book of Histology, Descriptive and Practical for the use of Students. By Arthur Clarkson, M.D., C.M., Edinburgh, with 174 original colored illustrations. Philadelphia: W. B. Saunders, 1896. W. T. Keener, Chicago, agt. Price, $6.00 net.

This is the English imprint of the work as issued in Edinburgh, and notwithstanding the author asserts that the book being of limited size can not aspire to be of the nature of an exhaustive treatise on histology, yet it will be seen that the field is thoroughly covered, and that the work has been well done. Scotch pathologists and histologists seem to predominate among the English medical books, and it must be confessed that they have taken a high place. For students and practitioners, desiring to refresh themselves with histologic work, the book of Clarkson will be found to be a trustworthy and very satisfactory guide. Mr. Saunders has done well to introduce it to the American public.

ASSOCIATION NEWS.

Rush Monument Committee.—The following subscriptions to the Rush Monument Fund have been received:

April 17, Dr. J. W. Hoff, Pomeroy, Ohio. . .	$ 5.00
April 17, Dr. T. J. Acker, Croton-on-Hudson, N. Y.	5.00
April 30, Peoria City Medical Society (through Dr. O. B. Will), Peoria, Ill..	25.00
April 30, Dr. D. W. Cathell, Baltimore, Md..	1.00
April 30, Dr. W. T. Cathell, Baltimore, Md...	1.00
May 9, Dr. J. P. Getler and others, Mifflin County, Pennsylvania	3.00
May 21, Dr. E. H. Bishop, Towson, Md . . .	1.00
June 10, Dr. C. B. Burr, Flint, Mich	10,00
June 29, Dr. W. H. Hardin, Anderson C. H., S. C	1.00
June 29, Herkimer County Medical Society (through Dr. G. Graves, Herkimer, N. Y.).	25 00
Sept. 30, Dr. J. W. Grosvenor, Buffalo, N. Y.	1.00
Sept. 30, Interest to date..	81.00
	$ 159.00
Before reported	3,727.39
Total	$3,886.39

George H. Rohé, M.D., Secretary.

NECROLOGY.

James Bissett Murdoch, M.D., of Pittsburg, late dean of the Western Pennsylvania Medical College, died October 29. He was a son of the Rev. David Murdoch, D.D., late of Elmira, N. Y., and was born in Glasgow, Scotland, Oct. 16, 1830. He was graduated from the New York College of Physicians and Surgeons in 1854, and during the ensuing year was house surgeon to Bellevue Hospital. Subsequently he became surgeon of the steamer *North Star* of the Vanderbilt line. From 1855 to 1872 he practiced at Elmira, N. Y., and since that time he has been established at Pittsburg. He was

member of the Oswego County Medical Society, its president in 1865; of the New York State Medical Society; of the Allegheny County Medical Society; of the Pittsburg Academy of Medicine and School of Anatomy, president of this society in 1877; of the Pennsylvania State Medical Society, its president in 1888, and of the AMERICAN MEDICAL ASSOCIATION. During the war he served three years in the Twenty-fourth New York Volunteers and was surgeon-in-chief of his brigade. He was a member of the Grand Army and Military Order of the Loyal Legion, a trustee of the Pennsylvania College for Women and a director of the Monongahela Navigation Company. He was a frequent contributor to the various medical journals and many of his writings have appeared from time to time in this JOURNAL. He leaves three sons and two daughters.

MORITZ SCHIFF, M.D., one of the leaders in experimental physiology, which owes many discoveries to him. Professor of Physiology at the new University of Geneva and previously at Berne and Florence. He was born at Frankfurt-on-the Main in 1823. Author of many works on his specialty, the best known are perhaps his "Physiology of the Nervous System," "Investigation of the Spinal Cord," and the "Influence of the Nervous System in the Production of Diabetes."

MISCELLANY.

Trained Nurses in the Paris Hospitals.—There are about 1,800 graduated nurses and attendants in the public hospitals of Paris, but the remainder amounting to 3,459, have never received special professional training.

Two New Buildings for the Feeble-minded.—By resolution of the Massachusetts legislature there is to be allowed and paid out of the State treasury a sum not exceeding $60,000, to be expended at the Massachusetts School for the Feeble-minded at Waltham, under the direction of the trustees of said institution, for the purpose of erecting two new buildings, in accordance with the recommendations contained in the forty-eighth annual report of such trustees.

Authorizes Holding More Property.—Any corporation hertofore chartered by the legislature of Massachusetts for any of the purposes mentioned in section 2 of chapter 115 of the Public Statutes, which includes associations formed for any educational, charitable or benevolent purpose, or for the prosecution of any scientific or medical purpose, it was enacted at the recent session of the legislature of that State, may hold real and personal estate to the amount of not more than $500,000 for the purposes set forth in its charter.

Massachusetts Pharmacy Law Codified.—Chapter 397 of the Massachusetts Acts of 1896, entitled "An act to regulate the practice of pharmacy," approved May 15, 1896, is a codification and consolidation of the laws of that State relating to the regulation of the practice of pharmacy and of all the laws which it is the duty of the board of registration in pharmacy to enforce, which were previously scattered through half a dozen or so different volumes.

Sphacelotoxin, the Active Principle of Ergot.—Jacoby of Strassburg announces that he has succeeded in isolating the active principle of ergot. It forms a yellow crystalizing substance, chemically pure, which produces abortion in dogs and cats in twenty-four hours, without severe general symptoms. It also decreases the laying of eggs by hens. No poisonous effect is produced on warm blooded animals, even in very large doses.—*Wien. klin. Rundschau*, October 18.

Impotence in Law.—Under the Illinois statute which provides that where a marriage has been contracted, and it shall be adjudged, in manner prescribed, that either party, at the time of such marriage, was and continues to be naturally impotent, the injured party may obtain a divorce, the supreme court of Illinois holds, in the case of Griffith v. Griffith, where it denied a re-hearing Oct. 9, 1896, that where the defect in the husband proceeds from self-abuse, if he will not exercise a moral restraint over himself, and test the curability of his disorder by proper self-control, his wife has a right of action on the ground of impotence. The words "naturally impotent," as used in the statute, the court holds, means "incurably impotent," and that it is immaterial whether the impotence existed at birth and by some formation or nonformation of nature, or was caused by the party's own fault, so long as it exists at the date of the marriage.

The History of Surgery in Tableaux.—At the twenty-fifth meeting of the German Surgical Society, lately held, after the reading of many highly meritorious papers by the most eminent surgeons, an entertainment was given, at which the Emperor and Empress were present. It consisted of a series of tableaux which represented the history of surgery. The first represented the battle of Teutobruger Wald, showing how the place looked when the soldiers' wounds were dressed on the battlefield. Then came the monk, the quack and the barbers as healers, and so on, following the course of surgery down to to-day, and the final picture was in honor of the Red Cross.

Alleged Wrong 'Flexion.—In an action to recover from a railroad company for personal injuries, which it was alleged, resulted in a retroflexion of the womb, while the proof established an anteflexion, the defendant argued that a verdict should have been directed for it, on account of this variance. But the court of appeals of Indian Territory holds otherwise, case of Missouri, K. & T. R'y Co. v. Turley, decided Sept. 9, 1896, saying that the company having offered no proof that it was misled, the alleged variance, if, indeed, it could be so-termed, must be regarded as harmless, and treated as immaterial.

Non-Expert Evidence of Insanity in New Mexico.—The supreme court of New Mexico holds, in the homicide case of Territory v. Padilla, decided Sept. 1, 1896, that it was competent for a non-expert to testify that the demeanor of a witness, whose sanity was attacked, was similar, as nearly as he could remember, at the coroner's inquest and before the jury in the trial in the district court, and that he was considered by him a very stupid witness, and uncertain as to the facts he stated; that non-expert witnesses can be asked as to conduct and appearance; but that they can not give an opinion as to the sanity or insanity of a person; and can not testify as to what is his general reputation as to sanity. At the same time, two of the justices dissent from the doctrine that a non-expert may not state his opinion or conclusion as to the sanity or insanity of a person whose mental soundness or capacity is under consideration.

Restrictions upon Evidence of Attending Physicians.—The court of appeals of New York holds, in the case of Redmond v. Industrial Benefit Association, decided Oct. 6, 1896, where an insurance company's by-laws required the proofs of death to contain, among other things, a statement, under oath, of the attending physician, made upon a blank furnished by the company, and such statement showed that he had treated the insured for renal calculi some months prior to the time application was made for the insurance, that it was evidence, but not conclusive evidence, of disease of the urinary organs when the application was made, or within five years prior thereto. It also holds that the testimony of the physician to prove this fact at the trial of the action against the insurance company was properly excluded under section 834 of the Civil Code, as privileged.

Not Hearsay Evidence.—The supreme court of Georgia holds, in the case of the Western & Atlantic Railroad Co. v. Stafford,

decided July 27, 1896, that there was no error in allowing a physician to testify that one who had received violent personal injuries, and who was under treatment in a boarding house on the day upon which he was hurt, did not know he had previously, on the same day, after receiving the injuries, been in the physician's office. The objection to this testimony was that it was simply the sayings of the plaintiff, who was seeking to recover for his injuries, made some five hours after the occurrence and too far off to be a part of the occurrence. But the court takes the above view, it not appearing on cross-examination or otherwise, that the physician's knowledge on the subject was not derived from personal observation of the patient's condition, or that it depended solely upon statements made by the latter.

Esophageal Sac or "Antrum Cardiacum."—Fleiner, Boas and Ewald have observed in a few cases a cavity above the stomach in the alimentary canal. One patient could only swallow his food by filling the esophagus to the top, and then by pressure from the outside force the contents down into the stomach. Others have required the permanent use of the sound. If the stomach is filled with melted wax after dissection, it often reveals the presence of an ante-stomach, with no evidence of a previous cicatrization. The symptoms in the case of an 8 year old child were distress in breathing, pain in the gastric region, vomiting, regurgitation and eructation after or during meals, with a peculiar cough at night and a gurgling sound in the chest. The child masticated slowly, ate very little, and was much emaciated. Alimentation with the sound caused it to gain five pounds in ten days. Investigation with the sound disclosed a cavity above the stomach that contained 70 c.m. fluid. The trouble in this case is congenital and will probably require the continual use of the sound for life.—*Wiener klin. Rundschau*, October 27.

Examination and Evidence in Personal Injury Case.—The supreme court of Georgia says that it w not reverse the action of a trial judge in refusing, pending the rial of a suit for personal injuries, to order a medical examination of the plaintiff, when it appears that no request for such on examination was made of the plaintiff before the trial began, and no request to this effect was made to the court until after the plaintiff's evidence had been closed and it was then impracticable, without too long a suspension of the trial, to obtain a satisfactory and competent physician by whom an impartial examination could be then made. While the power to order such an examination exists, it goes on to state that it is in each case to be exercised or not, according to the sound discretion of the presiding judge. And the court also holds, Savannah, F. & W. Ry. Co. v. Wainwright, decided July 20, 1896, that while a husband is not competent to testify as to oral complaints made to him by his wife concerning her "pains and hurts" resulting from a physical injury, he may testify as to the physical condition of any of her members of which he had actual knowledge; and, if such condition manifestly caused suffering, he may so state.

Colorado Inebriate Law Constitutional.—The supreme court of Colorado holds, "In re House," a case decided June 29, 1896, that chapter 74 of the State session laws of 1895, which provides for the sending of indigent habitual drunkards to an institution for treatment at county expense is constitutional, thus reversing the decision of the county court. Among the chief objections raised was that it offended against a provision of the State constitution that: "No appropriation shall be made for charitable, industrial, educational or benevolent purposes, to any person, corporation or community not under the absolute control of the State, nor to any denominational or sectarian institution or association," as well as that it offended against a provision that: "The general assembly shall not delegate to any special commission, private corporation or association, any power to make, supervise or interfere with any municipal improvements, money, property or effects, whether held in trust or otherwise, or to levy taxes, or perform any municipal function whatever." But after carefully considering these, and other constitutional objections, which it says were ably and exhaustively urged, the supreme court declares that, while the act may in some respects be defective, and subject to some criticism, it is not objectionable to any of the constitutional objections urged, and must be upheld as a legitimate exercise of legislative power.

The Demand and Supply of Eunuchs in China.—A writer in the London *Lancet* gives us some information upon the above subject. In China the Emperor and certain members of the royal family are alone entitled to keep eunuchs. His majesty maintains at least 3,000, but no prince of the blood or imperial princess has a right to more than thirty. Theoretically the palace eunuchs are furnished by governors of provinces, each of whom has to supply eight every five years, receiving in return 250 taels per eunuch. It was found, however, that the number thus obtained was totally insufficient, so a recruiting office was established at Pekin for the direct enrollment of candidates. In the production of Chinese eunuchs four chief factors prevail, viz., greed, predilection, poverty and laziness. Many parents sell ther male children to the mutilators or themselves castrate them in the hope of eventually sharing their earnings.

Young men of from 25 to 30 years of age, some of them having wives and families, often accept emasculation, being allured by the prospects of emolument. Poor wretches destitute of means and threatened with starvation agree to become eunuchs in order to gain a living. Finally, a certain number of lazy, good-for-nothing vagabonds sacrifice their manhood to secure a life of indolence. The operation is performed in a building situated close to one of the palace gates, but the operator, although his office is recognized and a hereditary one, having been for many years in the same family, receives no regular wages, being entitled to a fee of 6 taels from each individual operated on. In the case of destitute candidates he exacts a lien on their prospective earnings. Dr. Matignon's description of the operation is as follows: The subject, with his abdomen and thighs tightly bandaged, is placed supine on a low bed, one assistant tightly grasping him around the waist, while two more keep his legs widely separated. The operator, as a rule, uses a curved implement resembling a pruning knife, but occasionally he substitutes for it a long pair of scissors. With his left hand he seizes the parts, squeezing and twisting them to diminish the supply of blood; but before cutting he inquires for the last time whether or not the patient is a consenting party. Adults, of course, answer for themselves, no anesthetic being used, but in the case of children the parents' word is accepted. The reply being in the affirmative, a single rapid sweep of the hand serves to remove both penis and scrotum, the blade of the instrument passing as close as possible to the pubis. A small piece of wood or of pewter shaped like a nail is then inserted into the urethra; the wound is washed two or three times with pepper and water, and several sheets of paper having been applied to the raw surface the parts are carefully and tightly bandaged. The subsequent treatment is remarkable. Immediately after the bandaging the unfortunate patient is seized by the assistants and made to walk up and down the room at a rapid rate, not being permitted to lie down for three hours. For three days he is not allowed to drink anything, and not only does he suffer the pangs of thirst, but also has to endure the agonies of retention owing to the plug in the urethra. On the fourth day the bandages are removed and the wretched creature is suffered to pass urine if he can. If the urine flows he is looked upon as cured, but should the overstrained bladder refuse to act he is left to die, the virtues of catheterization being apparently unknown to the Chinese. The amputation leaves a large triangular wound with the apex downward, which takes on an average about a hundred days to granulate. Notwithstanding the primitive mode of procedure the operation is usually successful, and fatal cases do not amount to more than 3 or 4 per cent. The most frequent complication is the incontinence of urine, but if this unpleasant symptom continues beyond a reasonable period the patient is condemned to flagellation, a mode of treatment which is said to yield the most excellent results.

The Gradual Evolution of the Ambulance.—In Boston, a somewhat novel departure has been put forth in the way of furnishing stretchers for the fire department employes. It is expected that these means of relief will often be used at fires, before the police patrol wagons or the city ambulances can reach the scene. The instrumentality of the late Dr. Henry I. Bowditch in bringing into play the humane idea of the ambulance has been sketched in an article in the *Independent*. A portion of that article is given below. Quite recently, the French Army Ambulance service has been holding some very interesting maneuvers, just outside of Paris; and we may be sure that the people who had sons and brothers falling ill by the hundreds in malarious Madagascar, watched these evolutions with keen interest. A train was prepared for imaginary "sick and wounded," and was fitted up by the men of the ambulance corps. It was taken to a suitable site, and a field hospital was improvised, in which the invalids were distributed according to the nature and severity of their imaginary injuries. It was supposed that night would test the drill and discipline better than the day, and accordingly, it was chosen, and surgeons went their rounds, while the subordinates prepared suitable food for invalids. "Then the 'patients'—who enjoyed it all as a huge and elaborate joke—were conveyed on stretchers and in ambulances to their barracks, and the 'ambulance drill' was over. There is in existence, somewhere, a little pamphlet put forth during the War of the Rebellion, by Dr. Henry I. Bowditch of Boston, who had hastened to one of the battle-fields of Virginia, on learning that a beloved son was wounded. He describes the horrors of a ride in a common springless farm wagon—the only procurable vehicle—with a number of severely wounded men, over the rough ways that served for roads. The sufferings of these men were terrible; and the sound of their groans and shrieks was destined to be heard far beyond the time and place rendered indescribably horrible by them. The soul of the good doctor was filled with compassion, and on his return, with his dead son, he at once set to work to ameliorate the conditions that must follow every battle. He strove to invoke the aid of Massachusetts, and the history of that attempt is enough to make one loathe the word 'politics,' so much did they do to obstruct and thwart a purely humane purpose; but untiring zeal, quickened by the memory of that awful night ride, at last accomplished an improvement in the means of conveyance and also the selection of a detail of drivers who were not—like the one he had known—drunken, profane and brutal. Some of the ideas embodied in the comfortable ambulances that now follow in the wake of civilized warfare (if there can be such a thing as *civilized* war), and that one found in all large cities as part of the paraphernalia of a well-equipped hospital, were embodied in 'sick wagons' before the close of the war: and when it was over the matter was forgotten, and one quick, observant mind after another added its full quota of 'improvement' till it seemed to have touched the ideal; but within a few months the last desideratum has been attained in the addition of rubber tires to the wheels that must travel over the uneven city pavements. Wherever an army corps goes into action now, it is sure to be followed by a train of these life and pain-saving vehicles, with the red cross of universal care for the wounded sending forth its message of hope and comfort."

Marching from Malaria.—For several years back, during the autumn, the troops stationed at Fort Myer, Va., have suffered severely from intermittent and remittent fevers. In July of the present year the post surgeon, Capt. W. H. Arthur, recommended that a practice march be made, for military purposes so far as the military point of view was under consideration, but for medical purposes as well, so as to remove the troops to non-malarious localities during the season of active infection at Fort Myer. The recommendation was approved by the higher authorities and the command, consisting of four troops of the Sixth Cavalry and a detachment of the band, with Capt. Arthur and some men of the hospital corps, left the post September 8, and returned, after a march of 260 miles through northeastern Virginia, on October 5. Their route took them through Warrenton, Sperryville, Strasburg, Winchester and Harper's Ferry. Good camping grounds were found at all points selected, with plenty of running water, usually of excellent quality. A few cases of malarial fever occurred during the first week, none afterward. The total number of cases was 8 in the command of 220 men. The sick report showed 12 cases during the same period among the 80 men left behind in garrison. In the corresponding period of 1895, 88 cases occurred in the Fort Myer command, then 268 strong. These results are regarded as highly satisfactory. The command will no doubt have fewer cases of recurring malarial fever during the coming winter.

THE PUBLIC SERVICES.

Army Changes. Official List of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from Oct. 31 to Nov. 6, 1896.

Major Edward B. Moseley, Surgeon U. S. A., is granted leave of absence for four months, to take effect upon being relieved from duty at Ft. Monroe, Va.

PROMOTIONS.

To be Asst. Surgeons with rank of Captain after five years' service: First Lieut. Henry C. Fisher, Asst. Surgeon, Oct. 31, 1896, First Lieut.

Henry A. Shaw, Asst. Surgeon, Oct. 31, 1896; First Lieut. Charles F. Kieffer, Asst. Surgeon. Oct. 31, 1896.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending Nov. 7, 1896.

Medical Inspector J. L. Neilson, detached from the "Maine" Nov. 10, and placed on waiting orders.

Surgeon L. G. Heneberger, ordered to the "Maine" Nov. 10.

D. N. Carpenter and F. L. Pleadwell, appointed Asst. Surgeons from Oct. 21.

Surgeon G. P. Lumsden, detached from the "Yorktown" Nov. 2, ordered home and granted three months' leave.

P. A. Surgeon J. E. Page, detached from the "Boston" and ordered to the "Yorktown."

P. A. Surgeon G. Rothganger, detached from the "Oregon" and ordered to the "Patterson."

P. A. Surgeon R. M. Kennedy, detached from the "Patterson," ordered home and granted three months' leave.

Asst. Surgeon R. S. Blakeman, detached from the "Vermont" Nov. 12 and ordered to the "Boston" per steamer of Nov. 21.

Asst. Surgeon W. M. Wheeler, detached from the "Franklin" Nov. 12 and ordered to the naval hospital, Mare Island.

Asst. Surgeon A. Farenholt, detached from the Mare Island naval hospital and ordered to the "Oregon."

Asst. Surgeon S. B. Palmer, detached from the naval laboratory, New York, and ordered to the "Vermont."

Asst. Surgeons D. N. Carpenter and F. L. Pleadwell, ordered to the naval laboratory and department of instruction, New York.

Change of Address.

Brown, J. R., from 102 N. Alabama St. to 8 Sterling St., Indianapolis, Ind.

Craig, S. S., from Alamosa, Colo. to Chama, N. M.

Ewing, F. C., from St. Louis to Webster Grove, Mo.

Hammond J. C., from Dennison, Iowa, to Hanna, Wyo.

Luchbers, A., from Denver, Colo. to 2407 N. Jefferson Av., St. Louis, Mo.

Mass. F., from 25 Miami Av. to 564 Woodward Av., Detroit, Mich.; Montizambert, F., from Quebec to 130 St. George St., Toronto, Canada; Murrell, T. E., from St. Louis, Mo. to 2224 E. 14th Av., Denver, Colo.; Marshall, John S., from Kankakee, Ill. to Elyria, Ohio.

Potts, C. N., from Silverton to 605 N. Cascade St., Colorado Springs, Colo.

LETTERS RECEIVED.

Alta Pharmacal Co., (2) St. Louis, Mo.

Bishop, Louis F., New York N. Y.; Breedlove, J. W., Fort Smith, Ark.; Brockway, Geo. M., Florence, Ariz.; Breiteenbach, M. J., Company, New York, N. Y.; Bausch & Lomb Optical Co., Rochester, N. Y.

Columbus Phaeton Co., Columbus, Ohio; Curtis, John B., Somerville, Mass.; Cornell, C. W., Knoxville, Iowa.

Davidson Rubber Co., Boston, Mass.

Farwell & Rhines, Watertown, N. Y.; Ferguson & Goodnow, Chicago, Ill.; Freeman, C. A. Chicago, Ill.; Floyd, J. C. M., Steubenville, Ohio.

Gilpin, Langdon & Co., Baltimore, Md.

Hendrick, S. O., Henry, Ill.; Haldenstein, I., New York, N. Y.; Hummel, A. L., Advertising Agency, New York, N. Y.

Jay, E. W., St. Anthony, Iowa.

Knight, T. H., Nice, France; Kirkpatrick, Paul W., Nashville, Tenn.

Lee, Elmer, Chicago, Ill.

Mackie, J. M., Portage La Prairie, Manitoba, Canada; Mellier Drug Co., St. Louis, Mo.; Murphy, T. C., Manito, Ill.; Montgomery, E. E., Philadelphia, Pa.

Norbury, Frank P., St. Louis, Mo.

Oakland Chemical Co., New York, N. Y.; Oswald, B. Frank, Cleveland, Ohio.

Physicians' Periodical Bureau, Janesville, Wis.

Reed, R. Harvey, Columbus, Ohio; Rabuck, S. H., Lyle, Minn.

Seeds, E. W., Columbus, Ohio; Schwartz, J., New York, N. Y.; Stewart, O., Port Huron, Mich.; Spencer, J. C., San Francisco, Cal.; Shuttee, H. C., West Plains, Mo.; Stallman & Fulton, New York, N. Y.; Stockwell, G. Archie, Detroit, Mich.

Tiemann, George & Co., New York, N. Y.; Thomas, John D., Washington, D. C.

Von Ruck, Carl, Asheville, N. C.

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ORIGINAL ARTICLES.

POINTS IN THE DIAGNOSIS AND TREATMENT OF SOME COMMON NEUROSES.

Read at meeting of the White Mountains, White River and Connecticut Valley Medical Societies, Hanover, N. H., Aug. 3, 1896.

BY ROBERT T. EDES, M.D.

JAMAICA PLAIN, MASS.

There are few occasions in medical practice where it is of more importance for the reputation of the physician, the satisfaction of friends, the attainment of the ends of justice, the advancement of therapeutic science, and the welfare of the patient, to establish a correct diagnosis than when the practitioner has to decide between organic and functional disease. The line between them, as is being constantly demonstrated, is indeed a shifting one; as new methods are invented new lesions are found where before it was thought none existed; organs that to the naked eye have presented no morbid changes reveal to the microscope and the test tube alterations minute and hitherto imperceptible or evanescent, but none the less fatally standing in the way of normal activity than than those grosser ones which have until quite recent times engrossed the attention of the morbid anatomist.

Conditions hitherto known to us only as variations in the vigor of action have been shown to be accompanied by changes in structure, transitory indeed and capable of complete restoration, but none the less obvious to the minute scrutiny of the microscopist. Many of these are so slight and so evanescent that they can not be demonstrated upon the human being, and whether they correspond accurately with what we may suppose to exist in functional disorders is not as yet demonstrated, but practically we know that running more or less parallel to them we may draw a line which for purposes of diagnosis and treatment is of great importance.

In neurasthenia and hysteria, using the latter word in its most comprehensive sense, we have many symptoms which may also exist in organic diseases of the parts especially involved, and it is not always easy in a case before us to determine whether they are dependent upon such actual organic disease or exist merely as a disturbance engrafted upon the constitutional condition. Yet under hardly any circumstances is the proper treatment more directly determined by definite and positive diagnosis. Specific instances will show some of the difficulties better than general descriptions, but you will perhaps pardon me if I simplify matters by laying down, a little dogmatically perhaps, a few points which I do not think we are likely to go astray upon.

There is nothing in neurasthenia or hysteria which acts as a prophylactic against inflammation, degeneration or new formations.

It does not follow that because a patient has a few or many symptoms that are indubitably of hysteric origin that all are of that nature.

It does not follow that because certain symptoms are thoroughly fixed and unchanging, or even if they do not yield to anesthetics, that they are not hysterical.

Double optic neuritis is not found in mere hysteria.

A well-marked, regular ankle clonus is hardly ever present and the knee jerk seldom absent in mere hysteria. So far as my own experience goes I should say "never" in both these cases.

There are many cases of hysteria which do not present all the stigmata thereof; the hysteria of Charcot is not common with us.

In the cases of doubt and mistake which I shall report I intend no unkind criticism. Some of them were my own.

The will of Seth Adams provided for the care of "debilitated nervous persons, not insane," and this is the class which it has been the aim of the managers of the asylum known by his name to select. Like many other schemes framed on lines a little different from the usual, it was at one time spoken of as "Adams' Folly," but it has abundantly demonstrated the wisdom and kindliness of the founder by the number of invalids, of exactly the class he intended and described, which it has sheltered and relieved. It has never been considered a part of its function to treat cases of organic disease of the nervous centers and of late years insane persons have been admitted only by mistake or by too liberal a view of the cases on the part of the physician who sent them and whose opinion was accepted by the authorities. Nothwithstanding this careful weeding, out of 1,000 persons received 84 were sooner or later affected with nervous diseases which could not be classified on subsequent revision as either melancholia, neurasthenia, hysteria or hypochondriasis. Among these there were 10 of organic cerebral and 16 of organic spinal disease. Debility, dyspepsia and uterine disease acccount for 73 of the 99 which were not, strictly speaking, nervous diseases at all. Curiously enough, when we consider how often organic disease of the kidneys is accompanied by nervous symptoms, chronic Bright's disease is mentioned only once among these. But this is less singular than to find the very vague and undemonstrable etiology of "suppressed gout" suggested among so many cases only once, at the very time when the elastic doctrines of "lithemia" were growing so popular.

Mistakes or faulty estimates or failures of just appreciation, in diagnosis between organic and functional disease, can only be avoided by familiarity with and careful attention to both sides of the question. It is not enough to determine on the one hand the presence of gastric or intestinal catarrh, a cardiac murmur, a scanty urine, a uterine displacement, and to attribute to these all the symptoms present; and,

on the other hand, it is equally unsafe, because a patient has a multitude of symptoms, undoubtedly nervous in character, because many of them are distinctly recognizable as imaginary or exaggerated, to assume that she has no real foundation for any of them. The case should be disentangled symptom by symptom and the important ones investigated so far as possible by objective methods, being pronounced neurasthenic only after a careful exclusion of any organic disease, especially that most nearly counterfeited, or even of any more well-defined neurosis.

The interests of the physician as well as those of his patient and of science, are best promoted by such care, for a mistake on the latter side is more likely to be severely judged than on the other, for while he may be exposed to good natured ridicule among his professional brethren for needless alarm and over attention to nervous hypochondriasis, he is likely to be considered guilty of cruelty and neglect if he ignores sufferings which afterward prove to have a substantial foundation.

CASES.

A woman of 36 had been troubled for several years with severe headaches, occasional vomiting and gastralgia. She had possibly a somewhat nervous temperament but not extremely so. A diagnosis of gastric inflammation, and later, of neurasthenia with gastric symptoms, was made. Some years after the first diagnosis and several months after the second a double optic neuritis was found and a cerebellar tumor diagnosticated, of which she died some months later. No one can say just how long the tumor had been present and that the earliest symptoms may not have been correctly diagnosticated, but in the light of the autopsy, when we can always see so much more clearly, it seems very probable that the tumor was really of very slow development and had probably been causing gastric symptoms for years.

Another female patient had a facial neuralgia which was called by a justly eminent neurologist "hysterical." She was later found to have a double optic neuritis and the case progressed steadily to a fatal result from a tumor of the brain. Had this neuritis not existed, as it sometimes does not in such cases, it would have been almost impossible for a time, to make the true diagnosis conclusive, although there were other peculiarities that might well have cast a doubt upon the original one.

A woman between 50 and 60 became depressed and weak. She walked feebly in a peculiar crouching posture and her eyesight was defective. She was considered a neurasthenic and sent to a hospital as such. There the shape of her head attracted attention and it was quite clear that she was a case of the rare disease "hyperostosis of the cranium." It would have been, however, quite difficult to substantiate this diagnosis if we had not been successful in obtaining a photograph of the patient as a young woman, for it was not until she was confronted with this, side by side with a recent one, that her sister would admit that there had been any change in the shape of the head. This case was published in the July number of the *American Journal of the Medical Sciences*, which also contains Dr. Putnam's elaborate article on the same subject.

I find in an article by Byrom Bramwell a case quoted from Bennett, of a girl of bad habits, bad temper, a persistent malingerer, who presented an array of symptoms which were calculated to and did deceive the very elect, for she was seen by several most distinguished physicians, among them Bennett himself, who all concurred in a diagnosis of hysteria. She died suddenly and a large tumor was found in the right cerebral hemisphere.

A woman age 35, had for some years attacks of supposed sciatica succeeding a tender spot in the back. She went to New York to consult a physician but the pain disappeared, so that she went shopping and to the theater instead. Later, when in a hospital, there appeared a curvature of the spine, which was thought little of and she was encouraged to get up, ride and walk. After this she developed excruciating pains and tenderness in the abdomen and legs, so that it was almost impossible to move her to allow the bed sores to be dressed. The lumbo-dorsal enlargement increased. She died and there were found two large sarcomatous tumors in the abdomen attached the vertebræ and almost total destruction of the second and third lumbar. It will be noticed in how many points, as for instance the disappearance of the pain under excitement, the early stages of this case resemble the ordinary "spine complaint" with which we are all familiar, and it was apparently, so far as one can judge from the treatment, so considered at the hospital; or, at the most, an ordinary case of sciatica involving no serious organic change.

A young woman, not hysteric in appearance and manner, had for some years a persistent pain in the right hip, for which a diagnosis of "pseudo-hip-joint-disease" was made and acted upon for a long time. At a later period careful measurements showed an enlargement of the upper part of the knee joint with loss of the normal outlines, and on deep palpation it was quite clear that there was an enlargement of the lower half of the femur. This was perhaps a periostitis or possibly an ostitis, for which a specific origin was suggested by the family history.

But for one case of this kind there are a dozen of the other, where a purely neurotic condition of the joint is treated for a synovitis. Many years ago I treated a supposed case of chronic synovitis with great care, until my suspicions being aroused I sought the advice of an eminent surgeon, who confirmed my views as to its being a hysteric joint, but when I asked him if I should take off the stiff bandage he said: "If she were my own daughter, so that in case of necessity or doubt I could put it on again without causing remark, I should do so, but as it is not best in this case to show any indecision I think you had better let it stay awhile longer." This I did, but when I did take it off it stayed off, and there has not in many years been any return of the trouble, as there might easily have been had the diagnosis been wrong and we were making light of a real disease of the joint.

Coccygodynia is, in many if not most cases, a pure neurosis, and the removal of several of the joints is correspondingly often a failure, the "end of the spine" being just as painful as ever, when it is situated a few small vertebræ higher up. Even the oft boasted and convenient "moral affect" of the operation is of little value in such cases.

A little girl fell several feet, striking the lower part of the back upen a stone step. There was severe pain in the hip joint, but careful and repeated measurements failed to disclose any shortening, and the extreme difficulty of handling her in her nervous and excited

state interfered with the examinations. A diagnosis of "hysteric joint" was arrived at, but after a time the defect in the gait became so marked that this was no longer satisfactory and renewed examinations disclosed the fact that it was a case of that extremely rare accident "separation of the epiphysis of the head of the femur." Two precautions had been neglected in the first examination; one placing the patient on a *hard* support, and the second, partly in deference to the wishes of the parents, etherization.

We can hardly call errors in diagnosis the hesitation which may very properly exist in the early stages and sometimes even in the later, of abdominal tumors.

When some years ago a new service for nervous disease was being established at the Boston City Hospital by the transfer of patients from the general services, one of the first was a case of persistent abdominal pain which was sent over as "hysteria," but in a short time developed a tumor that was verified at the autopsy as cancer of the liver.

A woman suffered from intermitting abdominal pains without swelling or distinctly localized tenderness, which were considered, although it is fair to say, with some reserve, to be of the ill defined and functional character common in neurasthenia. Later, however, an appendicitis was diagnosticated and an operation planned, but when she was relieved, as she had been several times before, it was deferred and a few weeks later she died quite suddenly.

A young woman was treated for some time for anemia and general debility until a diagnosis of myxedema being made, she recovered rapidly on desiccated thyroid capsules.

Functional disorders of the heart are so commonly taken for something more fixed in character that I presume many of you, like myself, if a patient solemnly tells you that he has "heart disease," make up your minds before you begin the examination that whatever else you may find it will not be organic disease. Some of the less defined forms of spinal sclerosis are liable, in their early stages, to be overlooked in a general diagnosis of neurasthenia or hysteria. Errors in the opposite direction, however, are much more common and the persistent pains of nervous fatigue are attributed to "spinal disease."

Organic disease of the cord is hardly ever accompanied by pain in its immediate vicinity. Pain, if present, is almost certain to be situated in the distribution of the nerves having their origin at the affected part.

The distinction between vomiting of a purely nervous character, that due to organic disease, inflammation or neoplasms of the stomach and also from that excited by irritation of distant organs, as the uterus or the brain, or resulting from general poisoning as in Bright's disease, is certainly a very important one, but as even the special authorities admit, not always easy.

The first case I have mentioned, where a tumor pressed upon the floor of the fourth ventricle, is an excellent instance of one form of resemblance. It is very often assumed that, if it can be clearly made out that the vomiting is of a purely neurotic or, as it is usually termed, hysteric character, the case is devoid of danger. Vomiting, however, differs from the other hysteric reflexes in this, that while they may be violent and highly impressive upon the bystanders, they do not interfere seriously with any vital function, while on the other hand the constant and complete removal of food from the stomach, no matter what the cause, must inevitably destroy the normal nutrition. Fortunately it is true, as the authorities state, that in nervous vomiting sufficient food is usually retained to sustain life or even to maintain a very fair degree of nutrition, but sometimes the imitation is so very perfect and vomiting that has nothing to do with any gastric lesion is so persistent, so uncontrollable, and so thorough, that the supplies are reduced below the minimum compatible with life. Two such cases I have seen, where in one the diagnosis remained in doubt until the autopsy, and in another the physician, a man of sound judgment and long experience, firmly believed in the existence of a cancer until a stomach, healthy so far, at least, as any gross lesions were concerned, was removed and opened.

Is it not possible that the supposed special frequency of gastric ulcer among young women, which as an anatomic fact is denied by Brinton, and Hilton Fagge, may depend upon some cases of this kind and also upon those of metastatic vomiting of blood.

The most complicated knot to be disentangled by the physician who, without the cultivation of a theory, the pushing of a fad, or the searching after a pet operation, seeks to assign to all the causes present in the case before him their true share in the causation, is undoubtedly that which ties together the pelvic organs with the general nervous condition. Possibly a few of you can recollect the time when the thorough and intelligent investigation of local pelvic conditions was the rare exception, when dyspepsia, debility and spinal irritation were sufficient to cover all the anemia, backache, depression, nervousness, the general breaking down from which American women are supposed to especially suffer. More of you can remember when "ulceration" was responsible for the same set of symptoms, to be followed by displacements, cervicitis, endometritis, ovarian disease and pus tubes, each in its turn almost the sole recognized condition and each with its appropriate and popular operation. Who that is familiar with these changes, with the self satisfaction and boasting that accompanied each shift of theory, fondly supposed to be the final one, but just as evanescent as its predecessor, can possibly believe exclusively in any one of them? When such a variety of views is possible, it is hardly fair that any one should be reproached with errors of diagnosis, but it is none the less important that correct and well defined views should be at the basis of treatment.

Symptoms both local and general are often indubitably present, but which are primary and which are secondary is a question which is unfortunately too often answered more in accordance with the preconceived views of the practitioner or of the patient, than with the study of the individual case. What is required in such cases is rather an accurate balance than a sharp line.

The gynecologist points to the constitutional results of constant pain, to the crippling due to the sagging of unsupported and hypertrophied organs, to infection from local inflammations, to the sapping of strength and vitality from too great functional activity, to the exhaustion of too frequent childbirth and lactation; and when he sees these symptoms he is likely to attribute them to the set of causes with which his practice has made him most familiar. The neurologist, on the other hand, knowing how often he has seen local lesions remain without impairment of

the general health, so long as the strength, muscular and nervous, remains good, and knowing that the exhausting effect of a burden is to be estimated not only by its own weight but by the vigor of the shoulders which have to carry it, that local pain may be merely the expression of general weakness, is liable to overlook their existence or to underestimate their importance. But the consequences of erroneous opinions on one or the other side are by no means of equal importance to the patient. If we suppose, what in practice rarely occurs, that the neurologist or the general practitioner is allowed by anxious bystanders to pursue the even tenor of his way and that he does overlook real disease in the pelvis, the worst that can very well happen is a loss of time and a subsequent correction, which may be more or less mortifying, as he has more or less strenuously asserted the entire innocence of the guilty organs. But if, on the other hand, the practitioner direct his attention solely to local lesions, real or imaginary, he will probably accomplish one of two things. His patient is only too easily lead to believe as he does, and there will be established that particular form of hypochondriasis known as "uterus on the brain," or else he will resort to heroic surgery, of which the most flagrant and pernicious form is normal oophorectomy, with a greater or less accompaniment of other mutilation according to fashion or the desire to go beyond the rival operator.

I hope it is clearly understood that I am not talking about surgery, that is, surgery for surgical disease; that I do not pretend to meddle with and am content to leave the question of the removal of a tumor or the opening of an abscess in the pelvis in the hands of the surgeon just as I would the treatment of the same lesions situated anywhere else. When constant wearing pain was located in one spot, and that an easily accessible organ, and when a vague pathology with the facile and elastic phrase of "reflex," found it so easy to explain most various and distant symptoms by a local irritation, it was certainly not strange that the surgeon should have sought to remove the organ which seemed to be the cause, and that such operations should have had their run of popularity. What, however, to be deprecated is, now that experience has shown in how small a proportion of cases is the desired relief obtained, that a desire for surgical reputation or experience, the eclat of numerous laparotomies, should be such an irresistible temptation as to permit a useless mutilation, which has sometimes seemed to me to act as a mordant, fixing more indelibly in the fabric of the patient's whole being the deep dye of constant and hopeless suffering. Admitting that there are cases so desperate and with so little chance of relief that such an operation, as offering something even slightly better than death, is fully justifiable, we know well that they are fortunately not so numerous as to afford any reasonable basis for some statistics which have been published. The surgeon has no right to seek such cases. They should be urged upon him long and strennously by those who have had opportunity to observe thoroughly, and who are free from operative prejudice, before he undertakes them. "Art for art's sake," is no proper motto for him.

Some months ago I looked up as thoroughly as possible the histories of twenty-seven women who had come under my notice, who had had their ovaries removed for nervous affections. Since then I have known of several more whose fate has not made me change my opinion. Of the twenty-seven, three or four recovered or nearly so, one or two of these having been not far from the natural menopause. Three or four others have improved, after years of invalidism, so that it may well be doubted how much their recovery was accelerated. One died of causes not connected with the operation, one from cocain and one shot herself a few months after a "highly successful operation." One died of nervous shock a week after the operation. One at least (not of the twenty-seven) is hopelessly insane. Many are invalids and several have sought admission or readmission to the asylum.

Local irritations, either in the form of pain or of necessary and frequently recurring muscular action imperfectly performed, and requiring for each repetition a conscious mental effort, are the most frequent accompaniments of nervous breakdown and possibly important factors in its production. On the other hand, general weakness, acute or chronic, offers much less than the average and normal resistance to the local strain. Thus we have other knots to disentangle in connection with various organs, of which after those already discussed, the eyes are perhaps the most important. Eye strain, either of the muscles of accommodation or of fixation, arising from their essential weakness or from a constant more or less unsuccessful attempt to correct errors of refraction, has long been recognized as a cause of headache and many other nervous disturbances, but it is pushing a theory too far when it is made to lie at the base of all the most important neuroses. A reading headache may have nothing to do with the ocular muscles, as in the case of a girl who read with her fingers and had no perception of light.

I suppose no scientific man would think of asking "what is the necessity for making a remote diagnosis in cases where you have obvious dangerous conditions to be combated. Treat the symptoms which threaten life, no matter whence they arise." There may be under some circumstances, and temporarily, a plausible foundation for such a view, and it is sometimes suggested by the laity, or by those who like to consider themselves more "practical" than their colleagues, but its inadequacy as a support for any definite therapeutic plan is obvious upon the mere statement of it.

The treatment of neurasthenic conditions and its congeners, melancholia, hypochondriasis and hysteria, is sufficiently well understood and depends largely on attempts at the restoration of the normal nutrition and action of nerve tissue by rest, diet and exercise, with all the details and adjuncts. These are always useful and sometimes sufficient.

The special point, however, which I wish to emphasize is practically far from new, but I do not think it receives from the medical profession, at least in a theoretical point of view, all the attention it deserves. We smile at the preternatural sagacity, the unerring intuition, the more than human sympathy and devotion, the miraculous successes of the interesting hero, or now quite as frequently heroine, of the modern medical novel, but notwithstanding our skepticism as to the power not born of knowledge, we must seriously recognize how important is the personal feeling and influence of the physician as expressed by him in definite statements or received by the patient in vague but not weak impressions of approaching relief. The old faith is now becoming a modern doctrine and the

art based upon it is called "suggestion" or "suggestive therapeutics." It is a portion of his art which should be most jealously guarded by every physician and never allowed to be monopolized by those whose ignorance ought to deprive them legally and morally of the right to use it at all. Whether this is best carried on by means of hypnotism, with which in modern discussions it is very apt to be associated, my experience does not justify me in saying positively. Its practitioners make very positive claims for it. I am sure, however, that that is not the *only* useful way and that suggestion, as covering a great many methods of bringing psychic influence to bear, various in detail but one in principle, is often a most effective agent without hypnotism. I have seen cases that if they had gone through with forms of hypnotism, or indeed those of any miracle cure, would have gained a notoriety quite as great as many which have figured in sensational reports of the daily press or make their rounds through the clubs and the sewing circles. Now it is for this purpose that diagnosis, instead of being of the least, is really of the most importance.

Setting aside the great injury which may arise from the neglect of efficient therapeutic measures of the ordinary kind by those who prefer to trust themselves to any of the acknowledged forms of faith cure, it is desirable that the physician, as distinguished from the faith curist, should be able to gain from his knowledge the firm persuasion and confidence which the curist gets from his ignorance. Patients are shrewd observers of their attendants when their senses are sharpened by anxiety. The curist can give them, with the boldness and undoubting sincerity which arises from knowing nothing at all about the nature of the disease in hand, assurances of the disappearance of their troubles, which the physician, unless he be certain of his diagnosis, would find it very difficult to assume, even if he thought it right to make promises which he is doubtful of being able to fulfill. One of the most interesting phenomena of the last few years, from a medical and psychologic point of view, is the systematic development of the various forms of faith cure, with their colleges, churches, professors and patients. The ready acceptance they find among persons of supposed mental cultivation would perhaps be not the less remarkable had it not always been so, which makes it less surprising but no less absurd. We can not talk it down. It is better to study and to profit by it. A little inquiry is sufficient to show that the successful cases are those heard of, while the failures make but little impression; but even with a very liberal discount in this direction we must admit that people do get well under the influence of these humbugs, just as they have been doing for centuries from the king's touch, or the witch's brew, or Lourdes, or St. Anne de Beaupre, the Zouave Jacob, the Vermont Healer, fashionable springs, quack medicines made of the costliest of metals or the cheapest of weeds, or physicians good or bad, learned and ignorant. Cures, like fish, do not grow any smaller by being talked about and many wonderful stories shrink immensely when traced back to their original sources. The case which appears for a few days or weeks as almost a miracle sinks into obscurity, as specialist after specialist has been consulted and hospital after hospital is visited, each with the relief born of renewed hope, but each leaving untouched the psychic substratum of weakness, congenital or acquired, or the habit of invalidism.

But the residuum of real cures or of great permanent relief deserves our attention. It is the strong stimulus of faith and hope, the turning of the attention into other channels than that of symptom watching, the firm conviction of the possibility of the disappearance of pain and weakness, which is the active agent in this kind. There is no doubt that in many minds the active controlling forces are more easily reached by mystery and transcendental theories than by logic and observation; that imagination is a more powerful stimulus than scientific accuracy notwithstanding the liking which some have for the latter as a disguise. A preternatural science which can, with one sweep of vague theory, wipe away all discussions of petty details, is much easier to manage and to fit to the individual case, than a science founded on the observation of facts, and here utter ignorance gives to the charlatan an advantage which can not be met by the physician with any half knowledge. Nothing but confident diagnosis can invest him with the well founded authority which the other can so easily assume because he knows not its dangers.

The practice of "suggestive therapeutics" is no new thing, but physicians have been too apt to consider it rather an incident, than an important part, of their office and to attribute to their drugs or their knives what properly belonged to themselves and to their knowledge of pathology and diagnosis. I have heard an eminent surgeon after a vivid description of his sufferings from the importunities of a patient whom he had skillfully relieved of her ovaries but not of her sufferings, say: "I told her at last that she had better try 'christian science.'" For my part I prefer that if the fates have ordered that my patient is to leave me and seek "christian science" or any other faith cure for the relief which I have failed to give, that she should do so unmutilated. The least I can do is to leave her as well as I found her.

But I much prefer to say in effect something like the following, and in order to do this I want a diagnosis. "You *can* get well. Now why will you not do this for me, whom I presume, from the fact of your having put yourself under my care, you consider a reasonably skilful and honest physician, and who have seen and studied enough cases of cancer of the stomach to assure you that you have not got one, just as willingly as for some old woman who does not know anything about cancers and who if you really had one would tell you, just as confidently as she does now, that it was all a product of your own low and earthly prejudices, and that a cancer of the stomach is just as easily gotten rid of by a mental effort as any other set of ideas." If she be a sensible woman and I have succeeded in gaining her confidence, she will get well, but if she doubts my diagnosis, which is very apt to mean that she sees by my manner that I am not quite sure of it myself; if she prefers to believe that she actually has what I, with my low and earthly views, might call a cancer, but if she "puts herself on a higher plane of thought" there are no such realities as pain, or vomiting, or emaciation or death; that a fatal carcinoma is an invention of the doctors; that is, if instead of being willing to admit that her personal symptoms may be psychic she has been persuaded that the whole fabric of pathology rests on an imaginary basis, then the faith curist may score as a miracle the result which I, as a man of common sense and resting only on a basis of ordinary knowledge could not attain as a bit of every day practice. The power

of reiterated and confident assertion, unsupported by a particle of proof or argument, simply ignoring repeated demonstrations of its baselessness is enormous. It is, for instance, at the basis of all advertising and we constantly see, in religion and politics, the most absurd doctrines gain a foothold by the simple process of stating them over and over again. Such a position is a short lived one perhaps, when based upon no element of truth, but it seems a pity that so powerful an agency should not be made to do better and more permanent work by having something real behind it, and this something is for us a diagnosis.

ALTERNATING PERSONALITIES; THEIR ORIGIN AND MEDICO-LEGAL ASPECT.

Read in the Section on Neurology and Medical Jurisprudence, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

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The condition of double personality has, in a way, always been recognized, but no special importance has generally been attached to it by the profession. Cases of protracted somnambulism or an occasional instance of catalepsy or trance, either with or without remembered visions or voices, were referred to as curiosities, but without any just analysis of the condition or attempt at classification; in fact, they have been looked upon as belonging to no system of recognized psychic phenomena, and in general, like many other variations from the usual personality—the recognized, reasoning, knowledge acquiring personality—they have been looked upon simply as *abnormal*, and been thrown into the category of either hysteria or insanity. Of late, however, the subject has received more definite treatment; many cases of the condition have been carefully observed, their peculiarities studied, and their relations to other psychic states have been considered. Ribot, Janet, Richet, Kraft-Ebing and others have given attention to the subject, plainly recognizing the condition, whatever interpretation it may have received at their hands. Beside the contributions of these acknowledged authorities in the profession, and including them, a vast number of well authenticated cases have been collected by the English Society for Psychical Research, with its American Branch, and have been carefully studied by such men as Professor James of Harvard, lately president of the Society, Professor Sidgwick, and especially by Mr. Frederick W. H. Myers, the English secretary, who has treated the subject in the Proceedings of the Society with a degree of knowledge and ability, as well as scientific accuracy, which has not been exceeded even by the noted writers before mentioned.

At the meeting of the AMERICAN MEDICAL ASSOCIATION at Baltimore, I drew the attention of this Section to some facts and observations tending further to establish the reality and distinct character of this condition. I described several well authenticated cases, some of which had long been under my own personal observation, in which most marked and definite alternations of personality occurred, and in which the second personality was present for long periods of time—days, weeks and even months—taking complete possession of the physical organization, caring intelligently for it, and in some instances changing it from a condition of disease, pain and helplessness to one of health, and ability to perform all the duties of life in a perfectly normal and efficient manner. I also pointed out the relation which this condition bears to somnambulism and the veridical dreams of ordinary sleep, to the trance condition, and especially to the trance and somnambulism occurring in the hypnotic state.

Kraft-Ebing, after an exhaustive study of the case of Ilma S. by means of hypnotism, clearly differentiating three distinct states of consciousness, comes to the following conclusions: "Frequently repeated experimentation makes it evident that the three different states of consciousness which may be observed and induced in this patient exist, typically congruous and apparently regular, under identical conditions. It is further evident that these states of consciousness have absolutely nothing in common save that they are observed in one and the same person. Thus this person represents three psychic existences."

It will be fully admitted, then, that a second, and in rare instances even a third, condition of consciousness is shown to exist in the same individual; that they are entirely distinct psychic states, having different and often entirely opposite characteristics, opinions, likes and dislikes, distinct chains of memory and a different personal history; so distinct are they that they may be, as indeed they are, properly designated as distinct personalities, and called by different names. Kraft-Ebing, however, in saying that these different states of consciousness have "absolutely nothing in common," promulgates an error; for, while the primary personality has no knowledge whatever of the second, nor of any succeeding personality, the second personality has always a more or less intimate knowledge of the primary self, but only as another and entirely distinct person. Again, the second personality, while having knowledge of the primary self, has no knowledge of any third, nor of any subsequent one; so also the third knows *number one* and *number two*, but nothing of *number four*, should such a personality appear; and what is still more wonderful, *number two* can sometimes distinctly impress *number one* after that personality has resumed consciousness. So important is this fact that I will illustrate it by reference to the case of Madame B., Professor Janet's hypnotic patient, with her three personalities—Léonie, the original Madame B., Léontine, the second personality, and Léonore, the third.

The patient being hypnotized and Léontine being present, before awakening her Professor Janet said, "Now, when I awaken you and Léonie comes back, you, Léontine, will make her untie her apron and take it off, and then tie it on again." He then awoke her, and Léonie—the usual Madame B.—was present. She, supposing Professor Janet had finished his experiment, of the nature of which she never had any knowledge, was conducting him to the door, chatting in the meantime in her ordinary simple, almost stupid manner. At the same time she commenced to fumble at her apron strings and, without knowing what she was doing, untied them. At that moment Professor Janet called her attention to the matter, saying, "Your apron is falling off," whereupon she looked surprised and said, "Why, so it is," and at once, with full consciousness of what she was doing, she returned it to its place and re-tied it. Professor Janet considered the experiment complete; not so Léontine; she had not finished the work that had been laid out for her, and again Léonie unconsciously commenced to fumble at her apron strings; again she took off the garment, and then quietly replaced and tied it, all the

while talking to Professor Janet and perfectly unconscious of what she had now for the second time done.

The next day when Léonie was again hypnotized Léontine, as usual, appeared, and at once said to Professor Janet, "I did what you told me yesterday; why did you tell her that her apron was falling off? Just for that I had to do the job all over again;" thus showing the activity of the second personality while the primary self was present and in full control, and also the influence which *number two* was able to exert over *number one*. Again, Léonore was able to make Léontine hear a voice reproving her for her incessant gabble, by which also Léontine was greatly alarmed. I have also witnessed similar phenomena in cases under my own observation.

Having, then, established the fact of separate and distinct states of consciousness, or personalities, it is possible to classify the cases or, in other words, to point out the different conditions under which this second personality or subliminal self has been observed.

1. There are the cases of distinctly alternating personalities, in which the change from one to the other occurs suddenly and spontaneously, and an entirely new personality comes upon the scene, entirely sane, with perfect knowledge of and in perfect harmony with its environments, continuing not only for hours, but for months and even years, performing the duties of life in a wholly normal, useful and exemplary manner, and sometimes, as in Dr. Azam's case, Félida X, much better than the original self could do.

2. There is the very large class of cases in which the second personality or subliminal self is brought to the surface by means of hypnotism. Of this class Professor Janet's case of Madame B., Kraft-Ebing's Ilma S., Dr. Dufay's case of "Jane" and my own case of "Miss A." are marked and typical examples, and to this list doubtless every physician who has had experience in hypnotizing could add examples. It is this subliminal self which hears the suggestions made by the hypnotizer, and impresses them upon the primary self on its return to consciousness, so as to insure their fulfillment as post-hypnotic suggestions. It is that also which influences the functions of organic life, causing such marked changes in digestion, circulation, excretion, and especially that wonderful influence on the vaso-motor system which by suggestion causes vesication, stigmatization and kindred marvels.

3. There are the startling phenomena which occur in ordinary sleep, namely, somnambulism and veridical dreams.

4. There is the large class of changes in personality as well as intelligence brought about by recognized pathologic conditions of the organism.

Beside these classes, there is the whole series of automatic actions—automatic speaking, writing and drawing, also hallucinations of hearing voices and seeing visions; all of which belong to the varied action and influence of the subliminal self.

It is of course impossible to attack the metaphysical problems which arise with reference to the origin and nature of consciousness together with the resulting personality and its varying phases, but some idea regarding the nature of personality is necessary to the further consideration of our subject.

Ribot, in his monograph on the "Diseases of Personality," tells us regarding this matter that "we are confronted by only two hypotheses," one the old supernatural theory, that personality is the fundamental property of soul or mind; the other, which he calls the new and scientific view, that it is "only the expression of organism." In other words, mind is the product of organism; but when the question is asked "Of what is organism the product?" his last word is: "To biology belongs the task of explaining, if it can, the genesis of organism. Psychologic interpretation can only follow in its wake." He points out the necessity for a reasonable theory for the genesis of organism, but for himself he simply ignores the whole matter; he takes a ready-made organism with its germ of consciousness and assumes, without the slightest proof, that the germ of consciousness is the result of the organism. This, plainly stated, is Ribot's "very recent theory," and this is the particularly scientific method by which it is maintained.

Let us follow up our author's statements, for reasoning they can scarcely be called.

A little further on he says: "It will then be time" (after having studied its constituent elements), "to compare personality with the lower forms through which *nature has essayed to produce it*, and to show that the psychic individual is the expression of organism."

Here a new element, nature, is introduced, and it is quite important to understand what he means by it. Is nature active or passive? Ribot says, "Nature essays to produce personality through lower forms"—and presumably it does so. That is *activity*. Nature, then, is active, whatever else it may be; and there must of necessity be an active principle in nature which works, which produces effects. Now, it matters not what we call that power in nature which works for definite ends, as Ribot particularly explains, and produces definite results. We may, with the supernaturalists, separate it, personify it, call it deity and clothe it with attributes, or with Herbert Spencer call it the unknowable and leave it naked; we may with Matthew Arnold call it the "power which makes for righteousness," or with Schopenhauer consider it the power which makes for evil; by whatever name we please to call it, it is still the *power which works;* and it is with this power in nature that Ribot and his school must reckon, and not with the "very old" theory of supernaturalism.

In 1874 at the meeting of the British Association at Belfast, John Tyndall, that Titan of science, as the incoming president of the association, stood up in that assembly of distinguished *savants* and pronounced these memorable words: "Abandoning all disguise the confession which I feel bound to make before you is, that I prolong the vision backward across the boundary of experimental evidence and discern in matter, which we in our ignorance. . . . have hitherto covered with opprobrium, the *promise* and *potency* of *every form of life*."

Throughout the lands where science was known there went up a cry of indignation from the champions of supernaturalism on the one hand and from the hard and fast materialists on the other; but the pendulums which measured the progress of each of these sentiments had registered their widest swing, and from that day to the present each has been moving in a gradually ever narrowing arc.

It is not with supernaturalism and ready-made souls that Ribot has to reckon to-day, but it is with that promise and potency *in nature* which lie beyond the reach of scalpel, microscope and laboratory reagents. Away beyond the boundaries of experimental evidence,

back of consciousness and back of organism, in matter itself we discern the promise and potency of every form of life. It dwells in inorganic matter, urging it onward to higher forms, to crystallization, to protoplasm, to the organized cell and then to the higher forms of life with all their wonderful attributes. It is this that expresses itself through organism; without it organism has nothing to express. It is *this* in nature which "essays to produce personality through lower forms," remains its basis after it is produced and is its promise of still further development.

Throw out of consideration then the first of Ribot's "only two hypotheses," by which he so confidently assures us that we are confronted in our search for the genesis of personality and in its place put this "promise and potency" which is in nature, whose attributes we need not define, and the two hypotheses from which to choose stand thus:

1. Personality along with its accompanying organism is the product of a power inherent in nature.

2. Personality is "only an expression of organism."

The first is broad inclusive and presents a reasonable explanation of processes which lie beyond and back of experimental evidence. The second is narrow, exclusive, timorous and explains nothing. To examine these propositions critically, to trace this power in its evolutionary action, first as attraction or repulsion or simple *motion* in inorganic matter, as *life* in the organized cell and lower organic forms, as *sensation* in the animal world and as *mind*, consciousness, personality in man, is far beyond the limit to this paper; but it is this power in nature, ever striving for fuller expansion and expression which has projected a universe teeming with motion, life, sensation and mind.

We have then to deal with personality as something more than the evanescent exhibition of consciousness, a mere function of organism; it has a basis and quality drawn from the reservoir of power which is in nature, power that was before organism and was that by which and for which organism came into being; to argue otherwise is to reverse cause and effect, and make the greater subservient to the less.

But it may be asked, how can this view be reconciled with the theories of multiplex or alternating personalities and the subliminal self? I reply, not only does it harmonize with, but it materially strengthens that theory. Ribot says truly: "Our conscious personality, the consciousness which each one of us has of his present state as compared with prior states, can never be more than a feeble portion of our total personality which remains buried deep within us." We have seen how this personality is recognized by all competent writers; we have also seen how promptly this deeply buried portion of our personality comes to the surface and manifests itself as distinct and capable of independent action, and under what circumstances this occurs.

How did these various phases of our personality, so distinct and different, claiming for themselves separate existences and names, come to exist and why do they manifest themselves at all? As Ribot would describe personality by a single word, *habit*, so I, perhaps with more obvious propriety, might describe the appearance of a second personality with the single word *atavism*.

It is a well recognized fact that certain clearly defined traits or characteristics, either physical or mental, existing in ancestors, near or remote, may, after passing by one or more generations, at length crop out distinctly and unmistakably in a later one. Physical peculiarities or deformities, tendency to certain diseases, or peculiar mental characteristics are frequently in this manner transposed; also a peculiar insight or genius for certain pursuits, as, for instance, hunting, fishing and frontier life, a military career, mathematics, music, acting or scientific pursuits, existing in a marked degree in some near or remote ancestor may, indeed, be inherited directly in the succeeding generation, but, on the other hand, it may pass over one or more generations to appear in an unmistakable manner in a later one.

Suppose, for instance, that five generations back there appeared a man of marked and thoroughly bad characteristics married to a right-minded, moral, even religious woman; that he was a vilifier of morality and religion, profane and vicious in life and unscrupulous in his dealings with others; that the generations which immediately succeeded him came under influences which aided by inherited characteristics from the mother, led to lives of morality, uprightness or even conspicuous piety. In the fifth generation, however, appeared a man who in the midst of these moral and religious environments was conspicuous for his profanity, vicious life and unscrupulous conduct, so identical with his remote ancestor as to make the connection undoubted. Where did this evil tendency exist during the four intervening generations? Let us tap the main line between the two extreme points and see what information may be extracted. In the fourth generation was a mild, religiously inclined woman, but of unsound health and perhaps of unstable personality. From some sudden shock, syncope or loss of consciousness occurs and, as in the case of Félida X., on recovery an entirely new and different personality is found to have taken the place of the original one. It professes to be a man, and to the horror and consternation of the good people surrounding her she commences to curse, to vilify everything good and upholds sentiments and practices of the most offensive and criminal character. This person has a chain of memories and a personal history entirely foreign and unknown to the primary self, but quite consistent with those of the remote ancestor whom we have considered. In an hour or a day the primary consciousness has returned, but there is not the slightest knowledge or recollection of the character which she has represented in her second personality, and very likely the case is diagnosed as temporary insanity; in a more primitive age it would have been called possession by an evil spirit. It was in reality the strongly impressed characteristics of a distinct personality which had lain dormant in the subconscious self for three generations, now coming to the surface temporarily under favoring circumstances in the fourth. In another generation it actually appeared, an *atavism*, as the primary and usual personality. In like manner a personality of conspicuous goodness or conspicuous talent might pass over many generations of mediocrity or of evil-doers, and appear, a pleasant atavism, after one or many generations had intervened. Less extreme personalities might be formed in like manner, and more than one might be impressed upon individuals in successive generations, giving rise to the perplexing and much debated condition of multiplex personalities. Kraft-Ebing, as we have seen, found in his patient "three psychical existences"

or personalities. Professor Janet's patient, Madame B., possessed three widely differing ones; while one of my own cases presented three and another two, alternating spontaneously at longer or shorter intervals, not including the cases in which changes of personality were brought about by hypnotism.

With this view of the origin and nature of ordinary as well as alternating personalities, it is not difficult to determine the medico-legal aspect from which these cases should be viewed. It is evident, first, that the primary self must not be held responsible for actions, either good or bad, committed by the second or any succeeding personality, since it is absolutely ignorant of the doings or even of the existence of these personalities. It would undoubtedly be just to restrain the individual from violence or wrong-doing, during the presence of the personality committing the wrong, but no longer; and it would be abhorent to all our ideas of justice to take the life of or even to severely punish the individual whose identity we have been accustomed to associate with the ordinary self, on account of wrong-doing committed by any succeeding personality, while the ordinary self was wholly unconscious.

It would have been manifestly unjust to punish Kraft-Ebing's Ilma S. for theft committed by her second personality, and wisely the court so held. Again, in judging of the sanity of individuals characterized by alternating personalities, we must *judge* each state or personality by itself without reference to other states, but must *act* chiefly with reference to the primary self.

Insanity is the temporary or permanent loss of an intelligent comprehension of surroundings and relationships to such a degree as to incapacitate the affected person for the fulfilment of the duties and relations of life, and consequently render him a menace to himself and others. In the application of this or any other definition of insanity to particular cases, the fact that it is not the individual's primary or ordinary self which is being examined should make no difference in the conclusion arrived at; if the action of the second self falls outside our accepted definition then that self is sane. Félida X., in her second condition had even a clearer comprehension of her surroundings and her relations to others than when in her primary state; and the same may be said of many other individual cases of the same kind, but if found insane, in disposing of the case reference must be had to the fact that it is not the primary or usual self that is affected, and *that* self when present should not be made to suffer.

The same rule is applicable in judging of insanity or crime appertaining to persons whose actions are automatic, even though consciousness is retained, as is frequently the case with those who have the faculty of automatic writing, speaking and other automatic actions carried on by the subliminal self; the ability of the subliminal self to influence the action of the primary self, as previously shown, must be taken into account and the degree of responsibility judged of accordingly.

Professional experts, by opinions given in courts of justice, often virtually decide questions of liberty and even of life; but he who gives such opinions without taking into account the possible influence and power of automatism and the subliminal self, assumes a responsibility which better instructed men would consider grave, indeed.

In conclusion, I would say that the fact of alternating personalities, or the subliminal self with its manifold manifestations, has a very important and practical bearing, and demands a much wider and more intelligent study than has hitherto been accorded to it by our profession.

A PLEA FOR REFORM IN CRIMINAL JURISPRUDENCE.

Read in the Section on Neurology and Medical Jurisprudence, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

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In all ages and amongst all peoples, civilized and savage, so far as we have any record, the instinct of race, tribe or national preservation has led them to regard the welfare and prosperity of the people as the supreme law. No individual interests were paramount to that of the people, and personal rights were curtailed, or sacrificed to the public good. For ages this has been formulated into the familiar maxim, *Salus Populi est Suprema Lex.* And as a corollary, it has been a maxim that "the few shall suffer, or be sacrificed (if need be), for the preservation or safety of the whole;" hence, the democratic doctrine, "the majority shall rule." Among primitive peoples, this principle was carried to the extent of destroying feeble or decrepit offspring who would become a burden or hindrance to the state or tribe; and in the interest, too, we must assume, of race integrity. Among tribes, the chief decided what was best for his people, and his word was the law, to which unhesitating obedience was exacted. Ancient nations assembled their wise men, who considered all sources of danger to the people, and, conscientiously guarded against them. It remained for a twentieth century civilization, an enlightened republican government, to ignore this "supreme law,"—to give it a secondary place, and to make the protection of *property* the highest and dearest consideration; in the enactment of laws to utterly disregard the danger of race degeneration; to permit, nay, promote and accelerate the propagation of untold evils and dangers to society and the race, through the medium of heredity. That a government should—possessing the power and means to do so—prevent an increase in the criminal element, is a proposition which requires neither argument nor defense; that it should permit—nay, deliberately propagate and encourage an increase of criminals out of all proportion to population, is monstrous.

In light of the rapid and alarming increase of crime and criminals in this country, it is evident not only that there is something radically wrong in our system of criminal jurisprudence, and that our penal methods are a failure of the ostensible ends sought, but that reform has become an imperative, and immediate necessity. It is demanded by every consideration of safety to society, public morals, public economy, and especially duty to tax-payers, who bear the burden, not only of this, but of every other class of defectives; leaving out of consideration the higher ground of humanity to the unfortunate victims of heredity and environment (for such are criminals for the most part), and omitting all reference to the claims of posterity to protection. What that burden is, may be faintly estimated when we reflect upon the expense ineiden-

tal to the detection, arrest, prosecution and punishment of the vast hordes of criminals, together with the pay of the army of constabulary, police detectives, law officers, judiciary and prison officials, and the maintenance of prisoners; and an idea of the magnitude of the danger threatened and constantly augmented, may be gathered from statistics.

According to the last United States census (1890), there were, in 1850, 6,737 prisoners in the United States, or one to every 3,442 of the population. In 1890, there were 82,329 prisoners, or one to every 757 of population. While the population of the United States has, in four decades, increased 170 per cent., the prisoners have increased 445 per cent. The number of criminals at large, evading arrest or unknown, is to be added to this. At the present ratio of increase, it will be a matter of very short time when the criminal will outnumber all other elements of population.

Nothing could testify more emphatically to the inadequacy of our system to meet the requirements than these figures, nor appeal more forcibly for reform; nor could anything illustrate more fully the needs of prophylaxis against hereditary criminals.

With such facts before us, it behooves a rational people to inquire into the causes that lead to such disastrous results; to ascertain wherein lie the defects in our system of jurisprudence whereby these things are made possible; to ask what are the factors concerned in this production and great and rapid multiplication of this evil, and to seek, by every legitimate means, to arrest it.

Beyond doubt, heredity and environment are responsible for a large share of it; the laws regulating marriage are sadly deficient, and licensing the sale of liquor as a source of revenue to the State, is another evil, next in order of consequence and potency; and I believe it can be shown also that the *execution of our penal methods operates to contribute to the ever swelling hordes of criminals*, rather than to checking or diminishing it, as I will endeavor to show.

The system of criminal jurisprudence in this country appears to be founded on the sole idea of revenge, and *punishment* to be the end and object of all penal statutes. And this, too, under the claim and pretext that it is justice. I can not see that there is the remotest connection between punishment for crime, and justice; there is not an element of justice in it. If a man slay you, in what way are the demands of justice satisfied by his execution? What satisfaction is it to the widow and children left destitute by your death? Or, if a man fire my house, wherein is "justice" satisfied by sending him to prison to labor? In either case it is not justice—it is revenge; and who gave the State the right to take vengeance? Nor is "justice" the aggrieved party, it is I—or your family—who should be satisfied. Justice and equity are synonymous, and contemplate *restitution*, to make amends; and the ends of justice would be better served were the murderer or incendiary stripped of his possessions for the benefit of those robbed by his hand. And where the State metes out punishment to a man for crime committed under the influence of liquor, it is worse than a farce to call it justice; it is the rankest kind of injustice. The State licenses the sale of liquor, deriving revenue thereby. It thus aids and abets the saloon-keeper to tempt the young, the weak, the reckless and the unwary to put that into their stomach which robs them of reason for the time being, and deprives them of the power to resist an evil impulse. Murders have been committed unconsciously by young men under the mania of their first intoxication. The State hangs or imprisons that man, robs his wife and children—deprives them of their bread winner and of bread—and overwhelms them with disgrace—maybe brings them on the hands of the tax-payer—as inmates of the poor farm, and calls it justice! What a cruel wrong! What a burlesque on justice! The justice in this case would seem to demand restitution to the imprisoned man for blighting his life, and the State is accessory before the fact;—and the one so put to death—the State should make restitution to his widow and orphans. The evil of the day and generation is the saloon.

But, so long as newspapers are run to make money, or, as is often the case, subsidized by the whisky ring, it were idle to preach against it; they will never aid science in any reform in the interest of truth, humanity or religion. No paper can be found with the honesty and independence to advocate any measure of reform—or to disseminate any truth in the interest of humanity that conflicts with that interest.

The failure of our system to either protect society or diminish crime is in a measure due to lack of vigorous enforcement of the laws; but principally it is due to defects inherent in the laws themselves.

Under the existing system, in order that crime may be appropriately *punished*, crimes are classified and a penalty affixed to each. One great difficulty is that criminals are not classified also. The fact that a murder, for instance, was a first offense is not considered. There is a penalty for murder (death by hanging) and all murderers, old and young, male and female, good family or bad, penitent or indifferent, first offense or fortieth, must expiate it to satisfy the ends of justice.

There is a penalty for homicide, and all homicides must conform to the penalty; there is no qualifying circumstance, except *the degree of the offense*. It is simply left to the judge to determine the crime, classify it, and looking in the book find the companion piece to it, the penalty—and fit the one to the other, and to the jailor or sheriff to execute the penalty. The young boy for his first offense committed, it may be in resentment of an insult and from an impulse beyond control or from fear of his life, or what, unfortunately, is most frequently the case, while *under the influence of liquor;* or, if a theft, committed from want, or temptation, or what not, is thrown first in jail to await trial. There he is surrounded by a vicious, brutalizing environment, huddled, perhaps, with a lot of filthy negroes and Mexicans, all hardened criminals; in fact, made to breathe an atmosphere fatal to every instinct of self-respect and calculated to crush out every atom of manhood. When brought to trial the fact that it was his first killing, that he was drunk at the time and for the first time in his life, and had not even a knowledge of what he had done; that, realizing the situation he is deeply penitent and would give worlds to undo it and make restitution—does not in the least qualify the offense, except, perhaps, it may secure for him the lightest punishment *that goes with that kind of crime;* it is a definite term and carries with it eternal disgrace, social and business ostracism and *disfranchisement*. Could anything be more unjust? Why, what would be thought of a doctor, for instance, who, having all his cases diagnosed for him, should treat every one of a class exactly alike with the same

dose; and without regard to age, sex, temperament or environment? Here is a case of fever; here is a formula for fever for all comers. Here is a case of rheumatism; here is the treatment for rheumatism for all ages, sizes, sex, color or "previous condition"—*the book says so.* Failure would be a foregone conclusion. And so with our classification of the criminal; it is a lamentable failure.

Again, by existing methods the State essays to purify the morals of society by perpetrating a shocking crime. The law says "thou shalt not kill," and forthwith gives us an object lesson in killing and in cold blood!

The pretext for putting a man to death to protect society can only apply to the habitual or born criminal: and the ends can be accomplished by a means less revolting. Surely there could be no such pretext urged in a case like that of Dr. Jones, a man who lived a life of usefulness till past 50, a respected citizen, prominent, indeed, in business and society. He had been president of this society. A circumstance occurred which so exasperated him that he felt compelled, to vindicate his honor, to take the life of the man who had injured him, as he thought. Although justified in his own mind the law held it to be murder, and he was sentenced to death (a subsequent trial sentenced him to twenty years in the penitentiary). Because of this one act, would this man have been held to be a danger to society which must be eliminated? And even with regard to the natural criminal, is not the question of responsibility to be considered? Take Holmes, Guiteau or Prendergast, acknowledged dangers; they could no more change their nature than a leopard could change his spots; it was born in them to kill. Should they, morally insane, confessedly, be cruelly put to death for responding to the promptings of a natural predisposition? Why not lock them up securely, as we do man-eating wild beasts in captivity? Because they might or would kill if they had liberty, do we feel called upon to shoot them?

But heredity and environment, as potent as they are, and as prolific, are not the only factors of increase. I believe that it can be demonstrated that the existing conditions and methods of our system not only fail of their ends, but operate to defeat them and become a tributary to the growth of crime and the multiplication of criminals. Take an illustration: A boy of 17, small for his age, was wanted for suspected complicity in a burglary. He came of respectable parentage, among whom crime was unknown; but owing to environment he grew up to be regarded as a bad boy. The policeman was afraid of him and attempted take him by stratagem. He employed a chum of the lad to call him to the door at night, when the policeman sprang upon him out of the darkness, and without a word, covered him with a pistol. The boy, in fear of his life doubtless, and by instinct of self-preservation shot and killed the policeman. For this he was sentenced to seventeen years in the penitentiary at hard labor. At this writing he has served eight years; has a record of uniform good behavior, has given every evidence of repentance and a desire to lead a correct life; the end and object of his incarceration has been accomplished; he is "reformed," he has been *punished.* But, no; his sentence was for a definite term of years; that's the law, and he must serve nine years more, when, better or worse, he will be released, deprived of every right of citizenship, *sans* pride, *sans* hope, ambition or self-respect, his father's name dishonored, his widowed mother's heart broken; the best years of his life, all of his youth spent in a felon's cell; what a mockery his "liberty" will be. What will he have to live for? Is it likely that he will become a moral, upright and useful man?. Or will he, feeling that he has been unjustly punished, that the State is his enemy and mankind his natural foe, his hand, like Ishmael's against every man, will he go to swell the ranks of the hardened and irreclaimable criminals? Who can ask?

This case will show the absurdity and the worse-than-uselessness of the "definite sentence" system. It makes criminals rather than cures them.

The inadequacy of existing statutes to meet the requirements is an exceedingly grave matter. Not only that they fail to repress crime and protect society and operate to increase it, but the want of confidence on the part of the public engenders a feeling of insecurity which drives them to the commission of those acts of lawlessness for which they are so severely but unjustly censured. Self-defense and the protection of home are the strongest instincts of human nature. The people of Texas are as loyal and law-abiding as are to be found anywhere; but when they realize that the methods of dealing with the rapist and the murderer and the double crime, rape *and* murder (and that, too, most frequently, of tender young children), are not effectual to put a stop to it, even when the law is swiftly executed, but, on the contrary, that an execution, even in the horrid form of the stake, actually appears to *incite others to the crime*, it simply drives them to madness. The horrible execution of Henry Smith at Paris must have been known to every negro in Texas, but it did not deter another negro from a committing a similar outrage a short time after at Tyler, and he met a similar fate. Nor have the several prompt hangings for rape been attended with more salutary results. *Rape is notoriously on the increase*, not only in Texas but in other States, and lynch law is brought into execution.

In support of the assertion that an execution incites others to crime instead of having a deterrent effect upon the evil disposed (such is the theory of our system—"to strike terror in his soul" and awe him into good behavior), I refer to statistics to show that in England, of 167 criminals condemned to death, all but three had witnessed executions. May this not be a psychologic problem not yet unraveled by medical science? Our knowledge of hypnotism is yet crude and imperfect. May it not be that persons, especially the ignorant, witnessing so shocking and impressive a sight receive, unconsciously, the "suggestion" to murder? What is it that prompts a person to do, against his will and intent, an act which he knows he should not do, and for which he will speedily be put to death? Poe calls it the "Imp of the Perverse."

But the worst feature connected with the subject, and that which drives the people to desperation is, almost as many offenders escape as are caught; and when they are caught, there are so many delays, appeals, writs of error, feigned insanity, etc., that the feeling of insecurity is intensified to the last degree, and the people take the matter in their own hands. They do not understand the reasons why, but they recognize the fact that the laws can not be depended upon for the suppression of crime and the protection of their families, and their acts are a spontaneous though very crude and primitive effort at a remedy.

I am inclined to believe that the fountain head and source whence flows this great evil, lynching, can be traced to the unwise policy that obtains of paying legislators day-laborers' wages. In Texas the per diem is $5, and after sixty days it is reduced to $2. It is hardly to be expected that such remuneration would command a very high order of law-making talent. Statutes enacted by men who can afford to leave home and business for $2 per day, who know nothing of the requirements of sanitary legislation, and do not want to be told, and could not fairly comprehend the subject if they were told, are apt to be defective, ambiguous and conflicting, and so afford grounds for endless "errors," protracted trials and tedious delays. With the exception of a respectable per cent. of really able men—lawyers, for the most part, who have political aspirations or some reason for serving, other than the mere pittance of pay, and who really make a pecuniary sacrifice in so doing—the legislatures of many States are composed of average representative citizens, farmers, merchants, mechanics, or else young "limbs of the law;" and this class is in the majority. It is this element that defeats all attempts at reform; who ridicule the efforts of the medical profession to secure improvement in the medical practice acts, and who mocked and insulted the noble Christian women of whom Mrs. Gardner tells us in the *Arena*, in their efforts to amend the "age of consent" statutes. It would be difficult, I apprehend, to make this sort realize that their ignorance, bigotry or, most of all, conceit that makes them refuse to listen to any suggestions of reform in accord with science, and intolerant of advice, is the real and first cause that leads to lynchings. They are loud to denounce it, and without a suspicion of the truth, they serenely set about to enact statutes *to punish the lynchers*.

Indeed, may it not be that herein lies the one great cause of the inadequacy of our system? In the enactment of the criminal and health statutes the requisite knowledge is not brought to bear. The making of all our laws is in the hands of men who make no pretensions to science, and they are notoriously averse to being advised.

Science is applied knowledge. The most civilized races are the most scientific and progressive. We live in an age of enlightenment and advanced civilization. Never, at any period of the world's history, have the facilities for the acquisition of knowledge and the dissemination of information been so great in every department of life, and yet in many respects, and especially in that pointed out above, vital to society and human happiness and well-being, man fails to profit by experience and neglects to make use of the knowledge gained.

Knowledge, acquired in whatever way, is applied in the various arts, and made subservient to man's wants. In enlightened governments there are heads of departments whose function it is to gather and formulate the knowledge bearing upon their respective interests. This is true of everything except man's most vital interests—his health and well-being and the preservation of a healthy standard of race. In this great country there is no department of public health, and State medicine is a nullity. The vast store of knowledge gained by laborers in the field is not utilized in framing laws for the protection of the public health and morals and race preservation.

On this head Judge Benjamin Abbott, in apologizing for the jurists and the want of progress in the jurisprudence of insanity (Ref. Bk. Med. Sci., p. 122), says: "The rude division into 'idiots' and 'lunatics' of two centuries ago survives in jurisprudence to-day. . . . Jurisprudence has no peculiar methods of studying the subject, but has been accustomed to follow the course of medical science, and to accept, sometimes only after long hesitation and inquiry, the results which skillful and experienced alienists have united in declaring established."

Jurisprudence has not studied the subject, yet will not accept the conclusions of those who have; here is a confession of bigotry and intolerance.

Judge Abbott here uttered a pregnant truth. It is the key to the problem, why our criminal and insanity laws are a failure.

To confess that the jurisprudence of insanity has not been revised in two hundred years, because jurists will not accept the conclusions of scientific investigators in this field, when in the meantime insanity has been studied in all its phases, and subdivided and classified till now there are nine forms of idiocy and six forms of madness known to alienists, would indicate that one or other of the forms of idiocy or mania had seized upon our law makers. Our statutes belong to past ages.

Granting that the system is a failure, what should be done to remedy it?

The thinking members of the profession are being rapidly converted to the belief that *crime is a disease:* that habitual criminals are *sick persons*, and that their condition calls for a more enlightened method of management. They know that many, if not most of them, are subjects of heriditary transmission of vicious temperaments, and are victims of vicious environment. Sooner or later a change must come, precisely such change as has taken place with insanity and inebriety. It has not been very long ago that drunkenness was regarded as a criminal offense, or rather, as a misdemeanor,—and was punished; nor since the insane were regarded as monsters,—or "possessed of a devil" that was to be exorcised only by blows and by straight-jackets; nor since the poor dement or idiot and the harmless maniac were, by law, burned as "witches," an act for which civilization is not yet done blushing. Opinion has changed radically, as regards these unfortunates; and with it, the system of dealing with them. The insane, and in some States, the inebriate now find repose and tender care and rational treatment in the great eleemosynary institutions of an enlightened age; and so opinion is fast changing with reference to crime and criminals, and the mission of science is to bring about a corresponding change in their status and management:

Professor Flint, in his paper, says (*N. Y. Medical Journal*, Feb. 15, 1896):

"Crime is a disease of our social organization. It is true that it is ineradicable, but it may be restricted within much narrower limits than at present exist. Crime calls for intelligent and scientific treatment. While crime can not be abolished, all criminals are not hopelessly affected with crime. . . . Crime may be a constitutional disease, as in the born criminal, or it may be due in individual cases to surroundings, teaching, or example—a sort of contagion. It has been abundantly shown that criminals may be divided into two great classes, the curable and the incurable; but the disease which we call crime has nearly as many phases and varieties as are presented by the nosological catalogue. Society needs the aid of competent men to undertake the task of separating the curable from the incurable—to restore the former to usefulness, and to protect our social organization against the latter. Jurists, so-called law-givers, and those who execute the law,

have failed. In my opinion, the only hope is in the medical profession."

The problem is, *how can these views be impressed upon those who are entrusted with the enactment of the statutes?* The utter failure of the State Medical Association in Texas to awaken in the minds of legislators a just appreciation of the dangers attending the indiscriminate practice, or the unrestricted sale of nostrums deleterious to the public health, gives but little assurance that anything the medical profession of this State might bring before them upon this great subject, would receive more respectful consideration.

State medicine is the application in the aggregate, of the principles of medical and sanitary science to the prevention, cure, mitigation or relief of evils which affect the social body, and the prevention of those evils to posterity. It bears the same relation to the state or society that the individual physician bears to his clientele; and embraces measures of prophylaxis against future ills as against existing evils. For illustration, any measure calculated to improve the race, restrictions upon marriage limiting the privilege to the fit, or castration of natural criminals, or insane criminals, or the criminal insane, to cut off succession as here advocated, is as much within the scope of its beneficent functions as is quarantine against disease; indeed, the entire treatment of criminals, as hereinafter proposed, comes most appropriately within its province; and when we shall have succeeded in getting a department of public health, the first step will have been accomplished. The state owes no higher duty to posterity than to protect it against a multiplication of those evils we now deplore, and are ineffectually battling against.

Medicine has ever been characterized by humanity and benevolence. The profession do all in their power to relieve suffering. Our grand hospitals and asylums are monuments to the benevolence and unselfishness of medicine. Yet it seems to be, after all, a false philanthropy, as it enables the afflicted ones to live on and beget more children for the next generation to care for. Thus evil comes out of good, and our best intentions react to the ultimate detriment of society. By practical charity, alms-giving, and the tender care for the defectives and diseased, the operation of nature's laws is defeated, and the unfit survive and breed and multiply like flies.

On the subject of marriage, Judge C. H. Reeves of Plymouth, Ind., in a work called "The Prison Question," the most logical exposition of the subject I have ever seen, says:

"In regulating marriage, the law says that none shall marry within the third degree of consanguity, and in some States the fourth, because marriage between near blood relations is likely to produce offspring deformed or diseased, physically and mentally. Insane and idiots shall not marry, because they can not make a contract, and because of hereditary tendency to produce idiots and insanity. It makes it a crime to marry in any of these cases. In this it aims to prevent degenerate offspring and protect individuals and society against the evils that would attend such offspring. . . .

"But if the vilest mortal that can live—one not in these classes—sees proper to marry, the law issues the license for the asking, taking a fee, makes a record, and leaves the offspring and society to shift for themselves in the best way they can. The confirmed inebriate, the weak-minded and semi-idiotic, the confirmed criminal, the offspring of the half-witted and insane, if lucid at the time—the incurably diseased, the scrofulitic, the syphilitic, the hereditary pauper, the depraved and reckless—even paupers while in the poorhouse, and criminals while in jail, are in every way encouraged, given license, and are protected by the law. No thought is taken for the unfortunate offspring, nor for the body politic or social, and the irreparable evils that must fall upon all. The church adds its sanction, and its ministers aid in making these civil contracts, by performing the ceremony with benediction and prayer. .

"If it is wise to prohibit polygamy, marriage between near relations, between the insane and idiotic, because of heredity and transmissions of evils, it is equally wise to prohibit it in all cases where like evils may follow. If the law has the power to prohibit and punish violations in one case, it has equal right in all others. . . .

"There is an endless procession of children from all these sources coming into the mass of population to live lives of crime, immortality, want, suffering, misfortune and degradation, transmitting the taint in constantly ever widening streams, generation after generation, with the ultimate certainty of the deterioration of the race, and final irreparable degeneracy. . . .

"It seems to me that there is a moral obliquity that affects the entire mass of political, social and religious leaders and teachers on the subject here being considered. When we analyze the views and actions throughout, the glaring inconsistency and unreasonableness that seems to fill them has no parallel in any other matter seriously affecting individual and the public welfare. Among the first is a false modesty, that is shocked by any allusions to the most evident and debasing facts that stare everybody in the face on all sides; that rub everybody at every turn. . . .

"The church devotes its time and energies to prove that every human body possesses an immortal spiritual body, that is liable to future torture unless it be made perfect in morals and truth, and that must be done while it remains in its mortal shell. It pleads and raves for prohibition of liquors and tobacco, for forced observance of Sunday, for forced attendance on schools, for recognition of God, Christ and the Protestant religion in the civil constitutions, and for sundry other restraints and commands, with penalties, in order to save these imperiled souls. Reformers go about the land devising ways and means to educate, civilize, provide for and elevate the ignorant, the degraded, the poverty stricken that pervade every plane of human action, and wander in and out among the people everywhere. And yet these, with general society added, hold up their hands before their faces in horror, if some honest soul who has truth for a guide, calls them to look and points them to the source of the evils they are battling with, and tells them they are responsible for it all, for the law is only their united will in statutory phraseology. That it is the result of their voluntary blindness and false conception of civil, moral and religious duties. That they are seeking to deal with evil conditions alone, instead of the causes of them, and while trying to mitigate the evils in the results, are supporting and enlarging the causes. That on every other plane of action they recognize and deal with the causes; but with men and women they ignore the causes and battle with results alone. That they regard domestic brutes as of more importance than they do human beings."

Doubtless Macaulay had this condition of society in mind, when, forty years ago, he predicted the disintegration and downfall of the American Republic. Writing to Henry S. Randall, in 1857, he said: "I have long been convinced that institutions purely democratic must, sooner or later, destroy liberty or civilization, or both. Your constitution is all sail and no anchor. Either some Cæsar or Napoleon will seize the reins of goverment with a strong hand, or your republic will be as fearfully plundered and laid waste by barbarians in the twentieth century as the Roman Empire was in the fifth, with this difference—that the Huns and Vandals who ravaged the Roman Empire came from without, and that your Huns and Vandals will have been engendered within your own country, by your own institutions."

It would seem that a rational people, with such facts before them, for instance, as those furnished by Dugdale's history of the Jukes family, from whom 1,200 criminals descended, would profit by it and take steps to close the flood gates of evil. And the Jukes case is not an exceptional one by any means; there are thousands such; they exist every day, everywhere.

The magnitude of the evil and danger resulting from our criminally lax marriage laws is simply

appalling. Yet few ordinary citizens, those who pay the taxes, have a conception of it, or realize the extent of the cruel wrong done them by permitting it.

An intelligent comprehension of the subject would, therefore, indicate that the first step in needed reform is State regulation of marriage with a view to the arrest of descent of crime by hereditary transmission of the tendency. And dealing directly, then, with the crop on hand, it is suggested that punishment, as such, as a penalty, should have no place in a civilized code. It is permissible only as a feature of discipline incidental to reform; that as criminals are divisible into the two great classes, the curable or accidental criminal, and the habitual or incurable of Lombroso, the end and object of penal enactments should be the *cure* of the *curable*, the reclamation to usefulness of those who are amenable to it, and the *elimination of the incurable*. To this end, therefore, a classification of all criminals is necessary.

Classification can only be done by medical men. The entire subject comes legitimately within the scope of State medicine; here, indeed, it finds its most appropriate field.

When the character of the crime has been determined by the court, it would seem to be in accord with the requirements of the case and the dictates of an enlightened humanity, that there should be medical men to *diagnose the criminal*, and prescribe the course which, in their judgment, is best calculated to meet the demands. If it be one of the curable class, the treatment, consisting of restraint, discipline, hygiene, education, environment and healthy labor, should be such as to induce a determination to never offend again. Pride and self-respect should be fostered, for they are the highest incentives in life to good behavior. The term of imprisonment should depend upon the progress made in reformation; on good behavior—the culprit made to realize that when he gives evidence of fitness to be trusted with his liberty it will be restored to him. And primarily he should be lifted above the environment calculated to debase him in his own mind. The incurable—the born criminal of Lombroso—should be dealt with as a permanent enemy to society, and the first aim in his case, after sequestration, should be precautions against a progeny; to cut off his race. When a man has been diagnosed as a natural, *i. e.*, an irreclaimable criminal, twice convicted of any felony, along with the forfeiture of liberty for life and all other rights, he certainly should be deprived of the right (and the power, should chance permit) to inflict a progeny upon the next generation. Can anyone give a single reason why this right should be respected when all others are taken away? I think not. The strange veneration people seem to have for *those particular possessions*, which induces them to plead that they be spared even when every other right has been forfeited and taken away, is the last remnant of the old Phallus worship; a superstition of the fifth century.

Capital punishment is becoming more and more abhorrent to thinking people, and is being very generally condemned by medical writers as barbarous, useless and unjustifiable; and castration as a substitute therefor is rapidly growing in popular favor. Much of the prejudice that existed against castration is disappearing under the light of reason. Indeed, it seems to me that there is every reason why capital punishment should be abolished and isolation and emasculation substituted; and the fundamental principles of justice demand that, where possible, restitution should take the place of imprisonment. It is true, privation of one's liberty might be called punishment—it is so, incidentally; but let it be done for the purposes of reformation and for the improvement of the morals of society and not of revenge—miscalled justice. Corporeal punishment never made a school boy good; and the morals of a community can never be purified by a system of punishment entailing eternal disgrace as penalty for misdeeds. The sense of injustice arouses resentment and stirs the worst element in one's nature.

The time has come and the occasion demands—if we would make an effort to preserve the integrity of our race and the safety of the republic, when the medical profession must look at this question from the higher standpoint of guardians of society and conservators of the public well-being, and none the less as trustees for posterity. It should be insisted that the voice of science be heard; that the great truths revealed by study and research, by laborious investigation, experimentation and compilation—truths vital to the dearest interests of mankind should be utilized in medical and criminal jurisprudence. Our entire system needs to be recast along broader lines, and made more comprehensive; remodeled and adapted to the changed conditions of a 20th century civilization. As at present constituted it deals with results alone, and utterly ignores causes. We concern ourselves with, and can not solve the problem of what to do with the criminals of this day and generation—without a thought toward, or an effort to close the avenues through which pour in ever swelling tides of the evil we vainly attempt to remedy.

Sisyphus, condemned to eternally roll the stone, had no more hopeless, endless task than we are now engaged in; nor the Danaides one more impossible of accomplishment; it is as irrational as the attempt to purify a sewer by throwing disinfectants into the outlet. The helpless, worthless, vicious and dangerous come faster than love, philanthropy, religion, science and law can care for, reform or dispose of them.

Doubtless, by an organized effort on the part of the two learned professions, medicine and law, Congress can be awakened to the necessity of taking steps to make available sanitary knowledge in the jurisprudence of medicine and crime; to create a department of public health and hygiene, whereby such knowledge can be disseminated and made to reach and influence legislators, however unwilling.

While we may never be civilized up to a system of scientific breeding of peoples (as we do our stock), it unquestionably lies within the scope and power of State medicine to eliminate much that is evil, and bring about great improvement, even in the next generation, in the physical, moral and intellectual status of society. And chief among the agencies effective to this end will be State regulation of marriage, and sterilization. This is the mission of rational medicine; to the accomplishment of which the profession should address itself, with the conviction that duty requires it, true philanthrophy dictates it, policy suggests it, and it is demanded by every consideration of justice, mercy and humanity.

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SOME EXPERIMENTS ON RABBITS MADE WITH A VIEW TO OBTAINING A STUMP FOR THE ACCURATE FITTING OF GLASS EYES.

Read in the Section on Ophthalmology at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

BY J. HERBERT CLAIBORNE, JR., M.D.

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In *Gaillard's Medical Journal* for May, 1889, I gave a detailed account of some experiments made upon rabbits with a view to obtaining a better stump for the fitting of glass eyes. In those experiments I planted sponge and cotton in the scleral cavity and sponge in the capsule of Tenon. The results of those experiments were negative. In experiment No. 1, the planting of sponge in the scleral cavity, the edges of the scleral wound held firmly together except at the forward angle, for four weeks. At that point the sponge could be easily seen by inspection, lying snugly packed away; the stump was firm and compressible and the catgut sutures which had been used to draw the edges of the scleral wound together had become absorbed.

The entire stump was then removed for microscopic examination. There was a small zone of granulation tissue in the meshes of the sponge; numerous groups of pus cells, cocci and rod-shaped microörganisms also were found. In no portion of the fundus, nor anteriorly in the neighborhood of the wound was there any evidence of an active destructive process.

In experiment No. 2, cotton was planted in the capsule of Tenon and the lips of the conjunctival opening were brought together with catgut sutures. The healing was kind and the stump was soft and compressible. About the third week after the operation, the stump commenced to bulge and finally, at the end of the second month, pushed its way through the conjunctiva, apparently through the line of sutures, and presented a white honeycombed appearance. Microscopic examination of the sponge showed that it was completely surrounded and penetrated at its periphery by a zone of granulation tissue and lying in the central depths were numerous fine granules, silicious spicula and many isolated leucocytes.

In experiment No. 3, absorbent cotton was planted in the scleral cavity. The wound healed kindly and a soft plump stump persisted until the seventh week after the operation, when it was discovered that the cotton had broken through the sclera *above* the line of the sutures. The stump having been removed with the cotton, it was attempted to make a microscopic examination, but it was so torn in being removed that nothing satisfactory could be obtained. Granular matter, a few microörganisms and scattered pus cells were found among the cotton fibers.

These experiments seemed to warrant me in drawing this conclusion amongst others:

The implantation of sponge and cotton into the scleral cavity is probably not feasible in the human being.

I dismissed the idea of implanting anything in the capsule of Tenon, owing to the slight support given by the united lips of the conjunctival wound.

In my final conclusion I made the following suggestion:

Based, as yet, on no experimental observation or experience, I suggest glass wool and asbestos as artificial "vitreous" bodies in modification of Mr. Mules's operation.

Following the suggestions contained in this, I have planted asbestos and glass wool in the scleral cavity of rabbits, and I shall now detail those experiments and their results.

Experiment No. 1.—June 6. Blond buck. A cataract knife was passed through cornea and lens at the sclero-corneal margin and brought out opposite in the long axis of the palpebral fissure. The lens and vitreous body were removed and the iris and cornea were cut away with scissors. Volkman's spoon was used to better evacuate the contents of the cavity. Some small shreds of choroid were left. A ball of glass wool, made up of prepared modeler's wax, was introduced into the scleral cavity and the lips of the wound were closed with interrupted silk sutures, which were carried through conjunctiva and sclera.

Experiment No. 2.—Black and white buck. The contents of the scleral cavity were removed as in the first experiment, and a ball of asbestos made up with antiseptic wax was introduced into the cavity. Silk sutures were used as before. This buck took ether badly, having just had a full meal, and indeed kicked so viciously that the line of sutures were not so accurately adjusted as in the first case. It took each one some time to recover from the effects of the ether, and the blond at one time seemed moribund. The lids were not sewed together, as in temporary tarsorraphy, nor was any attempt made to dress the eyes. A double line of interrupted silk sutures was made, the smaller silk being used to close up the spaces between the larger sutures. The animals were put into a cage and allowed to run about.

June 7. Blond buck No. 1. Lids stuck together. There was considerable discharge of a lymph-like character and so much swelling of the conjunctiva that the stump could not be seen. Black buck No. 2. Lids not stuck together, but chemosis which hid the stump.

June 10. Both bucks in good condition; chemosis and discharge gone; sweet, white exudate along line of sutures. The animals remained in excellent condition.

June 19. Stitches were removed from each stump. Union of wounds perfect, but line of union quite irregular. The animals were seen at intervals of a week or two, till Nov. 30, 1895, when the stumps were carefully inspected. On examination, a black ball was found lying loose in the scleral cavity of the blond buck (subject of experiment No. 1). The line of sutures had parted and the ball had remained the original size; when broken up it appeared to have the same character as when first introduced, except that it was black externally.

In the black buck the lips of the scleral wound had fallen in and partly united. When they were opened nothing was found within. It is interesting to observe that this animal developed an abscess in the side during the last month of his captivity which, apparently, in no way interfered with his appetite or health.

These experiments were performed under strict aseptic precautions. Instruments, sutures, absorbent cotton, etc., were sterilized by boiling in a 2 per cent. solution of sodium carbonate. The asbestos and glass wool were sterilized by boiling in a normal

saline solution for twenty minutes. It was then shaped into small balls to fit the scleral cavity and dipped, by means of sterilized forceps, into boiling modeler's wax, which had been thoroughly sterilized previously by repeated boilings. After the balls had cooled the superfluous wax was removed from the balls, leaving the cores covered with a thin film that was required to keep the asbestos and glass wool in the spherical form. The hands of my assistant and myself were thoroughly disinfected after the manner at present in vogue, and a solution of bichlorid of mercury (1-3,000) was used to disinfect the conjunctival sac of the animals as well as for an irrigant during the operations.

This work was done in the Physiological Laboratory of the College of Physicians and Surgeons, New York, and I am indebted to Dr. R. H. Cunningham, of that department, for his assistance, both in the preparation of the materials used and in the performance of the operations.

Alfred Graefe of Halle first proposed and performed the operation of evisceration of the eyeball. He did it chiefly with a view to cosmetic effect in the fitting of glass eyes. This operation can scarcely be said to have much advantage over enucleation, since it leaves behind the crumpled sclera in addition to the muscles, fat and conjunctiva of the orbit. Since the glass eye is a concave shell fitted into a concavity, the grasp on the orbital tissues must be chiefly at the edges of the shell. It was supposed that the crumpled sclera would fit into the concavity of the shell, and thus assist it to move in conformity with the movements of the orbital tissues. This occurs only to a limited degree, and when one considers the fact that the etiology of sympathetic ophthalmia is not yet definitely determined, it seems a questionable procedure to leave so much of the globe behind.

It is not to be forgotten that the operation of evisceration is indicated, according to its author and advocates, in those cases in which no malignant neoplasm, iridocyclitis or sympathetic ophthalmia exist. Nevertheless, I hold that it is not an ideal procedure to leave in the orbit a crumpled mass of hard, unyielding tissue in which the ciliary nerves are squeezed and bitten by cicatricial contraction.

This operation has been popular in Halle chiefly; to some extent on the continent of Europe in general, and to a very limited extent here. In England it has been modified by Mr. Mules of Manchester, who proposed the introduction of glass balls into the scleral cavity after evisceration. From a theoretic standpoint the advantages of this operation over simple enucleation are obvious. Good movement of the stump is achieved, for the extrinsic muscles are still attached to a firm and resistent globe, and the circulation in the blood and lymph spaces is encouraged by the persistence, to a certain extent, of the original form of the sclera. But the introduction of any hard, unyielding body into the scleral cavity can not, likewise, be considered an ideal operation. If some soft compressible substance, that would not be affected by a sojourn in the scleral cavity, and that would not burst the sclera, could be found, a classical procedure might be instituted.

The experiments which I have just detailed show conclusively that, although no serious inflammation results in either eye from the planting of asbestos and glass wool in the orbital cavity of rabbits, the line of healing will part after several months. It is probable that the same result would be obtained in the human being.

From the study of this subject the following conclusions are drawn:

1. The operation of enucleation does not leave in the socket enough of a prominence to permit of the accurate and comfortable fitting of glass eyes.

2. The operation of evisceration, while it leaves a better stump than the operation of enucleation, is open to obvious objections.

3. The operation of Mr. Mules of England is objectionable because it subjects the ciliary nerves to constant pressure between two hard and unyielding surfaces, because the glass balls are subject to fracture, and because they are difficult of introduction.

4. The implantation into the scleral cavity of some soft yielding body, which will not degenerate, which can be rendered aseptic, which will not swell by imbibition and which will not become absorbed, seems to be a rational procedure.

5. Sponge, cotton, asbestos and glass wool are not tolerated in the scleral cavity of rabbits, and would probably not be tolerated in that of man.

6. The operation of enucleation, while it does not yield satisfactory cosmetic results, is, nevertheless, the most popular and safest procedure in those cases in which the removal of the ball or its contents is indicated.

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EDEMA OF THE OCULAR CONJUNCTIVA.

Read in the Section on Ophthalmology, at the Forty-seventh Annual Meeting of the American Medical Association at Atlanta, Ga., May 5-8, 1896.

BY F. W. HIGGINS, M.D.

CORTLAND, N. Y.

One of the most constant symptoms of Bright's disease is edema. Puffiness under the eyes is perhaps the symptom that the physician first looks for in a suspected case. That to which I wish to call attention is the much rarer condition of edema of the ocular conjunctiva. Edema may occur in any locality where there is cellular tissue, often without our being able to determine just why it is so especially marked in the location where we find it.

Some time ago I was called into the country to see a patient confined to the house by nephritis, exhibiting a peculiarly marked case of ocular edema or chemosis. The invalid was a married man, 22 years old, a telegraph operator. Four years before, he had been suffocated by coal gas and remained unconscious for some hours; to this circumstance he ascribed his illness. He had been treated for albuminuria, in Michigan, for about two years, when he returned to New York State to place himself under the care of a professional relative, for whom I examined the eyes. I found the young man in bed, pale, with general anasarca, the urine loaded with albumin, and all the symptoms of a parenchymatous nephritis. He was totally blind, not, as you may suppose, from albuminuric retinitis, but from edema of the ocular conjunctiva. This had first formed a chemosis, then had increased until the raised folds met over the cornea. These swellings were red, not having the pale, translucent appearance one might expect. In each they presented the aspect of a superior and inferior fold—like distended lids. The mucous membrane was dry and appeared thickened from constant contact with the air. The lids could not be closed. One would

estimate that four drams of fluid was included in each eye.

The treatment was incisions, made, I must confess, too cautiously the first time, for my attention had never been called to a chemosis of any such extent, and I did not know what pathologic condition might be concealed beneath. The oozing of serum was slow, but sufficient to enable the cornea of one eye to be seen at my next visit. The incisions were repeated with the effect of enabling me at my third visit to examine the fundus, which I found almost filled with white patches of choroidal change, which we might call edema of the choroid.

Now a peculiar complication occurred. The cornea was no longer completely covered by the folds, and still the edematous and thickened conjunctiva prevented the lids from closing, which compelled me to give directions in regard to the cornea, to prevent damage from exposure.

I saw him no more, but learned that he had uremic convulsions, after which sight and general symptoms improved, and he returned to Michigan. Here the conjunctivæ were treated by cautery, but the patient died about three months after I last saw him.

I am not able to give any reason why the ocular conjunctiva should have become so infiltrated in this case. No iodid of potassium had been administered, or any other treatment that could induce it. There was no history of a previous affection of the eye. No discharge or symptom of gonorrhea.

This condition seems to be analogous to that of edema of the glottis. This, as we know, often arises suddenly and alarmingly, and at times without an apparent adequate cause. Max Knies[1] speaks of edema of the ocular conjunctiva, but says that it appears to be very rare.

Brecht[2] describes one case of chemosis in Bright's disease. The patient was six months pregnant when she had an attack of eclampsia, with other symptoms of acute Bright's disease. He saw her five days later, when she had detachment of the retina and chemosis. After fourteen days this had disappeared. His only explanation of the detachment and the chemosis was that they were both due to some especial tendency for the edema to manifest itself in the eye.

Professor Schiess, writing in 1870, thinks the subject of conjunctival edema has been neglected. He would ascribe all such cases as my own to preceding choroidal changes interfering with return circulation. I noticed that the retina could be seen with a plus glass in my case, but neglected to record the strength of it. According to Professor Schiess' view the pathology of my case would be that excessive infiltration of the retina and choroid first occurred, which caused passive congestion of the anterior portion of the eye, with exudation of serum and leucocytes. That there was a sub-acute inflammatory condition he would predicate from the dark red color of the mucous membrane and the thickening of the tissues. With this condition of the conjunctiva present, he would assume the presence of choroidal disease.

Since my patient had no mental symptoms there is less analogy to those cases in which chemosis has been noticed as a result of interference of the return circulation from the eye within the cranial cavity. Lawson Tait gives three cases in which after surgical operations chemosis occurred. Death ensued and section showed thrombosis of the cerebral tissues.

1 The Eye in Its Relation to General Diseases.
2 Arch. für Oph. xviii, 2, pp. 102.

Dr. Hunter[3] reports a case of chemosis complicating acute meningitis and refers to cases by Leyden and Bierbaum. Here the same cause is evident, that is, intra-cranial pressure interfering with return circulation.

Dr. Swan M. Burnett[4] records a case of acute chemosis which he thinks was due to neuralgia complicated with slight changes in the choroid, sufficient to hinder return circulation in some degree.

Zehender[5] refers to an acute case of marked edema of the ocular conjunctiva rapidly recovering. He is doubtful in regard to the causation. The patient had had sub-acute pneumonia a short time before and the attack came on with sneezing.

DISCUSSION.

G. E. De Schweinitz, Philadelphia, Pa.—There are cases of acute edema of the conjunctiva which may be due to urticaria, or to an idiosyncrasy to certain food stuffs, especially fruit. I also believe that some cases are occasionally the result of the administration of drugs, particularly massive doses of iodid of potassium, the ocular manifestations replacing the ordinary symptoms of iodism.

EXCESSIVE HEMORRHAGE AFTER ENUCLEATION OF EYE BALL.

Read in the Section on Ophthalmology at the Forty-seventh Annual Meeting of the American Medical Association held at Atlanta, Ga., May 5-8, 1896.

BY ROBERT SATTLER, M.D.
CINCINNATI, OHIO.

The danger of excessive hemorrhage after enucleatio bulbi is ordinarily a matter of little concern. In most cases the application of a compress bandage or a compress applied and held in position by the surgeon or an assistant for a few moments after the operation is completed controls and averts unnecessary bleeding. That hemorrhage, so excessive and uncontrollable as to endanger the life of the patient from shock and loss of blood, can occur even after this operation so simple in technique and by common consent considered almost devoid of dangerous sequences, is supported by the accompanying reports of two cases recently observed.

In every case of enucleation of the eyeball, in addition to rigid aseptic precautions before and during the operation, irrigation of the empty orbital cavity with hot sterilized water, 1 to 10,000 bichlorid solution or biniodid solution, with the least possible traumatism, is resorted to immediately after the operation is completed. After this a compress is held against the closed lids for a short time by an assistant or a compress bandage is applied.

This is done as a safeguard against hemorrhage and possible sepsis. In those cases in which the bleeding is unusually profuse after the severing of the optic nerve and surrounding blood vessels or straining and vomiting from the anesthetic occurs during or immediately after the operation, the index finger is introduced into the apex of the orbit and firm compression against the ophthalmic artery, or its principal branches, is made until it is arrested. After this a compress bandage is applied and the patient watched for several hours by an assistant or trained nurse.

This simple after treatment, guarding against other complications and hemorrhage, and so generally adopted by ophthalmic surgeons, had always been

3 Arch. f. Klin. Med. iii, p. 601.
4 Archives of Ophthalmology, Vol. ix, p. 158.
5 Klin. Monatsblätter f. Augenheilkunde, viii, p. 168.

found effectual in my surgical practice. I have had several exceptional experiences of copious hemorrhage but all were controlled, after four or five hours, with little difficulty. In two cases bleeding continued for twenty-four hours and was finally arrested only by the introduction of hot antiseptic tampons into the cavity, secured by compress and bandage after all other measures had been exhausted. A sharp attack of cellulitis orbitæ followed, but recovery was, after its subsidence, uneventful. In another case the hemorrhage was unusually free and persisted for many hours, regardless of compression with bandage and hand. The use of hot compresses did not influence it favorably. After all other means had failed ice was introduced into the orbital cavity and arrested the bleeding. Owing to the discomfort and pain, not to mention greater liability to cellulitis, attending the introduction of ice, tampons, styptics, etc., to arrest exceptionally profuse hemorrhage, these measures are only justifiable in extreme cases. It was resorted to in the cases referred to only after all other methods had been faithfully tried and had yielded negative results and the patient had become exhausted and frightened.

Before tamponade was resorted to, digital compression had been tried repeatedly and the orbital cavity emptied of its clots many times and pressure with hand or bandage had been persistently done. The sitting posture and absolute quiet was invariably enforced. Salines and ergot administered. In these cases the hemorrhage was not arrested until tampons were introduced and compression made in addition, but there was not in a single instance any intimation of a possible serious termination. Syncope occurred several times from fright in one case, and marked prostration and cellulitis orbitæ resulted in the second case, but aside from a longer confinement in bed than is usual, never persistent ecchymosis and swelling of lids, no serious sequences could be ascribed to the operation. In none of the cases could a hemorrhagic tendency be established, either individual or hereditary, nor did the patients belong to families in which hemophilia had shown itself in remote branches. I have always believed that even in a bleeder, the hemorrhage following or attending the removal of an eye, could, with the methods of direct and indirect compression at our command, be controlled without much trouble. My experience with one of the cases I am about to describe, however, has taught me otherwise.

Case 1.—R. C., age 16. Traumatic iridocyclitis R. E., T—2. Globe painful, sympathetic irritation unmistakable and persistent. Enucleation imperative. Enucleation February 9 of right eye, at Ophthalmic Hospital. Ether narcosis. Free but not excessive bleeding during operation. Patient remained in recumbent position for three hours and was removed to his home in a carriage. Had persistent nausea after operation but vomited only once. At 7 P.M. was called to see him and found that profuse bleeding had occurred. Bandage, pillow and linen thoroughly saturated and consistent flow of blood in spite of compression, to which father had resorted. Dressings and bandage removed and orbit emptied of clots and firm compress applied and held for ten or fifteen minutes; after this a bandage and compression with the hand and large pad of gauze was kept up until 9 o'clock. At this hour it was found that hemorrhage, in spite of bandage and pressure, had continued. A hypodermic of morphia was given and for two hours he was quiet and slept at intervals. At 11 o'clock I was sent for and found the patient much prostrated, with feeble and rapid pulse. The bandage was thoroughly saturated with blood and numerous compresses had been applied over the bandage, evidenced that the bleeding had been profuse. The dressings were removed and attempt made to tampon the cavity, but the infiltration was so firm that it was not successful. Several small pledgets of aseptic gauze were introduced and compress and bandage applied and pressure made from without. He was placed in a sitting position and compression of common carotid resorted to and another hypodermic of morphia administered. The following morning I was again sent for at an early hour and found that patient had been bleeding all night and that he had been restless. During the last hour his condition alarmed his parents. He was delirious and the prostration excessive. After a hypodermic of strychnia and whisky and hot applications to the extremities, I removed the dressings and found that complete extrusion of the contents of the orbit had resulted. The picture presented was a startling one. Complete evulsion of the conjunctival sac with complete involution or rolling under of the eyelids so that it was impossible to distinguish the lid border. The swelling was so great that it resembled an exuberant, eroded, sarcomatous mass and the hemorrhage unchecked. A small tampon saturated with persulphate of iron was introduced into the gaping opening of the conjunctiva and a compress, dipped in a styptic solution, applied and held with firm pressure against the extruded mass. Compression of carotid was also resorted to but caused so much pain that it had to be abandoned. Salines were given freely and also ergot. At noon general condition was about the same. Patient as if in a stupor and very listless. Complains of photophobia of sound eye and pain in occipital region. Has taken little nourishment on account of persistent nausea. Only external compress was removed and constant pressure kept up by different members of the family. Stimulants and ergot continued. At 5 P.M. dressing removed. Hemorrhage during afternoon was unabated: patient dull and listless: face pale: feeble, rapid pulse: shrieking with pain, which was referred to head and right orbit. Full hypodermic enabled us, after a little time, to remove the dressings. It was found that greater protrusion and infiltration had resulted. Nothing could be discovered of the eyelids. The swelling was too great for the grasp of the outstretched hand but the oozing was as persistent as before. Styptic compresses were immediately applied and pressure against the bleeding, protruding mass kept up without interruption. Ligation of the common carotid was suggested, but after consultation was postponed until the following morning, as pressure seemed to control, more effectually, the bleeding. Ergot, stimulants and morphia continued.

Second day: In spite of constantly applied compression the bleeding was profuse during the night; prostration great: pulse feeble and rapid; pain in right side of head; no increase of temperature. During day condition about the same: drowsy and listless and delirious most of the time. In afternoon had chill followed by fever and pains in head more severe. Complains now of throbbing, pulsating pain in right orbit. Examination shows that bleeding continues and that swelling is greater. Cellulitis imminent. Compression applied constantly.

Third and fourth days after operation: General condition bad; circulation feeble and fever fluctuating between 100 and 103 degrees; can take little nourishment; impossible to apply bandage owing to pain; compression kept up unintermittingly.

Fifth to eighth day: Cellulitis orbitæ pronounced: at several points present evidence of fluctuation; exploration with aspirator needle fails to discover pus; fever and general prostration marked; less suffering and photophobia of fellow eye. Under an anesthetic the orbit was carefully explored, in the hope that a deep-seated collection of pus might be found, but examination was negative; hemorrhage much less and can now be controlled by compression.

Ninth day: Is much brighter and delirium has disappeared; very drowsy and complains of great pain in head; ergot discontinued.

Tenth to fifteenth day: Swelling remains marked, but no evidence of suppuration; central mass of swelling sloughing; rigid antiseptic dressing.

Fifteenth to twenty-first day: Swelling subsiding; border of lower lid visible and entire border sloughing; irrigation with warm 1 to 10,000 bichlorid and iodoform powder resorted to: general health improving; vertigo less pronounced.

Twenty-first to twenty-eighth day: Gradual improvement in general condition; subsidence of swelling. Two-thirds of border of lower lid and inner one-third of upper lid have undergone sphacelation; succeeded in replacing conjunctiva and lids for first time in four weeks; again close palpebral fissure.

The patient was a bleeder and belongs to a family other members of which had manifested a similar tendency. Only five or six months before the operation the extraction of a tooth caused him to bleed to syncope and was only arrested by firm tamponade.

Case 2.—J. C., aged 50; confirmed glaucoma, cataracta complicata, intraocular neoplasm(?); V.=0; pain excessive and constant. Operation imperative to prevent possible sarcomatous infection and to relieve pain. Is a feeble old man with evidences of general arterio-sclerosis and senile heart.

Enucleation August 26, 2 P.M.: anesthetic (ether) given with great caution: no complications and no unusual bleeding, either during or immediately after the operation. At 4 P.M. nurse noticed slight discoloration of bandage and applied another bandage and compress over the first; no complaint, no vomiting. At 7 P.M.: Nurse after attending to wants of another patient found bandage and pillow saturated with blood; pressure with hand was applied and shortly afterward bandage removed and orbit emptied of clots and firm compression with fingers in apex and subsequent iced compresses applied with hand; patient very weak: pulse feeble; under active stimulations, hot water bottles, etc., he revived and oozing continued in spite of pressure.

9 P.M.: Immediately following an attack of syncope, in spite of compression with bandage and hand, profuse bleeding again came on. Hypodermics of whisky and strychnia given; patient very weak; orbit was thoroughly cleaned out and all clots removed; firm compress bandage reapplied over both eyes and nurse instructed to keep up constant pressure over bandage.

On the following morning patient was much exhausted; pale and yawning constantly; complains of severe pain. Hemorrhage had continued during night in spite of compresses; on removing bandage the entire orbit was found infiltrated with blood, the palpebral fissure widely open and contents of orbit partially extended; the lids were swollen and edematous; attempts to arrest hemorrhage by application of artery forceps, etc., proved ineffectual. The clots were again removed, compression of carotid was also made and the orbit tamponed with styptic gauze and compress applied; active supporting measures were resorted to; saline draughts were given and ergot freely administered.

At 3 P.M.: Patient much weaker, face pallid, extremities cold; bleeding constantly in spite of bandage and pressure with hand; compression of carotid could not be tolerated, as it increased vertigo and tendency to fainting.

At 8 P.M.: Very restless and delirious. Examination showed that tampon had been forced out and infiltration of orbit much greater. It was impossible to tampon, so compress of styptic gauze was applied directly and pressure kept up with relays of nurses during the night.

The following morning, third day after operation, bleeding less but patient excessively feeble. The most active supportive measures were resorted to, hypodermically and per rectum; nausea intense.

Fourth day: Bandage not disturbed: only slight oozing; patient has no increase of temperature; drowsy and dull.

Fifth day: Aside from great prostration no complaint; from this time on his recovery was uneventful.

This patient was not a bleeder. The excessive hemorrhage was probably due to general arterio-sclerosis.

THE VALUE OF HOMATROPIN IN THE DIAGNOSIS OF AMETROPIA.

Read in the Section on Ophthalmology, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5–8, 1896.

BY EDWARD JACKSON, A.M., M.D.

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Its control over the ciliary muscle.—In 1881, soon after its introduction, I commenced the use of homatropin hydrobromate as a cycloplegic for the determination of refraction. At first it was used occasionally, then more frequently, and after a year or two for the majority of cases of ametropia encountered in private practice.

It was known to be less powerful than the other drugs employed for the same purpose. On that account its results were always regarded with some doubt, and where there seemed to be any especial uncertainty as to the findings made with it, it was followed by the instillation of one of the stronger mydriatics. In 1886 I published (*Medical News*, July 24) the results obtained in these cases where the use of homatropin had been followed by one of the stronger mydriatics.

"In but fifteen out of the fifty-two eyes was there any difference between the first and second results. In eight of these it was one-quarter dioptric in favor of the second mydriatic, in five it was one-quarter dioptric in favor of homatropin, in one it was (in one meridian) one-half dioptric in favor of homatropin and in another the same in favor of duboisin. In no case was the variation greater than may well be allowed for unavoidable inaccuracy of observation. In no case was the apparent axis of the astigmatism materially changed."

Since that time the practice of following the use of homatropin by one of the slower mydriatics, in cases where the results with homatropin have seemed not entirely satisfactory, has been continued and the results obtained have not been materially different.

During these fifteen years I have also been employing other mydriatics; for refraction cases in private practice to a limited extent, and for the large majority of refraction cases in dispensary work. Those habitually employed were atropin, duboisin and hyoscyamin, while daturin and scopolamin have been carefully tested in a limited number of cases. Comparison of homatropin cases with those subjected to other mydriatics has shown that the proportion of cases in which I failed to secure complete paralysis of accommodation with homatropin was smaller than with either of the others.

Mode of application.—When the above observation is compared with the relative strength of the drugs, as determined by physiologic experiments (*Transactions of the Section on Ophthalmology* for 1895, page 8), there appears the paradox that the weaker drug is the more efficient cycloplegic. The explanation of this is, I think, furnished in the different methods of using the drugs. Schell early pointed out (*Philadelphia Medical Times*, October, 1880) that homatropin could not be used in the same way as the other mydriatics, and I have from almost the first, followed the plan of repeated instillations at short intervals. A solution of from 2 to 5 per cent. was used, one drop being placed on the upper margin of the cornea every five to ten minutes until four or six instillations had been made. The determination of the refraction was completed within two hours of the instillations. On the other hand, the other mydriatics have usually been prescribed to be instilled three times daily at the patient's home, atropin in about 1 per cent. solution and the others in solutions of one half that strength. Used in this way the difference in the strength of solutions, and in the efficiency of their applications have together more than counterbalanced the difference in the physiologic action of the drugs.

It is hard to estimate how much a mydriatic solution loses in efficiency by imperfect instillation at the hands of the patient's family, but I have often seen cases in which the effect produced was less than one-hundredth of the effect properly to be expected. In my experience, therefore, homatropin applied by the surgeon is a more reliable cycloplegic than other drugs of this class as applied at the patient's home.

Notice that it is not asserted that homatropin is as reliable as other mydriatics when placed in the hands of the patient for application, and it is not asserted that homatropin is reliable unless efficiently used. There is abundant testimony in medical literature to

establish the fact that it can be so used as to be quite unreliable.

In this connection it is worth while to call attention to the difference in effect secured by different methods of making the instillation. The one commonly described, and I fear commonly practiced, is to draw down the lower lid and place the drop of solution within it. The one that I have followed in the application of mydriatics has been to retract the upper lid, have the patient look down and place the drop on the upper margin of the cornea. The involuntary rolling up of the eye that follows contact, usually causes the solution to be distributed over the cornea without any dilution. Some experiments as to the comparative effect of these two methods of instillation, which I shall report more in detail elsewhere, seems to show that the latter method is about twice as efficient as the former; that is, a solution of a certain strength applied to the upper margin of the cornea in this way, will produce the same effect as a solution of double the strength dropped in the lower conjunctival sac.

Another matter to be considered in this connection is the strength of solution necessary to produce complete paralysis of accommodation when efficiently employed. Undoubtedly it is very much less than we have been accustomed to prescribe for home use. Not that we have been in error in prescribing the stronger solutions, but that a large proportion of their strength was only needed to lessen the effects of imperfect application. As bearing upon this point, attention may be called to recent reports on the usefulness of weak solutions of scopolamin. Thus, Murrell (*Annals of Ophthalmology and Otology*, 1895, p. 478) finds repeated instillations of a one-tenth of one per cent. solution of this drug efficient in suspending the accommodation.

Therapeutic influence.—Although not bearing directly upon the diagnosis of ametropia, a quality which should powerfully influence our choice of a mydriatic for this purpose, is the power of allaying irritation and quieting the disturbance of the ocular circulation and the reflex or remote effects proceeding from eye-strain. Certainly in a very large proportion of cases of eye-strain we are justified in resorting to a mydriatic, and securing complete temporary rest of accommodation as a therapeutic measure. The temporary action of homatropin would seem to make it, for this purpose, markedly inferior to the stronger and slower mydriatics. I have in former years, on this account, used the latter in a considerable proportion of private cases, but this proportion has grown smaller, and such use of the slower mydriatics is now confined to the very marked cases of choroidal and retinal disease with considerable organic change. The interruption of morbid action within the eye, particularly that of spasm of accommodation, is as complete with homatropin as with the other mydriatics. If the instillation of the drug be made after the middle of the day, or when made earlier if one or two additional instillations be made in the latter part of the day to sustain its effect, complete abeyance of accommodation is secured until the following morning. The effect of this upon such symptoms as headache, nervous tension, spasmodic closure of the lids, etc., is very marked. Careful avoidance of any attempt to use the eyes on the day following the employment of homatropin will secure the benefit of the interruption of morbid action until the patient has fully recovered the power of accommodation.

Here is a marked advantage over the slower mydriatics, especially atropin. There is no question that with the slower mydriatics we secure as complete rest of the eye, and for a considerably longer period. But this is followed by a longer period of weakened accommodative power, during which it is often very difficult, or quite impossible, to prevent the patient from making some effort; and in the eye-strain resulting from such effort much of the advantage gained by previous absolute rest is lost. Unless, therefore, there are marked tissue changes whtch require time for their resolution, it seems to me that the therapeutic effect of homatropin is to be chosen rather than that of the slower mydriatics.

Brevity of action.—One of the great advantages of homatropin is the brevity of its action. How great an advantage does it possess in this direction? We read of ability to use the eyes after the use of duboisin and hyoscyamin within a week; or after the use of a weak solution of scopolamin, according to Murrell, "you can safely tell your patient that he will be able to read in seventy-two hours." But this does not mean that complete recovery has occurred within that time. It means that after such an interval the patient can, with undue effort and the risks of strain that have just been discussed, make some use of the eyes, while with homatropin, within the shortest period mentioned, the restoration of accommodation will usually have been complete.

It is well within the facts, to state that with homatropin the usual time required for recovery is less than one-half that required after hyoscyamin, duboisin or scopolamin, and less than one-third or one-fourth of the time required after the use of atropin. I have seen a few cases where recovery from homatropin was quite complete within twenty-four hours; and I do not doubt that more have occurred among a larger number of patients not seen at the expiration of that time, and giving the history of recovery after such an interval. In quite a large proportion the recovery is complete within forty-eight hours, and in more than 90 per cent. the accommodation has entirely returned within three days. This brevity of action removes the chief objection against the use of a mydriatic for the determination of ametropia, and to discuss the general question of the use of mydriatics as though atropin were the only drug of the class worth considering, is to-day very much out of date.

General symptoms.—Another objection to the use of mydriatics has been the possibility of symptoms of general poisoning. We have all seen these general symptoms, and occasionally have found them very annoying and quite alarming to the patient's friends. The patient is not usually much worried over the incoordination of thought and movement produced by one of the mydriatics. There can be no question that the danger of such symptoms is less with homatropin than with any other mydriatic, used so as to be equally effective. Indeed, my notes show that only about once in four hundred times was any constitutional effect noticed by the patient, although in nearly all cases there was a perceptible change in the pulse rate.

The most marked case of such constitutional effects from the use of homatropin that I have seen occurred recently, in a man aged 38, suffering from headache and neuralgic pain about the eyes from low hyperopic astigmatism. At the completion of the measurement of his refraction he staggered quite perceptibly in

walking, and said he felt as if he had taken several drinks of whisky. Reaching his place of business, his partner at once noticed the disturbance in his condition and took him into his private office, where he lay for three or four hours, at the end of which time he had recovered. At the height of the intoxication there was a tingling all over the body, extending to the ends of the fingers and toes. The patient was a nervous man; he expressed relief from the use of + 0.37 convex cylinder before each eye—said his eyes had not felt so rested in three years—but he gave no history of especial drug susceptibility. The amount of the drug applied in this case was about 1-5 grain. While the constitutional symptoms were decided, they were still slight in contrast with those more frequently observed after the use of other mydriatics, and doubtless could at any time have been completely removed by a small dose of morphin.

Other considerations.—The greater cost of homatropin, and the additional labor entailed, when the surgeon must make the applications of the drug, are important objections to its use in dispensary work, but are hardly worthy of consideration in private practice. Indeed, we have found it entirely practical to use the drug in a considerable number of cases in our dispensary work at the Philadelphia Polyclinic.

As to the danger of precipitating an attack of glaucoma, in an eye already upon the brink of such an outbreak, there can be no doubt that this is shared by homatropin, with the other mydriatics. But its comparative feebleness and brevity of action correspondingly diminish the danger of permanent harm from such an occurrence. In any case the dilatation of the pupil, which is the dangerous effect of the mydriatic, in threatened or actual glaucoma, can be promptly reduced by the use of eserin, which, in solution of one-sixth strength, neutralizes the effect of homatropin. And even if the increase of tension be unrecognized, the rapid diminution in the influence of the homatropin has, in reported cases, prevented permanent damage.

Homatropin has been credited with the frequent production of conjunctival irritation. This, I think, is an error. In my experience, in some 2,000 patients I have never seen it produce the conjunctival inflammation similar to that occasionally witnessed from the use of other mydriatics. But in almost every case in which it is used to secure complete paralysis of the accommodation it does cause a temporary hyperemia, involving to some extent the vessels of the conjunctiva, but more particularly those of the sclera and the pericorneal zone. This hyperemia commonly disappears by the time the full effect upon accommodation has been produced, and I have never seen it last more than a few hours. It is unattended by smarting or other evidence of inflammation, and seems to be of the same nature as the temporary local flushing I have pointed out as occurring after the hypodermic use of the drug. (See *Med. News*, July 24, 1886.)

Briefly, to summarize, the points that I bring before you for discussion are:

That homatropin, properly applied, is an efficient, reliable mydriatic, capable of producing complete paralysis of accommodation, and possessing the therapeutic influences for which a mydriatic is indicated in cases of eye-strain.

That, as compared with other drugs of the class, it is least likely to cause general poisoning or local harm by glaucoma or conjunctival irritation, and that it entails upon the patient the shortest period of inability for eye work.

SOME INTERESTING POINTS PERTAINING TO REFRACTION.

Read in the Section on Ophthalmology at the Forty-seventh Annual Meeting of the American Medical Association at Atlanta, Georgia, May 5-8, 1896.

BY G. C. SAVAGE, M.D.

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NASHVILLE, TENN.

It is a well-known fact that the curved, colored, protective glass has the effect of a concave lens. The surfaces are supposed to be parallel. A short while ago, while teaching one of my private classes, I decided to have the effect of such surfaces determined, both by mathematics and by the experiment of having such a glass ground. Let the convex surface of such a body have a six-inch radius of curvature and the concave surface have radius of five and seven-eighths inches; the surfaces being concentric are one-eighth of an inch apart and parallel. "The mathematical formula would be: $(n-1)[(1\div R)-(1\div R')]=1\div f=.6[(1\div 5\tfrac{7}{8})-\tfrac{1}{8}]=1\div f=1\div .0021286$, therefore f=470 inches, and the lens is divergent. Hence if a plain glass is bent around a cylinder it results in an astigmatic divergent lens. If bent around a sphere a symmetrical divergent lens." Since the part of the human cornea in front of the pupillary space has its two surfaces practically parallel, it can be readily seen that, if the refractive medium behind the cornea was the same as that in front, the cornea would so refract parallel rays of light as to make them divergent. The index of refraction of the aqueous being almost that of the cornea, the refraction, by means of the convex surface of the cornea, is maintained by the aqueous.

At the same time I concluded to have a concavo-convex lens ground, the two surfaces having the same radius of curvature and separated one-eighth of an inch in the center. You can readily see by moving the glass in front of the eye, watching objects beyond, that parallel rays of light before refraction are also parallel after refraction. (The rays are crowded more closely together.) That is, such a glass in effect is a plain glass. The mathematical formula for such a lens is: $(n-1)[(1\div R)-(1\div R')]=1\div f$; but R = 6″ and R′=6″ ∴ .6 $(\tfrac{1}{6}-\tfrac{1}{6})=1\div f=0$ ∴ f= ∝ ∴ parallel rays will emerge parallel. Such a glass would not only serve to protect the eye from light, but would also be incapable of exciting any ciliary action. The third lens is one in which the convex surface has a six-inch radius of curvature, and the concave surface has also a six-inch radius; these two surfaces are separated one-fourth of an inch at center. By moving the lens in front of the eye objects beyond do not appear to move, therefore its effect is that of a plain glass. The mathematic formula would show that the focus of such a lens is infinity. I suppose that even a wider separation of these two surfaces would still give us the effect of a plain glass.

MODEL OF AN ASTIGMATIC CORNEA.

This model is intended to illustrate the refraction of an astigmatic cornea. The circular end represents that portion of the cornea immediately in front of the pupillary space. One of the two diameters of the circle represents the meridian of least curvature while the other represents the meridian of greatest

curvature. In my judgment the best way to study an astigmatic cornea is to consider it as made up of a spherical and cylindrical surface, each having its own radii of curvature. There is no point of such a cornea but that extending from it are two radii, one of spherical and the other of cylindrical curvature. The radii of spherical curvature in this model will all come to a common point six inches behind the circle. The radii of cylindrical curvature will be in planes parallel with the plane of the meridian of greatest curvature, and the radii of each plane will converge to points in a line which is in the same plane with the meridian of least curvature. The two sets of radii for the meridian of least curvature are in the same plane; while the two sets for the meridian of the greatest curvature are also in the same plane. Each of these two meridians is an arc of a circle and therefore has a focus. This is not true of any other corneal meridian, for the reason that all other meridians are parts of an elliptical curve. If the astigmatism be vertical, and according to the rule, parallel rays of light in the horizontal plane will be so refracted by the meridian of least curvature as to be brought to a focus. Parallel rays of light in the vertical plane will be so refracted by the meridian of greatest curvature as to be brought to a focus in front of the other. The rays of light refracted by each of these meridians will be in the same plane after refraction as before. By revolving the model so as to bring the meridian of greatest curvature to 45 degrees the horizontal meridian of such a cornea has its radii of spherical curvature necessarily in the horizontal plane. If the eye be the right one, the radius of cylindrical curvature for the outer extremity of the horizontal meridian will rise above the horizontal plane, while the radius of cylindrical curvature for the inner extremity of the horizontal meridian will point below the horizontal plane. Parallel rays of light in the horizontal plane will not be in the same plane after refraction as before. The ray corresponding to the visual axis will pass through the cornea and will strike the yellow spot of Soemmering, not having deviated any from its original course. An axial ray striking the temporal extremity of the horizontal meridian of the cornea will be bent, in obedience to the law of refraction, toward both the radius of spherical and the radius of cylindrical curvature. Striking the radius of cylindrical curvature above, this ray, after refraction, rises above the horizontal plane. Passing across to the nasal side of the retina it would impinge above the horizontal meridian of the retina. Another axial ray, in the horizontal plane with the other two rays, striking the cornea at the left extremity of the horizontal meridian, beneath the radius of cylindrical curvature would be refracted beneath the horizontal plane. Passing across to the outer part of the retina it would strike it beneath the horizontal retinal meridian. These three rays of light come, one from the middle of a horizontal line and one from each extremity. Connect the points of impingement on the retina by these rays and the image line must necessarily be oblique, the nasal extremity of the image being above the horizontal meridian, the center of the image on the yellow spot of Soemmering and therefore in the horizontal meridian, the outer extremity of the line beneath the horizontal meridian. In obedience to the law of direction the object would be made to appear to incline to the same extent that the image itself inclines, therefore the object would appear to be leaning down and to the right. The reverse would be the case if the meridian of greatest curvature should be at 135 degrees; the model also shows the relationship that exists between the radii of cylindrical and radii of spherical curvature for all corneal meridians. In the two principal meridians they are always in the same plane. In all other meridians it is not possible for them to be in the same plane. It is not absolutely true that every point of an astigmatic cornea has these two radii of curvature, but it is true that there is a resulting radius for every such point, or, more correctly speaking, a resultant vertical. So far as the refraction is concerned, however, it is exactly the same as if every corneal point had the two radii.

DISCUSSION.

A. W. STIRLING, Atlanta—Dr. Savage has said that the anterior and posterior surfaces are parallel and has founded his argument on that. With due respect, I submit that that is not correct. The cornea increases in thickness from the center to the periphery, and when the pupil is dilated the rays of light pass through a thicker part of the cornea than when it is contracted. His would be an argument against mydriatics.

C. M. HONBY, Iowa City—The surface of the cornea is the surface of an ellipsoid of three axes, how then can we speak of radii of curvature? How can there be two radii to one curve?

B. A. RANDALL, Philadelphia—The clearness of some parts of Dr. Savage's demonstration is due, unfortunately, to the neglect of some of the essential factors of the problem and the reduction of some others to too simple terms—as when he makes his so-called "astigmatic curvature" no curvature at all and its "radii" parallel. Were the Doctor to work out these problems in the smoke-filled chamber with proper curvatures to refract actual rays of light and a screen to receive the actual results, he would be relieved of many of his misapprehensions and could turn his abilities to more profitable fields.

Dr. SAVAGE, closing—In the model the two principal meridians of the astigmatic cornea are represented by straight lines, but they could have been as easily represented by curved lines. What is correctly shown in the model is the radii of curvature. The radii of spherical curvature all point to one common center. The radii of cylindrical curvature are in planes parallel with the plane of the meridian of greatest curvature, each plane coming together in a line which is in the same plane with the meridian of least curvature and of the same length. While I am sure that astigmatism can be better understood and studied in this way yet I am free to say that we have not these two sets of radii, but for every point there is a resultant radius or rather resultant vertical.

CONCERNING MEDICAL EDUCATION IN THE UNITED STATES; A BRIEF HISTORY.

BY FRANKLIN STAPLES, M.D.
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In ancient times a knowledge of the art of medicine was held by its possessors as secret, membership in the order of physicians being restricted and obtained only by initiation under the conditions and in the manner prescribed. In ancient Greece the right of the healing art was held by the order of the Asclepiadæ; and the Hippocratic oath, among its solemn requirements and inculcations of virtue and morality, has the following: I will impart a knowedge of this art to my own sons, to those of my teachers, and to disciples bound by a stipulation and oath according to the law of medicine, but to no others." In times still more remote, among the Hindus the right of the

knowledge of medicine was hereditary, confined to the higher class, with physical and moral purity as requisites for initiation.

In the progress of events in modern times changes have occurred. Family succession and caste have ceased to be the requirements necessary for admission to the orders of the profession. This would seem to be an advance; the question as to how much advancement has been in the way of virtue and professional righteousness may be considered separately.

The matter of the advancement of the standard for the amount of scientific knowledge and practical ability requisite to the practice of medicine has been a troublesome one in this country for many years; but that real advancement has been made in the last decade and further improvement in the future is assured, is notable.

In 1877, the year following that of our great Centennial Industrial Exposition, the general condition of things in special educational lines in this country was ably set forth in an anniversary address by an eminent professor in one of our foremost universities.[1] After alluding to the evidences then shown of the country's great progress, the speaker observed: "Surely candor compels us to acknowledge that in regard to many things which are essential to a lasting and elevated civilization, we are still far behindhand. . . . One common thought must be entertained, which is, that among the influences that have led to the present state of affairs, one of the most powerful has been the want of thorough special training and preparation on the part of those to whom important duties are intrusted."

This was the view expressed concerning the condition of affairs in general at the time of the observation, and the need of improvement and reform in general service. It was further observed: "Few persons who are at all familiar with the subject will be willing to express even the smallest satisfaction with the present state of the medical profession in this country."

The status of medical science and education, and in part the causes of the same were mentioned as follows: "The ranks of the medical profession are overstocked; only a small percentage of those engaged in its practice are able to earn a living thereby, and worst of all, the profession has failed to elevate its standing and repute with the public, or to exert the powerful influence upon sanitary legislation, upon public and private hygiene, upon education and upon similar subjects, which is at once its duty and highest prerogative." This was said by eminent authority in the year 1887, and the truthfulness of the representation will hardly be denied by those who have given the subject any considerable attention.

The history of medical education in the United States from colonial times to the present is voluminous; only a few facts concerning conditions and concerning causes and results may be noticed. The beginning of medical colleges in this country was in Philadelphia in 1765. Dr. John Morgan and Dr. William Shippen, natives of Philadelphia, were the pioneer professors. Both had been students of Cullen of Edinburgh, and returning to Philadelphia began the work of teaching. The College of Philadelphia was formed with two professorships, which comprised all the branches; the one "Theory and Practice of Physic," held by Dr. Morgan; the other, "Anatomy and Surgery," filled by Dr. Shippen. This College of Philadelphia afterward became the Medical Department of the University of Pennsylvania. This institution is, therefore, the pioneer medical college of America.

The College of New York was founded in 1767. This became King's College, now the College of Physicians and Surgeons, Medical Department of Columbia.

A third chair in the Philadelphia school was formed in 1768, Dr. Adam Kuhn being made the professor of materia medica and botany. In the same year Dr. Thomas Bond of Maryland was elected professor of clinical medicine. Dr. Benjamin Rush in 1769 was elected professor of chemistry. These five professors constituted the faculty of medicine in the college of medicine until in 1777, when the city was occupied by the British army.

The Medical Department of Harvard College was organized and lectures began in 1782; that of Dartmouth College, N. H., in 1797. These four were the schools of America up to the close of the eighteenth century.

The following appears as a summary of the rules adopted for admission and for examinations:

1. Such students as have not taken a degree in arts must give evidence of a competent knowledge of Latin and of certain branches of natural philosophy.

2. Three years after matriculation an examination for the Bachelor's degree will be allowed to students who have taken one complete course of lectures.

3. One year after taking the primary degree the student will be admitted to the Doctorate, if he shall be 22 years of age, shall have attended two full courses of lectures, and have published and publicly defended a treatise upon some medical subject.

4. The mode of examinations shall follow that of the most celebrated universities of Europe.

An announcement of the College of Philadelphia was made in 1789, signed by Benjamin Franklin as President of the Board of Trustees, and by William Smith as Provost of the College, in which the requirements for the degree of M.D. were somewhat extended, specifying that the candidate must have been the pupil of some respectable practitioner for the space of three years; also specifying the departments in which he must have received instruction in the college, and providing for the written or printed thesis, in Latin or English at the student's option. At this time a requirement was also made for "attendance upon one course of clinical lectures, and on the practice of the Pennsylvania Hospital one year," this being the first of clinical instruction in the required curriculum.

The first medical degrees conferred were of Bachelor of Medicine. The first of these were granted in Philadelphia in 1768 and in New York in 1769. The first degree of Doctor of Medicine was conferred in New York in 1770 and in Philadelphia in 1771.

Such, in brief, were the means of medical education and the requirements for graduation in medicine from the early colleges and for admission to the profession in the American colonies before the war of the Revolution.

At the time of the beginning of the revolutionary war in 1775, the general situation is given as follows: There were in the colonies about three million people, who were distributed over a vast extent of terri-

[1] Prof. William Pepper, Provost University of Pennsylvania, in "Higher Medical Education," 1877.

tory. It has been estimated that there were for this number of people between 3,000 and 3,500 engaged in the practice of medicine. Of these, it has been estimated that about 400 had received the degree of M.D., and that most of these were from European institutions. The Philadelphia and New York colleges had conferred fifteen medical degrees prior to the year 1776, when active operations were suspended by the progress of the war.[2]

THE FIRST MEDICAL LEGISLATION.

Concerning the first laws enacted by the colonists to define the qualifications of physicians, Dr. Davis has the following in his "Contributions to the History of Medical Education": "The general assembly of New York in 1760 ordained that 'no person whatsoever should practice as physician or surgeon in the city of New York before he shall have been examined in physic and surgery, and approved of and admitted by one of His Majesty's counsel, the judges of the supreme court, the king's attorney general, and the mayor of the city of New York, for the time being, or by any three or more of them, taking to their assistance for such examination such proper person or persons as they in their discretion shall see fit.' Such candidates as were approved, received certificates conferring the right to practice physic or surgery or both throughout the whole province; and a penalty of £5 was prescribed for all violations of this law. A similar act was passed by the general assembly of New Jersey in 1772."

The history of medical education in our country for almost the whole of the first century of our national existence may be briefly outlined as follows: As the population of the country increased and extended over the vast territory of the United States, medical colleges were rapidly multiplied. In absence of governmental restriction, control and support, teaching schools were liable to be organized with power to confer degrees wherever a few physicians were found who were desirous of forming a partnership for the business. While a few of the colleges were so located as to be able to command good talent in the corps of instructors and good facilities for clinical and laboratory work, yet with many it was otherwise. Many were either located where good facilities were not available, or were under the management of a faculty whose members were incompetent as instructors. The support of the school and the compensation of the professors were dependent upon the number of pupils. With the kind of competition incident to this state of things it was found difficult to elevate the standard of qualification necessary for admission to the medical course, or to that of a degree. A few good men representing the higher grade schools made efforts from time to time to move forward, but not always with the desired success. A notable and illustrative instance is referred to in an address in 1892 by the eminent provost of the University of Pennsylvania, who, referring to the record of the anniversary sixteen years before, and the reflections then made on the degeneracy of medical education, gave the history in words as follows: "We thought of that bitter experience in 1846, when in accordance with the earnest recommendation of the AMERICAN MEDICAL ASSOCIATION, the University of Pennsylvania bravely extended her term of study, only to find that in spite of their specious assurances, not a single one of her rivals emulated her courage; so that after six discouraging years of steadily diminishing classes, she sorrowfully abandoned her advanced position. We thought, too, alas! of the long and painful controversy lasting almost five years over the proposition to again elevate our standard of medical education, and of how the end had been attained only at the cost of old friendships and of the allegiance of valued associates whose convictions remained as to the injury that would be worked to the university by the proposed advance." This was said by the learned professor with reference to experience in the past, in full view of a far better state of things at the then present, and of still better prospects for the future which is now at hand. General and professional public opinion has been slow in coming to its present understanding and position.

The more important causes of the slow progress in medical education, with suggestions for their removal, the diagnosis, a little of the pathology and indications for treatment, are contained in the following words of President Eliot of Harvard University, said in an address, I think, in 1892, and published in the *British Medical Journal*. The points made were as follows: 1, that it is a clear disadvantage in medical education that the degrees given by the faculty, a teaching faculty, should admit to membership in the profession and so to the legal right to practice medicine: 2, that the standard for membership, giving right to practice, should be made by law outside the teaching powers.

President Eliot further observes: "The salary of a full professor in the medical school is lower than in any other department of the university." This, he thinks, is not as it should be and speaks of it as our English inheritance. He says "From England we have inherited a lower standard of general education in the medical profession, a lower standard for admission to that profession and a lower standard of training for the entering upon the duty of medicine. On the continent they do things far better, and it is to be regretted that we have not substituted the continental for the English standard."

This was from the eminent president of Harvard in 1892. His conclusions and practical suggestions were summed up as follows: "We have obtained for the medical profession a higher standard in the community, but we have still to make proper the standard of preliminary requirement for admission to the medical schools, so that they may be equal to the schools of law and theology."

THE SLOW PROGRESS.

During most of the long period since the beginning in colonial days and until quite recent years, no enlargement of requirements in studies and time were made by the schools. This the most of us now in practice know from our own observation. Comparing the curricula of comparatively recent years with those of the early times, we see but little difference. Moreover, the competition instituted and maintained especially by the lower grade of schools, effectually rendered null some of the requirements that were effective in the beginning. This was seen, for instance, in the total disregard for any standard of qualification for admission to the college. An unavoidable evil existed in the fact, that a diploma from the school of the lower grade was just as good, legally, as that obtained at greater expense and better application at the higher institution.

[2] Contributions to the History of Medical Education and Medical Institutions in the U. S., 1776-1876, by N. S. Davis, M.D., LL.D.

This condition of things in free America causes the United States to be the nation with the largest proportion of physicians and of medical colleges to the number of inhabitants, of any in the world.[3]

It is not asserted here that continual progress has not been made in this as in other countries in the arts and sciences pertaining to medicine. The reverse is known to be true, and the discoveries and inventions of the period have been an important means in promoting the more recent advancement in the higher medical education.

The following language of a late professor in Harvard University is expressive of the truth:

"It is not an extravagant assertion to say that in all this turmoil, change and progress, medicine has kept abreast of the other natural sciences, of politics, and of theology, and has made equal conquests over authority, error and tradition. If this statement seems extravagant, it is to be recollected that the brilliant discoveries in natural sciences and the arts, the great political changes, and the vacillations of long established faiths to which we have referred, influence so obviously the fate of nations and the aspects of civilization, that they force themselves prominently upon our attention; while the progress of medicine is silent and unobserved. Yet the progress and changes of the latter are not less real than those of the former, and, perhaps, affect more profoundly than they the development of civilization and the welfare of the human race. During the past century, medicine has been enfranchised from superstition, quasi-charlatanism, bald empiricism and speculation, and has developed into a symmetric science, affiliated with the other natural sciences, studied by the same methods and the same appliances as they are, and, like them, has been planted upon the solid basis of facts and demonstration; pathologic anatomy, starting from the "de Sedibus" of Morgagni and the labors of Baillie, and illustrated by the later researches of Rokitansky and others, has become a fundamental branch of medical science; obstetrics, rescued from the hands of ignorant midwives, has been raised with its allied branch, gynecology, to its legitimate position as a science; preventive medicine and hygiene, cultivated to an extent previously unknown, have prolonged the average of human life; organic and physiologic chemistry have been substantially created, and achieved important and brilliant results; physiology has grappled with the abstrusest problems of the structure of life, and has revealed so much as to make timid people tremble at the audacity of its efforts."[4]

This was said in the year 1876. The great discoveries and advances in scientific research since that time, especially in bacteriology, asepsis, antiseptic means, the modern possibilities in operative surgery, and in the great field of preventive medicine, are not unknown to us.

STATE LEGISLATION AND ITS RESULTS.

The State of Illinois has the credit of first establishing by law a standard of requirements for practice in the State.

In June, 1880, the Illinois State Board of Health appointed a committee to formulate a scheme of educational requirements and characteristics by which to determine the good standing of medical colleges. This step was taken in order to enable the Board the better to discharge the duty devolved upon it by the act to regulate the practice of medicine in the State of Illinois; and by which act the Board is directed to "issue certificates (entitling to practice) to all who furnish satisfactory proof of having received diplomas or licenses from legally chartered medical institutions in good standing." A schedule was prepared by the committee, and subsequently formally adopted by the Board, as the standard entitling to recognition as the basis for legal qualification for practice in Illinois.

The first act regulating the practice of medicine in the State of Minnesota became operative in March, 1883. It was the form of legislation in force in Illinois. Five years later this law gave place to the present law, which requires an examination by the State Board of all persons commencing the practice of medicine in the State, and, as now amended, the minimum requirements demand that all graduates of later date than 1898, furnish evidence of having attended at least four courses of lectures in different years, of not less than six months each. Other States have enacted laws with similar requirements, and so large a number of the States of the Union now have medical practice acts, defining the requirements for admission to practice in the respective States, that such medical schools as would otherwise refuse to advance, must be compelled to come up to the higher standard or go out of the business. This movement shown in the passage of state laws to such an extent throughout the country, is ominous in that it speaks of advance in public opinion and knowledge in scientific matters. It is this that has made state medicine what it now is in this country.

With the educational prospects which we now have, with the present advanced pathology, with our able teachers thereof in the medical schools, laboratories and hospitals, in Philadelphia, Baltimore, New York, Boston and Chicago, with the world's present knowledge of the means and importance of cleanliness in medicine and surgery, and with our rapidly increasing knowledge of the means of prevention of disease in the land, as medical men we are able to rejoice in the present and hope well for the future.

The literature of medical history and medical education is important. The English writer, Dr. Edward Berdoe, speaks of the works of Sprengel , Hasser, Baas, Puschmann, and observes, that "many others of the same class sustain the claim that Germany has created the history of medicine, while the well-known but incomplete treatise of LeClerc shows what a great French writer could do to make this *terra incognita* interesting." Of English writers, we have the works of Drs. Berdoe and Withington, and other English contributions in special departments. In this country are published the works of Joh. Hermann Baas, translated into English by Dr. H. E. Handerson of Cleveland, Ohio; and the "History of Medicine from the Earliest Ages to the Nineteenth Century," by Robley Dunglison, is still extant.

"Contributions to the Annals of Medical Progress and Medical Education in the United States, before and during the War of Independence," by Joseph M. Toner, M.D., was published in 1874. "History of American Medical Literature," an address by Samuel D. Gross, M.D., appeared in 1875. "Contributions to the History of Medical Education and Medical Institutions in the United States of America, 1776–1876," by Nathan S. Davis, M.D., in 1877. "Medical Edu-

[3] Statistics in "Higher Medical Education," by William Pepper.
[4] A Century of American Medicine, 1776-1876, by Edward H. Clarke, M.D., A.A.S.—Harvard.

cation, Extracts from Lectures before the Johns Hopkins University, 1877–78," by John S. Billings, M.D., in 1878.

Beside, many anniversary addresses at college commencements and before learned societies have from time to time made additions to the literature of medical education in this country. What is done in the medical and surgical practice of to-day, is recorded in our hospital reports, in medical journal correspondence and in the practical works of American authors.

RACHITIC CHEST DEFORMITY IN TWINS, WITH EXHIBITION OF CASTS.

Presented in the Section on Diseases of Children, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5–8, 1896.

BY W. J. BELL, M.D.

EX-ASSISTANT RESIDENT PHYSICIAN OF NEW YORK INFANT ASYLUM.

ATLANTA, GA.

These cases are presented because they are unique. They were twins, the mother being a hunchback. The deformity is very nearly alike in the twins. They died of atelectasis and pneumonia at the age of fifteen months. In the case of Sarah Coy, we found a small strip of lung tissue on the left side, the other being of an atelectic character. The other lung was slightly encroached upon. This child just previous to death weighed eight and one-quarter pounds. Its breathing in best physical condition was eighty to ninety per minute, and the respiration during the last illness ran up as high as one hundred and twenty per minute, practically panting. A line drawn through the chest, directly from the central portion of the sternum, would have pierced the inner angle of the cartilages of the ribs as they were bent in, in each case. The other case is of a boy, weight seven and one-half pounds at the time of death. The two cases were almost exactly parallel. They were each subject to frequent bronchial attacks. The respiration in the boy was a little more rapid than in the other; the last illness gave a respiration that could hardly be counted.

Dr. BYERS—How about the limbs?

Answer: There were some evidences of rickets about joints. The head of the girl showed a slight rachitic square shape, and the sutures were only partially closed.

Question: Was the chest born that way?

Answer: It was slightly deformed. I did not see the children until about the third month and there was a slight sinking in at that time, which seemingly increased until their death.

Question: Is there any such thing as congenital rickets? Have you noticed such a thing?

Answer: I have heard reports of such cases, but never saw a case. These cases occurred in the New York Infant Asylum. I made molds for these casts over the bodies of the children, so they are exact reproductions of the chest.

SOCIETY PROCEEDINGS.

Southern Surgical and Gynecological Association.

Abstract of the Proceedings of the Ninth Annual Meeting, held in Nashville, Tenn., Nov. 10–12, 1896.

FIRST DAY—MORNING SESSION.

The association met in the auditorium of the Nicholson House, and was called to order by the President, Dr. E. S. LEWIS of New Orleans, La.

An Address of Welcome was delivered by the Hon. JOHN BELL KEEBLE of Nashville, which was responded to by President LEWIS.

There were fifteen new members elected, after which the reading of papers was proceeded with.

The first paper was read by Dr. W. D. HAGGARD, Jr., of Nashville, Tenn., entitled

VAGINAL VERSUS ABDOMINAL SECTION FOR PUS IN THE PELVIS.

He recounted the transitional periods in the treatment of pus in the pelvis: Vaginal puncture superseded by abdominal section and removal of pyosalpinx, total uterine castration per vaginam by the French and through the abdomen by the American school. They have reluctantly given way to modern vaginal section and evacuation and drainage of all pus pockets. It is a distinctly American innovation and will revolutionize the results in pus disease. The abdominal route affords visual inspection of the field. The attack on morbid masses can be made with safety to visceral integrity. If pus accumulations are multiple, rupture and peritoneal soiling are inevitable; that is the supreme disadvantage of abdominal incision. He had often seen the pelvis deluged with pus with impunity. He had also seen patients die within twelve hours from fulminant sepsis, from peritoneal contamination. The cases perishing from sepsis on the third day are classical. There is no way of distinguishing these cases clinically. All should be regarded as virulent. The writer referred to a mortality of 18.5 per cent. in a series of collected cases of laparotomy for pus, done in five metropolitan hospitals in the last year, and asked what must it be in the "unheard from precincts" and in the hands of the great unwashed? The abdominal method offers the best approach in tubercular inflammation of the ovaries and tubes and in small unilateral pus tubes.

The author referred to the advantages of exploring the pelvis for retro-uterine tumors, inflammatory, and adnexa by vaginal section. The geography of pus in the pelvis in most cases makes vaginal incision extraperitoneal, a minor procedure giving major results; no shock, no risk, no disturbance in convalescence. Patients will submit to it who will refuse more formidable procedures. We can change the methods, but we can not change the patient. In prolonged sepsis from huge abscesses posterior section and drainage are a life-saving procedure. The special indications are in: 1, early cases of acute suppurating salpingitis; 2, incipient post-puerperal peritonitis; 3, large pyosalpinx and true pelvic abscess. The first group includes early gonorrheal and abortion cases. The essayist had incised a tense tube and let out serous fluid and curetted a gonorrheal case of a month's standing with pain, temperature and tenderness for three days. The opposite tube was normal. In a week that tube became similarly affected and was similarly treated. He believed those serous effusions in the Fallopian tube were the preceding pathologic condition to pyosalpinx. If this be true and is the embryonal history of suppurating salpingitis in early gonorrheal and other inflammatory cases, the prophylactic value of vaginal section will be the greatest boon yet given to infected woman. In puerperal cases, incipient peritonitis and puddles of pus in Douglas' space imperatively demand incision. Should simple pus-letting in any of these cases not effect a cure, subsequent operation for removal of the relics of previous ravages can be done without the dangers incurred in the presence of pus. The field of vaginal section is to prevent suppuration in early cases, to anticipate it in puerperal cases and to save life in desperate cases. It is simple, surgical and safe. Its application to the pelvic inflammatory processes and to pus in the pelvis is one of the greatest surgical triumphs of the age.

Dr. JOSEPH TABER JOHNSON of Washington, D. C., said that while the vaginal method had a great many points in its favor and was being resorted to more and more in cases of large pus collections in the pelvis, yet those who had been familiar for a considerable time with the abdominal route could operate more conveniently and dextrously by this method and with greater safety to the patient than by the vaginal method. He could not agree with the speaker that the vaginal operation may be done without any risk or damage to the patient. Sometimes in operating through the vagina for the purpose of removing the uterus and its adnexa, or for large pus collections high up in the pelvis, where it is necessary to manipulate the parts a good deal and to do a thorough enucleation, the surgeon was likely to tear the intestines, the bladder, the ureter, or rupture a large vessel which is out of sight. In such cases the abdominal is much safer than the vaginal route. However, the vaginal method had much to commend it in cases of pus collections that are low down in the pelvis.

Dr. CHARLES P. NOBLE of Philadelphia believes we should practice a judicious eclecticism. He did not feel that either the abdominal or the vaginal method possessed all the advantages, but if restricted to one or the other he should choose the abdominal rather than the vaginal route. An objection form-

erly urged against the abdominal route was the large per cent. of hernias which followed this method. Only a week since he had tabulated the operations he had done for four years, which amounted to 397 abdominal cases, in which he had used the buried suture in closing the abdominal wound. Of this number seven of the wounds suppurated, while 390 healed by primary union. Of the seven which suppurated, one had a hernia. Of the 390 cases, one had a large umbilical hernia. Aside from these two cases he has not had any hernias in his operative work for the last four years, particularly where the buried suture was used. If the patient is in a condition to permit the surgeon to do ideal work, the question of hernia was such an insignificant one that it might be left out of consideration. The matter of hernia following abdominal operations was one of the stock arguments against the abdominal method. The next objection raised against the abdominal method was the great amount of shock as compared with the vaginal. His experience has been that unless the gynecologist operates on the desperately bad cases, shock played a small rôle in abdominal work. In short, he had had more shock following vaginal than abdominal operations.

Dr. Howard A. Kelly of Baltimore said that, whenever possible, pus in the pelvis should be treated by vaginal puncture or section posterior to the cervix, without sacrificing any of the uterine appendages. A large percentage of the cases thus treated would have no future discomforts. Illustrative cases were cited. One of the principal arguments advanced by advocates of the vaginal route in removing the uterus, tubes and ovaries was the excellent drainage that could be secured by this method. In Dr. Kelly's opinion it is unnecessary to take out the uterus to get drainage. By making an incision posterior to the cervix and breaking up adhesions free drainage could be established.

Dr. L. S. McMurtry of Louisville said a deep impression had been made upon the profession in the last few years by the vaginal method of operating for pus in the pelvis. The procedure, however, was by no means a new one, but had simply passed out of the minds of the profession of this country for a time, it having been superseded by the abdominal method, but had been recently revived. Battey, in his original operations upon the ovaries, attacked the pelvic organs through the vault of the vagina. The method of attacking accumulations of pus in the pelvis by vaginal puncture and drainage, practiced by Kelly as far back as 1889, was the universal practice of abdominal surgeons for a long time. The sacrifice of the uterus in the majority of cases of suppurative pelvic inflammation was unnecessary. While there were undoubtedly puerperal cases with suppurative pelvic inflammation, where it was necessary to remove the uterus, it was not so to such an extent as to make it a rule that this organ should be taken out. Surgery should be confined within the limits of removing only such diseased tissue or organs as are necessary for the complete cure and restoration of the patient.

Dr. J. Wesley Bovee of Washington, D. C., objected to anterior colpotomy in dealing with pus cases, unless the accumulation of pus was on top and in front of the bladder. He thought these cases could not be drained through the anterior vaginal route, and the pus could not be reached in many cases. He believes it is not necessary to remove the uterus at the same time pus tubes are taken out. He had seen cases where there was an abscess of the ovary, an abscess of the Fallopian tube and another alongside of each ovary, with three separate cavities on one side. By draining one a large quantity of pus could be evacuated, and perhaps in some cases this would be all that was required. He did not want to be understood, however, as being opposed to the vaginal route in very urgent cases.

Dr. R. B. Maury, of Memphis, had, during the last two years, made it his duty to thoroughly study the subject of vaginal hysterectomy, as he had done quite a number of these operations without any mortality, without any accident, or unpleasant results. But he would not undertake to say that we ought to substitute it for laparotomy. Both abdominal and vaginal hysterectomy were operative measures that surgeons must avail themselves of according to the circumstances of the case. Dr. Maury then cited the histories of two cases that he had treated within the last 30 days, which beautifully illustrated the advantages of the two methods.

Dr. W. E. B. Davis, of Birmingham, Ala., said the practice of incising pelvic abscesses was so old that it hardly required discussion, but the method of attacking pus tubes by vaginal section was comparatively recent. Unquestionably vaginal incision for pus confined to the tubes and ovaries would save these important organs in a good proportion of cases. In all cases of large pus collections in the pelvis, nothing should be done more than to incise the abscess and drain, and then later on the surgeon should be prepared to do an abdominal section if necessary, but he would rarely find occasion to do this. Total ablation of the uterus and its adnexa was unnecessary in many instances in which it was practiced by some surgeons.

CHOLELITHIASIS.

A paper on this subject was contributed by Dr. A. M. Cartledge, of Louisville, in which the author reported several interesting cases. He dwelt upon cholecystostomy and cholecystenterostomy, pointing out the indications for each operation. He considered cholecystostomy as the only operation applicable to the cases cited. In his opinion there were no cases that primarily demanded cholecystenterostomy. He was not prepared to say that cholecystenterostomy with the use of the Murphy button was good surgery, nor that the button was free from danger.

Dr. James McFadden Gaston, of Atlanta, agreed with the essayist that in ordinary cases of gallstones in the gall bladder with obstruction of the cystic duct, the simplest procedure was to lay open the abdominal wall, attach the gall bladder to the incision, and remove the gallstones. But in a large proportion of cases of complete obstruction he doubted whether there would be restoration of bile through the cystic duct into the gall bladder. Relative to the comparative value of cholecystostomy and cholecystenterostomy, the two operations were applicable to entirely different conditions. No one would operate and expect benefit from a cholecystostomy except to establish drainage for the bile in a case of permanent occlusion of the common duct, and this was the only condition in which the advocates of cholecystenterostomy had ever claimed anything for it.

Dr. John D. S. Davis, of Birmingham, emphasized the point that patients frequently have gallstones without symptoms, more particularly jaundice. He does not believe that it is ever wise to resort to cholecystenterostomy as a primary procedure. The surgeon should first resort to drainage, and then if relaxation does not take place and the flow of bile is not affected, a cholecystenterostomy should be done.

Dr. George Ben Johnston, of Richmond, Va., spoke of the diagnosis of gallstones. He is convinced that if examinations of suspected cases of gallstones were as careful and minute as they should be, surgeons would frequently find them. It has been his experience that enlargement of the gall bladder does not always occur where a gallstone exists, but that a condition which simulates enlargement of the gall bladder frequently does exist, this condition being due to the presence of numerous dense adhesions found in the neighborhood of the gall bladder, gluing it to every tissue with which it comes in contact. One thing which struck him as very singular in connection with the presence of gallstones was that the size of the stone or stones seems to make no difference in the production of symptoms. In regard to hemorrhage, it is generally admitted that in cases in which cholemia is profound, they are the ones in which we are to expect hemorrhage and by no known method can this hemorrhage be successfully controlled. The cholemic condition seems to invite a fatal hemorrhage. The experience of operators in this field of surgery is that when cholemia is profound, hemorrhage of a fatal character is to be expected. He considers cholecystostomy a proper procedure in all cases, except in those where the obstruction is in the common duct and can not be relieved.

Dr. W. E. B. Davis of Birmingham, said surgery of the gall bladder for the removal of gallstones had given quite brilliant results, but there were still questions in regard to operative procedures on the ducts that were not as yet definitely settled. He did not believe the essayist referred to cholecystostomy as being the choice of operation in a case where the obstruction of the duct could not be removed; that he must have had in mind the procedure advocated by Murphy of resorting to this operation in a case of stone in the gall bladder where there was no obstruction in the duct. Murphy resorts to cholecystenterostomy instead of cholecystostomy, and he thought the essayist did not intend to convey the idea that he would not do a cholecystenterostomy where the obstruction in the duct could not be removed. Cholemic cases were bad to operate upon. Perhaps in not more than 5 or 6 per cent. of the cases is the obstruction found in the common duct. Some years ago the author made experiments which conclusively showed that the surgeon could incise the duct and drain with gauze without peritonitis following this procedure. A paper on this subject was read by him before the American Medical Association in 1892, since which time he had done further experimental operative work in which sutures were not used after the stone was removed from the duct, and while several of the cases were already very nearly dead from cholemia and eventually died, yet in the cases in which this method was resorted to the abdominal cavity was walled of and peritonitis did not result.

Dr. GEORGE A. BAXTER of Chattanooga, directed attention to the frequency of gallstones unattended with the ordinary symptoms of pain or colic, and cited an illustrative case in which there were found, postmortem, three large stones in the gall bladder.

Dr. F. W. McRAE of Atlanta, cited a case in which there were repeated attacks of colic with profound cholemia. An operation was undertaken with the idea that the obstruction was in the common duct, and that there were stones in the gall bladder. On opening the abdomen in the presence of several physicians he found the liver much enlarged and reaching almost to the umbilicus, but instead of finding the gall bladder enlarged, he found a fibrous cord not larger than his index finger. The common duct from disuse was reduced to a mere cord. A calculus was found in the hepatic duct, extending up into the transverse fissure of the liver. He did not know what to do for a case like this, and after consultation with his colleagues closed the abdomen. The patient died five days later from exhaustion. If anything could be done for such patients he would like to know it.

FIRST DAY—AFTERNOON SESSION.

Dr. JOHN T. WILSON of Sherman, Texas, read a paper entitled

MENTAL COMPLICATIONS FOLLOWING SURGICAL OPERATIONS.

The subject of mental disorders produced by or following surgical operations has not been discussed to any great extent, and until within the past few years only a passing notice was given it. It is a strange fact that while surgical operations will sometimes cause serious mental disturbance, on the other hand, these same operations will sometimes cure them; especially is this the case with some melancholiacs. Many females laboring under attacks of melancholia caused by some disease of the genital apparatus, have been cured when relieved of the physical defect by operation; others have been much improved, and yet some have received no benefit. The question may very properly be asked why a surgical operation should produce an attack of insanity. This can no more be answered in every case satisfactorily than can the question why some persons become insane from the many other causes to which it is attributed, for in most cases these mental complications are a surprise and no good reason can be given why they should follow. In others, however, a logical explanation might be had. If the patient is a high-strung, nervous individual, easily excited, unable to bear pain, the great and increasing dread of the anesthetic, the operation, or both, will so affect him that he will lose control of the will power and the explosion will come after the operation and reaction from the anesthetic. In many of these cases, probably a majority, there is an hereditary taint or a strong neurotic tendency.

The author quoted Mairet, who thinks, 1, that it is in those individuals who are predisposed by heredity or other grave causes—alcoholism, infectious diseases, etc., that surgical operations give rise to insanity; 2, in the constituent elements of an operation that might act on the brain were two most important ones, namely, the anesthetic and the degree of surgical traumatism with its after-effects, of which disturbed nutrition plays a very important part; 3, when predisposition also is considerable the anesthetic alone may produce insanity, or it may result even after minor operations. It is necessary to take into consideration the mental state of the patient prior to the operation, especially in those graver ones where questions of life or death are frequently involved.

Dr. E. S. LEWIS of New Orleans related the case of a woman, 40 years of age, very hysteric, upon whom he had operated for laceration of the perineum. She had manifested no evidences of insanity prior to operative interference, but during convalescence the hysteric manifestations increased and were associated with delusions. Her condition became so serious that on different occasions she threatened to commit suicide. She was transferred to an insane asylum, and after a thorough examination by the physician in charge an unfavorable prognosis was given. Investigation of the family history showed traces of insanity.

In another case, a woman 60 years of age, he removed a very large adherent ovarian tumor. The operation was attended with considerable shock. For a few days subsequently the patient did very well, had no fever during convalescence, but she later became perfectly insane. These were the only two cases he vividly remembered, although he had seen cases of temporary insanity after operations which had passed off in the course of a few months.

Dr. W. E. PARKER of New Orleans had seen two or three cases of insanity in men following surgical operations, but had never been able to trace any history of insanity in the family. The insanity occurred in alcoholic cases. Two of the men either took cocain or morphin. In the management of such cases the particular drug to which the patient was addicted should still be continued in very small doses, being cut off gradually, not suddenly, as great prostration often follows the interdiction of a habit that has continued for a number of years.

Dr. R. B. RHETT of Charleston, S. C., had met with three cases of post-operative mental aberration. The mental aberration occurred in two old women after removal of the breast for cancer. A third case occurred in a young woman who had had puerperal insanity prior to operation. In two instances the insanity lasted for three days, in the other three weeks.

Dr. A. M. CARTLEDGE of Louisville said the question of post-operative insanity led us to discriminate as to the probable etiology in many of the cases. He thought the author of the paper had in mind to deal with those cases of post-operative insanity supposed to be more or less functional in character, rather than those suffering from the mental impression produced by the operation in general. He was quite sure most of the cases, except those characterized by hereditary tendencies and traits, could be traced to some organic lesions. The history of the case should always be thoroughly investigated. He had only encountered what he considers pure post-operative insanity in two cases. One patient had been in an insane asylum four years previous to operation and had developed subsequently a pus tube. Just before operation the patient seemed perfectly rational, but on the third day thereafter a violent mania developed which terminated fatally. The other case of insanity occurred in an unmarried woman, 38 years old, from whom he had removed an ovarian cyst.

Dr. JOHN D. S. DAVIS considered the matter interesting from a medico-legal aspect. No surgeon was absolutely free from such mental complications occurring in his operative work. He had encountered four cases. In one case, a young man, there was no history of insanity, but an analysis of the urine showed a great many casts and a slight trace of albumin before operation. Operative interference was followed by acute mania which lasted seven days, then disappeared, and the patient recovered. He would like the essayist, in closing, to touch upon the responsibility of the surgeon in this class of cases.

Dr. JOSEPH TABER JOHNSON said that in talking with Drs. Kelly and Noble, he learned that the latter had met with eight cases of insanity following operations upon the perineum. He asked the essayist to state whether perineal operations were more frequently followed by insanity than others.

Dr. WILSON had seen a number of cases of various forms of insanity following surgical operations, but does not think the disease occurs more frequently after operations upon the perineum and genitalia than any other part of the body. In answer to Dr. Davis' question, he does not think the physician is any more responsible for the death of a patient from insanity following an operation than he is for death following any other operation. He had never heard of a suit of malpractice being brought against a practitioner for a case of mental derangement from a surgical operation.

Dr. GEORGE BEN JOHNSTON of Richmond, Va., followed with a paper on

SPLITTING THE CAPSULE FOR THE RELIEF OF NEPHRALGIA.

He drew the following conclusions: 1. Nephralgia is not always associated with a demonstrable lesion. 2. When other evidences of kidney disease are wanting the pain is due to a too tight capsule. 3. Nephralgia may and frequently does simulate symptoms of gross tissue changes or mechanical irritants. 4. Where severe and persistent pain in the kidney exists without other evidences of renal disease, exploratory operation is indicated. 5. When inspection, palpation and needle puncture fail to disclose a condition sufficient to account for the pain, the capsule should be freely opened.

URETERO-URETERAL ANASTOMOSIS.

Dr. J. WESLEY BOVEE of Washington, D. C., read a paper on this subject and reported an interesting case. The author dwelt at length upon the literature of the subject, quoting from the contributions to the surgery of the ureters by Van Hook, Fenger, Kelly and Cabot in this country, and the classical work of Glantenay, Liaudet, Tuffier and others in Europe. He drew the following conclusions: 1. Uretero-ureteral anastomosis is a perfectly feasible procedure. 2. Uretero-ureteral anastomosis, whenever possible, is far preferable to any other form of ureteral grafting, to nephrectomy and to ligation of the ureter. 3. It should be done preferably by lateral implantation or by oblique end-to-end anastomosis, though the transverse end-to-end, or the end-in-end methods may be safely employed. 4. That constrictions of the caliber of the ureter do not usually follow attempts at suturing in closure of com-

plete transverse section of the duct. 5. That nephrectomy for transverse injuries of the ureter *per se* is an unjustifiable operation. 6. That simple ligation of the ureter to produce extinction of the function of the kidney is too uncertain to justify its practice. 7. That drainage is not necessary if the wound be perfectly closed and the tissues throughout are aseptic.

Dr. Howard A. Kelly was very much interested in this subject and said every abdominal surgeon should be familiar with uretero-cystostomy or uretero-ureteral anastomosis, because in doing abdominal operations the surgeon was liable at any time to injure the ureter, when he would be confronted with the necessity of doing something to repair it. Dr. Kelly then pointed out the various ways in which the ureter might be cut during operations and described the method he pursues in repairing such injuries.

Dr. Charles P. Noble cited a case of neglected extra-uterine pregnancy complicated with an intra-ligamentous ovarian tumor. In operating, the intestines were apparently adherent over a mass of blood and a large fleshy adhesion ran up on it. To save time this was clamped, cut through and the pelvis cleaned out. It was necessary to do a hysterectomy in order to get anything to tie as the anatomic landmarks were obliterated on both sides of the pelvis. Furthermore, the broad ligaments did not come down in the usual way. When the operation was completed the patient was in collapse, and it was found that what was supposed to have been a fleshy adhesion was really the ureter and thickened peritoneum. The ureter was cut off almost up to the kidney itself. The lower part of the ureter was taken out with the mass of blood, there being only the upper three or four inches of the ureter left. Had any attempt been made to prolong the operation with the patient in collapse, death would have resulted. Although the ureter was short, it was dragged up into the upper end of the abdominal incision. It was impossible to do a uretero-ureteral anastomosis, likewise to switch the ureter into the bladder, because it did not reach anywhere near the brim of the pelvis, much less the bladder, and there was nothing else to do but to remove the kidney, which Dr. Noble did, and the patient recovered.

(To be continued.)

SELECTIONS.

Maragliano's Sero-Therapeutics of Tuberculosis.—The *Gazzetta degli Osp. e delle Clin.*, of October 18 and 20, contains Maragliano's latest report. The number of cases treated is more than 712, but he includes only those of which he has personal knowledge. And first he announces that the harmlessness of the serum treatment is now established beyond question. The occasional transient cutaneous and thermal disturbances are trifling, and the rare instances of vasomotor phenomena, resembling angina pectoris (nine cases in all), are also transient and without after-consequences, although he partially suspends the treatment when they occur. He states that the gravity of the disease is not determined by the length of time that has elapsed since its first appearance, but by the presence of fever and emaciation, as these are manifestations of toxemia, and this is a much more serious condition in tuberculosis than local lesions. If this is appreciated the benefits of sero-therapeutics will be more justly understood. He also adds that the persistence of the area of dullness is an evidence of cure and not of the reverse, as many suppose. This dullness is the result of sclerotic processes which are conservative and healing. If patients would apply for help in the early stages of the disease, when the organism is able to coöperate more effectually with the treatment, the cures would be much more numerous, but such cases are rare indeed.

The therapeutic value of the serum treatment is brilliantly manifested by the statistics which include all the bad as well as the favorable cases, as he emphasizes again and again. He admits that there were cases, and not a few, in which the results were negative, and the disease continued its course to a fatal termination in spite of the serum, but they only serve to enhance the benefits derived from it in the numerous other cases in which its curative effect on the principal morbid phenomena of the disease was unmistakable and permanent up to date.

At present the final permanence of the cure has still to be established, which time alone will tell. The effect of the treatment on the fever is slow and gradual. Where it persists in spite of the serum, it has been his experience that there was always some active microbic complication. He reports that the fever disappeared in 285 out of the 524 cases with fever. These include all stages of tuberculosis.

In 62.85 per cent. of the cases, the patients gained in weight; two gained 20 kilograms. In this connection he emphasizes again that the benefits do not depend on the amount of serum injected at a time, but on the regularity and long continuance of the treatment.

The broncho-pneumonic foci entirely disappeared in 25 per cent. of the total number of patients, the percentage diminishing with the increasing severity of the disease, from 85 per cent. in the circumscribed apyretic form downward. The bacilli disappeared completely from the sputa in 33 per cent.

He has also personally cured three cases of cutaneous tuberlosis, and one case of tuberculosis of the kidneys. He refers briefly to similar cures made by others, but does not include them in his report, among them a tuberculous anal fistula, reported cured by topic applications of the serum. The best results are obtained with small, regular, persistent doses of one c.c. every other day although some cases required more. (Moggi and Regnier used 10 c.c. at each injection.)

His usual method is by hypodermic injections, but he has obtained the same result with rectal injections of 10 to 20 c.c. He has also tried administering the serum by the mouth, but has not had sufficient experience with this method to formulate an opinion at present. One of his earliest patients apparently cured, has relapsed, but a second course of treatment has again caused the disappearance of all the symptoms. Out of the 114 earliest patients in the most advanced stages who showed marked improvement, 14 have relapsed and died since, and 6 others are in a serious condition. The rest are all doing well.

He classifies his 712 cases as follows:

1. Destructive broncho-pulmonitis with cavities, 168 cases. With fever, 129. Fever disappeared in 55; attenuated in 22; stationary in 52. Sputa examined and bacilli found in 59. Bacilli disappeared in 10; diminished in 27; stationary in 19; increased in 3. Weight measured in 129 cases; increased in 75; stationary in 38; diminished in 16. The positive results in the 168 patients in this category were: Apparently cured, 14; marked improvement, 75; stationary, 50; disease progressed, 29.

2. Destructive broncho-pulmonitis without evidences of cavities, but with microbic complications, 127 cases. With fever, 94. Fever disappeared in 54; attenuated in 15; stationary in 25. Bacilli in sputa in 52. Bacilli disappeared in 13; diminished in 27; stationary in 12. Weight measured in 113; increased 74; stationary 35; diminished in 4. Positive results in the 127 patients in this category were: Apparently cured, 12; marked improvement, 71: stationary, 35; disease progressed, 9.

3. Diffuse febrile broncho-pulmonitis with or without destruction of tissue, 220 cases. Fever disappeared in 107; diminished in 37; stationary in 60; increased in 16. Bacilli in sputa in 81. Bacilli disappeared in 13; diminished in 53; stationary in 12; increased in 3. Weight measured in 151 cases; increased in 90; stationary in 49; diminished in 12. Positive results in the 220 cases in this category were: Apparently cured, 10: marked improvement, 121; stationary, 67; disease progressed, 22.

4. Diffuse apyretic broncho-pulmonitis, with or without destruction of tissue. Bacilli in sputa in 17. Bacilli disappeared in 7; diminished in 9; stationary in 1. Weight measured in 58; increased in 43; stationary in 15. Positive results

in the 68 patients in this category: Apparently cured, 2; marked improvement, 54; stationary, 12.

5. Circumscribed febrile broncho-pulmonitis, 81 cases. Fever disappeared in 69; diminished in 7; stationary in 4; increased 1. Bacilli in sputa in 44 cases. Bacilli disappeared in 27; diminished in 16; stationary in 1. Positive results in the 81 patients in this category: Apparently cured, 33; marked improvement, 45; stationary, 3.

6. Apyretic circumscribed broncho-pulmonitis, 48 cases. Bacilli in sputa, 36. Bacilli disappeared in 33; diminished in 3. Weight measured in 45. Weight increased in 44; stationary in 1. Positive results in the 48 patients in this category: Apparently cured, 33; marked improvement, 13; stationary, 2.

The Influence of the Jews on Medicine.— Dr. Richard Landau in his *Geschichte der Jüdischen Aerzte* has traced the course of medicine among the Hebrews from the time of Moses, their great law giver, claiming the latter as a member of the medical profession, in the highest and best sense, on the ground that he was a sanitarian, and thence onward through Solomon, Elisha, Isaiah, Ezekiel and Jesus the son of Sirach, to the Essenes, whose Aramaic root-name shows that they at first professed medicine, though the sect soon became lost in mysticism. It was not until the first century of our present era, however, that the really great school of Jewish physicians began with Akiba and Ismaël, followed by Hanina about the year 200. Hanina was contemporary with Samuel, the great oculist and even greater accoucheur, whose collyrium was long a formula throughout the then known world. Samuel practiced first in Palestine and afterward in Mesopotamia. His bosom friend was Raw, a man possessed of the truest scientific spirit, for the Talmud tells us that he would spend his all to obtain bodies for dissection to perfect himself in anatomy. Abba Oumna and Rabbi Gamaiel III. in the fourth century ably maintained the prestige of the Jewish physicians, who in the fifth century became preëminent in Western Europe. When a knowledge of Greek was lost they made themselves master of Arabic and obtained a key to all that mass of literature which was locked away for many subsequent years. Soon after Spain had been conquered by the Caliphs in the eighth century great schools arose in Africa and in Europe, and in these the Jews were the leading teachers. The Jewish School at Cairo first migrated to Cordova, then to Sicily, and, afterward moving to the Italian mainland, it established itself at Salerno, proceeding thence to Arles, Narbonne, and still later to Montpellier and Paris. Avicenna, a Latinised form of Ebn-Sina, Ebn Zohar, who is better known to us as Avenzoar, Ibn Roschd or Averroës, and Moses ben Maimon, called Maimonides, were the most illustrious Jews in the tenth and eleventh centuries; their names are familiar to us from Chaucer's mention of them in his "Prologue to the Canterbury Tales." The priests looked with a jealous eye upon the encroachments of the Jews in medicine, and they obtained a formal excommunication against all who committed themselves to the care of a Jewish physician. During the twelfth and thirteenth centuries the Jewish doctors spread from Spain over the whole of Europe, penetrating even to the far East, for Saad Eddula was both physician and prime minister to the great Cham, Argun. The Spanish decree of 1492 compelled 160,000 to 800,000 Jews to leave Spain within four months of its promulgation. About a tenth of these made their way into Portugal and established schools there; the rest were dispersed, but many thousands died by the way. The persecution of the Spanish Jews was not an unmixed evil; it led to a wider distribution of the Hebrew race throughout Europe and to a dissemination of the knowledge and of the culture possessed by its best members. France and Italy received especial benefit, and the Popes were wise enough to attach a Jewish physician to their service for several generations after the edict of banishment had been promulgated in Spain.

On a Form of Low-temperature Pasteurization of Milk.—In the *Archives of Pediatrics* for August Dr. Rowland Freeman contributes a laborious research, with the original processes and photogravure illustrations, on the above subject. His conclusions are that Pasteurization at between 65 and 70 degrees C. is recommended for the following reasons:

1. It destroys almost all the ordinary air bacteria which occur commonly in milk.

2. It destroys the bacillus tuberculosis, the bacillus typhosus, the bacillus diphtheriæ and many other pathogenic bacteria.

3. It causes no change in the taste of the milk and avoids those chemic changes in milk which are produced by higher temperatures.

4. It is possible to Pasteurize accurately at this temperature without the use of a thermometer.

A question has been raised as to the advisability of the term Pasteurize. It seems to me that this name is necessary, as no other word indicates the same thing—that is a low-temperature sterilization followed by rapid cooling. The rapid cooling is a most important part of the process. If we use the expression low-temperature sterilization, the rapid cooling is apt to be overlooked. Milk should be used only during the twenty-four hours following Pasteurization. Although the Pasteurized milk will not sour in several days if kept cold, it should be used only during the interval I have indicated. Bottles of milk Pasteurized at about 68 degrees C. and left standing on my laboratory table during the spring usually showed no separation of casein in less than three days. Milk Pasteurized at 75 degrees C. I have found to keep for a week or ten days in a refrigerator. A very good demonstration of the keeping qualities of Pasteurized milk has been afforded by the Nathan Straus milk depots of New York. The milk sold at these depots is Pasteurized at about 75 degrees C. in large apparatuses constructed on the same principle as the one I have just shown. After cooling it is stored in iced water until dispensed. As many as seven thousand bottles are distributed by these depots during some days in summer. This milk supplies the very poor of New York and goes into many homes that are not supplied with ice. Two years ago, while preparing a paper I inquired of the superintendent whether they were at all troubled by any of the milk souring in the tenement houses. He replied that he had had one complaint, which he had investigated, and had found that the milk had been kept under the kitchen stove. When this charity was started in 1893 I advised Pasteurization at 75 degree C., and it was undertaken, although the gentleman having charge of it was assured by others that milk Pasteurized at this temperature would not keep under the conditions existing in tenement houses, and that a temperature of at least 80 or 90 degrees C. should be used. They have seen no necessity for using a higher temperature after three years' experience.

The editor of the *Archives*, Dr. Crandall, adds some pertinent remarks, as follows:

"According to our prevailing terminology, the term Pasteurization is applied to the process of heating milk to a temperature of 167 degrees F., followed by rapid cooling. This process modifies, somewhat, the taste of milk and produces slight chemic changes. It is certainly desirable, if possible, to destroy the bacteria in milk without producing any other change. Milk is a complex and delicate fluid and is very easily disturbed. It is difficult in the case of large numbers of children to adapt cow's milk to the digestive capacity of the stomach, and it has been felt by practitioners that every added difficulty should be avoided so far as is compatible with safety. The apparently simple question of the taste of milk becomes in some cases an important one. Experience shows that change in taste does not occur in milk heated to about 70 degrees C., and very few if any chemic changes. The chief objection to Pasteurization below this temperature has been the uncertainty as to the thermal death point of the tubercle bacillus. The more recent but very convincing investigations upon this point show that the death point for these germs is sufficiently low to warrant Pasteurization at a lower temperature than 167

degrees F. Dr. Freeman certainly seems to have proved that Pasteurization at about 155 degrees F. is a safe and effective process by which many of the objections incident to the higher temperature are obviated. His apparatus offers the most practical means of accomplishing this end which has yet been devised."

PRACTICAL NOTES.

Unguents for Insect Bites.—Brocq suggests the following preparations for the bites of fleas, gnats and bugs:

1. Camphorated chamomile oil 100 grams; balsam of storax pur. 20; essence of peppermint 5 gr.

2. Olive oil 20 gr.; ointment of storax 25 gr.: balsam of Peru 5 gr.

3. Naphthol 5 to 10 grams; ether q. s. to dis.; menthol 0.25 c. to 1 gram.; vaselin 100 grams.—*Journal de Méd. de Paris*, October 18.

Serum-therapy of Typhoid Fever.—Funck, superintendent of the Serum Institute of Brussels, announces as the results of extensive experiments, that the serum of animals immunized by means of typhoid cultures possesses all the properties ascribed by Pfeiffer to anti-cholera serum, namely, that small doses protect against typhoid infection, but do not protect against infection from the coli bacillus. He therefore believes in the therapeutic efficacy of the typhoid serum, but does not venture yet to recommend it for use outside of the laboratory. —*Progrès Méd.*, October 17.

Intravenous Injections of Saline Solution in Puerperal Eclampsia.—The patient had already had twenty attacks of convulsions, with profound coma between, when the first intravenous injection was made. Five further attacks followed, and a second injection was made the next day, followed by complete cure with no more eclampsia. Three thousand grams were injected in all, at 0.75 per cent.—Coen in the *Ann. di Ostet. e Gin.*; *Gaz. Méd. de Liege*, October 15.

Cerium Oxalate in the Crises of Tabes.—Professor Bechterew has been using cerium oxalate in cases of gastric crises of locomotor ataxy and reports marked success from this treatment. The seizures of vomiting were greatly reduced in number, while the actual act of vomiting became easier, and at the same time pain, thirst and nausea were, to a great extent, diminished. The psychic conditions also improved, restlessness subsided and sleep returned. Micturition is said to have become slightly more difficult, but not enough to require a catheter. The most important improvement, however, was that food could be retained owing to the diminished number of paroxysms of vomiting.—London *Lancet*, August 22.

Appendicitis a "Dysentery" of the Appendix.—Golubow does not consider appendicitis a specific bacterial disease, but due to the fact that the usual microbes in the alimentary canal acquire extraordinary virulence from some cause unknown, and produce dysentery of the appendix, which may be epidemic. He is led to these conclusions from observation of several cases of benign appendicitis appearing as an epidemic in his practice, among others, three scholars in a certain school who sat together on the same bench, were all taken with appendicitis within three days. He describes the symptoms of this benign form as sudden sensitiveness in the center of the abdomen, localized by palpation above the right Poupart's ligament, elevated temperature, loss of appetite and constipation. He thinks this form is often overlooked. It passes away in two to three days.—*St. Pet. Med. Woch.*, November 10.

New Method of Making a Stomach Fistula.—Heusner has treated successfully seven cases of impassible cardiac carcinoma, opening a fistula into the stomach by the following process: He first makes a transverse incision just below the left hypochondrium, about 10 centimeters long, parallel with the long axis of the stomach. He then exposes the cartilage of the seventh rib at its point of attachment to the costal arch. This point is not above the pleural cavity, but over the first fibers of the diaphragm. With the left hand a gauze tampon is introduced under the cartilage, and a hole is cut through it with a trocar the size of a thumb, passing obliquely from above downward and inward through the cartilage and the peritoneum. With the fingers of the left hand and a pair of forceps, a piece of the anterior wall of the stomach is then drawn out through this hole and sutured, first to the cartilage and then to the skin. The abdominal wound is then closed and painted with iodoform collodion, after which the protruding bunch of the stomach wall is opened and food introduced. The operation is simple and without danger and the fistula thus made never shows an inclination to grow smaller in diameter, an important advantage.—*Cbl. f. Chir.*, October 17.

Salol in Progressive Pernicious Anemia.—The cure of a case of severe anemia is reported from Budapesth which had resisted for months the administration of iron, quinin, bone marrow, arsenic and inhalations of oxygen. The cause was unknown. No parasites were found in the feces, either adult or embryo. Suspecting at last some auto-infection salol was administered in 1-gram doses five times a day, and the condition of the patient began to improve at once. Each time the medicine was suspended the former symptoms returned, but the dose was gradually diminished to 3 grams a day, and in three months it was possible to discontinue it entirely, as the patient had recovered his former health, with complete disappearance of all the anemic symptoms, including the paleness, heart murmur, tumefaction of the liver and spleen and the characteristic alterations in the blood.—*Semaine Méd.*, October 7.

Gutta-percha Gauze for Postpartum Hemorrhages.—Cases of uterine or other hemorrhage that persist in spite of the tightest packing with the usual gauze, are relieved by an additional tampon of gauze impregnated with gutta-percha. The iodoform gauze acts as a drain and the blood keeps oozing through, but it is arrested by the gutta-percha gauze, which is also soft and pliable, but is not absorbent. Schæffer recommends to tampon first with the usual gauze, leaving a small end projecting as a drain, and then pack with the gutta-percha gauze, closing the drain entirely if necessary.—*Semaine Méd.*, October 21.

Macroquilia.—The *Revista Médica de Chile* describes and illustrates in its April number a case of this rare congenital affection of the lips. The young man's lip, hypertrophied and ulcerated, formed a conical projection, measuring 12 centimeters from the corner of the mouth to the point, 8.5 at its widest and 4.75 at its thickest part. The lip had always protruded, but not enough to constitute a deformity, until he was 13, when a violent blow on the chin caused him to bite the lip lengthwise, producing a deep wound and severe hemorrhage. It slowly increased in size after this and a tumor formed, until the lip resembled the end of a "Vienna loaf" of bread. San Cristobal removed the tumor and part of the lip, making a new one. A fistula persisted a couple of months; when it healed nothing but the scar remained of the previous deformity.

Estlander's Operation on a Child.—Preetorius describes in the *Antwerp Annals* his surprising success with this operation in a case of purulent pleurisy on the left side of eighteen month's standing, the patient a girl of 6. He first resected 5 cm. of the fifth rib on the nipple line and 5 cm. of the seventh on the scapular line, leaving a double drain in the thorax. Two weeks afterward he resected 14 cm. of the seventh rib, 13 cm. of the sixth, 12 cm. of the fifth, 10 cm. of the fourth and 4 cm. of the third. The cavity still persisting and containing about 70 grams of fluid, he performed a third operation a month later, removing the ten last centimeters of the sixth rib. The fistula healed in the course of a month and complete recovery fol-

lowed. The child would inevitably have succumbed without this heroic operation, as liver and spleen were very much enlarged at first, but gradually subsided.—*Presse Méd.*, October 3.

Neuritis Cured by Local Compression.—Peripheral neuritis of traumatic origin is apt to be exceedingly rebellious to either medical or surgical treatment, but Delorme has invented a new cure which has proved a perfect success in each of the ten cases in which he has tried it, and its efficacy has also been confirmed by others. His first case was a soldier wounded in 1870 by a bullet in the neck. A keloid scar had formed where it had emerged close to the posterior border of the sterno mastoid, three by four centimeters in size, which had been the seat of continuous pain ever since, that is, for twenty-three years. No relief had been derived from the use of the thermo-cautery, bistoury, galvano-cautery, Vienna caustic, etc. Delorme conceived the idea of destroying the nerve tissue in the cicatrix by forcible compression. Seizing it between the thumb and the forefinger of each hand, he squeezed it with all his might, for a few seconds. Four days later he repeated the operation, and the pains vanished, and have never returned during the three years since. The other cases were of more recent occurrence, but they had resisted all other treatment, and the same forcible compression produced complete cure. Six were neuritis consecutive to accidents to the feet, finger or wrist, the others to the face, neck, leg or shoulder. In case of pain in the finger after a partial amputation, opening of a phlegmon, or a crushing bruise, he first carefully locates the exact limits of the hyperesthetic zone, and then, the patient seated or reclining, held by the assistants, the arm and wrist immovably fastened, he seizes the finger between his two thumbs and forefingers, and exerting all his strength, compresses successively every spot on the entire surface of the hyperesthetic zone, commencing with the most painful points, and exerting there the maximum pressure. A few seconds exhausts both operator and patient, as the process is very painful. After a few minutes rest it is repeated by the operator or one of the assistants, sometimes two or three taking it in turn. One operation is usually sufficient, but sometimes as many as three are required, at intervals of several days. The trophic troubles, cyanosis, edema, stiffness in the joints, etc., disappear with the pain. Delorme has never used an anesthetic for fear of interfering bulbar reflex, but suggests that chloroform or local anesthetics might be used.—*Bulletin Médical*, October 14.

Treatment of Malaria in Children.—Feuchtwanger describes in the *Therap. Mon.* for August the results of his experience in Palestine, where malaria is endemic. He tried various substitutes that have been suggested recently, but found that he always had to return to quinin. He uses principally the bisulphate for children, as it seems more efficient with them, although it does not contain so much quinin as the sulphate. He gives as many decigrams as the child has years, or as many milligrams as it has months. Under 2 months he has it rubbed into the arm-pits and groins in a salve made of 2 grams of quinin in 40 grams of lard. The effect of these frictions has always been the same as if the quinin had been administered by the mouth, notwithstanding that the absorption of quinin through the skin is denied by all the authorities. At 3 to 4 months of age he administers the quinin in suppositories three times a day, each containing twice the dose for that age. Sometimes they produce rectal tenesmus, when he substitutes enemas for the suppositories. The quinin produces exactly the same effect in suppositories or enemas as if taken into the stomach. He substitutes the valerianite of quinin for the bisulphate in cases of malarial neuralgia. He has also obtained brilliant success in cases of pernicious malaria with coma, paresis of the pupils, vomiting, hemoglobinuria, etc., in children of 10 to 12, by subcutaneous injections of hydrochlorate of quinin. After the third injection of 50 centigrams the hemoglobinuria ceased as if by magic; ice taken internally arrested the vomiting and baths at 27 degrees C. controlled the hyperthermia. In three days quinin suppositories were given and the children were saved. The consecutive malarial cachexia in one case was cured by tonics, iron, arsenic, calisaya bark. This cachexia is often difficult to conquer. To prevent the return of the febrile attacks, he keeps up the use of the quinin for several weeks, with or without tincture of litmus and small quantities of diluted hydrochloric acid. If this treatment fails, he returns to arsenic and administers a mixture containing 2 grams of solution of potassium arseniate and 8 grams of the tincture of malate of iron. Of this he gives five drops three times a day to a child of 3 years, increasing the dose a drop a day until it is 15 drops, and then diminishing to 5 again. If there are gastric troubles this arsenic medication is contraindicated. In this case there is no resource but change of locality. He has been successful with older children, 8 to 15, with pills composed of hydrochlorate of quinin, arsenious acid and reduced iron.—*Presse Méd.*, October 3.

Hypodermoclysis in the Treatment of Thermic Fever.—Dr. F. A. Packard of Philadelphia communicates to the *Medical News*, August 22, a case of the above nature as treated in the wards of the Pennsylvania Hospital. The patient was a contractor, aged 48 years, received in the hospital at 8:30 P.M. on August 12. He was rubbed with ice on the way to the hospital in the ambulance, but on admission he was found to have a temperature of 109.6 degrees, pulse 154, respirations 33. He was unconscious, but not convulsed, with moderately contracted pupils and markedly stertorous respiration. He was at once put in a tub of iced water and given nitroglycerin (1-100 gr.) hypodermically. After being in the tub for five minutes he was removed, placed on a bed and vigorously "ironed" with ice. At 9:07 his temperature was 103.4, pulse 146, respiration 32 and irregular. At this time he began to have spasmodic contraction of the extremities. At 9:35 he became very cyanotic, the respirations became slow and labored, requiring, finally, the use of artificial respiration and the battery. At 10:05 his temperature had remained below 103 degrees for some time, but there was marked twitching of the right side of the face added to the previous spasmodic contractions. The pulse at the wrist was imperceptible at this time. At 10:18 he was "fearfully cyanotic," and the jaws became rigidly fixed. He was bled from the median basilic vein to the extent of sixteen ounces, immediately after which the respirations became more deep and quiet and the spasmodic twitching lessened. At 10:25 half a pint of sterilized normal salt solution was slowly introduced beneath the skin of the pectoral region on both sides. The pulse at once improved and at 10:40 he became conscious and gave his name, while at about the same time the twitchings ceased. Nothing further of interest has occurred up to the present time, the patient being thoroughly rational, perfectly comfortable and showing no symptoms, save for slight elevation of temperature that is easily accounted for by a quite severe glossitis that has resulted from a lacerated wound of his tongue, produced by his teeth during his period of pseudo-convulsions. Inasmuch as in a very large number of cases of thermic fever the symptoms rapidly disappear after reduction of temperature, there must be some factor other than the high bodily temperature alone, which continues to be present in those cases wherein improvement fails to follow the fall in the bodily temperature. If, in such obstinate cases, bleeding is performed, it is found that the blood flows very sluggishly from the vein, that it is thick and tarry, and that it is evidently lacking in its fluid portion. Such being the case, it seems not unreasonable to surmise that the persistence of coma, stertor, muscular rigidity, etc., may be due to the lack of water in the blood. Why some cases should suffer from this condition, while others escape, it is difficult to say, but careful inquiry might elicit some facts in regard to the amount of perspiration lost, the amount of fluid ingested just prior to the attack, and other features of the various cases that might throw some light upon this difference in course.

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SATURDAY, NOVEMBER 21, 1896.

POLIENCEPHALOMYELITIS.

We have a good deal yet to learn concerning the action of various poisons upon the nervous system and particularly as to the effects induced by the group of infectious diseases. A growing experience has taught that nerve-fibers and nerve-cells may suffer in numerous ways through the deleterious influence of the agencies just named. We may thus have inflammation, hyperplasia, degeneration and sclerosis in white or gray matter in varying distribution, with corresponding diversity of symptoms. There are, however, many conditions in which, despite the presence of the most profound and pronounced symptoms, no lesion is demonstrable. The alterations that exist under these circumstances must therefore be looked upon as of the intangible nature which for the present we must be satisfied to designate nutritional, chemic or toxic. When recovery takes place these changes may disappear and leave no trace of their previous existence. On the other hand they may lead to structural alterations, with persistence of symptoms. A group of disorders of this kind, especially characterized by muscular weakness and undue readiness of fatigue and exhaustion has received interesting consideration at the hands of KALISCHER (*Zeitschrift für klinische Medicin*, B. XXXI, H. 1, 2, p. 93), who enters at length into a discussion of their clinical and pathologic aspects. He reports in detail a carefully studied case of chronic poliencephalomyelitis in a man, 50 years old, developing in the sequence of an attack of influenza, and refers to a number of other cases, some of which have been reported under various other designations, all agreeing, however, in their essential features, and the symptoms present being referable to disturbance in the functions of the motor bulbo-spinal nuclei for the entire muscular system, situated in the central gray matter from the floor of the fourth ventricle to the lumbar portion of the spinal cord.

The disease is most common in persons between 20 and 60 years of age. It is usually subacute in onset, rarely acute or insidious, at first progressing subacutely and later pursuing a chronic, stationary or varying course. Manifestations of constitutional disturbance, such as fever, headache, vertigo, vomiting, are generally wanting throughout. In most cases the ocular muscles are first involved and in irregular order one after the other. Ptosis may appear first on one side and then on the other and may be slight or pronounced. Then the other muscles become involved, usually in greater degree upon one side than upon the other. The fourth and sixth nerves are not spared. Diplopia is not always present; and almost never well defined strabismus. The internal ocular muscles usually escape. The disturbance of the ocular muscles generally recedes, to give place to bulbar or spinal symptoms, or they may remain in association with the latter. Sometimes the disease sets in with bulbar symptoms and rarely with weakness of the muscles of the neck, trunk and extremities, advancing upward. Usually extension occurs in stages, weakness in the upper or lower extremities being suddenly added to the paralysis of the ocular muscles; or paralysis of the muscles of deglutition or of the ocular muscles being added to weakness of the neck. Not rarely bulbar symptoms predominate, including weakness, fatigue, permanent or progressive paralysis of the muscles of the face, tongue, those of mastication, of deglutition, those of the esophagus, in unequal degree upon both sides. In the extremities the parts nearest the trunk are involved earlier than those at a distance; the extensors at times more than the flexors.

The tendon-reflexes, and especially the knee-jerks, are enfeebled or lost. The sensory and the sensorial functions usually remain uninvolved, as well as psychic activity and the sphincters. Fibrillary twitching is not observed. Muscular atrophy does not take place as a rule; if at all, late and in slight degree. Paralysis is the primary and the most conspicuous manifestation. The electric reactions remain unchanged or are enfeebled and in grave cases perhaps lost. Degenerative reactions are rare. The so-called myasthenic reaction is observed in some cases—that is, the muscles respond normally to faradic currents of ordinary intensity, but to tetanizing currents the response grows gradually more and more feeble until it ceases altogether. It appears most marked when the fatigue-

phenomena on voluntary innervation are quick and pronounced.

The intensity of the palsy is variable. Fatigue and recovery take place readily and quickly. The degree of fatigue does not always correspond to the degree of permanent weakness and paresis. In severe cases the patients become completely helpless. In walking, the knees may give way; or the gait may be staggering. Active exercise may be attended with an urgent sense of the need of air, from fatigue of the respiratory muscles. Not rarely sudden death occurs from paralysis of the vagus or of the diaphragm. Other dangers may arise from sudden weakness of the muscles of the pharynx and esophagus, so that liquid diet may be necessary and regurgitation through the nares may take place. If the hands are involved there may be difficulty in carrying food to the mouth, in writing and in other manual exercises. When the eyes are used, the ptosis is aggravated and the muscles of the neck become weaker from efforts to hold the head erect. Speech becomes nasal and after a time indistinct, low and whispering. The ability to sing and to whistle is lost, and smoking becomes difficult.

A characteristic feature of the disease is the rapid recovery of strength after rest and the improvement in the morning after sleep. Remissions in the intensity of the symptoms occur from time to time and may continue for varying periods—from days even to years—and simulate perfect recovery. The progress of the disease may further be very slow and characterized by exacerbations; or the morbid process may finally cease to progress, leaving a condition of permanent weakness. Sometimes death occurs unexpectedly.

In many cases no lesion has been found after death. In one case degenerative changes were present in the medullary sheaths of the nerve-roots of the medulla oblongata. In another there was vascular dilatation, with hemorrhage and degenerative-atrophic conditions of the ganglion-cells of the central gray matter. These various lesions, however, are inconstant and inadequate to explain all of the symptoms; so that it must be assumed that there occur chemic, nutritive or toxic changes capable of disappearing and of repair without leaving evidences of their previous presence.

In an etiologic connection most of the cases reported have had some direct or indirect relation with one or another of the infectious diseases; others with over-exertion or with excessive use of alcohol or tobacco. No relation to syphilis could be established.

Subacute or chronic poliencephalomyelitis is to be distinguished from acute encephalitis by the absence of acute onset, of constitutional manifestations (fever, delirium, etc.) and other cerebral symptoms (aphasia, etc.); by its peculiar and more systematic invasion (bulbo-spinal symptoms) and its chronic, partly remitting, partly progressive course. Poliencephalomyelitis differs from acute poliencephalitis in the absence of symptoms of general disturbance (vertigo, vomiting, optic neuritis, delirium, etc.), in the less rapid course and in the presence of bulbar and spinal symptoms. From progressive bulbar paralysis it differs in the less characteristic localization and a less universal involvement of the bulbar nuclei, in its irregular, fluctuating, remitting course, in the absence of fibrillary twitching and of degenerative reactions, in the relative absence of muscular atrophy, in the presence of muscular fatigue, the possibility of improvement, in the absence of distinctive lesions, in the early and frequent involvement of the ocular muscles and also those of the neck and extremities, and in the irregular, abrupt involvement of the entire system of bulbo-spinal nuclei. From amyotrophic lateral sclerosis it is to be differentiated by the absence of spastic manifestations and from progressive muscular atrophy by the varying course, characteristic localization, atypic distribution, unsteady progression, early participation or precedence of paralyses of bulbar nerves and of the ocular muscles. It is to be distinguished from pseudo-bulbar palsy by the mode of onset and by the absence of psychic disturbance and of hemiplegia.

In the treatment of poliencephalomyelitis drugs have proved of no service. The best results will be secured through rest and the avoidance so far as possible of muscular activity; every unnecessary fatigue should be avoided. Solid food should be interdicted and only small quantities of soft food and of liquid given at frequent intervals. In aggravated cases the administration of nutritive enemata may answer a useful purpose. Especial attention should be directed to prophylaxis, in so far as the danger of infection is always to be avoided, and should such effort prove futile the acquired disease, with its attendant intoxication, should be gotten rid of with all possible expedition. During convalescence from infectious diseases undue physical effort should be avoided and roborant treatment should be instituted.

THE PASSING OF THE HOLY-STONE.

"Six days shalt thou work and do all that thou art able;
On the seventh, holy-stone the deck and scrape the iron cable."
—*Old Merchantman Rhyme.*

Another time-honored "custom of the service"—but honored in no other respect than its antiquity—has fallen before a few pen-strokes over the signature of the Assistant Secretary of the Navy—the practice of holy-stoning the decks of men-of-war is to be henceforth abandoned. As commodores and midshipmen were once head and tail of the personnel of the naval service, and sails and spars and tacks and sheets, things without which no man-of-war could be, so was the holy-stone, the sacred possession of the Kaaba of the quarter-deck, which every old shell-back had first detested in his youth and then accepted in his old

age, as the thorn in the flesh which it was his lot to wear without repining. This was yesterday; and to-day *Midshipman* Easy might roam the decks with his little hanger and find no messmate; "commodore" is scarcely more than a traditional title; sails and spars have disappeared, reefing and furling are lost arts; and now the holy-stone is for all future time to be anathema. *Maran atha!*

For years before the oldest living medical officer of the Navy received the blue ribboned parchment which constituted him during the pleasure of the President of the United States, an officer of the Navy, to whose orders "all officers, seamen and marines under his command" were "strictly charged and required to be obedient" (pregnant words, though the pregnancy be only phantom)—this venerable stone has been denounced for the unholy uses to which it has been devoted, and now, at last, each old survivor of the conflict can congratulate himself and reverently say: "I have fought a good fight; I have run my course."

The scourge of the sea has not been storm and wreckage, not battle and bloodshed, not typhus and scurvy, ship fever and dysentery, but more murderous than all these, *wet decks*, not decks wetted by raging sea or drenching rain, but deluged daily and deliberately by the pumps under pretense of cleanliness, and this in defiance of the unanimous protest of the medical officers of every naval service on the globe. In vain they showed how this artificial saturation of the ship's atmosphere was inimical to health. They demonstrated by unerring statistics that a *wet ship was always an unhealthy ship*. They pleaded and protested; they suffered insult and braved court-martial—but the holy-stone kept on grinding out, in daily swing, with sand and water, the lives of men whom wind and sea had failed to mark and mar.

There have been, in recent years, many instances of commanding officers of exceptional intelligence, who have listened to the advice of the medical officers and instituted the practice of shellacking the decks below the water line and cleaning them with hot water cloths and swabs. Captain John McNeill Boyd of the British Navy candidly admitted that "the objections to wet decks are supported by the medical officers with such a weight of evidence that they can not be gainsaid." But the upper decks have suffered the infliction of sand and water and holy-stones until a few weeks ago, when the fulmen of the Department consigned them to the scrap-heap, not because they were insanitary and consequently, damnable, but because they wore out the decks and were consequently expensive. *Finis coronat opus*, however it may be accomplished, and hence no sanitarian will repine that the credit be not given to him for having accomplished this crowning achievement of the work of naval hygiene.

The kindred need of marine hygiene, ventilation, has come about through necessity following the construction of the great machine vessels, which have supplanted the white-winged queens of the sea. The almost hermetically sealed floating iron boxes were uninhabitable without constant artificial ventilation established by aspirating tubes and fans, whose motor engines, added to the hundred and more others that fill the interiors of modern battleships and cruisers, encroach upon the air space. With fresh dry air, tempering somewhat the evils of overcrowding, with distilled aërated water, good food and proper clothing, the man of the sea is now far better cared for than his predecessor, Ben Bolt, except when he gets sick or breaks a bone, and then he is stowed away in the same contracted, dark noisy place in the bows, that is, in American men-of-war, where the din of rattling chains and capstans, the odors of the paint room, and the grime and grease of this region, neutralize anodynes and soporifics and keep him keen to suffering. The sites of the hospitals in other services are chosen because of their fitness for their purpose, but with us the suggestion that "she would be nothing but a damned quarantine hulk and had better hoist the yellow flag at once," was urged in the case of one of our finest modern vessels, when the medical departments ought to equip her with the same hospital establishment as English, French, German and Russian vessels of her type.

The hostility to their medical associates by line officers is incredible to civilians and perhaps can only be explained by an original underlying jealousy of the acquirements of a corps, whose humanitarian duties and obligations impel its members to persevere in the face of every opposition, until as in the matter of holy-stoning the decks, their humane objects shall be accomplished. Ultimately, the claims of the sick, as of their care-takers, will be recognized and provision be made for them more in accordance with the enlightenment and philanthropy which characterize this age. Much of the disagreement, as in civil life, doubtless depends upon the inability of non-professional men, who are themselves robust and healthy, to recognize the importance of what seems to them to be only trivial fault-finding by their medical associates, and they attribute to cavil recommendations that conflict with their own. no doubt honestly conceived ideas. The health officer on shore, and the medical officer on board ship, who is preëminently a health officer, have the same up-hill work, but they have at last gained so sure a foot-hold that ere long their views will be heard not in entreaty, but as of those having authority.

THE PHYSICIAN'S WIFE.

The social economy of the physician's life, matrimony makes or mars. The wife either seriously handicaps or aids the physician in practice and his intellectual life. As Jeafferson remarks ("Book

about Doctors"): Considering the opportunities that medical men have for pressing a suit in love, the many tempations to gentle emotion that they experience in the aspect of feminine suffering, and the confiding gratitude of their fair patients, it is perhaps to be wondered at that only one medical duke is to be found in the annals of the British peerage.

Prudence would dictate to a physician, endowed with a heart, to treat it in the same way as Dr. GLYNN thought a cucumber ought to be dressed, to slice very thin, pepper it plentifully, pour upon it plenty of the best vinegar, and then throw it away. A sentimental disposition is a great nuisance to a physician. He has quite enough work on his hands to keep the affections of his patients in check, without having to mount guard over his own emotions. According to THACKERAY, girls make love in the nursery and practice the art of coquetry on the page-boy who brings coal upstairs; a hard saying for simple young gentlemen triumphing in the possession of a first love. An English fair dame, who enjoys rank among the highest and wealth equal to the station assigned her by the heralds, not only aimed tender glances and sighed amorously to a young waxen-faced, blue-eyed apothecary, but even went so far as to write him a letter proposing an elopement, and other merry arrangements, in which a carriage everlastingly careering over the country at the heels of four horses, bore a conspicuous part. The silly maiden had, like Dinah, a "fortune in silvyer and gold," amounting to $200,000, and her blue-eyed Adonis was twice her age. Fortunately he was a gentleman of honor. Without divulging the mad proposition of the young lady he induced her father to take her for twelve months for change of air and scene. Many years thereafter when the heroine of this little episode, had become the wife of a very great man, and the mother of children who bid fair to become ornaments to their illustrious race, she expressed her gratitude cordially to this Joseph of physicians, for magnanimity in not profiting by the absurd fancies of a child and the delicacy with which he had taken prompt measures for her happiness. More recently, she manifested her good will to the man who had offered her what is generally regarded as the greatest insult a woman can experience, by procuring a commission in the army for his eldest son.

The embarrassment Sir JOHN ELIOT suffered under from emotional overtures of his fair patients are well known. The quack St. JOHN LONG himself had not more admirers among the elite of high-born English ladies. The King had a strong personal dislike to Sir JOHN, heightened by a feeling that it was sheer impudence in a medical man to capture without effort the hearts of half the prettiest English women and then shrug his shoulders with chagrin at his success. Lord GEORGE GERMAIN had hard work to wring a baronetcy from his Majesty for the victim of misplaced affection.

"Well," said the king at last, grudgingly promising to make ELIOT a baronet, "my lord, since you desire it, let it be; but remember, he shall not be my physician." "No sir," answered Lord GEORGE, "he shall be your Majesty's baronet and my physician."

Sir JOHN, to scare away his patients and patronesses, had a death's head painted on his carriage panels. The result of this on his practice and his sufferings, however, was the reverse of what he desired. One lady, daughter of a prime minister, ignorant that Sir JOHN was otherwise occupied, made him an offer, but learning to her astonishment, that he was married vowed that she would not rest till she had assassinated his wife.

Dr. CADOGAN, of CHARLES II.'s time, was also a favorite with the ladies. He was wont to spend his days in shooting and his evenings in flirtation. The former tastes led him to receive the following poetic dose:

"Doctor, all game you either ought to shun,
Or sport no longer with the unsteady gun;
But, like physicians of undoubted skill,
Gladly attempt what never fails to kill,
Not lead's uncertain dross, but physic's deadly pill."

That he was a good shot is not known, but he was adroit as a squire of dames, since he secured as his wife a wealthy lady over whose property he had unfettered control. Against the money, however, there were two important points that had to be "set off;" the bride was old and querulous. Such a woman was unfitted to live happily with an eminent physician on whom bevies of court ladies smiled. After spending a few months in alternate fits of jealous hate and jealous fondness, the poor creature conceived that her husband was bent on ridding his life of her execrable temper by poison. One day, surrounded by her friends, in the presence of her lord and master, she fell in a hysteric spasm exclaiming: "Ah, he has killed me at last; I am poisoned!" "Poisoned," cried the lady friend, turning up the whites of her eyes, "Oh, gracious goodness, you have done it, Doctor!" "Of what do you accuse me?" asked CADOGAN, with surprise. "I accuse you of killing me-ee," responded the wife, doing her best to imitate a death-struggle. "Ladies," answered the Doctor, with admirable nonchalance bowing to Mrs. CADOGAN'S bosom associates, "it is perfectly false. You are quite welcome to open her at once, and then you'll discover the calumny."

JOHN HUNTER administered a scarcely less startling reproof to his wife, who, though devoted to him, and in every respect a lady worthy of esteem, caused HUNTER at times no little vexation by her fondness for society. She was in the habit of giving enormous receptions, at which authors and artists of all shades

used to assemble to render homage to her far from commonplace literary powers. HUNTER had no sympathy with his wife's poetic aspirations, still less with the society which those aspirations led her to cultivate. Grudging even the time which the labors of practice prevented him from devoting to the pursuits of his museum and laboratory, he naturally could not restrain his too irritable temper (due to cardiac disease) when Mrs. HUNTER'S frivolous amusements deprived him of the quiet requisite for study. Even a fee that called him from his dissecting instruments could not reconcile him to interruption. "I must go," he would say reluctantly, "and earn this d—— guinea, or I shall be sure to want it to-morrow." Imagine the wrath of such a man, finding on return from a long day's work, his house full of musical professors, connoisseurs and fashionable idlers, in all the confusion, hubbub and heat of a grand party, of which his lady had forgotten to inform him. Walking straight into the middle of the reception room, he surveyed his unwelcome guests, surprised to see him dusty, toil-worn and grim, so unlike what the man of the house ought to be on such an occasion. "I knew nothing," was his brief address, "I knew nothing of this kick-up and I ought to have been informed of it beforehand; but as I have now returned home to study, I hope the present company will retire." Mrs. HUNTER'S drawing-rooms were speedily empty.

One of the drollest medical love stories relates to Dr. THOMAS DAWSON, a century since alike admired by the inhabitants of Hackney as a pulpiteer and physician. Of his acquaintances Miss CORBETT of Hackney was at the same time the richest, most devout and most afflicted in health. Ministering to her body and soul, Dr. DAWSON had frequent occasion for visiting her. One day he found her alone sitting with the large family Bible before her, meditating. Dr. DAWSON read the words to which her right forefinger pointed, the words of NATHAN to DAVID: "Thou art the man." The Doctor took the hint; May 29, 1758, he found a wife, and the pious lady won a husband.

The day ABERNETHY was married he went down to the lecture room to deliver his customary instructions to his pupils. His selection of a wife was as judicious as his marriage was happy. The funny stories long current about his mode of "popping the question" are known to be most delusive fabrications and extreme exaggerations. The brutality of procedure attributed to him by current rumor was foreign to his nature. The ABERNETHY biscuit was not more audaciously pinned upon his reputation, than was the absurd falsehood that, when he made his offer to his future wife, he had only seen her once, and then wrote saying he should like to marry her, but as he was too busy to "make love," she must entertain his proposal without further preliminaries, and let him know her decision by the end of a week.

One type of wife different from these is drawn by Dr. WEYMOUTH in "Over the Hookah:"

"Speaking of the selection of wives, I know one doctor, a type of a hundred others, who evidently had an eye to windward when he married. The lady in the case is a past mistress of diplomacy and medico-political intrigue, beside whom DISRAELI'S reputation and MACHIAVELLI'S malodor are weak indeed. She belongs to several churches and to card and social clubs galore, and makes a specialty of drumming up practice for 'my doctor.' The doctor rarely goes out with her—he don't have to; she can do business better with him out of the way. It is embarrassing, you know, just as she is in the midst of a peroration descriptive of the latest exploit of this modern HIPPOCRATES, to have the dried up, microcephalic, weasened little animal appear in evidence.

"'Do you know, ladies, I am afraid my poor doctor is going to work himself to death. Why, he was out three whole nights last week, and didn't have a wink of sleep. A prominent lady on Michigan Avenue (the patient is always prominent and lives on Michigan Avenue or Astor Street or in some equally fashionable locality) had an attack of appendicitis and had been given up by five doctors before my doctor saw her. She pulled through, but my doctor says that if the family had delayed sending for him just thirty minutes more she would have died.'

"Now as a matter of fact, my boy, remarks Dr. WEYMOUTH, I once overheard this lady in the midst of a similar yarn, when I happened to know the circumstances. In the first place, that doctor couldn't lance a 'gum-boil' without endangering the internal carotid, and in the second place, those three nights were spent in discussing the relative merits of 'two pair,' and 'three of a kind.' He did make several calls, of the other fellow's hand, you know, but the only ladies he saw were a choice variety of queens, hearts, clubs, spades and diamonds. They didn't live on Michigan Avenue either, but he found those particular lady patients in a cosy corner of the M—— club."

This type in its best qualities caricatures the nobler, truer picture of the American physician's wife, drawn by Dr. CLAIBORNE in an address before the Virginia Medical Society. The Virginia physician, with whose wife Dr. CLAIBORNE deals, was always known as a family man. He usually married early in life and with the advantages of social position, wealth and culture, the latter sharpened and improved by travel, a privilege not so common or easy then as now, was considered an eligible party and had no difficulty in securing a desirable partner. But he was often, indeed, generally away from home, physicians being few and the distance between the homes of his patients often great. On the mistress of the mansion therefore devolved more than her share of domestic duties. If his home were on a plantation or in a country town—even then a plantation and negroes were essentially a part of a gentleman's estate—the management of affairs in general, in conjunction perhaps with an overseer, devolved upon her to a great extent. She was known as a business woman and as the characteristic lavish hospitality called to the doctor's house a retinue of visitors and retainers on occasion and without occasion, upon her devolved, in his frequent and protracted absence, their reception and entertainment. In dispensing these offices she was to the manner born. As the daughter of an old Virginia gentleman, and only such a woman could have filled the heart and fitted the fortunes of the old Virginia physician, she was in her native sphere when playing the gracious hostess and the doctor trusted her with a faith born not only of personal

devotion but of pride in her preëminent fitness for her place. As the mother of his children he consigned to her with perfect trustfulness all the responsibilities of their management, their habits, their morals and their education. Even in their sickness, often succumbing to the habit of perfect confidence in her wise and judicious management, he left her to do the dosing of the family and she would give a dozen doses of physic to his one. She was not only literally but liberally his helpmate.

SERUM DIAGNOSIS OF TYPHOID FEVER.

In an article on the serum diagnosis of typhoid fever which appeared in our issue of October 31, page 962, we called attention to the action of one of the provincial boards of health of Canada in testing the practical utility of Dr. WYATT JOHNSTON'S method of dealing with a little dried blood from the lobe of the ear or the tip of the finger of the patient under observation. We concluded our remarks by saying that no doubt other boards of health would take up the subject and aid in the advance of our knowledge of typhoid fever and other febrile conditions. The promptness with which Dr. JOHNSTON'S experiments have been verified shows that we did not over-estimate the energy of the bacteriologists in ever striving after something new, nor the enterprise of the health authorities in utilizing their work. Recent experiments in the bacteriologic laboratory of the Army Medical Museum, Washington, D. C., have given results which inspire confidence in the method. The test is based on the action of the blood serum of a typhoid fever patient, or the liquid obtained by moistening a dried blood drop from such a patient, on the typhoid bacilli of a pure bouillon culture. The active movements characteristic of the typhoid bacillus in liquid cultures are promptly stopped and the bacilli become aggregated into groups or masses. These results are not produced by the blood of a person in health. Dr. WALTER REED, U. S. Army, conducted the experiments at the suggestion of Surgeon-General STERNBERG. He examined twenty-eight cases of suspected typhoid fever and obtained twenty-two positive and six negative results. The patients were in various stages of the disease, but most of them had passed the second week and a few were convalescent. In two of the negative cases the estivo-autumnal malarial parasite was found; a third case was shown at the post-mortem examination to have been one of general peritonitis, originating in disease of the appendix; a fourth case was probably one of tubercular disease of the brain in a child. Concerning the two remaining negative cases the conclusion was reached that they were probably not typhoid fever cases. In view of these successful results the Surgeon-General has called upon medical officers in charge of post hospitals to forward to Washington, D. C., samples of blood from febrile cases of undetermined causation with a full clinical record of each case submitted to the bacteriologic test. Glass slides in suitable slide boxes have been issued for the transmission of the samples. This, it is believed, will aid in defining the character of the febrile cases sometimes reported as simple fever, continued fever, typhomalarial fever, Texas fever, mountain fever, etc., and will enable medical officers to recognize the existence of typhoid in cases clinically obscure without having to wait for a postmortem opportunity of demonstrating the pathognomonic lesion.

The Health Department of the City of New York also has moved in this direction. Mr. HERMANN M. BIGGS, the bacteriologist in charge of its laboratory, was authorized Nov. 6, 1896, to place facilities at the command of local physicians for the diagnosis of their obscure cases. The Health Department of Chicago has issued an unsigned circular giving the history of this method of diagnosis, which was distributed at the last meeting of the Chicago Medical Society (November 16).

LIBRARY WANTS AND SUPPLIES.

In another column we publish the first of a series of lists of periodicals and books either desired by public medical libraries or that will be given to such libraries in furtherance of a work undertaken by Dr. GOULD of Philadelphia.

It should be most earnestly brought home to the conscience of the profession that we need more and better public medical libraries, and that there is annually wasted most valuable literature which, with a little care and system might be made highly serviceable to medical science and progress. Every year the private libraries of physicians are being scattered or sold for old paper, while public reference-libraries are in the greatest need of the same material for completing their files or sets. Wishing to do what is possible for the purpose Dr. GOULD has in view, we call especial attention to this most commendable enterprise. It is Dr. GOULD'S intention to act as the intermediary between libraries and donors, in order that books or files of medical journals of physicians may not be destroyed, and that public libraries may be multiplied and their shelves filled with works which each year become more and more valuable.

Upon the death of a physician, friends should use their influence to have his library utilized in this way. The better plan is for the owners during life to so arrange for the proper disposal of the books, etc. Every medical society, the physicians of every city, village, or county, should consider it an important duty they owe their profession to encourage the formation of a public medical library. It does not enter into Dr. GOULD'S plan to supply private libraries; but on the contrary to guide the private library to its

proper destination, the public library. Neither is it, except in peculiar circumstances to buy or sell. The entire service is gratuitous, aiming to help those who wish to give, to place their gifts where there is promise of the greatest professional benefit. Already Dr. GOULD has been able to supply libraries with several thousand numbers that would otherwise have been wasted.

We most cordially commend the scheme and trust our readers will bear it in mind, preserve the published lists, and whenever any occasion may arise, to correspond with Dr. GOULD. Librarians of public libraries should classify and make lists of the duplicates they will give away to other libraries, or exchange for others needed to complete their own files.

CORRESPONDENCE.

A Prevalent Error in Refraction Work.

MINNEAPOLIS, MINN., Nov. 16, 1896.

To the Editor:—I have been strongly impressed for some years with the fact that many oculists, some of whom are scientific and careful men, are in the habit of over-correcting plus refractive errors. For a shorter period I have been convinced that most oculists, myself included, have been giving low plus cylinders where minus lenses were indicated.

This error has grown out of the teaching of our text-books that at six meters or twenty feet the rays of light are approximately parallel, and that for the correction of refractive errors the strongest plus or the weakest minus glass should be given which give the clearest vision at this distance.

Charles S. Bull, I think, called attention to the fact this rule would lead to an over-correction of .25 D. in the case of H., but the fact has evidently not been sufficiently impressed. With a less distance than 20′ the error is evidently greater, and as a large number of oculists have not more than 15′ at their disposal, unless some efficient method is at hand for checking and correcting their findings, serious trouble is likely to result. The retinoscope is a very efficient check if one has sufficient skill and confidence in his findings, and if as a final test the patient is made to look across the street while weaker and stronger lenses are alternately placed before the eye, the surgeon may be absolutely sure of his results.

While the giving of a too strong plus lens is bad enough, the other error mentioned, the giving of a low plus cylinder where a minus glass is demanded, is in some cases even more disastrous, and is unfortunately a very common error. After I had become fairly proficient in the use of the plane mirror as a retinoscope, I found that in cases where reversal of the shadow was induced by a weaker plus lens than 1 D., in one or more meridians, my patient would generally accept a +.50 or +.25 cylinder, and as my veneration for authority was stronger than my confidence in my retinoscopic results, he always got a plus cylinder. Most of my patients were satisfied that they had got the best correction possible. With the few exceptions I always found some heterophoria and satisfied most of them with muscle training. During all this time I was suspicious of my results in certain of these cases. In hyperopic cases where the retinoscope indicated a considerable degree the trial lens findings were consistent with the retinoscopic, while in the class of cases under consideration I knew they were not consistent.

In May, 1894, X., a clergyman, consulted me, complaining of eye and headache and general nervousness. He had had trouble for years and was able to do his work only with great difficulty. He had been under the care of prominent oculists in Milwaukee and Chicago. In 1892 Dr. B. of the latter city had given him +.75 ⊂ +.50 C. vert., which he had been able to use with some relief in his work. In 1893 Dr. Hotz had ordered constant use of +.50 C. vert. He had also ordered the use of prisms for work. I found 2° prisms base in. Whether they were so ordered is uncertain. Dr. Hotz's prescription had given decided relief for a time, though the ability to work had remained limited.

I found R. 20-30, L. 20-20, slightly improved in each eye by +.50 C. vert. Latent R. hyperphoria .5°. Esophoria at 20′ 1°. At 13″ exophoria 6°. Abduction 3°, adduction 60°. Under atropia +.50 C. vert. was still accepted, improved vision somewhat and no change was made. Retinoscopic test under atropia was as follows: With plane mirror at 40″ R. both meridians — and both became + with —.25. L. both meridians +, vertical reversed by +.25 and horizontal by +.50, a showing that ought to have suggested minus lenses to any man who was less under the power of authority—but Dr. Hotz's R. of +.50 C. vert. was continued, and with muscular exercises the patient was made comparatively comfortable for another year, when he collapsed. I had then made up my mind that I had been doing faulty work in these cases, so I examined him again and found that he would accept —.50 C. hor., and that vision was decidedly better than with the plus glass. He was given the new correction, and has been in better condition since beginning their use than for many years. Several other patients have been given weak minus cylinders for whom in former years I had ordered plus cylinders, and with uniformly good results.

As I have been writing, a lady came in and reported relief from the use of —.25 C. hor. She had been ordered by some optician +.75 S. for work. She could read with comfort, but the nervousness and sick headaches continued. Under homatropia the retinoscopic findings were as follows: Horizontal and vertical meridians both eyes +. Reversed in R. by H. + 1.25 and V. + 1; in L. by H. +.75 and V. +.50. These findings clearly indicate a minus quarter cylinder, and such a glass with axis 45° temporal was accepted and gives complete relief, in spite of the presence of a right hyperphoria of 1.5°. A still later case is Mrs. D., whom Dr. Würdemann of Milwaukee gave +.25 ⊂ +.25 C. V., which gave relief for six months. I find retinoscopic test to give in both eyes —, vertical reversed by +.25, horizontal by +.75. —.25 C. 75° temporal improves distant vision, makes reading easier than with Dr. Würdemann's compound plus lenses, and also gives as much relief from the glare of lamp and sunlight as the tinted +.25 S. given by Dr. Bradford of Boston. The mention of other oculists by name is in no spirit of criticism, but simply to show that other men, and competent ones, have been making these same mistakes.

EDWARD J. BROWN, M.D.

"Parasite and Host."

PHILADELPHIA, Nov. 16, 1896.

To the Editor:—Your editorial entitled "Parasite and Host" in your issue of November 14 should be read, pondered and inwardly digested by every member of the American profession. I can heartily subscribe to every word of it so far as relates to one publishing house. It is, however, gratifying to know that medical publishers are generally not guilty of the (medical) sin you so justly stigmatize, and that as a rule they are either sufficiently courteous or politic to recognize their duty to the medical profession. In this connection it is especially noteworthy that I have heard nothing of any disinclination upon the part of the one publishing firm which pays its contributors for articles published in its journals. How much more astonishing therefore is the stand taken by our publisher who pays contributors nothing ("not even reprints"), that the

matter and illustrations of articles given him shall not be reproduced by another publisher! As a physician I would not edit a journal using unpaid contributions that refused physicians the right to reproduce their articles when and where they pleased. As you pertinently observe, the object of a physician in publishing his article is to tell every medical man the results of his studies, but no periodical has a circulation more than one-tenth of the total number of physicians of our country, therefore any other means that may arise for insuring a still greater publicity is desirable, and any attempt on the part of a publisher to limit the reproduction of articles gratuitously furnished him is clearly against the author's interest and that of medical science. I cordially endorse your suggestion that in contributing to medical journals every writer make it a clearly-defined and accepted stipulation that the right to reproduce the article and its illustrations shall be free to all.

In editing the *American Year-Book of Medicine and Surgery* every publisher but one has recognized the rights of authors and of the profession as regards abstracts, extracts and the reproduction of illustrations. Curiously enough the one who refused this was one who pays its contributors nothing for their articles. As it happened, also, some of these very articles first published in the journals of this firm were written by departmental editors of the *Year-Book*. Thus an author was refused the right of using his own article because he had first given it to a lay medical journal! The *Year-Book* reaches thousands of readers that the journal can not expect to reach, and it will be remarkable if authors hereafter permit themselves to be caught in such a trap. You are correct in suggesting to the profession that it should look more sharply after its own interests, and should encourage *journals of, for and by the profession*. Cordially yours, Geo. M. Gould, M.D.

119 South Seventeenth Street.

BOOK NOTICES.

Important Notice Concerning Library Wants and Supplies.

Notice to Medical Men, and Librarians of Public Medical Libraries.

[Medical journals are requested to publish this notice.]

1. All correspondence in relation to the enterprise should be addressed to Dr. Geo. M. Gould, 119 S. 17th Street, Philadelphia, Pa.

2. Librarians of public medical libraries are requested to forward: 1. Accurate lists of periodicals, books or pamphlets needed to complete their files. 2. Lists of duplicates which they will give other libraries or exchange for numbers desired. *Give both volume numbers and dates of periodicals.*

3. Owing to the additional labor it would involve, queries concerning the supply of desired items to *private* libraries can not be answered.

4. The conditions of all gifts are that the recipients shall be reputable organizations, composed of the regular medical profession; that the library shall be a public one, *i.e.*, open for consultation during stated times to physicians generally; and that, if unbound, the periodicals and books received shall be bound and catalogued.

5. Every physician is invited to give the books and periodicals for which he has no further use to public libraries, and having no particular choice, to correspond with Dr. Gould in reference to their disposal in order to secure the greatest usefulness by the profession.

6. Send nothing before corresponding, in order that the gifts may go direct from the donors to their proper destination.

7. In order to secure the best success, physicians and librarians of other countries are invited to coöperate.

FOR PRESENTATION.

Librarians needing any of the following volumes (all numbers inclusive) to complete their files are requested to apply for them:

American Journal of Medical Sciences, 1879 to 1890, except 1887, which is missing.

American Medical Association, Reports and Transactions, 21 odd volumes, 1847-8-53-55-56-66-68 to 76 and supplement volumes 1876 to 82.

American Clinical Lectures, Vol. 2 (1876).

American Medical Journal, 1884.

American Medical Times, Vols. 1 and 2 (1860-61).

American Public Health Association Reports, etc., Vols. 1 to 17.

One { Archives of Scientific Practical Medicine, Vol. 1 (1873).
Vol. { Chicago Medical Journal, Vol. 28 (1871).

Boston Medical and Surgical Journal, Vols. 94 to 99 (1876-78).

Braithwaite's Retrospect, Vols. 50 to 89.

Canada Lancet, Vol. 8 (1876).

Chicago Medical Journal and Examiner, Vols. 27 (1870); 33 (1876); 34, 35 (1877).

Cincinnati Lancet and Obstetrics, Vols. 18 and 19 (1875-76).

One { Canadian Journal Medical Science, 1876.
Vol. { London Medical Record, part of 1873.

Detroit Medical Review, Vol. 10 (1875-76).

Gaillard's Medical Journal, Vols. 46 and 47 (1888).

Journal of Nervous and Mental Diseases, Vol. 3 (1876).

Louisville Medical News (in one volume), Vols. 1, 2 and 3 (1876-77).

Medical News, Vols. 31 to 39 (1873-1881); also Vols. 43 to 47 (1883-85); Vols. 50 and 51 (1887), and Vols. ——— (1860-72); Vol. — (1880); Vols. ——— (1883-89); Vols. ——— (1891-95).

Medical Gazette, Vol. 4 (1870).

Medical Record, 4, 5, 6, 7 (1869-72), 12 (1877); (1890-93).

Medical and Surgical Reporter, Vols. 34, 35, 36 (1876-7). (1885-89.)

Monthly Abstract Medical Science, Vols. 2, 3, 4 (1875-77).

New York Medical Journal, Vols. 22, 23, 24, 25 (1875-77).

Obstetrical Journal of Great Britain and Ireland, Vols. 3, 4, 5, 6 and 7 (1875-7).

One volume miscellany.

Peninsular Journal Medical, Vol. 1 (1876).

Philadelphia Medical Times, 1870-1879, and 1882-1887.

Proceedings Philadelphia County Medical Society, Vols. 1 to 15 (1876-94).

Polyclinic, July to June, 1883-89.

Practitioner, The, 1868, July to December; 1869-73; 1877-94.

Quarterly Epitome, 1 to 20.

Reports and Transactions International Medical Congress in London, 1881. Four volumes.

Richmond Medical Journal, 1866-69.

Transactions of College of Physicians, 1889, 1890.

Transactions of Medico-Psychologic Association, 1895, Denver.

Transactions of Medical Society of Pennsylvania, 1865-1894. Twenty-five volumes.

Transactions of Medical Society of Virginia, 1896.

University Medical Magazine, October 1888 to September 1889.

FOR SALE.

The following volumes may be had at exceptionally low rates. Prices made upon application. These sets were bought remarkably cheap and will be sold at cost, but only to public medical libraries. Private buyers need not apply.

American Journal of the Medical Sciences, unbound, complete from November 1827 to December 1895.

London Medico-Chirurgical Transactions, complete, in cloth, from Vol. 1 to 77, with catalogue and index.

British and Foreign Medical Review, Vols. 5 to 24 (1836-47), and an index volume. In half-calf.

Johnson's Medico-Chirurgical Review, Vols. 1 to 42, including the years 1820-1843 in the old series and a continuation of six volumes in the new series, 1843-47. Cloth.

American Journal of Obstetrics and Diseases of Women and Children from the commencement in 1868 to 1895. Unbound.

PERIODICALS REQUIRED TO COMPLETE SETS.

The Library Committee of the McGill University, Montreal, will be grateful for any of the following periodicals, which should be addressed to the Library, Medical Faculty, McGill University:

American Journal of Obstetrics, The—Vol. 1, No. 7.

American Practitioner and News—Vol. 17, Nos. Dec. to June; Vol. 18, Jan. to July.

Anatomie und Physiologie, Hyman und Schwalte—All before Bd. 13, 1886.

Annals of Surgery—Vol. 5, Nos. 1, 2, 3, 4, 6; Vol. 6, Nos. 4, 5; Vol. 7, Nos. 1, 2; Vol. 8, Nos. 1, 2, 3, 5, 6; Vol. 9, Nos. 1, 2, 4, 5, 6; Vol. 10, Nos. 1, 3, 4, 5, 6; Vol. 12, Nos. 1, 2, 3, 4, 5; Vol. 13, Nos. 1 to 6; Vol. 14, Nos. 1 to 6; Vol. 15, Nos. 1 to 6; Vol. 16, Nos. 1 to 6.

Archiv für experimentelle Pathologie und Pharmakologie—All before 1881; Bd. 13, Heft. 2; Bd. 17, Heft. 5; Bd. 18, Heft. 1 to 6; Bd. 19, Heft. 1, 6; Bd. 20, Heft. 1 to 6.

Archiv für Klinische Chirurgie—All before 1876 and after 1877 to 1884; Band 33, Heft 3; Band 45, Heft 2, 3, 4.

Archiv für Mikroskopische Anatomie—All before 1886.

Archiv für Pathologische Anatomie und Physiologie und für Klinische Medicin, von R. Virchow—All before 1881; Bd. 87, Heft 2; Bd. 89, Heft 2, 3; Bd. 102, Heft 3; Bd. 108, Heft 1.

Archives of Surgery—All before 1890.

Berliner Klinische Wochenschrift—All before 1880; Vol. 88, Nos. 1 to 40.

Brain—Vol. 9 and from Vol. 11.

British Journal of Dermatology—All before 1891; Vol. 6, No. 5.

Canada Lancet, The—Vol. 1, Vol. 2; Vol. 23, Jan. Feb. July; Vol. 24, Oct.; Vol. 26, Sept., Oct., Nov., Dec.; Vol. 27, Oct., Jan., March and June.

Canada Medical Record—Vol. 2, No. 4 and index; Vols. 13 to 18, want index; Vol. 19, Nos. 6, 7; Vol. 20, Nos. 1, 2: Vol. 21, Nos. 2 to 12; Vol. 22, Nos. 1, 2, 3, 4, 5, 7, 8, 9, 10, 11.

Centralblatt für Bakteriologie und Parasitenkunde—Bd. 14, No. 15; Vol. 10, No. 9; Vol. 11, No. 25.

Centralblatt für Chirurgie—All before 1886.

Climatologist, The—Vol. 1, Nos. 1, 5; Vol. 2, No. 5, and all after.

College of Physicians, Transactions of the—All before 1879.

Congress of American Physicians and Surgeons, Transactions of the—All before 1891.

Deutsches Archiv für klinische Medicin—Vol. 54.

Deutsche medicinische Wochenschrift—All before 1886; Vols. 1891-93.

Dominion Medical Monthly—1893, No. 6; 1894, No. 6.

Edinburgh Medical Journal, The—Vol. 16; Dec. 1894; April, 1895; June, 1895.

Gazette Médicale de Montreal, La—Vol. 1.

Gynecological Journal—All after 1872.

Gynecological Transactions—Vols. 3, and all after 1881.

Guy's Hospital Reports—Series 3, Vols. 16, 25.

St. Bartholomew's Hospital Reports—Vols. 27, 28.

Royal London Ophthalmic Hospital Reports—Vol. 5, Part 3; Vol. 10, Part 2; Vol. 11, Part 3; Vol. 12, Part 3; Vol. 13, Index.

Jahresbericht über die Fortschritte der Anatomie und Physiologie—Bd. 12.

Jahresbericht über die Leistungen und Fortschritte in der Gesammten Medicin—All before 1882; Band 2, Abth. 3.

Journal de l'Anatomie et de la Physiologie—All before 1886.

Journal of the American Medical Association—Vol. 2, Feb. 2-16, May 24; Vol. 3, July 26, Sept. 20, Oct. 11-18 25, Nov. 1; Vol. 4, Jan. 10, 24, April 25; Vol. 5, July 18, Sept. 12-19, Oct. 3, Nov. 28, Dec. 19; Vol. 8, Jan. 1, March 19, April 9-16-23-30, May 7-21, June entire; Vol. 9, July 9-16-23, Aug. 6-13-20, Sept. 10, Oct. 8, Nov. entire, Dec. 3-10-17; Vol. 11, July 21, Sept. 8, Oct. 6, Nov. 24; Vol. 12, Jan. 12, Feb. 16-23, April 27, May 4, June 8; Vol. 13, Aug. 10, 24, 31, Sept. 7, Oct. 26, Nov. 9, Dec. 7-14; Vol. 14, Jan. entire, Feb. 1-22, March 8-15-22, April 19-26, May 24-31, June entire.

Journal of Cutaneous and Genito-Urinary Diseases—Vol. 2, Vol. 3; Vol. 4, Nos. 1, 4 to 12: Vol. 6. Nos. 5, 8, 9; Vol. 7.

Journal of Cutaneous and Venereal Diseases—Vol. 1, Nos. 3. 4, 8, 10, 11, 12; Vol. 2, Nos. 1, 2; Vol. 4, Nos. 1, 2, 3, 10, 11.

Medical News, The—All before 1882.

Medical Record, The—All before 1875.

Montreal Medical Gazette—Vol. 1.

New York Medical Journal, The—All before 1883; 1885, Nos. 1, 2; 1886, Nos. 1, 2; 1887, Nos. 1, 2; 1888, Nos. 1, 2.

Ontario Medical Journal, The—Vol. 1; Vol. 2, Nos. 1, 6; Vol. 3.

Ophthalmological Society of the United Kingdom, Transactions of the—Vols. 1, 2, 3.

Pathological Society of London, Transactions of the—Vols. 1, 2, 3, 20.

Pharmaceutical Journal and Transactions—Second series, Nos. 4, 5, and all after 1886.

Practitioner, The (London)—Vol. 29.

Revue de Chirurgie—All before 1886.

Revue de Médecine—Tome 3, No. 2; Tome 4, No. 1; Tome 5. Nos. 2, 3.

Revue des Sciences Médicales—Tomes 1, 6, 10, 26.

Royal Academy of Medicine in Ireland, Transactions of the—Vols. 1, 2, and all after 1888.

Sanitarian, The—Vol. 31, Sept.; Vol. 32, March, June, July, Oct., Nov., Dec.

Schmidt's Jahrbücher—All before 1884.

Société de Biologie—Tomes 2, 3, 4, and all after Tome 5.

Therapeutic Gazette, The—All before 1881; Vol. 14, Nos. 5, 11, 12; Vol. 17. Nos. 1, 2, 3, 4, 8, 12; Vol. 18.

Union Médicale, L'—Vol. 7, Nos. 2, 8; Vol. 8, No. 12.

Year-Book of Pharmacy—All before 1870 and after 1880.

Zeitschrift für Klinische Medicin—Band 4, Nos. 3, 5, 6; Band 8, No. 4; Band 9, Nos. 10, 11, 12; Band 13, Nos. 1, 6; Band 14, Nos. 4, 5, 6.

The Practice of Medicine. By Horatio C. Wood, A.M., M.D., LL.D., and Reginald H. Fitz, A.M., M.D. Philadelphia: The J. B. Lippincott Co. 1896.

Anything emanating from the pen of two of the most distinguished American physicians, as these are, would attract attention, and this book, which has been prepared by perhaps our ablest pathologist and our ablest clinician, is one which will be a credit not only to the English language in which it is written, but to America, and will undoubtedly be received abroad as the highest type of an American production. The style of the work is naturally somewhat dogmatic, but its careful condensation compensates for this, as there is nothing superfluous in the book from beginning to end. A clean-cut statement of the conviction of the authors and the state of their knowledge on the subjects treated is given.

In the treatment of typhoid fever we notice that the book gives little space or consideration to the so-called antiseptic treatment. Indeed, it is not mentioned as such, although turpentine, one of the most robust antiseptics, is still adhered to by Dr. Wood, as it was by his uncle who introduced it. We notice with some surprise in the formulary in the appendix that the old dose system has been used, although Professor Fitz himself is a Boston man; it is the home of the American metric bureau, and the active center of its propaganda. The book will remain a favorite for many years to come.

A Text-Book of Materia Medica, Therapeutics and Pharmacology. By George F. Butler, Ph.G., M.D., Professor of Materia Medica and of Clinical Medicine in the College of Physicians and Surgeons, Chicago, etc. Price, cl., $4; 8vo, pp. 858. Chicago agent, W. T. Keener. Philadelphia: W. B. Saunders. 1896.

Dr. Butler has produced a very creditable book, and one that in our judgment is destined to become popular. The contents of the book include: 1, pharmacology and general therapeutics; 2, pharmaceutic preparations; 3, disease medicines; 4, antiseptics: 5, symptom medicines; 6, topical remedies.

That too little attention to materia medica is given in these degenerate days we think there is no question, and although there are already several excellent works on therapeutics on the market, we are not likely to have too many. We commend the author for having modernized his book by adopting the Romanesque pronunciation, and designating the precise orthoëpy for all the names; for the use of the decimal system throughout and for having conveniently placed the genitive form after each official name. These features will be of great use to students. That the work is quite up to date is seen by the section on organo-therapy and serumtherapy. We are of impression that the French quotations, such for example, as the ones from Bernheim on pages 271 and 293 should have been translated into English, especially as there is a typographic error in the first. Taken as a whole the book may fairly be considered as one of the most satisfactory of any single-volume work on materia medica on the market.

A Treatise on Surgery by American Authors. For Students and Practitioners of Surgery and Medicine. Edited by Roswell Park, A.M., M.D. Vol. II. Special or Regional Surgery, with 451 engravings and 17 full-page plates in colors and monochrome. 8vo, cloth, pp. 804. Philadelphia and New York: Lea Bros. & Co. 1896.

The contributors to Vol. II are Drs. Park, E. H. Bradford, Duncan Eve, D. Bryson Delavan, Edmond Souchon, Frederick S. Dennis, A. D. Bevan, M. H. Richardson, Farrar Cobb, Chas. B. Kelsey, W. T. Belfield, James H. Etheridge, Chas. B. Parker, Rudolph Matas, Robert W. Lovett, Arpad G. Gerster, Chas. S. Bull and Clarence J. Blake.

The work is characterized by thoroughness of detail and breadth of general knowledge. The many excellent works on

surgery now on the market (International, Dennis' System, Moullin, American Text-book, Treves) prevent our quoting this as the best, but there are few that surpass it in general utility. The authors have done well in escaping the old rut, by providing so many original illustrations, and the publisher has given the text a handsome setting. There is some unevenness between the articles, perhaps inseparable from joint authorship, but some of the chapters are of exceptional merit.

The work as a whole compares favorably with other recent American works, and is a creditable addition to current medical literature.

Medical Jurisprudence, Forensic Medicine and Toxicology. By R. A. WITTHAUS, A.M., M.D., and TRACY C. BECKER, A.B., LL.B., and a staff of collaborators. In four royal octavo volumes. Volume IV., Toxicology. New York: William Wood & Company. 1896.

The completion of this volume adds another magnificent work on jurisprudence to the already creditable list of American works on the subject.

We have recorded our favorable opinion of the first three volumes of this series. This volume, devoted entirely to toxicology, is not only equal to its predecessors, but in some respects the most interesting. The chapter on the history of poisons, by way of introduction, is a credit to American medical literature.

The practical value of this work has been much increased by the copious index at the end of each volume.

Anatomical Atlas of Obstetric Diagnosis and Treatment. By OSCAR SCHAEFFER, M.D. With 145 illustrations; 12mo, cl., pp. 234. New York: William Wood & Co. 1896.

This volume adds another useful volume to the excellent series of atlases published by this well-known firm. The book, says Dr. Schaeffer, "deals with the morphology of the female pelvic organs as the anatomic basis of the physiologic and pathologic phenomena of pregnancy and labor." From this basis the diagnosis is deduced and the pathologic changes can be estimated. The book is much more than an atlas, for the accompanying text is very instructive. Gentlemen preparing for examinations will find the work invaluable, and practitioners will be able to refresh their obstetric knowledge with some additions by its perusal.

Fourteenth Biennial Report of the State Board of Health of California, for the fiscal years from June 30, 1894, to June 30, 1896. Also, the Transactions of the Fourth Annual Sanitary Convention held at Los Angeles, April 20, 1896. Sacramento: A. J. Johnston, Superintendent of State Printing. 1896.

There are more voluminous reports than the one under consideration, but there are few that show more intelligent supervision of public health. In addition to the statistic tables showing the mortality of various diseases throughout the State, there are special reports from committees appointed to investigate various public institutions, and the papers read at the annual State sanitary convention. Dr. W. F. Wiard of Sacramento is president and Dr. J. R. Laine of Sacramento is secretary.

Transactions of the Texas State Medical Association, Twenty-eighth Annual Session, held at Fort Worth, Texas, 1896. Paper, pp. 470. Printed for the Association. 1896.

This handsomely printed volume tells a pleasant story of the great activity of the Texas profession in medical progress and the advancement of science. The business features of the meeting were mostly of local interest, although we notice resolutions reaffirming their adhesion to the Code of Ethics of the AMERICAN MEDICAL ASSOCIATION and favoring the transfer of the State quarantines to the National Government. The papers are of a high order; among those of home production we notice articles respectively by Drs. J. M. Cline, A. H. Schenk, W. R. Blailock, H. L. Tate, David Cerna, C. O. Matthews, Lawrence Ashton, J. J. Williamson, W. M. Yater, J. E. Gilchrist, W. J. Lane, Z. T. Bundy, Henry P. Cookes, F. E. Daniel, T. J. Bell, R. R. Walker, A. W. Fly, F. S. White, J. Aloysius Mullen, J. O. McReynolds, H. L. Hillgartner, E. J. Mathery, G. W. Grove, R. F. Miller. V. H. Hulen, Geo. H. Lee and R. W. Knox. Authors from New York, Philadelphia, New Orleans and elsewhere, contributed to the volume, which has been carefully edited by the accomplished secretary, Dr. H. A. West of Galveston.

Twenty-seventh Annual Report of the State Board of Health of Massachusetts. Bds., pp. 808, 8vo. Boston. 1896.

The annual reports of this Board have always taken the front rank among publications on sanitary subjects. Indeed it is not too much to claim for this Board that from its beginning in 1870 the reports issued have served as a model. The routine work as set forth in the current volume shows that the cities and towns of the Old Bay State appreciate the work of their Board of Health, and have year by year learned to depend more and more upon their advice in all matters affecting their respective municipalities. Nor is this aid to municipalities the sole good accomplished; every year some new topic of public hygiene is made a prominent feature of the report, with the effect of materially adding to our knowledge of the subject. Last year it was water filtration and the results of the experiment stations, and this year the accounts are continued. A favorable judgment of the use of diphtheria antitoxin is recorded, based on abundant observations. The experiments upon the purification of sewage at the Lawrence have been continued. The Massachusetts commonwealth is really benefiting the other States by the maintenance of this now famous station almost as much as herself. Those interested will find careful studies of the question of the permanency of sewage filters, the best modes of management to secure this permanency, the preliminary treatment of sewage by different methods to remove sludge before filtration, and different methods of aerating sewage filters to secure the greatest efficiency, and as well discussion of the methods of utilization of sewage for industrial purposes.

Transactions of the Fifty-first Annual Meeting of the Ohio State Medical Society, held at Columbus, May 27, 28 and 29, 1896. Cl., pp. 492; 8vo. Toledo.

The volume has as a frontispiece an excellent picture of the president, Dr. Daniel Milliken of Hamilton, whose presidential address was replete with sound advice. The addresses are excellent and some of the papers admirable. Obituary notices of Drs. Wm. S. Battles, T. J. Barton, Henry C. Beard, C. G. Comegys, T. M. Cook, Joseph Price and W. J. Scott are included in the volume. A copy of the new act to regulate the practice of medicine in Ohio, a list of members and a good index complete the volume.

The volume has been carefully edited by the secretary, Dr. Thomas Hubbard of Toledo.

Transactions of the New Hampshire Medical Society, at the 105th anniversary held at Concord, June 1 and 2, 1896. Cl., pp. 202, 8vo. Concord, N. H.

One of the entertaining features of the New Hampshire Medical Society is the annual dinner and the excellent postprandial speeches. In this particular few medical societies surpass that of the Old Granite State. Nor are the scientific needs of the meeting in any way neglected. The president's address (Dr. McQuesten) is instructive and the address of Dr. Gore with the discussion thereon by Dr. Conn and Dr. Hiland constitute an important contribution to climatology.

The next meeting of the society will be held in Concord the last week in May, 1897, under the presidency of Dr. A. P. Richardson of Walpole.

Preservation of Human Heads.—The *Journal D'Hygiène* of October 29, describes a simple process by which the savages of New Zealand prevent decomposition and keep as trophies the heads of their enemies in a perfect state of preservation. It suggests that a most interesting collection of specimens of the different races of the world might be made by this process for the practical study of ethnology.

NEW INSTRUMENTS.

A MODIFIED DIRECTOR.

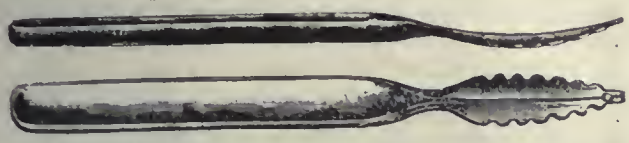
BY E. R. LARNED,
CLASS OF '97, RUSH MEDICAL COLLEGE.

For the purposes of blunt dissection, no surgical instrument is so universally used as the grooved "director" devised by Professor Kocher of Berne, and yet it does not fully meet all the requirements of the general surgeon.

The writer does not claim perfection for this modified instrument, but believes that the alterations from the original have added very largely to its usefulness.

These changes consist in having the entire instrument made from one piece of metal (the handle portion being concave on two sides to decrease weight) for it is obvious that a solid instrument will not make as many visits to the repair shop as the one with a soldered hollow handle.

The blade has been made longer, more curved and much thinner than the ordinary director to facilitate working *around* glandular structures, in vascular regions, particularly in operations for the enucleation of tubercular and carcinomatous glands, and in the inguinal regions where thin-walled abscesses are likely to be punctured in the use of the knife.



The principal modification will be seen to be the serrations in the edges of the blade, which may vary in number and size to suit individual preferences as well as the length and width of the blade.

The purpose of these serrations is to enable the operator to use a sawing or tearing motion, increasing his power in separating tissues and breaking down adhesions, obviating still further the use of the knife after the initial incision.

The blade is grooved to guide the knife when it must be used (as in dividing the sterno-cleido-mastoid muscle in enucleating deep cervical glands); one groove is substituted for the three in the ordinary instrument, doing away with two unnecessary grooves and permitting greater thinness of the blade without diminution of its strength.

A fenestra at the tip of the blade as in Kocher's latest pattern permits its use as a ligature carrier—so that when necessary, vessels may be tied speedily without the aid of an aneurysm needle or regular ligature carrier. Directors without fenestræ may be obtained.

The instrument illustrated was made by Messrs. Drake & Mueller, 266 Ogden Avenue, Chicago, from the writer's model and was suggested by witnessing the frequent use of Kocher's director in the multitude of operations seen during three years attendance upon the surgical clinics of Rush Medical College, and by the statements of surgeon friends.

A NEW GROOVED ASPIRATOR NEEDLE.

BY J.A. DIBRELL, JR., M.D.
PROFESSOR OF ANATOMY, ARKANSAS INDUSTRIAL UNIVERSITY, MEDICAL DEPARTMENT.
LITTLE ROCK, ARK.

In a case of suspected pelvic abscess, I introduced an aspirator needle for diagnostic purposes, and finding pus, I incised the vaginal mucous membrane at the base of the needle with the intention of conducting along the round needle a director, and in the groove of this instrument a narrow scissors with the view of so dilating the opening that I could insert a drainage tube, irrigate and secure drainage.

Though the director was rather sharp pointed, the result was to push it out of the abscess wall.

It occurred to me that an aspirator needle could be made with a groove like a director for use in similar cases, and when the presence of pus or other accumulations are found, that the grooved director needle could be used without removal, to conduct a knife, scissors or other instruments for dilatation, and the introduction of drainage tubes.

I submitted a design and description of the needle to be made, to George Tiemann & Co., of New York City, who made the needle for me which is represented in the folowing cut.



The needle can be made of any size.

There are many conditions beside pelvic abscesses which will suggest themselves to the surgeon, in which such an instrument may be convenient; in accumulations in the pleural cavities for example.

There are also hepatic abscesses in which there are sometimes chunks of necrosed hepatic tissue too large to pass through any aspirator needle or trocar, and in which drainage becomes a necessity.

SOCIETY NEWS.

The Western Surgical and Gynecological Association.—The fifth annual meeting of the Western Surgical and Gynecological Association will be held at Topeka, Kas., Monday and Tuesday, Dec. 28 and 29. We desire to extend to all regular physicians and surgeons a cordial invitation to be present and take a part in the proceedings. Topeka is a delightful city, noted for its hospitality and the local profession have arranged for our entertainment. A strong program is assured. Opening session at 1 P.M., December 28. H. E. Pearse, M.D., Secretary.

Association of Assistant Physicians of Hospitals for the Insane. The fourth meeting of this association will be held at the Eastern Michigan Asylum, Pontiac, Mich., on Dec. 3 and 4, 1896.

IRWIN H. NEFF, Pontiac, Secretary.

NECROLOGY.

CHARLES M. KITTREDGE, M.D., of Fishkill-on-the-Hudson, N. Y., died suddenly at Mount Vernon, N. H., on August 19. His death is believed to have been due to apoplexy. He had been in poor health and his case had been considered as very serious. He was suffering from Bright's disease, and he passed through a severe and dangerous attack from that malady in June. He left for New Hampshire on June 23, accompanied by his children, to spend the summer months in his native town, in hopes of gaining strength among the New Hampshire hills. Dr. Kittredge had been no worse since he left Fishkill and it could not be said that he had improved in health. Dr. Kittredge was born at Mount Vernon, 58 years ago. He spent his boyhood days there, finally taking up the study of medicine, after a liberal academic education. He graduated from Howard Medical College in 1867. He went to Fishkill twenty-six years ago, but previous to that he had been in the Hartford Retreat, an institution for the treatment of nervous diseases. At Fishkill-on-Hudson he established a home for nervous people, which comprised a beautiful estate. Dr. Kittredge took a great interest in his home, and he had one of the most beautiful and complete places in that town. He was one of the most prominent and best known citizens and was largely identified with all the movements to promote the welfare of the town. No one knew him but to like him and we believe that everybody was his friend. As a physician he had a prominence and he was a successful practitioner, though he did not care for an extensive practice, as he had his home

to look after. Dr. Kittredge was one of our well-known base singers and his excellent voice was often heard at the church concerts and at funerals. His wife died three years ago. Dr. Kittredge took a great interest in military matters. He served in the late war, enlisting in Company B, 13th Regiment Volunteers, of New Hampshire, Sept. 18, 1862. He enlisted as first sergeant and was promoted on March 26, 1863, to second lieutenant.

J. S. WINTERMUTE, M.D., of Tacoma, Wash., was shot by an insane patient on the morning of November 10, the bullet passing through the abdomen making six perforations of the intestines. The abdomen was opened and the bullet wounds in the intestines stitched up, but he died a few moments after leaving the operating table. James Stinson Wintermute was born April 27, 1860, at St. Paul, Minn. His boyhood years were spent in Canada; he entered the University of Michigan in 1879 and graduated at Rush College, Chicago, in 1883. Dr. Wintermute went to Tacoma, Wash., in 1884 and soon took a place in the front rank of the physicians in this city. He was married in 1888 to Miss Florence K. Jones of Olympia, and one son survives him. Dr. Wintermute has paid special attention to surgery and his practice in this line during the good times was a very lucrative one and he also accumulated quite a sum from fortunate real estate transactions. He was a member of the Pierce County Medical Society and also of the Washington State Medical Society.

DR. GEORGE W. BETTON died at his home in Tallahassee, Fla., on All Saints Day, Sunday Nov. 1, 1896, after a short illness. He was born in Alexandria, Va., on Feb. 22, 1822, and at the early age of four, before the days of railroads, he came with his parents to Florida on board a sailing vessel and landed on the Gulf Coast at the port of St. Marks. In 1842 he was graduated as Bachelor of Arts from St. Johns College, Annapolis, Md. He next attended lectures at the University of Pennsylvania at Philadelphia, and on the 4th of April 1845 received the degree of Doctor of Medicine from that time-honored institution. Although in his 74th year at the time of his death he still continued in active practice of his profession of medicine which he had followed for more than forty years.

PUBLIC HEALTH.

Etiology of Typhoid Fever.—The epidemic at Rheims among the dragoons was traced unmistakably to the dust stirred up by their evolutions, and Uffelmann's experiments demonstrate that the dried typhoid bacillus as also the cholera microbe can be disseminated in the air, and thus alight in dust on articles of food. Similar experiences are reported from Belgium as the cause of the present slight epidemic at Tirlemont. These facts tend to show that the water supply is not always to blame in epidemics of typhoid fever.—From *Journal d'Hygiène*, October 29.

Epidemic of Scarlet Fever in Brazil.—Dos Reis describes in the *Gazeta Méd. da Bahia* a recent epidemic of scarlet fever in Curityba, lasting almost a year. He had himself over five hundred cases in his practice. The disease was unusually severe in its manifestations, with many deaths and cases of consecutive paralysis and nephritis. More adults were attacked than children under 10 and it was more serious with them. He describes his treatment in detail, with which he was very successful, stating that the only deaths among his patients 4 per cent. were those whom he saw for the first time in an advanced and most critical stage.

The Garbage Question at Baltimore.—The following comments by the *Baltimore Herald* indicate how civic work is sometimes done, only to be done over again: "The agitation of the problem how to dispose of garbage in the most economical and satisfactory manner has borne fruit in the appointment of a special committee from the city council, which will visit various cities to study the methods in vogue there, and report the results of the investigations. Whether this is the most practical way of ascertaining what is the best method may be questioned. Men without special knowledge of the subject are hardly in a position to perceive and weigh the relative advantages of the several systems in vogue, special study being required to arrive at an intelligent comprehension of details. At the same time, however, the disposal of garbage otherwise than by dumping it in some more or less remote place has passed the stage of experiment. Reduction or incineration plants are being successfully operated in nearly all progressive cities. Not only do they dispose of the waste material which would otherwise contaminate the soil or pollute water courses but they make possible a considerable reduction in the expense of removal. The products of incineration or reduction, unlike when offal is merely carted away and dumped, have a commercial value which, in some instances, not only covers the cost of the processes, but leaves a margin of profit. The principal consideration, however, is that such disposal removes a grave menace to health. In Baltimore garbage is collected, loaded on scows and carried some distance down the river to be dumped into the water. Aside from the wastefulness of the proceeding, the decomposing vegetable and animal matter helps to fill up the ship channel and becomes a menace from a hygienic standpoint."

A Sanitary Triumph; Swill-feeding Enjoined at Philadelphia.—The Board of Health of Philadelpia has been waging war since February last against the use of the city's garbage for the feeding of pigs at points a short distance beyond the city limits. This matter culminated on October 17, at a trial in the court of common pleas. The bearing of this proceeding is stated as follows in the October issue of *Public Health*, and is held to be a victory for sanitation in the State at large: "This was an application for an injunction to restrain the defendant from collecting kitchen garbage and offal in any part of the city, from carrying it through the streets of the city, and then disposing of it to hogs, or by spreading it upon lands in the city or adjoining it. The allegation was that of collecting garbage and conveying it to a farm in Delaware County, near the county line, where he fed it to hogs; that he had no contract with the city for the collection of garbage, nor any license or permit from the Board of Health; that this course of conduct was in violation of the ordinances of Councils and the regulations of the Board of Health; that it was liable to prejudice the public health by reason of the bad odors which were carried from the farm to the city, and the probable sale of the unwholesome flesh of such fed hogs in the city. The defendant's answer consisted of admission of fact and denial of matters of law, and after arguments the court granted the injunction asked for by the city. When the case was called it was found that a cross suit had been brought asking for a mandamus to compel the Board of Health of Philadelphia to grant these parties a permit to conduct the business in any way that seemed good to them. The court held that the Board of Health of Philadelphia was established for the express purpose of deciding questions of this kind, and that, should the court grant the mandamus it would be usurping the functions of the Board and itself issuing the license, or that, in other words, the court would be substituting itself for the Board. The effect of this decision will be very far-reaching and will strengthen the position of every board of health in the State."

A Low Rate of Mortality.—The monthly statement of the Board of Health of the State of New York, for September, shows the low rate of mortality for the whole State of 17.5 per mille. Of the cities having 100,000 population or over, Rochester had 13.2, Buffalo 13.8, Syracuse 14.0, Brooklyn 18.2, Albany 18.6, New York City 18.7, respectively. There were

500 fewer deaths reported than in the corresponding month of last year. Among zymotic diseases the only material difference from the mortality of September, 1895, is in diarrheal diseases, from which the number of deaths is less by 600; the mortality from all diseases of the digestive organs is diminished. Acute respiratory diseases caused 150 more deaths, and from diseases of the circulatory system there were 100 more deaths than a year ago; from other local diseases as also from consumption and constitutional diseases there was no material variation. There were 800 fewer deaths under 5 years of age. Compared with the preceding month of August, the total reported mortality is decreased by 3,000, the deaths under 5 years of age being fewer by 1,200. Among zymotic diseases, the diarrheal mortality was not half as large. Typhoid fever, malarial diseases and diphtheria show an increase; whooping cough a decrease. Acute respiratory diseases have increased, all other local diseases diminished, and the deaths from accidents and violence, under which was placed last month a number from sunstroke, have fallen to the normal. The death rate from all causes is 17.50 against 23.25 in August and 18.50 in September last. The percentage of infant and zymotic mortality are respectively 36.0 and 19.75 against 49.0 and 24.65 in August, and 41.5 and 25.0 in September last. The September prevalence of typhoid fever is excessive in the Hudson and Mohawk Valley districts and in the Southern Tier and East Central districts; the percentage of deaths from typhoid fever in urban parts of the State was 2.0; in rural parts of the State 3.66. Diphtheria increased a little from August, but caused fewer deaths than in September of any year for ten years; in cities and villages it caused 3.50 per cent. of the deaths; in rural parts of the State, 1.57 per cent. Scarlet fever continues to cause few deaths, but is more widely distributed than in August.

Illinois Vaccine Establishment.—The following is Dr. Cook's report:

MENDOTA, ILL., Oct. 30, 1896.

To B. M. Griffith, M.D., President Illinois State Board of Health.

Dear Doctor:—In compliance with your request, conveyed to me by letter of the 22nd inst., from Dr. J. W. Scott, Secretary of the State Board of Health, I visited Urbana on the 26th inst., and, as desired, inspected the State Vaccine Propagation Station established in connection with the veterinary department of the Agricultural College of the State University.

By an Act of the Legislature, approved June 15, 1895, in force July 1, 1895, it was made the duty of the Trustees of the University to establish and manage "a laboratory in connection with the State University for the propagation of pure vaccine virus." It was provided in said Act, "That the State Board of Health shall exercise supervision of the methods of propagation and certify to the purity of all products."

In the interest of public health provision was thus made by the State to put in operation a vaccine propagation laboratory, to be equipped with all of the modern appliances, and under most approved conditions to produce a vaccine virus of such purity and effectiveness that the medical profession and the public could be assured of its safety and potency to prevent one of the remaining scourges of humanity—smallpox. We need not recite what is so well known, namely, the very great importance of knowledge, skill and conscientious care in all the details to be followed in providing an agent so valuable as a preventive of a loathsome disease. And further fact that its wider usefulness will be much advanced by increasing confidence on the part of the medical profession and public in the purity and reliability of the virus thus produced. It is to be regretted that the commercial spirit—the question of profit accruing to private parties—has so dominated its production as to cause want of confidence in the purity and safety of much of the vaccine virus on the market. Prompted by that knowledge, and actuated by the desire to advance a great public sanitary interest, the Legislature, at the suggestion of the State Board of Health, made provision for the establishment of a propagation station in connection with her great University, feeling confident that the work would be in hands in every way competent and reliable, fully informed in all the recognized methods and free from the trammels of desire for pecuniary gain.

We have the pleasure of reporting that every facility was given us to inspect thoroughly the State Vaccine Laboratory. We were fortunate in meeting and being aided in our examination by two members of the faculty of the University who have taken especial interest in and have given much personal attention to all the details necessary to equip and manage the Laboratory. We refer to Dr. Thomas I. Burrill, Vice-President, Dean of the General Faculty, and Professor of Botany and Horticulture; and Dr. Donald McIntosh, V. S., Professor of Veterinary Science, who is in charge of the Laboratory. These gentlemen are eminently competent, by reason of scientific attainments, to accomplish the work assigned to them and impress one with the thought that their desire and effort is to produce a product the purity and reliability of which can be certified by the State Board of Health.

We indorse the following extract taken from a recent circular letter sent out from the Laboratory: "The Laboratory, an isolated building to be used for no other purpose, has been provided and properly equipped to attain the purposes of the law. The most careful attention has been given to everything which can facilitate freedom from contamination. The ceilings, walls and floors of the operating and animal rooms are so finished that they can be frequently washed with hose and scrubbing-brush and thoroughly disinfected. A crematory is provided for burning all litter and other organic matter. None but animals bred by the university, or of well-known parentage and selected with great care will be used. Everything is being done to secure bacterial cleanliness and insure the preservation of the virus in a state of reliable purity."

Careful examination verified the correctness of the above statement. The building had been constructed for and used by the veterinary department. Some necessary changes were made in its arrangements, adapting it very well to the purpose of a vaccine laboratory. It is very pleasantly located in a grove nearly equidistant from University Hall and the buildings on the university experimental farm. In its exterior it has the appearance of a neat cottage, being extended in one of its dimensions by that part of the structure that is the temporary home of the juvenile bovines, in whose living laboratory is produced the animal immunizing agent—vaccine virus. The grounds, like all others about the university, are neatly kept. The interior of the building is pleasing. It is a model of neatness; with office, operating room and room adjoining, equipped with modern facilities for sterilizing, etc. The rooms for the heifers—we can not call them stalls—are convenient, well lighted and ventilated. The degree of cleanliness of all approaches very nearly that of one of our modern hospitals. The heifers selected are the best obtainable and their care and treatment the best possible. Their preparation for inoculation, the operation, subsequent care and process of securing and preserving the lymph are as aseptically done as possible. We only need to add that Sec. 3 of the Act establishing the laboratory reads: "That the product of the vaccine laboratory shall be furnished all physicians and health officers within the State at the cost of propagation."

Permit us to say that it is a great satisfaction to know that this, the first effort on the part of the State to produce and supply the people with an agent of universal value in preventing a terrible disease promises to be so successful, and that the money thus appropriated has been wisely expended. We can but feel that this and other kindred interests relating to the public health and the prevention and cure of disease appeal to our legislators for generous appropriations. Other States have demonstrated the feasibility and good results of establishing and sustaining laboratories for the production of antitoxin in the interest of public health. EDGAR P. COOK, M.D.

Health Report.—The following reports of mortality from smallpox, cholera and yellow fever have been received in the office of the Marine Hospital Bureau of the Treasury Department:

SMALLPOX—FOREIGN.

Athens, May 1 to 31, 7 cases, 1 death; June 1 to 30, 5 cases, 1 death; July 1 to 31, 1 case, 1 death; August 1 to 31, 4 cases.
Alexandria, July 23 to 29, 1 death.
Barcelona, September 1 to 30, 15 deaths.
Birmingham, October 17 to 24, 1 case.
Cairo, July 23 to 29, 3 deaths.
Gibraltar, October 11 to 18, 2 cases.
Havana, October 15 to 29, 470 cases, 69 deaths.
Licata, Italy, October 10 to 17, 5 deaths.
Liverpool, October 10 to 17, 1 case.
London, October 10 to 17, 2 cases.
Montevido, September 19 to October 3, 10 cases, 3 deaths.
Mozambique, August 1 to 31, 1 case.

Odessa, October 10 to 17, 16 cases, 3 deaths.
Rio de Janeiro, September 26 to October 3, 10 cases, 1 death.
St. Petersburg, October 10 to 17, 13 cases.
Tuxpan, Mexico, October 10 to 17, 4 deaths.
Warsaw, October 3 to 17, 13 deaths.

CHOLERA.

Alexandria, July 23 to 29, 24 deaths.
Bombay, September 30 to October 6, 11 deaths.
Cairo, July 23 to 29, 11 deaths.
Calcutta, September 19 to 26, 4 deaths.
Madras, September 26 to October 2, 8 deaths.
Yokohama, October 2 to 9, 2 cases, 2 deaths.

YELLOW FEVER.

Havana, October 15 to 29, 345 cases, 128 deaths.
Matanzas, October 21 to 28, 10 deaths.
Rio de Janeiro, September 26 to October 3, 5 cases, 1 death.
Sagua la Grande, October 10 to 24, 168 cases, 13 deaths.

MISCELLANY.

Customs of Russian Doctors.—The Russian physician, the *Record* says, considers it beneath his dignity to send a bill to a patient, but leaves it to the patient to pay what he thinks proper. Many think it proper to pay nothing. Are you acting the Russian in business matters? If so neither free silver, free gold, nor anything can save you from financial distress.—*Kansas City Medical Index.*

Illinois State Board of Health.—At the last meeting of the Illinois State Board of Health the "Illinois Medical College" was given further time in which to complete its equipment of the school, in order to obtain recognition; it has not yet been recognized. The "Dunham" Medical College (homeop.) was given time in which to complete its equipment. The "Harvard" Medical College was given authority to change its name to that of the Jenner Medical College.

Commission to Investigate Charitable Interests.—A resolution was passed by the legislature of Massachusetts at its recent session providing that the governor, by and with the advice of the council, appoint a commission, consisting of three persons, to investigate the public charitable and reformatory interests and institutions of the State; to inquire into the expediency of revising the system of administering the same and of revising all existing laws in regard to pauperism and insanity, including all laws relating to pauper settlements; and furthermore to inquire into the relation of pauperism and insanity to crime, with a view to securing economy and efficiency in the care of the poor and insane in the State. The commission is authorized to employ a stenographer and is given power to send for persons and papers, and to incur such expenses and receive such compensation for their services as the governor and council may determine. It is to submit its report, with a bill or bills, if practicable, to the governor and council before the first day of February, 1897.

Early Aid for Injured Employes.—The number of indemnities paid to injured employes in Berlin has dropped to about one-third since the practice has been adopted of taking charge of them with trained attendance from the start, and thus preventing the development of serious complications. The number of deaths has also decreased in proportion. The patients are restored to their work in the shortest possible space of time, and it is calculated that many thousands of dollars have thus been saved to the corporations which insure their employes against accidents. The *Journal D'Hygiène* of October 22, contains the report presented at the recent Samaritan Congress at Berlin. The ten "emergency stations" for first aid to the wounded, that were established by the corporations, are open also to the general public as the city allows them an annual appropriation of 1,000 marks. During 1895 they took charge of 13,856 injured persons; 7,508 belonging to the corporations. Over one-half the rest were too poor to reimburse the corporations for the expenses incurred on their behalf.

Deformity-Producing Shoes.—According to a recent article in the *Boston Med. and Surg. Reporter*, the ability to walk erect which distinguishes men from the lower animals, is menaced by our present fashions in foot gear. The writer evidently thinks it useless to combat the styles of shoes in vogue among adults, but he makes a vigorous appeal to have the feet of our children preserved from deformity, by supplying them with hygienic foot covering. He hopes that by the time they have attained maturity the fashions in shoes will become more sensible; and urges in the meanwhile that their shoes should be constructed on scientific principles. The sole of the shoe should not taper toward the toes, but should be broadest at the base of the toes, and continue broad or even wider to the tip, instead of compressing and utterly ignoring the functions of the fore part of the foot, as is the present custom. He thinks that the pointed toes worn so much recently by adults will result finally in serious senile troubles.

Valid Warranty Against Suicide.—A warranty in an application for life insurance that the insured will not die by his own hand, whether sane or insane, the United States circuit court holds, in the case of Kelley v. Mutual Life Insurance Company, decided August 25, 1896, is valid. It had been contended that the warranty, in so far as it attempted to control the acts of the insured while insane imposed an impossible condition upon the contract, which was at the time of its execution known to be impossible, and was therefore void. But the court maintains that the clause should be construed in accordance with the announced general principles of construction, and that, under the situation, the warranty became of the force and effect of a promissory one, or stipulation to be performed, exempting from liability on the policy upon substantial breach thereof.

Allowable Use of Copyrighted Works.—According to the decision of the United States circuit court, N. D. California, handed down, in the case of Simms v. Stanton, June 25, 1896, what the law seeks to prohibit and to punish is the use of any part of a previous (copyrighted) book, animo furandi, with an intent to take for the purpose of saving oneself labor. It says that a copyright gives no exclusive property in the ideas of an author. These are public property, and any one may use them as such. An author may also resort with full liberty to the common sources of information, and make use of the common materials open to all. But his work must be the result of his own independent labor. Copying is not confined to literal repetition, but it includes also the various modes in which the matter of any publication may be adopted, imitated, or transferred, with more or less colorable alterations, to disguise the piracy. If such use is made of a previous work as to substantially diminish its value, or the labors of the original author are, to a material degree, appropriated by another, such use or appropriation is then deemed sufficient in point of law to support a suit for infringement of copyright. What would be a "fair use" in one case might not be in another. In determining this question, courts often look more to the value of the matter pirated than to the quantity. A controlling factor, which, among others, influenced the court in determining this particular case, was that both authors were writing on the same subject. It is difficult, it says, to conceive how writers on the same art or science can very well avoid resorting to the same common source of information and using the same common materials, and also in employing similar expressions and terms peculiar to the subject they are treating of. And it expressly holds that a writer of a work on physiognomy, which it thinks is an art, or approximates to a science, did not violate the copy-right law, in consulting and using another's works on that subject, it having been done without drawing from them to a substantial degree, though there were parallelisms, errors and repetitions, suggesting servile copying from the works of the com-

plaining author, some of which were explained by evidence that certain features common to the rival works had been obtained from other common and permissible sources.

Primary Sarcoma of the Vagina in Early Life.—Mr. D'Arcy Power, in the *St. Bartholomew's Hospital Reports*, 1896, records a case of this nature. The patient was somewhat more than 2 years of age when she first came under the care of the surgeon. Mr. Power refers to twenty-four other cases collected in a rather hasty examination of the literature. From a consideration of these cases he concludes that primary sarcoma of the vagina is only a specialized form of malignant disease which may effect any or all of those connective tissues which are involved in the complicated development processes associated with the formation of the cloaca. The sarcoma grows in the connective tissue of the pelvic organs and extends into the bladder, the urethra, the uterus or the vagina. It is either well circumscribed as in the case described, or is diffuse as in a case reported by Ahlfeld (*Archiv f. Gynäkol.*, Bd. xvi, p. 135), but whether circumscribed or diffuse, whether affecting the vagina alone or infiltrating all the neighboring organs, this form of sarcoma shows an almost constant tendency to become polypoid and multiple. As it occurs in children primary sarcoma does not, in the majority of cases, run a very rapid course. It does not ulcerate very readily. It does not usually affect the lymphatic glands. It does not disseminate, but its prognosis is very grave. It recurs quickly after removal, and it kills by interfering with the action of the pelvic organs, by retention of urine more often than by obstruction of the bowels. The diagnosis is easy, but the polypi are often looked upon as innocent growths, and their true nature remains unrecognized until the presence of a tumor in the pelvis shows that it is too late for surgical interference. Multiple polypi of the rectum and of the genito-urinary tract in young people, however, are so rare, and when they do occur, are so often associated with malignant disease, that their presence should always lead to a suspicion of such a condition. The complete cure has been effected in one or two cases of primary sarcoma of the vagina in children shows that the early and complete removal of the growth may be effectual in this as in other forms of malignant disease.

Construction of Representations to Medical Examiner.—In an action to enforce the collection of a policy of life insurance payment was resisted on the ground that there had been misrepresentations made by the insured to the medical examiner which constituted a breach of the warranty contained in the policy. Among other things, the insured had stated that he never had any disease of the bladder; that he never had any disease of the skin; and that he never had any disease of the urinary organs. Relating thereto, the jury were charged that a mere temporary ailment of the kind named would not constitute the diseases named as contemplated in the questions and answers given. In construing policies of insurance, it was further said that it must be generally true that, before any temporary ailment can be called a disease, it must be such as to indicate a vice in the constitution, or be so serious as to have some bearing, at least, on the general health and continuance of life, or such as, according to common understanding, would be called a disease; that the legal meaning of all or nearly all of the questions referred to had in one way or another been fixed by law; that in finding a verdict as to whether or not the answers to them were true when made they should be considered from and under the meaning given to them by the court; that the term "serious illness" means such illness as is likely to impair permanently the constitution, and render the risk more hazardous; and that "addicted to the use of chloral" means habitual constant use of it. These instructions, the supreme court of Tennessee holds, in Rand v. Provident Sav. Life Assur. Soc., decided Sept. 26, 1896, accord with the authorities and correctly state the law. When the applicant says that he has never had any "serious illness," it adds, the courts will construe the meaning to be that he has never been so seriously ill as to permanently impair his constitution, and render the risk unusually hazardous.

Connection Between the Cortex and the Labyrinth.—Ewald has found by experiments on dogs that the auditory nerve performs more than the mere auditory function, and therefore suggests that this name is misleading, and that it would be better to call it nervus octavus instead. He states that if the labyrinth is destroyed in a dog the animal loses the coördination of its movements, is unable to stand up, to walk, etc., but in the course of a few weeks these disturbances pass away, and the missing functions seem to be fully compensated in some way. The same phenomena occur if the other labyrinth is also destroyed; in time the animal learns to move as usual, even to run and jump. Similar results are produced by destroying on one side only the "excitable zone" in the cerebrum for the movements of the fore and hind legs; the dog learns in time to run and jump as nimbly as ever, even in the dark. But if later the remaining half of the "excitable zone" is also removed, then intensely severe and permanent disturbances follow. The animal can neither stand nor walk; he can not lie down on his breast or belly, only on his side, and in spite of the most strenuous efforts, he can not get up on his feet. He is still able to move his head, and uses it to propel himself. He gradually learns in time to use his extremities by purely reflex action, but is unable to make a single voluntary movement, and even the reflex movements are impossible in the dark. He loses control of his movements completely if taken into a dark room, and tumbles helpless to the floor; but after the room is lighted he regains control of his movements and is able to move as before. Ewald considers that this throws a new light upon the connection between the sight and the locomotor function. The proof of the extra functions of the nervus acusticus is therefore the diminished muscle power in the animal after the nerve is severed; also the lack of precision in its movements; also the lack of muscle sense, shown by the vertigo. The influence of the auditory nerve on the striated musculature is explained by the presence of the ciliated cells in the labyrinth, which produce uninterrupted excitation of the central nervous system. As the severed auditory nerve does not grow again, the explanation of the disappearance of the disturbances must be that its functions are substituted by other organs. The sense of touch substitutes the function of the labyrinth, as is evidenced by the fact that the coördinating power is not totally abolished until the entire "excitable zone" in the cerebral cortex is removed. The "excitable zone" and the labyrinth are able to substitute each other, and the same is true of the muscle sense and the sense of touch. This explains the comparatively slight motor disturbances in persons with injured labyrinths.—*Deutsche Med. Woch.*, October 22.

Liability of Counties in Emergency Cases.—Section 24 of the Illinois Pauper Act provides that "when any non-resident, or any person not coming within the definition of a pauper, of any county or town, shall fall sick, not having money or property to pay his board, nursing and medical aid, the overseer of the poor of the town or precinct in which he may be, shall give, or cause to be given to him, such assistance as they may deem necessary and proper, or cause him to be conveyed to his home, subject to such rules and regulations as the county board may prescribe; and if he shall die, cause him to be decently buried." By this, the appellate court of Illinois, for the third district, holds, in the case of the County of Madison v. Haskell, decided Dec. 6, 1895 (63 Ill. App. 537), that the legislature made it absolutely obligatory upon the county to make all necessary and proper provisions for extreme cases, such for

example as where persons, who are not paupers, are seriously burned by an explosion of oil when congregated at the scene of a railway accident. It can not avoid the liability so imposed, by its failure to appoint necessary agents or prescribe regulations as to the manner of doing it. If the defense is that the provision was not made, or not furnished in accordance with the rules and regulations prescribed by the board of supervisors, it is incumbent on the county to show that the county board prescribed reasonable rules and regulations on the subject, and what they were. Any rule or regulation of the county board which would have required a moment's delay on the physician's part, in such a case as that under consideration, if he had been informed of it, and that the overseer of the poor was within speaking distance, the court goes on to declare, would have been unreasonable, and he unworthy of a place in his profession if he had thought of it before acting. These people were entitled to medical aid if it could be had, on the instant and at the county's expense. Accordingly, the court affirms a judgment for services and materials furnished in favor of a physician who had those injured in this case conveyed to a hospital, in a neighboring city, of which he was a regular physician and surgeon, and where he afterward rendered the services in question, attending them. In the companion case of the County of Madison v. Halliburton, which has just been reported in 64 Ill. App. 99, the court further holds that the fact that the physician seeking to recover for services rendered under such circumstances is employed as the county physician, and paid an annual salary, will not prevent him from maintaining his action, his contract, though only verbal, covering the cases of the county "poor" only, his purpose in this case being to recover for the treatment of other than poor persons.

Hospitals.

THE DEDICATORY EXERCISES attending the opening of the new Post-Graduate Medical School and Hospital in Chicago were held November 7. The hospital was formerly on West Harrison Street, but was found to be inadequate. The new building is well equipped and fitted up according to modern designs. The ceremonies consisted of a surgical clinic held by Dr. L. L. McArthur, which was followed by a gynecologic clinic by Dr. Albert Goldspohn. A well-attended evening reception was given by the faculty, which was followed with an address by Dr. Theodor Klebs on the future of the institution.——The Bender Hygienic Laboratory of the Albany Medical College was formally dedicated October 27.——The new Provident Hospital Training School in Chicago was formally presented to the colored race October 29.——Plans have been prepared for the new University Hospital at Iowa City, Iowa. The structure will cost $50,000 and will consist for the present of a west wing and amphitheater.——The new buildings of the Bethesda Hospital, St. Paul, were dedicated November 12.——At the session of the United Presbyterian Women's Association, held in Pittsburg, October 30, property in Allegheny valued at $35,000 was presented by Dr. J. B. Herron to be devoted to the association and its successors to the use and benefit of the Memorial Hospital, with the proviso that a Campbell B. Herron memorial bed be established.——The corner stone of the St. John's Hospital at Long Island City was laid November 11 with appropriate exercises.——The annual meeting of the board of directors of the Free Hospital for Women in Brookline, Mass., was held October 29. The report showed 261 patients treated in the hospital during the year.——The management of the National Temperance Hospital, an affiliated interest of the W. C. T. U., has purchased ground for a temperance hospital in Chicago.

Cincinnati.

THE MORTALITY report for the week shows: Diphtheria 4, typhoid fever 4, other zymotic diseases 7, cancer 3, phthisis pulmonalis 8, local diseases 57, developmental 17, violence 2; under 5 years 31; all causes 102; annual rate per 1,000, 15.15; deaths during preceding week 90; corresponding week in 1895, 102; 1894, 123; 1893, 110.

Dr. CHARLES A. HOUGH of Lebanon, Ohio, recently passed through an attack of diphtheria. He was in a private ward at the Cincinnati Hospital.

THE latest news item from the Cincinnati Hospital is that they have been receiving less milk than has been paid for, and something over $1,000 is claimed in rebate. It is alleged that the cans do not hold as much as they were supposed to.

THE HOSPITAL CORPS of the First Regiment have recently been denied admission to the receiving ward of the hospital. This organization has been doing much good work in the past and without one cent of expense to the city, and this new move on the part of the new management will in times of serious disasters deprive the institution of the valuable aid of this well trained corps; and the reason for the move has not as yet been evident.

AN UNUSUAL CASE of mental disease was admitted to the city hospital last week. A middle-aged man was found wandering about the streets and when questioned could give no account of himself. Upon examination, when recovered, he talked rationally until asked what his name was and where he lived, both of which he is unable to say. His general health is good and this is the second attack he has had within a period of several years.

A SEVERE EPIDEMIC of diphtheria is present at Parkersburg, W. Va., and several cases of the malignant type have appeared.

THE PUBLIC SERVICES.

Army Changes. Official List of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from Nov. 7 to Nov. 13, 1896.

First Lieut. John H. Stone, Asst. Surgeon, is relieved from duty at Ft. Leavenworth, Kan., and ordered to Ft. Riley, Kan., for duty at that station.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending Nov. 14, 1896.

Asst. Surgeon H. La Motte, detached from the naval hospital, Norfolk, Va., and ordered to treatment at naval hospital, Philadelphia, November 11.

Surgeon E. H. Marsteller, detached from the "St. Mary's," ordered home and placed on waiting orders, November 13.

Surgeon B. Whiting, ordered to the "St. Mary's."

Change of Address.

Akins, W. T., from 180 Wilmot St. to 1122 Southport Av., Chicago.
Grote, H. W., from Oakland Music Hall to 5127 Lexington Av., Chicago.
Scates, D. W., from Greenfield, Tenn., to 223 Lexington Av., New York.

LETTERS RECEIVED.

Aikman, J. C., New York, N. Y.

Bailey, Wm. Curtis, Las Vegas Hot Springs, N. M.; Boehringer, C. F. & Soehne (2), New York, N. Y.; Betton, G. W., & Son (Drs.), Tallahassee, Fla.; Battle Creek Sanitarium, Battle Creek, Mich.; Boot, G. W., Spencer, Iowa.

Cantwell, A. W., Davenport, Iowa; Cowan, Chas. S., Fort Jones, Cal.; Cullen, G. W., & Son, Cullen P. O., Va.; Cordier, A. H., Kansas City, Mo.; Cale, G. W., Jr., St. Louis, Mo.; Chapman, C. J., Chicago, Ill.; Carter, J. A., Carthage, Mo.

Dewees, Wm. B., Salina, Kan.; De Schweinitz, G. E., Philadelphia, Pa.; Daly, B., Lake View, Ore.; Daland, Judson, Philadelphia, Pa.

Ewing, W. G., Nashville, Tenn.; Elliott, A. R., New York, N. Y.; Eastman, C. A., Exeter, N. H

Fassett, Chas. Wood, St. Louis, Mo.; Fuller's, Chas. H., Advertising Agency, Chicago, Ill.; French, J. M., Milford, Mass.

Garcelon, A., Lewiston, Me.; Grace, M. B., Iredell, Tex.

Howard, Wm. R., Ft. Worth, Tex.; Hare, H. A., Philadelphia, Pa.; Haidenstein, I., (2) New York, N. Y.; Herrick, J. B., Chicago, Ill.

Kny, Richard, & Co., New York, N. Y.; Korn, A., Chicago, Ill.; Kennedy, T. C., Shelbyville, Ind.; Kreider, Geo. N., Springfield, Ill.

Long Island Bottling Co., Brooklyn, N. Y.

Mayfield, W. H., St. Louis, Mo.; Meany, Wm. B., St. Louis, Mo.; McFarland, George C., Jacksonville, Ill.

Open Court Publishing Co., Chicago, Ill.

Probst, C. O., Columbus, Ohio; Parke, Davis & Co., (2) Detroit, Mich.

Smart, Charles, Washington, D. C.; Souchon, Edmond, New Orleans, La.; Shuey, J. J., Red Oak, Iowa; Short, J. L. La Grange, Ind.

Tinker, N., Athens, Ohio; Taylor, Lewis H., Wilkes Barre, Pa.; Tiffin Newspaper Agency, Tiffin, Ohio.

Van Nort, John P., Bayshore, L. I., N. Y.; Von Ruck, Karl, Asheville, N. C.

Woltishek, F. J., Cedar Rapids, Iowa; Watsen, Walter, Jacksonville, Ill.; Winn & Hammond, Detroit, Mich.; Wyckoff, R. M., Brooklyn, N.Y.; Wood, William & Co., New York, N. Y.; Whitfield, S. T. Uniontown, Ala.

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ADDRESSES.

NOTES ON SOME OF THE NEWER REMEDIES USED IN DISEASES OF THE SKIN.

Address of the Chairman delivered in the Section on Dermatology and Syphilography, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5–8, 1896.

BY L. DUNCAN BULKLEY, A.M., M.D.

NEW YORK.

This is certainly the age of progress, and the cry is continually for something new. The wonderful advances which have been made in medicine and surgery during the past fifty years would seem to warrant us in looking for newer remedies and measures in all departments of medicine; and indeed, the number of these which have of late years been pressed upon us by writers in medical journals and manufacturers, is so great that much confusion of thought and purpose is often induced thereby.

It is well, therefore, now and again, to stop and weigh and try to estimate the value or worthlessness of the new, and to see what of it should be added to our stock of old, and thus to recognize where true advance has been made.

It would be really amusing, were it not so sad, to read and record carefully all that is written in journals and publications relating to therapeutics, materia medica and new remedies, and then each year carefully note the true value of this and that remedy, as developed by the experience of others than the one presenting it; and it would be still more interesting and instructive to sum this up at the end of five, ten, twenty and more years.

Time and space fail me entirely to even mention the so-called and supposed "advances" and new remedies which have been vaunted during the more than twenty-five years that I have been occupied with diseases of the skin; indeed, such vast numbers of them have passed out of sight that it would require much laborious research to resurrect their ghosts. However, this would only serve to show the easy credulity of physicians and patients, and furnish a monument of disappointed hopes. In addition to the large number of remedies advocated by members of the regular profession, from time to time, reference should also be made to the innumerable remedies or combinations which have been patented and advertised, many of which have not been without some merit in individual cases, and some of which have been only too often employed or indorsed by physicians of good standing.

Therefore, before remarking upon some of the newer remedies, allow me to enter my strong protest against the restless seeking after the new to the exclusion of older and well tried and approved methods in the treatment of diseases of the skin, which seems to be so common of late years. It is not so much new remedies we need, as it is a better understanding and adaptation of those we already have. There is no king's road to learning, nor is there any short cut to the successful treatment of disease. One is, however, often led toward the contrary view by the voluminous announcements and advertisements of new remedies in modern times, whether they are written by members of the regular profession, or issued by manufacturers of drugs, or charlatans.

Dermatology is a large field, and much study and experience are necessary to attain success in practice; and yet how very little is this recognized. How often have I been asked by medical friends, "Well, what is there new that is good for diseases of the skin?" In few branches of medicine is accuracy of diagnosis more important for therapeutic success than in this, and there never can be any remedy, new or old, which is "good for diseases of the skin; every remedy must have its exact adaptations pointed out, not only in regard to the special disease in which it is of value, but also as to the phase or stage of such disease—and that is what often is not clearly stated in connection with new remedies.

In concluding these introductory remarks, I wish again to emphasize the fact that our older remedies and methods of treatment yield fairly satisfactory results when applied with skill and thought, without which no remedy can be of avail. I wish also to say that, in my opinion, new remedies, as they appear from time to time, are very much less employed by specialists in this line than by the general profession. For myself I may say, that it happens not very infrequently, that I have never given certain new remedies a single trial, because, before it seemed best to do so, further experience by others has demonstrated their relative worthlessness. I am sorry to seem thus pessimistic in my views on this subject, but being somewhat conservative by nature, each year has added to my distrust of new remedies and measures, which are often put forth by those of very slender experience.

I shall, therefore, remark only upon some of the *newer* remedies, not the newest, of which I can speak from personal experience, or from their use in the New York Skin and Cancer Hospital.

Since the time of the elder Hebra, and largely by his influence, attention has been chiefly directed toward the local study of diseases of the skin, and their treatment by external methods, and I have to record that relatively few striking advances have been made in their internal treatment; it is, indeed, remarkable how very few new internal remedies have been proposed in this class of affections of late years, and recent additions can be quite briefly dismissed.

I will not attempt to analyze the facts in regard to the injections of tuberculin in lupus, or the antitoxins in sarcoma and epithelioma, for the subjects are still so much discussed that no proper judgment can

be passed upon them. Recently Hebra has reported on the subcutaneous injection of thiosiamin in lupus, glandular swellings and exudative products, and other remedies are being tried hypodermically, but the results are still too uncertain to be recorded. The thyroid extract is also being tried and reported on in psoriasis and some other skin affections. Although I can not say much in its favor from personal experience, I am inclined to think favorably of it in psoriasis.

Antipyrin, while not a very new remedy for general use, has recently been advocated in urticaria and will often prove very effective, provided there is not some alimentary disorder continuing the trouble. When cases have resisted ordinary remedies, a moderate dose of antipyrin given three or four times daily, between meals, will often serve to stop the tendency to the eruption. Phenacetin and even antifebrin, will sometimes prove of great service as antipruritics, especially when given at night.

Many new preparations of mercury have been introduced for the treatment of syphilis in the last few years, no less than twenty-four new combinations appearing in a recent publication; but, as far as can be seen, the advantage from them relates only to their tolerance by the digestive system, and there is no one to which I can refer with special recommendation. In all it is only the mercury which is the active agent, and I have yet to find any yield better results in early syphilis than the one grain tablets of mercury and chalk given every two hours, as recommended by Jonathan Hutchinson. In the later stages of syphilis, the combinations with iodin still hold their old and valued position. The many suggestions in regard to the hypodermic use of mercury, in various forms, occasionally prove valuable in rare cases where there is great stomach intolerance of the drug, or where for some special reason very prompt action is desired; or where the patient, for social or other reasons, prefers an occasional injection to the taking of repeated doses internally. But I have never found it necessary or desirable to resort to them largely, and I question if many of those engaged in treating syphilis now use this method much more frequently than I do.

Some new preparations of iodin have been introduced, notably the iodid of rubidium, which is said to be very well tolerated by the stomach; but from a moderate experience with it, I can not see the great advantage of this expensive drug. Nor can I say much more for the iodid of strontium or several other iodic preparations; but the syrup of hydriodic acid is certainly a most valuable remedy in certain late cases of syphilis.

Turning now to the local treatment of diseases of the skin, we find that a host of new remedies have been presented of late years; among these many have not fulfilled the expectations which were raised, while many are of very considerable value, and their worth has been confirmed by many observers.

Resorcin stands prominent among these, and of its value, when properly used, there can be no doubt. To Unna is due the credit of pressing the importance of this remedy upon the profession, mainly in connection with eczema seborrhoicum, with which his name has become inseparably connected. In this eruption, which in reality is no eczema, but a parasitic disease of microbic origin, resorcin is almost a sovereign remedy. In a strength of about 6 per cent. in zinc ointment, or in solution with a little alcohol and glycerin, it will often clear off a well-defined eruption in a very few days. The solution is particularly applicable in the scalp, and the surface should be thoroughly wet with it morning and night by means of a large medicine dropper; it will thus commonly arrest at once the itching attending the scaling of the scalp, which is often one of the earliest signs of seborrheic eczema, and which often leads to a loss of the hair.

Resorcin used much stronger, even up to 25 per cent. in zinc ointment, will sometimes give brilliant results, locally, in the treatment of acne rosacea. The application is kept on for several days, and causes some little inflammation, after which the previous redness and pustular condition will be found to have largely disappeared. A second or third application may be necessary, and if the cause of the reflex congestion has been removed by appropriate diet and medication, there will be very much permanent benefit. Resorcin also proves serviceable in certain ulcerative conditions, notably those of a tuberculous type, used in a mild ointment, not exceeding 10 per cent.

Ichthyol certainly stands next in importance among the newer additions to therapeutics in dermatology, as it is also valuable in other branches of medicine, and all are undoubtedly familiar with its use. As an antipruritic it is often of great service. Added to ointments, in a strength of from 6 to 10 per cent., it is very valuable in eczema, and may be used in even quite acute conditions. In dermatitis herpetiformis a watery solution, 5, 10 or even 20 per cent. will often give more relief than any other local remedy. When the skin is too dry it can be used in almost the same strength in oil with much advantage; the same measures are of much service in pruritis ani. In burns an ichthyol ointment, about 6 per cent., will often prove the most comfortable dressing, and on old ulcers of the leg the same, though stronger, is very valuable.

Ichthyol has a power of reducing infiltrations, and in chronic conditions may be painted pure over the surface with much advantage. I have a number of times seen the greatest benefit result from painting pure ichthyol over joints enlarged by rheumatism and gout, and then applying one or two thicknesses of flannel, wrapped firmly on the part, forming an adherent dressing with the ichthyol. This may be removed and fresh ichthyol painted on daily, and wrapped with the same flannel; patients who have long suffered from these conditions have obtained more relief from this method of treatment than from any previously adopted.

In this connection I may mention another non-dermatologic use of ichthyol, although it has some connection with the troublesome skin conditions observed about the anus. This is the internal use of ichthyol, in piles, which I do not think is generally known. Taken in doses from five to fifteen drops, in water or capsule, after each meal, it seldom fails in giving relief to the congested capillaries of the lower rectum and anus, if the condition is not too exaggerated; when by long duration the blood vessels have become permanently dilated with intercellular exudation and some vascular new formation, and especially if a clot has formed in the mass, this remedy has little effect. But in the milder and recurrent cases, where small tumors form, ichthyol, if freely used internally, and perhaps externally, will give a relief which is most gratifying, and I have many patients who at once resort to it on every return of this trouble.

The disagreeable odor and the staining of ichthyol

have led to the introduction of several other substances intended to take its place. One of these is *thiol*, a sort of artificial ichthyol, less unpleasant in smell and producing less permanent stains on linen: From what I have seen of its use in the hospital, I do not think it fulfils the requirements as well as the natural drug. I may add that it is sometimes difficult to obtain the true and pure ichthyol, as there have been several synthetic products offered in its place, none of which seem as good as the imported natural product.

Another of these ichthyol-like remedies is *tumenol*, upon which a number of observers have reported. It acts much like tar in relieving itching, but it is expensive, and rather hard to manage, and from some experience with it I do not see its advantage over ichthyol.

Several astringent remedies have been introduced of late, some of which are of considerable value. Prominent among these is alumnol, an aluminum salt containing sulphur. It is in a fine white powder, very soluble in water, in glycerin, and in warm alcohol, and insoluble in ether. A 1 to 5 per cent. solution in water may be applied with advantage even in acute eczema. It is also of advantage in ointments, 10 to 20 per cent., and also in dusting powders, even up to 30 per cent.

Dermatol, a basic gallate of bismuth, in form of a yellow, insoluble powder, is also a safe astringent, used in ointment 5 to 10 per cent., or as a dusting powder.

Gallanol acts much in the same manner, and is valuable in the more chronic stages of eczema and in psoriasis. Being white and not staining or irritating the skin, it has advantages over chrysophanic and pyrogallic acid.

Gallaceto-phenone, a compound from pyrogallic acid, acts much in the same manner as that drug, and is certianly of considerable value in psoriasis, in an ointment of about 10 per cent.

Beta naphthol is an old remedy, but still one of the later additions to our dermatologic armamentarium; it has considerable power over psoriasis, in ointments, in a strength from 6 to 10 per cent., and is also useful in scabies, and of moderate value in the vegetable parasitic eruptions.

Of the newer preparations of *iodin*, *europhen* takes a prominent place. It is non-toxic, but slightly odorous, and with many has supplanted iodoform, in the treatment of venereal ulcers; it serves well also to promote cicatrization when dusted on all forms of ulceration.

Aristol still holds its place for much the same conditions, and is also valuable in an ointment, 4 to 10 per cent., in psoriasis.

Iodol is one of the newest claimants of attention, and acts very well in place of iodoform, it being said to contain 89 per cent. of iodin; it is practically iodoform and therefore a desirable preparation.

Boric acid has also come prominently into view as an antiseptic and astringent, used both as a powder and in solution in water and in ointments, in a strength of from 5 to 20 per cent. It is always a safe and often a very serviceable remedy. As an antiseptic the *peroxid of hydrogen* has steadily gained in reputation, and often serves most admirably in checking suppuration, either on external surfaces or injected into cavities or sinuses.

Several remedies of value have been brought forward of late for the relief of itching. Prominent among them is *menthol*, used in ointment or oily solutions, in a strength of from 2 to 10 per cent. Generally it is best to combine with it about double the proportion of carbolic acid, partly to aid its action and partly to overcome some of the chilly sensation produced by the menthol when used alone.

Cocain also sometimes serves an excellent purpose, added to ointments, in a strength of 1 to 5 per cent. Care must be exercised in applying it over too large a surface, for fear of systemic results, and I have sometimes thought that it acted as a local irritant.

The combination of *camphor* and *chloral*, rubbed together in equal parts till a liquid results, and added to ointments, in a strength of from 5 to 15 per cent., is also a valuable antipruritic. Its application is attended with considerable burning sensation, if there is any raw surface, but when used in proper strength this need by no means interfere with its appplication. Recently a similar compound with the addition of eucalyptus has been introduced under the name of campho-lyptus.

Campho-phenique, a patented combination of camphor and carbolic acid, is also of real value in many conditions, where an antiseptic and antipruritic action are desired. It may be used in an ointment or in oil, of a strength from 6 to 20 per cent.

A combination of equal parts of *carbolic acid*, *tincture of iodin* and *chloral* has been introduced by Dr. Cutler of New York, which answers well as a parasiticide in favus and tinea, and is also valuable as an antipruritic; it often requires to be diluted.

Various dusting powders have been brought forward. Notably the *stearate of zinc* with other remedies combined with it; these answer fairly under favorable circumstances. *Emol*, a natural silicate, has been introduced by Jamieson of Edinburgh, and often acts excellently as a powder or in paste with water, in chronic eczematous conditions.

Considerable attention has been paid to the bases in which applications are to be made to the skin, and it would occupy far too much time if I attempted to give even a brief description of the advances which have been made in this direction. Some years ago ointments were largely used, with lard as a base, to which later were added the cerates. These are all apt to become rancid, and a variety of substances have been brought forward to obviate this difficulty. The preparations from petroleum, *vaselin*, *cosmolin*, *albolene*, etc., are all valuable, but are not firm enough to make a sufficiently protective dressing, in many instances. Later we have had preparations from sheep's wool, *lanolin*, *agnin*, etc., which are more firm and sticky, and form a good addition to the petroleum products, or to other bases.

Still later the attempt has been made to provide dressings which shall be applied in such a manner that they shall adhere to the skin, and, while holding a medicament in solution or suspension, shall thoroughly cover and protect the diseased surface.

Beginning with the idea embodied in collodion, or the liquid guttapercha of the old pharmacopeia, various combinations of gelatin, with dextrin, starch, glycerin, etc., have been presented, most of which serve the purpose fairly well, but can not be detailed here. One of the most recent of these is Bassorin paste, composed of gum tragacanth 48, dextrin 25, glycerin 10, water q. s. ad 100. This may be combined with various substances, and forms a varnish-

like covering, which protects the parts well, while healing progresses beneath.

Finally, Unna has introduced quite a line of pflastermulls and salbe-mulls, in which various medicaments are incorporated. These certainly are of very considerable value in certain cases, and afford a means of keeping the remedy required in close juxtaposition with the diseased surface.

I have said nothing in regard to the various medicated soaps, and have little to say commendatory; for, as a rule, little washing is desirable in diseases of the skin, and they have always seemed to me to be an irrational method of making other applications to the skin.

There are many more of the newer remedies and measures which I might, with advantage, bring before you. But this paper has already overstepped the limits within which I had proposed to speak, and I must leave them for consideration on another occasion.

I have said enough, however, to show that there have been real advances of late years in the therapeutics of diseases of the skin; although I still feel that I must repeat what I said at the opening, that caution should be exercised against accepting much of the new which is brought to our attention. The science of medicine is a grand and difficult one, and we must not be content with ordering this or that remedy, on however high authority, without understanding the diseased condition we have to meet, and the true nature and uses of the remedy we are to prescribe. All thoughtful men must regret the ready and often careless way in which some of the newer remedies have been pushed, too often for the gain of manufacturers or proprietors, and the profession should make a stand against and repudiate the impudent manner in which many of them have been vaunted, for commercial purposes.

4 East Thirty-seventh Street.

EULOGY ON JENNER.

Delivered before the Jenner Centennial Memorial, held under the auspices of the Golden Belt Medical Society of Kansas, at Salina, Kan., Oct. 1, 1896.

BY WILLIAM B. DEWEES, A.M., M.D., LL.D.

SALINA, KAN.

Mr. President, Ladies and Gentlemen: We have gathered to-night to commemorate the life, worth and work of a really good man—a great country doctor. It is meet that the doctors of a community, and especially the members of a medical society of country doctors, pause a brief while and assemble with the people whom they serve in a public gathering like this, to pay their tribute to him who laid the foundation of preventive medicine.

By invitation of your committee, Mr. President, on the celebration of the centennial memorial of the Jennerian discovery of the protective value of vaccination, I appear before you. Your learned and greatly beloved secretary, Dr. LaFevre, has most ably and interestingly made known to you much of "The Life and Works of Jenner." In my paper I am limited to an "Eulogy on Jenner." Standing as I do on this occasion to speak for the memory of the illustrious dead, I shall earnestly endeavor to judge as I would be judged, and

> "If, unhappily, I dream,
> And prove too weak for so divine a theme,
> Let charity forgive me a mistake
> Which zeal, not vanity, has chanced to make,
> And spare the speaker for the subject's sake."

Dr. Edward Jenner was preëminently one of the noblest benefactors of the human race. His precepts and examples are ever a trustworthy guide to the true physician. He earned and held a proud position in the medical world and in the public thought. He stood for independence, for intelligence, for self-discipline, for courage, for reason, for temperate thought, speech and deed, and above all for absolute integrity. He disdained and spurned the temptations of wealth and fame. His sympathy was wide as want, and like the sky, bent above a suffering world. He found happiness in diligently laboring for the prevention and relief of human suffering, and the elevation of the race, being content with a competence sufficient to supply all real wants. His full measure of joy was realized only in the felicities of his domestic life.

This distinguished Briton was a great man, a good man, a renowned physician, whose name and work were honored by millions of his fellow-men thoughout the civilized world; even so a hundred years after his great and immortal discovery. The thoughts and deeds of such a man are truly worthy of commemoration.

The literature of many lands is rich with the tributes that admiration, gratitude and love have paid to the noble deeds of the great and honored dead. These tributes disclose the character of nations, the ideals of the human race. In them we find the estimate of greatness, the lives, the thoughts, the deeds that challenged praise and thrilled the hearts of humanity.

They teach us that men are only fragments; that the greatest walk in shadows; that faults and failures mingle with the lives of all; that silence is the most complete refutation for every misinterpretation of motive, for every unjust charge of wrong; that charity holds the scales in which are weighed the deeds of mankind; that peculiar traits, born of locality and surroundings; prejudices and passions, born of conflict and envy; superstition and egotism, born of ignorance and vanity; these are but the dust of the race—these are accidents, customs, clothes, habits, fashions that have nothing to do with the individual, except to hide character.

These tributes show us how poor this world would be without its graves, without the recorded memories of its mighty dead, without their indisputable proof that only the voiceless speak forever, and that a noble life enriches all the world.

Again, we learn from these tributes, that each discovery that marked a new epoch in the history, and started a new era in the advance of medicine, was rightfully subjected to the crucial test of that wonderful and only scientific crucible—practical experience—and thus received in due time its merited accordance of the profession. That, moreover, the authors of such discoveries have been in the meantime made to suffer most unjustly the pangs of envy and prejudice, of designing and deluding intelligence, of fanaticism and ignorance, but all to no purpose in dissuading them from their conviction.

Not all men have the courage of their convictions. So it is with doctors. But, nevertheless, the imperative duty of every doctor remains to support and stand up bravely for what he believes will benefit mankind.

Did Ambrose Paré cease to tie arteries after amputation, because all the doctors of Paris denounced him?

Did William Harvey recant from his immortal discovery of the circulation of blood, because he was renounced by his colleagues and because his discovery

proved a boomerang which cost him his practice for many years?

Did Ephraim McDowell cease to follow his convictions, because a raging and howling mob threatened to lynch him and because the entire medical world stood still to denounce him, while he dared to step forward in the advance of science to save the life of a patient, thus unconsciously inaugurating abdominal surgery?

Did Chamberlain refrain from advocating the use of the obstetric forceps, because he was ridiculed and censured as a fanatic and egoist?

Did Long of Georgia, who was the first man to produce general anesthesia and do a painless surgical operation, cease to prevent all surgical pain, because his collegues and friends showed their contempt for so rash a deed?

Did the Atlees of Philadelphia cease to operate for ovarian tumors, because Dr. Charles D. Meiges denounced them as murderers and asked the aid of the law to stop their operations?

Did Jenner—the subject of our sketch—cease to struggle in following the light of his brain and the impulse of his heart, because he was made the victim of medical hate and scorn for years, before he was honored and rewarded for his immortal discovery, which marked a new epoch and started the era of immunization which remained to be augmented by the labors of Pasteur?

I answer, No! No! These are the examples of the character of men who had the courage of their convictions, the integrity that is guided by reason, and the sincerity that has the light of truth; men whom we ever delight to honor, because to the influence of such men alone is due the real progress in medicine.

Edward Jenner was a progressive and a loyal physician. Progress in medicine is simply improvement of the art in its application and depends upon the loyalty of the profession. With true physicians loyalty does not stand on the side of concealment, but on the side of exposure. The only dictum of medical progress is reason. Well may we say then, in the language of the Prophet Isaiah, "Come now, and let us reason together and take counsel, since

> "A little counsel now and then
> Is relished by the wisest men."

A close observer of history will note that the progress of rational medicine in each succeeding age had to contend with the influences of preceding ages. Each succeeding generation is based on the preceding one. We are the children of our parents; we reap what they sowed. In the same way the future depends to a great extent upon the present. If this be true in political, religious and social life, in matters of science and trade, it is, perhaps, most of all the truth in medicine. If we wish to throw a glance on the future of medicine we must construct it on the basis of the influences prevailing in the present age. We can predict future progress only upon the basis of judging the past and present. However, in doing so we must always make allowance for the fact that in the natural course of events forces of peculiar strength may and do come forward which we can not foresee. Such forces are, for example, the appearance on the scene, of men of extraordinary power. If politically, men like Napoleon, Bismarck and Washington gave a new turn to the history of France, Germany and America; if men like Luther in Germany and Wesley in England gave a new stamp to the religions life of their age, we point with much pride to such country doctors as McDowell, Long, Sims, Battey and the immortal Jenner, who have marked some of the most profound epochs in the medical history of the world.

Jenner stood in the front ranks braving truth, progress, harmony and peace. He was a pioneer, a torch-bearer of truth and reason, a ceaseless toiler in the great field we call the world, an honest worker for the progressive welfare of his fellow-men. He was endowed with a great mind, blessed with a heart filled with benevolence and possessed with self-discipline to philosophic study. No wonder that the remark of the milkmaid proved such a prolific seed in so fertile a soil, as only the brain of a Jenner afforded. He abhorred all connection with a progress which can not discriminate between essence and accident, between truth and her clothes.

He knew that the practice of medicine is not and can never progress to become an *exact science*, because the individual equation always contains an unknown quantity—*vital resistance*.

He worked on common ground; he had common-sense, because he knew the law of average.

He taught the principles of loyalty as a virtue which should never go out of fashion.

He ever oiled the troubled waters, knowing that medicine serves best when it builds, and not when it fights. With him the law of progress in medicine was not an inexorable edict, but a command of reason. He knew that our instincts are the legacy of ages; that the office of reason (the oldest and yet most acquired faculty of man) is not to inaugurate a sort of nihilism of the senses to strangle and crush out the instincts, as some suppose, but to train, cultivate and develop them along the lines made necessary by the ever-changing conditions of civilization.

Edward Jenner was a man of absolute integrity, of superb courage and of true sincerity. Integrity is the oak around which all other virtues cling; courage is the support and guard of the other virtues; sincerity is the perfect mirror of the mind, it reflects the honest thought.

Jenner knew that sincerity is the foundation of character and that without it there is no moral sublimity. He knew that without character, without honesty, without bravery, there is no worth; and that below indolency, below poverty, there is the rayless abyss of reputation. His soul thirsting for truth, he was ever repulsive to a practice sunk into dead formalities. He honestly braved the work before him and showed to the world what living medicine means. He not only acted without fear, but he had the fortitude of soul that bears consequences of the course pursued without complaint. He demonstrated the truth, that the heart must be in any life-work that is to be of permanent benefit to humanity; and that above all wealth, above all station, above the robed and the crowned, rises the sincere man. He knew that the confidence of mankind is not set down in writing, signed, sealed and delivered to order, but resides in honor. He followed the light of his brain and the impulse of his heart.

He was attacked and made a "mark for every passing blast of scorn to whistle through" by "a class of critical dicta everywhere current," but he never wavered and he never swerved. He said nothing harsh; he did nothing rash. He answered the insulters with a smile, and labored on quietly, faithfully and patiently as eternity, knowing what the end would be. He

knew that truth can wait, that the day would come, and he lived to be rewarded and honored by seeing the best and greatest minds of the world acknowledge the rays of light shed by his torch.

We can proclaim truly that, were it not for such brave, sincere and honest souls like Jenner, "the dust of antique time would be unswept, and mountainous errors be too highly heaped for truth to overpower."

Edward Jenner was the ideal country doctor. Born in a quiet country town, a representative of an honorable family, an orphan at the age of six years (his father dying), reared amid the influences of his native groves, meadows and the health-giving country air, and the cruel superstitions and traditional customs of his age and time, Jenner developed a passionate love for nature and a marked manhood and courage to investigate. He found the height of his ambition and the zenith of his power to benefit mankind while walking with nature—a country doctor during his entire professional life. He had the physicianhood and fortitude to search nature by following her, and to honestly reveal the light he saw. He belonged to the distinguished class of country doctors to the credit of whom truth records most of the greatest discoveries freighted with the greatest good to humanity—who did accept early Dame Nature's invitation to Agassiz:

> "Come, wander with me, she said,
> Into regions untrod,
> And read what is still unread
> In the manuscript of God."

Jenner thus learned to know early that "childhood is the era of scientific acquisition," and ever after labored as a child of nature:

> "To search through all I felt or saw,
> The springs of life, the depths of awe,
> And read the law within the law."

He assumed the whole responsibility as is common to country doctors, with whom responsibility is an educator. He wholly disapproved any attempt to stifle doubt as distinct from the effort to confront it fairly with the deeper facts of life. He taught us well the lesson of magnanimity and toleration. He was the ideal country doctor, a boon to medicine and humanity, cultivated by true and natural methods, enlisted in the service of love, daily exercised in deeds of benevolence and unselfishness, and representing a class who are walking together in the pathway of progress in honorable and rational medicine, who can justly proclaim:

> "We are the ancients of the earth,
> And in the morning of our times."

Unless all signs fail, the medical world will ever delight to honor the memory of Edward Jenner, for his love of nature and all that is truthful and good, for his benevolence and unselfish desire to prevent and relieve human suffering, and for his patient and persevering pursuit of whatever promised to result in material benefit to mankind.

When the great work of a good man has bestowed its boundless blessings upon nations for an hundred years; when it has stood the scientific test of practical experience for a century in spite of jeer and taunt; when the entire civilized world has bowed in acknowledgment its centennial homage; in honoring the memory of such a man, in speaking words of praise and gratitude to the commemoration of his name, we pay a lasting tribute to ourselves.

ORIGINAL ARTICLES.

THE FIELD OF MONOCULAR FIXATION AND ITS RELATION TO HETEROPHORIA.

Read before the Section on Ophthalmology at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5–8, 1896.

BY CASEY A. WOOD, M.D.
CHICAGO.

So little is said in English text-books on ophthalmology about the field of fixation—monocular or binocular—and so much space is given to it in that portion of foreign works devoted to physiologic optics that it seemed worth while to bring up the subject for discussion here. We are so concerned in investigating the relations of the extrinsic ocular muscles, as they are engaged in fixing some point (doubtless the most important point) immediately in front of the eyes, *i.e.*, at the center of the field of fixation, that we are apt to lose sight of the fact that the fixing of eccentric objects and points at the extreme periphery of the field is also of great importance. It should be remembered that while binocular vision may be obtained and maintained with ease, so long as the object fixed is directly in front, this result is often difficult or impossible when looking obliquely to the extreme left, right, up or down. Not only is this true in marked paretic conditions of one or other of the straight or oblique muscles, but it is also true in the so-called insufficiencies. In other words the usual tests for heterophoria or heterotropia—the various kinds of photometric measurements especially—give us but one phase of the conditions under which the extrinsic muscles do, or fail to do, their daily work.

I wish to confine my observations to one of the means by which we may measure the excursions, in all directions, of each eye separately, as indicative of the part which eccentric excursions play in the production of muscular asthenopia.

It is to Landolt that we are chiefly indebted for utilizing the field of fixation in practical ophthalmology. The monograph written by Eperon in the *Traité complet*, taken in connection with Aubert's chapters in the Graefe-Saemisch Handbuch, tell us in a few pages about all we know of this subject.

My only apology for referring to these fundamental laws of optic physiology is that I have made a few observations which may be of use to those who are now pursuing this interesting study.

The field of fixation of an eye includes all those points which the eye can successively fix, the head being completely at rest. The limits of the field represent the extreme excursions of the eyes in all directions. At least three methods (two objective and one subjective) have been and may be employed in making these measurements. One of the objective tests consists of observing, on the center of the cornea, the image of a small flame carried along the arc of the perimeter, just as one does in determining the degree of squint. Another plan of objective observation is seen in the ingenious and excellent tropometer devised by Stevens and described by him in the *Annales d'oculistique* for July, 1895. By means of this all the movements of rotation can be exactly measured.

In the subjective method we utilize the visual acuity and the perimeter. The object is usually a

letter or series of letters, which can be readily changed, attached to a carrier that is run along the arc of the perimeter as in measuring the field of vision.

Owing to the different methods employed by various observers of the limits of the normal field, authors differ somewhat in their measurements. The following, by Landolt, are as nearly correct as we can obtain them:

Directly out. . .	45°	90°	Out and down. .	47°	92°
Directly in . . .	45°		In and up. . . .	45°	
Directly down. . .	50°	93°	Down and in. . .	38°	85°
Directly up . . .	43°		Up and out. . . .	47°	

These figures vary slightly in individuals, but the directly inferior angle is always the largest, while the infero-internal is always the smallest. The eyelids, margins of the orbit and bridge of the nose must always affect the result of these measurements just as they do in determining the extent of the visual field.

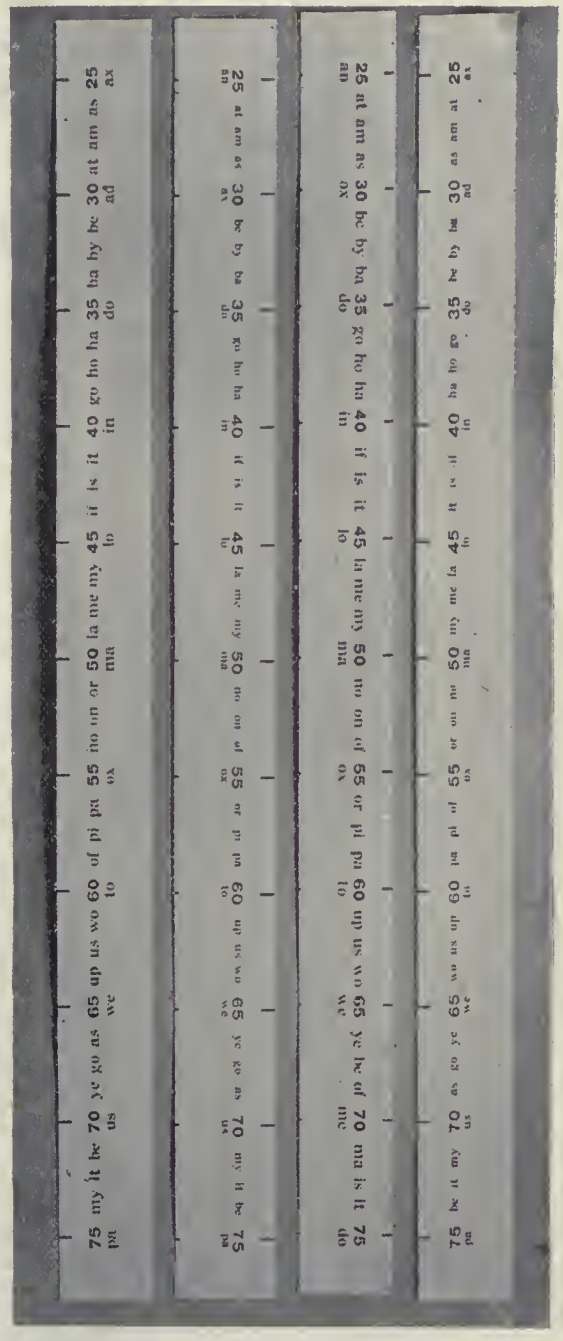
Stevens, after speaking of the importance of determining the absolute as well as the comparative rotation of the eyes, not only from side to side but up and down, says: "We have had, until quite recently, no sufficient means for determining these rotations. The judgment which we may form by watching the rotations is not to be relied upon. The perimeter is destitute of any considerable value for this purpose. By it we can not measure the downward rotation in many cases, for the pupil buries itself behind the lower lid; nor can it measure the rotation inward, for the nose interferes, and even the outward, the only one which can be generally measured, is not well measured."

While I recognize, in general, the advantage of objective over subjective tests, it appears to me that Dr. Stevens' objections to the subjective method of determining the limits of the ocular excursions are weakened by the fact that what we wish chiefly to know is not the extreme limit of rotation of the eye in various directions so much as its limit of observation. What we desire to ascertain in practice is whether the various muscles, alone and in combination, are capable of making all the excursions required for the purpose of securing and maintaining single and binocular vision. Whether an eye would be able to fix an object further to the right or left if the nose were removed, or one higher or lower if a projecting lid or orbital margin were cut away is not of essential importance.

We are usually advised, also, to make use of the candle image when the eye is amblyopic or can not read large type. Now these are just the conditions under which we are not usually concerned about the fixation field. It is the eye that sees and not the blind eye that causes trouble in defective excursions. If an eye takes no part, or only a feeble part, in the work of fixation, why trouble ourselves at all about its rotation?

These considerations caused me to attempt to remedy what seems to be certain defects in the technique of determining the field of monocular fixation, as it is commonly applied. So far as I know, the most effective plan employed—decidedly superior to the old Helmholtz-Berthold method—is that exhibited in the modified Landolt apparatus attached to the McHardy perimeter. The head of the patient is placed in the primary position and fixed by biting a rigid crossbar of hard wood.

Lang thus describes the method of examination: "The balanced test object exhibits a single word of two or three letters printed with the smallest type that can be distinctly seen by the eye under investigation. The patient is seated at the perimeter, directly facing the fixation point, with his head erect and his chin supported on that half of the chin-rest which brings the eye that is about to be tested into the middle line, opposite the fixation spot. If the patient can not maintain this position during the whole examination, he is asked to grip the bar of the bite-fixation-apparatus between his teeth, which effectually prevents the least movement of the head. The other eye is covered with a pad and bandage, or its lids are closed and held down by the lashes with the tip of the patient's forefinger. The words in the test object, in the various sized type, are now exhibited, and one, in the finest print that the eye can read, either without or with glasses, is exposed after the test object has been moved to the end of the perimeter arc, which



is extended horizontally outward. While the patient, without moving the head, turns his eye to the utmost outward toward the extremity of the arc, the observer slowly moves the test object inward toward the fixation point, but stops directly the patient can read the word, and at once records, in degrees, the position which the test object occupies in the arc.

"The arc is now placed horizontally inward, the test object is moved back again to the extremity of the arc, a fresh word is exposed, and the observation is repeated. When the field of fixation has been tested in the horizontal meridian, which is all that is generally necessary, the examination of the remainder of the field can be ascertained by placing the arc in each 30 degrees of the circle, and recording the results on a field of vision chart.

"When the examination of one eye is completed, the head is shifted to the opposite side of the chin rest and the second eye is tested in the same manner."

On making examinations with this apparatus I long ago noticed that the continuous effort to hold the eye at its extremest rotation, in so many directions, was exceedingly fatiguing and often made it difficult to complete the examination. It was also remarked that the results varied in the same individual, and I feel certain that these different measurements are due to the fatigue incident to the attempt of the eye to fix an object whose exact position at the extremity of rotation is unknown. The nystagmus-like movements of the globe, after a number of these trials, is quite noticeable.

Instead of using an object attached to the carrier on the perimeter arm I have used an exceedingly simple device whereby the rotation of the globe in any direction is rapidly and easily measured. It may be used by all persons who can read Jaeger xii at fifty centimeters, and may even be employed for others whose visual acuity at that distance is considerably less. Four strips of unglazed parchment paper have printed on them words of two letters placed between, as well as below, figures representing the degrees of latitude on the perimeter arc. These strips are, together, placed in position on the arm of the perimeter, the patient's head being in the primary position (I usually do not consider any elaborate fixation necessary) and he is asked to read to the lower line, as far away from the center as possible. This accomplished he is requested to give the figure placed above the word just recognized and to try and read, farther out, additional letters on the figure line. Each word beyond represents about one degree on the scale and the number of words so read added to the previous figure gives the limit, in degrees, of the field in that direction. As each quadrant of the circle is passed over, a slip of paper is removed, revealing the next paper whose lettering, being different, suggests nothing to the person under examination. I have found that instead of making the vertical letters face up and down one can accomplish the purpose of distinct vision by printing them with type of a bolder face, thus providing for those rare cases in which it is desired to test the muscles of an eye that can not read Jaeger xii, or thereabouts.

My investigations of the field of fixation have developed nothing new except that the normal field, in persons whose view is not cut off by the nose, lids or orbital margins, seems to have wider limits than those set down by Landolt, particularly in the downward direction.

The causes that determine an unusual shape or abnormal position of the whole field, as pictured on the perimetric chart are, commonly, actual paresis of one or more of the external muscles of the eye. Apart from an abnormal configuration of the face, we also recognize those influences that underlie the various forms of heterophoria, *i. e.*, general fatigue, weariness of one or more of the extrinsic muscles, age, defective innervation and, possibly, congenital defects in the muscular fibers. But in cases of heterophoria occurring during the fixation of objects directly in front of the eye, the state of the refraction exerts a very wide influence on the size, shape and situation of the whole field. Its boundaries are enlarged in moderate degrees of hyperopia, but are diminished in the higher grades, owing, as Landolt thinks, to the developed muscles acting on a not too large globe in the former instance and to the lack of development, in the latter case, affecting the muscular elements in common with all other parts of the eye. It is restricted in the elongated and enlarged globe of the extreme myope, owing mainly to the greater size of the eye and the weakness due to the stretching of the muscles.

My former assistant, Dr. T. A. Woodruff, and I have carefully measured a large number of fields, normal and abnormal, in persons of all ages and all states of health and refraction, and I feel justified in thinking that when carefully done, using the device I have just described, the defective excursions and often the defective muscle or muscles can be readily detected by a glance at the perimeter chart. Take for example a case of simple left hyperphoria of 4 pr. diopters. Here one obtains a perimetric picture whose irregular outline covers, perhaps, as much ground as the normal field but whose directly upward and downward limits in the left eye are higher than normal. Thus we have not only an indication of the amount and kind of the heterophoria but we are enabled, by a comparison with the normal field, to arrive at a conclusion not only as to the actual direction of the muscular defect but, also, in some cases, to venture an opinion as to particular muscle or muscles involved.

DISCUSSION.

Dr. G. C. Savage, Nashville—In studying binocular fixation we must have a few things constantly in our minds. One is, that the yellow spot of Soemmering is the point from which the visual axis starts. From this point it must pass through the center of the retinal curvature, in monocular vision, cutting the cornea wherever it may, sometimes in the center, above, below, to the outer side or within. If the visual axis, for the left eye, should pierce the cornea beneath the center, while the visual axis, for the right eye, pierces it above, in binocular vision there would be a necessity for action of the superior rectus of the right and inferior rectus of the left, in order to make the visual axes meet at the point of fixation. Even if the muscles are well balanced in their inherent power, a test of these eyes would show a left hyperphoria. It is only in a case of this kind that the use of a prism, in position of rest, would be justifiable, as I have shown before now. In the same way I might be able to show an exophoria, also an esophoria, dependent on the fact that the visual lines do not cut the cornea at the proper points. The Javel ophthalmometer, if it did nothing else, would be worth its cost, in that it always shows quickly and accurately, the decentration of the yellow spot of Soemmering, or, what is the same thing, the misplaced cornea.

Dr. D. S. Reynolds, Louisville—In my experience all the other methods tried have been more or less unsatisfactory and

am quite willing to try Dr. Wood's method as soon as I shall have had time to master it.

Dr. C. A. Wood—This instrument does not take the place of the various phorometers. I thought we ought to know something more than the relative insufficiency of the muscles. We want to know what particular muscle is at fault. This is something of a step in that direction.

A CONTRIBUTION TO THE QUESTION OF REMOVAL OF THE LENS IN MYOPIA.

Read in the Section on Ophthalmology, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5-8, 1896.

BY HERBERT HARLAN, A.M., M.D.

BALTIMORE, MD.

My contribution is in the form of a report of two cases, both the result of accident, and in one case thirty-three years have passed between the accidental operation and the observation; much the longest period of which I am aware.

Jno. Harvey, aged 32, a Welshman and laborer, by occupation, had always been very shortsighted. He carried in his pocket a pair of — 13 D. glasses which he occasionally used for reading. By their help it was not necessary to hold the print so near his face. For distance, he said they were not much good. On January 8, he received a blow in the right eye, which, he said, had always been the better. Some hours later he came to me at the Presbyterian Eye and Ear Hospital. There was a bruise on the right cheek and eye lid and examination showed the lens still perfectly clear, dislocated into the anterior chamber. The upper edge was a little above the center of the pupil and with the ophthalmoscope the fundus could be easily seen, either through the lens or above it, and by the indirect method, in one position, two images of the optic nerve could readily be seen, at the same time. There was some redness and pain. The left eye had high myopia with choroidal atrophies and very little vision. Removal of the lens was advised and the following day the operation was performed, a downward corneal section being made. There was some loss of vitreous but the healing process was uneventful. The iris was not touched at the time of operation, but at the present time is tucked down behind, as it were, though not adherent to the corneal wound. The appearance is as if there had been a large downward iridectomy done. On February 4, + 3.50 D. S. + 4.50 cyl. 165 gave 15-40 vision and 8 D. S. same cyl. enabled him to read No. 1 readily. On looking out of the office window where a mild storm was in progress he remarked that it was the first time he had ever seen snow falling when on the inside of the house. The glasses indeed would indicate a much less degree of original myopia than — 13 D. the old glasses. Fukala, Pflueger, Von Hoppel and others have noted the very high refractive power of the human lens in these cases.

The second is a case of accidental removal of a lens, in a child, with high myopia, resulting in good vision at the age of 45. Fellow eye at that time lost by choroidal atrophy.

Sister M. a cloistered nun, aged 45, stated that she had always used her right eye, but of late, she did not see well with this one and that the left, which had been injured, was now the better, but she could not read at all. I found the right had only a vision equal to the counting of fingers at eighteen inches. With the left V. 20-50 and was slightly improved by plus lenses up to 2 D. The ophthalmoscope revealed in the right high myopia with extensive choroidal atrophies while in the left there was seen, behind the iris, an irregular opening through what was evidently the remnants of an opaque lens capsule. Further questioning brought out the fact that the injury was caused by a blow from the end of a stick and occurred at the age of 13 years.

It was then plain that there had been, at that time, a traumatic cataract, followed by absorption of the lens substance. There was no fundus trouble in this eye and 5 D + enabled her to read "brilliant" at twelve inches.

So here was a case of accidental removal of a lens at 13 followed by good vision, 20-50 without glasses, at 45, in this eye, while in the fellow, in which no attempt at correction by glasses, has ever been made, the myopia had probably increased, the choroid had atrophied and all useful vision had been lost. Would removal of this lens in childhood have saved this eye? The fact of about 2 D. of accommodation in an eye without a lens is of some interest. It is likely that a carefully adjusted glass would improve the given vision in the left eye, but I was obliged to see the patient at the nunnery and to use a candle for the ophthalmoscopic examination. The patient was apparently embarrassed and gave hesitating answers and no attempt was made to correct possible astigmatism.

DISCUSSION.

C. M. Hobby, Iowa City—In high myopia the necessary concave glasses diminish the size of retinal images and this is the sole reason why in otherwise normal conditions the operation should be suggested. This difficulty is scarcely appreciated by the patient. In cases of retinal disease, or choroiditis the removal of the lens in high myopia might, by enlarging the distinct retinal image, be of advantage. In cases where, in high myopia, degenerative changes appear the early removal of the lens is indicated. I have seen one case in which the lens was removed with resulting vision, without glasses, of 20-40.

C. W. Kollock, Charleston, S. C.—I have recently seen a German music teacher with a myopia of about 30 D. who was going to Europe to have his lenses removed. It is doubtful whether the operation would improve his condition as he has posterior staphyloma.

A. W. Stirling, Atlanta—I have seen operations performed, one by Scholler, having the desired effect. Two operated upon in London went to suppuration. In the third case the retina became detached to the full extent so that the eye was worse than before.

C. A. Wood, Chicago—I think I performed the first operation of the kind done in this country. The case was as follows: March 2, 1891, A. M., seamstress, 17 years old, been myopic for eight years, lately getting much worse. Could not go to school and now unable to do any sort of work. If she attempts to sew her eyes ache and feel as if they were bulging out of her head. Glasses make objects brighter but do not otherwise help. V. R. fingers at seven feet, with —14 D. 20-100. V. L., fingers at eight feet, with — 15 D. 20-70. There are sharp temporal crescents of about ½ d. d. in both eyes. No choroiditis, although the choroidal vessels can be readily seen over the whole background. Macular regions show as cherry red spots. March 3, needled the right lens—a small central opening. Used atropin and hot water to relieve subsequent pain. In a week tension with pericorneal injection and pain. Made a corneal opening and removed most of the lens. Did two subsequent needlings. August 5, V. R. 20-100. The pupil is irregular and attached to pupillary membrane. In December needled left lens without mishap. The lens absorbed nicely V. L. 20-100.

With L. 90° +.50+ 14=20-50 and with 90° +50+8=J 2. Did not order lenses for right eye although with this correction on left side patient was able to read and do other near work and eyes were comfortable. I did not see her again until March of this year when the following condition was observed: secondary cataract V. R. fingers at 5′ and improvement. V. L. +9° +.50 +3 12-200 and 90° +50 +8. J xvi. Left membrane needled and with 90° + 75 +2.50 = 20-50 and 90° +.75 +6.50 = J2. Two weeks later did a De Wecker's capsule scissors operation, after which patient obtained 20-50 vision and could read J2 and do near work without trouble.

THE DEGENERATE JAWS AND TEETH.

Read in the Section on Neurology and Medical Jurisprudence, at the Forty-seventh Annual Meeting of American Medical Association, held at Atlanta, Ga., May 5-8, 1896.

BY EUGENE S. TALBOT, M.D., D.D.S.
FELLOW OF CHICAGO ACADEMY OF MEDICINE.

Next to the ears, the jaws and teeth (as was to be expected from the variability of these organs in allied animals), are most affected by degeneracy. This is particularly true of the vertebrates; especially the mammals, as might have been anticipated from their phylogeny or line of descent. At the head of the vertebrates is man; at the foot is the lancelet (*amphioxus*), most akin to those semi-vertebrates the ascidians, who, in their larval phase, are higher than when adult and whose life history excellently illustrates that potent phase of evolution, degeneracy.[1]

The lancelet[2] has a spinal cord inclosed in a soft semi-cartilaginous canal (the notochord). It is practically destitute of a brain. The cerebral vesicle which represents this, is a plain cavity without true subdivision into ventricles. There is no cranium and the median eye is a mere pigment spot with which it is able to distinguish light from darkness. Behind this is a small pit lined with cilia for olfactory purposes. Into this the cerebral vesicle of the larval lancelet opens. The mouth is well guarded against the intrusion of noxious substances, which have to pass through a vestibule richly provided with sensitive epithelial cells resembling the taste buds of the human mouth. There is no heart. In this the lancelet is lower than the ascidians, the insects, crustacea and many mollusks. It approximates the worms, which, despite a very elaborate vascular system, are destitute of a heart, the function of which is performed by contractile blood vessels. From an embryologic and morphologic standpoint, the proximate ancestor of the vertebrates seems to have been a free swimming animal intermediate between an ascidian tadpole and the lancelet, while the primordial ancestor was a worm-like animal organized on a level with the starfish. The vertebrates, embryologically, develop from this stage to the lampreys thence to the cartilaginous fish (shark), to the amphibia (frog, toad, axolotl), to the reptiles and thence to the oviparous mammals (duckbill and spiny ant-eater), to the lemurs and through forms like the pithecanthropus erectus to man. The present study will be confined to the mammals, passing from the simple types of teeth found in that oviparous edentate, the spiny ant-eater (echidna) of Australia to the indeciduous ancestors of the sloths and armadilloes and their descendants, inclusive of the dolphins and whales, whose teeth, both in the fetal Greenland and adult sperm whale, preserve this old type. The whales,[3] it should be remembered, have degenerated from the hoofed mammals to suit their environment. While, as in the edentates, these teeth may be few, they may also (as in the insectivorous marsupials) approximate those of the reptilia in number (60 or 70 on a side) and characteristic location.

The evolution of this primitive, tooth to the bicuspid and molar type has been explained by two theories: the concrescence theory and the differentiation. The first, advanced by Magitot in 1877, was later advocated by Schwalbe, Carl Röse and Kürkenthal. The last was offered by Osborn and Cope. Of these two contrasted theories Osborn[4] has given the following lucid presentation:

"Now let me illustrate, in a very simple manner, what is meant by the theory of concrescence and how we can imagine that the human molars have been built up by bringing together a number of isolated teeth. Placing a number of conical teeth in line, as they lie in the jaw of the whale, they would represent the primitive dentition. In the course of time a number of these teeth would become clustered together in such a manner as to form the four cusps of a human molar, each one of the whale-tooth points taking the place of one of the cusps of the mammalian tooth—in other words, by a concrescence, four teeth would be brought into one so as to constitute the four cusps of the molar crown. Vertically succeeding teeth might also be grouped. Now, what evidence is there in favor of this theory, and what is there against it? First, there is this, that all primitive types of reptiles from which the mammalians have descended and many existing mammals, as we have noted, have a large number of isolated teeth of a conical form; secondly, we find that by a shortening of the jaw, the dental fold or embryonic fold, from which each of the numerous tooth-caps is budded off in the course of development, may be supposed to have been brought together in such a manner that cusps which were originally stretched out in a line would be brought together so as to form groups of a variable number of cusps according to the more or less complex pattern of the crown. What may be advanced agains this theory? This, and it is conclusive to my mind: We find at the present time that cusps, quite similar in all respects to each of the cusps which form the angles of the human molar, are even now being added to the teeth in certain types of animals, such as the elephant, whose molar teeth cusps are being complicated now or until very recent times. Then we find in the mesozoic period certain animals with tricuspid teeth. Now, according to the theory of concrescence these teeth ought not to show any increase of cusps in later geologic periods; but as we come through the ages nearer to the present time we find that the successors of those animals show a very much larger number of cusps. How is this increase of cusps to be accounted for? Has there been a reserve store of conical teeth to increase the cluster? No. Most obviously, to every student of the fossil history of cusps there is no reserve store, but new cusps are constantly rising up on the original crown itself by cusp addition. However, do not let me give you the impression that these researches of Röse and Kükenthal are not of the greastest value and interest; we shall see later on how the very facts of embryology which are advanced by Dr. Carl Röse in support of his hypothesis can be

[1] Ray Lankester: Degeneracy, a Phase of Evolution.
[2] Willey: The Amphioxus.
[3] Haeckel: History of Creation, p. 242, Vol. II.
[4] International Dental Journal, July, 1895.

turned against him and used to support the differentiation theory.

"Now let us turnto the differentiation theory and see what evidence we have of that. Let us go back to a very remote period of time, through the geologic ages of the pliocene and the miocene, through the eocene, through the cretaceous or chalk period, and even the jurassic. Still further back we go to the triassic, and the interval between this and the present period has been estimated at over ten million years. Now, in the triassic we find the mammalia, or the first animals which we can recognize as mammalia, possess conical, round, reptilian, or dolphin-like teeth. There are also some aberrant types which possess complex or multitubercular teeth.

"These teeth begin to show the first traces of cusp additiou, as shown in the plate at the beginning of this article and in the accompanying key to this plate.

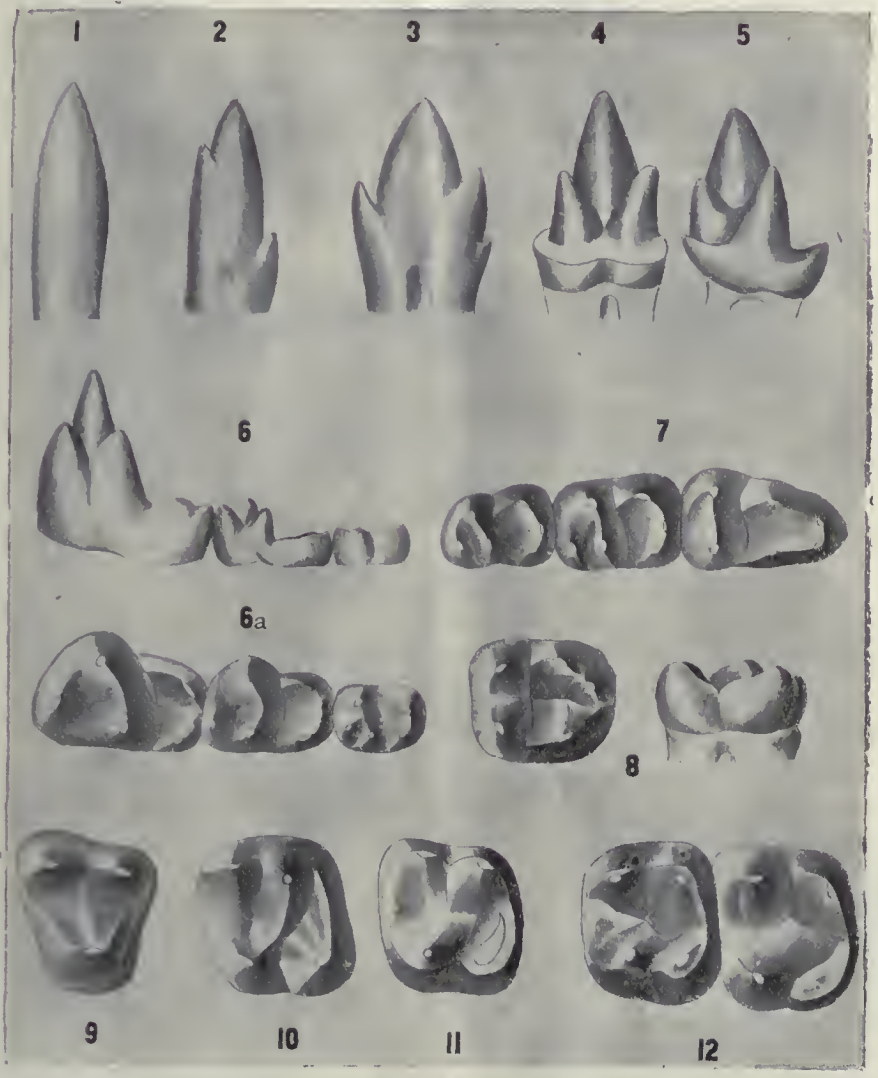


PLATE A.

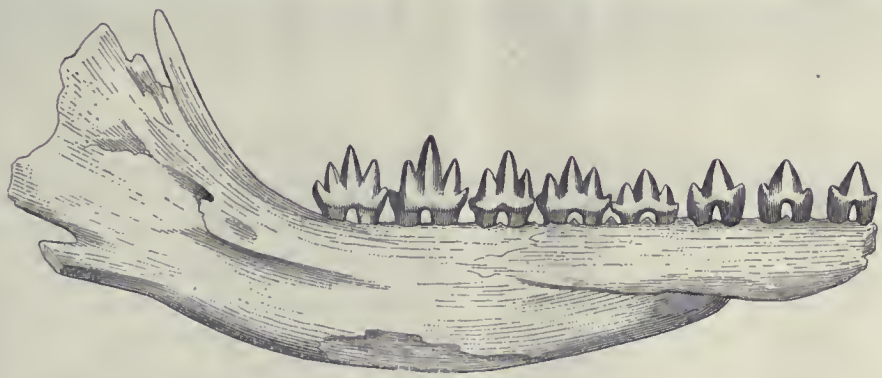


PLATE B.

Here (Fig. 1, Plate A) we have represented the teeth of the *dromatherium*, an animal found in this country in the coal-beds of North Carolina, and on the sides of the main cone are cusps or rudimentary cuspules. In this enlarged model you see that on either side of the main cone are two cuspules. These teeth were

found six hundred feet below the surface in a coal-mine, and in the same mine we find another animal, represented by a single tooth here (Fig. 2), in which these cusps are slightly larger. These cusps have obviously been added to the side of the tooth, and are now growing. Then we pass to teeth of the jurassic period, found in large numbers both in America and in England, but still of very minute size; and we observe the same three cusps, but these cusps have now taken two different positions; in one case they have the arrangement represented in Fig. B; the middle cusp is relatively lower, and the lateral cusps are relatively higher; in fact, these cones are almost equal in size; these teeth are termed *triconodont*, as having three nearly equal cones. But associated with this of *triconodont* is another animal named *spalacotherium*, you see in Fig. 5, *amphitherium*. To sum up: We have a reptilian cone, two cusps added to it, and a heel—four cusps altogether and we shall now see what relation these bear to the human molar. First let us turn to some transitional forms. Examine a molar of the living opossum, a marsupial, which still distinctly preserves the ancient triangle. Look at it in profile, in side, or in top view, and see that the anterior part of that tooth is unmodified. This triangle we also trace through a number of intermediate types. In this figure (Fig. 6) of *miacis*, a primitive carnivore, we observe a high triangle and a heel, and when we come to look at it from above (6 a) we find that the heel has spread out broader, so that is as broad as the triangle. Now, the three molars of this animal illustrate a most important principle—namely, that the anterior triang-



Figure 13.

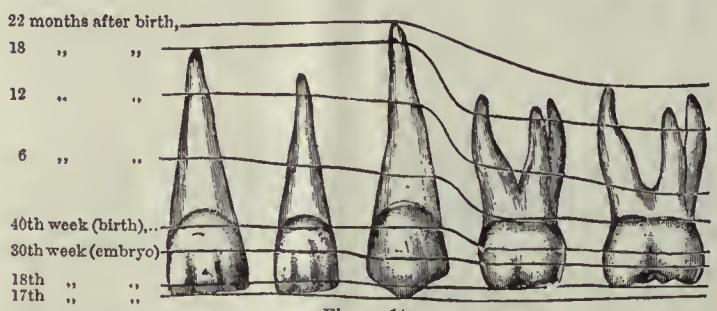


Figure 14.

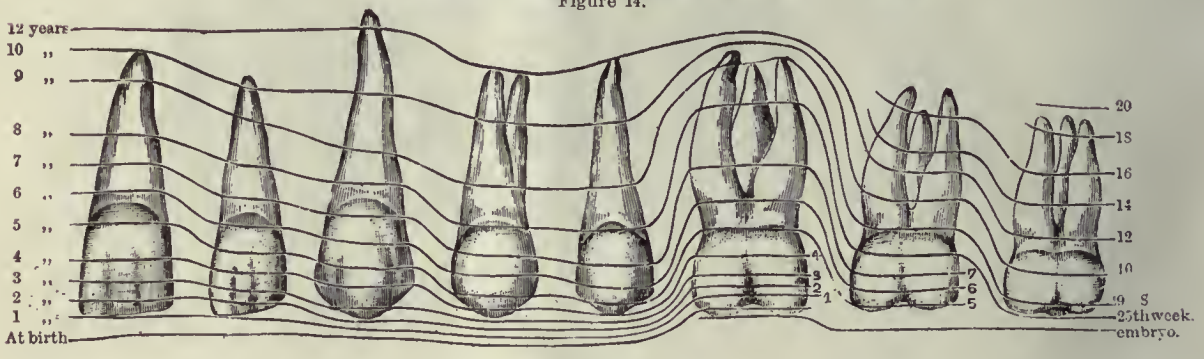


Figure 15.

the teeth type of which are represented in Fig. 4. This is one of the most significant teeth which we have among all the fossil series, because this tooth illustrates the step that was taken in the transformation of a tooth (triconodont) with three cusps in line to a tooth with three cusps forming a *triangle;* for the primitive cusp is now seen to be the apex of a triangle, of which the two lateral cusps are the base. Now, this fact in itself is of great significance, because this tooth in this single genus is the key of comparison of the teeth of all mammalia of the great class to which man belongs. By this we are able, as you shall see, to determine that part of a human molar which corresponds with a conical reptilian tooth. The stage shown you is the triangle stage; the next stage is the development of a heel or spur upon this triangle, as ular portion of the crown has been simply leveled down to the posterior portion of the crown. Compare these three teeth, therefore, and you see illustrated a series of intermediate steps between a most ancient molar and the modern molar of the human type. The second tooth is half-way between the first and third. Look at the second molar from above and you see it has exactly the same cusps as the first, so it is not difficult to recognize that each cusp has been directly derived from its fellow. Now direct attention to the third tooth of the series (Fig. 7), for it is of equal significance with the others. This tooth has lost one of its cusps; it has lost a cusp of the triangle. It is now a tooth with only half the triangle left on the anterior side, and with a very long heel. That tooth has exactly the same pattern as the lower human molar

tooth (Fig. 8); the only difference is that the heel is somewhat more prolonged. These teeth belong to one of the oldest fossil monkeys, *anaptomorphus*. I have no doubt many of you have observed, in the examination of human lower molars, that occasionally instead of having four cusps they have five. The fifth cusp always appears in the middle of the heel, does it not, or between the posterior lingual and the posterior buccal? You find this in the monkeys and in many other mammals, but I know of no record of the ancient anterior lingual reappearing. So we see that the human lower molar tooth with its low, quadritubercular crown has evolved by addition of cusps and by gradual modeling from a high-crowned, simple-pointed tooth."

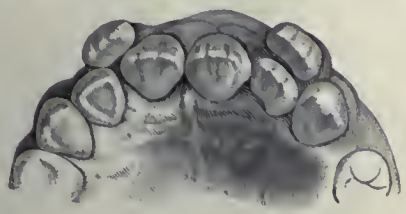


Figure 16.

Carl Röse[5] has contributed considerably to our knowledge of the evolution of the teeth. He says: "I find no mention in literature of the development of the teeth of the chamæleonidæ, nor of any other acrodont reptile. As the chameleon possesses multituberculate molars in the posterior portion of its jaws, therefore the development of the teeth in this animal must be doubly interesting, especially with regard to the origin of the molars generally. I examined the heads and jaws of both young and adult animals. Unfortunately, I was unable to procure embryos of the chameleon. All the material was sectionized into series of 20 μ thickness, and doubly stained with alum carmin and bleu de Lyons. The figures have been drawn with Oberhäuser's camera. Figure 13 shows the teeth of the upper jaw five times magnified. The

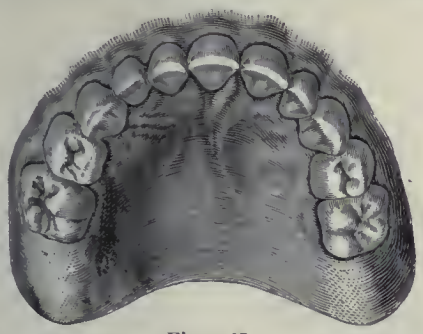


Figure 17.

anterior teeth are unituberculate, the posterior ones bi- or trituberculate. All teeth are fused to the edge of the maxilla. *There is no shedding of the teeth in the chameleon*, nor could I prove it to take place in hatteria; but still there is, especially in the upper jaw, behind the functional teeth, a well-developed dental or reserve ridge. On its posterior end there takes place, throughout life, a continuous new formation of teeth. Accordingly, older animals have always a larger number of teeth than young ones. Although I examined macroscopically, with a lens, a number of heads of the chameleon, and microscopically six different series of sectionized jaws, I never succeeded in finding any indications of reserve teeth."

[5] October, 1893, Dental Cosmos.

To alienists, biologists, criminal anthropologists and sociologists the human jaw and teeth are of peculiar interest since their study establishes many points in evolution and environment not clearly determinable in other structures. Their study enables the observer without much difficulty to determine inherited and acquired stigmata. For this purpose the teeth should be studied from the first evidence of their development until they are all in place, which occurs normally in most cases, by the twenty-second year.

Teeth enamel is formed from the epiblast; and dentine, cementum and pulp (except as to nerve tissue)



Figure 18.

from the mesoblast. The enamel organs of the first set form during the seventh week of fetal life, the dentine bulb during the ninth week. At this period the tooth obtains its shape and size and calcification begins at its periphery. This models the enamel cap which fits over the dentine like a glove. When imperfections in hand or fingers exist these deformities are distinctly observed upon the glove. In precisely the same manner are observed the different shapes and sizes of the incisors, cuspids and molars. Calcification of the teeth begins at the seventeenth week of fetal life. Illustration (Fig. 14) shows the progress of calcification and development of the temporary set of



Figure 19.

teeth. Examination will show that any defect in nutrition from conception to birth (due to inherited states or maternal impressions) has been registered upon the teeth. The state of the constitution and the locality registers the date of such defects. Thus, if the tooth as a whole be larger or smaller than normal or abnormally irregular, taint is undoubtedly inherited from one or both parents. If on the other hand, there be defect at any part, on the crowns of the teeth and the contour be perfect, the date of malnutrition can be easily determined by consulting this chart. More or less than the normal number of teeth abnormally placed demonstrate the existence of inherited defect since the germs must have been deposited at the periods mentioned. No absolute rule can be

laid down as to the date of the eruption of the teeth. The teeth of the temporary set erupt nearly as follows:

	After Birth.	Time of Eruption.
Lower central incisors	7 months	1 to 10 weeks
Upper " "	9 "	4 to 6 "
Upper and lower lateral	12 "	" "
First molars	14 "	1 to 2 months
Cuspids	18 "	2 to 3 months
Second molars	26 "	3 to 5 months

The enamel organs and dentine bulb for the permanent teeth form just before birth (Fig. 15) in like manner with the temporary set. They form just

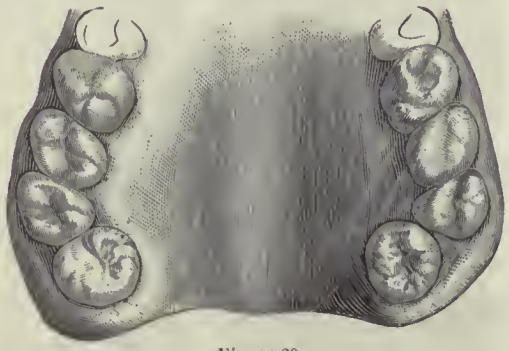


Figure 20.

above the temporary set on the upper and below on the lower jaw. The permanent molars begin to calcify at the twenty-fifth week of fetal life. The permanent incisors do not calcify until a year after birth. Any deviation in size or contour of the permanent teeth, from the normal, must hence be due to defect in nutrition in the dentine bulb between the fifteenth and twenty-fifth week of fetal life. Any deviation in calcification (except the cusps of the first permanent molars) must occur after birth. At the third year twenty-four teeth are fairly well calcified. At the fifth year the second permanent molars and at the eighth year the third molars or wisdom teeth begin to calcify.

The following table gives the age of eruption of permanent teeth.

First permanent molars	Circa 6 years
Upper and lower central incisors	" 7 "
Upper and lower lateral	" 8 "
First bicuspids	" 9 "
Second bicuspids	" 10 "
Cuspids	" 11 "
Second permanent molars	" 12 "
Third " "	" 17 to 24

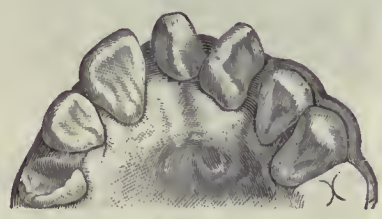


Figure 21.

Man at his present stage of evolution has twenty teeth in his temporary, and thirty-two in his permanent set. Any deviation in number is the result of embryonic change occurring between the sixth and fifteenth week for the temporary teeth and the fifteenth week and birth for the permanent. The germs of teeth which erupt late in life and are (properly) called third sets, of necessity appear ere birth and are completely formed at the beginning of the second year although they remain protected in the jaw until late in life.

More than twenty teeth in the temporary or than thirty-two in the permanent is hence an atavistic abnormality.

From a maxillary and dental standpoint man reached his highest development when his well developed jaws held twenty temporary and thirty-two permanent teeth. Decrease in the numbers meant, from the dental standpoint, degeneracy, albeit it might mark advance in the man's evolution as a complete being. Marsh[6] points out that in the New Mexican lower eocene occur a few representatives of the lowest primates such as the lemurarius and limnotherium, each the type of a distinct family. The lemurarius, most nearly allied to the lemurs, is the most generalized primate yet found. It had forty-four teeth in continuous series above and below. The limnotherium, while related to the lemurs, had some affinities

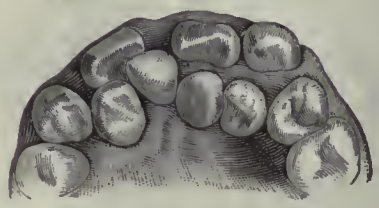


Figure 22.

with the American marmosets. Dr. A. H. Thompson[7] in discussing the "missing teeth" of man remarks that these researches of Marsh suggested and subsequent studies aided the solution of the problem of the origin of the extra teeth (known as supernumeraries) that sometimes occur in man. These, usually regarded as pure freaks like polydactylism, are however beautiful illustrations of atavism and demonstrate that man during his evolution from the lowest primate has lost twelve teeth. These supernumerary teeth assume two forms; either they resemble the adjoining teeth or are cone-shaped. While they rarely are exactly counterparts, every tooth can be



Figure 23.

and is duplicated as the following illustrations show. Figure 16 illustrates fairly well fromed duplicate central incisors; the normal incisors being outside the dental arch. They are crowded laterally by the large roots of the supernumerary incisors. Figure 17 shows an extra right lateral in a temporary set in the upper jaw; Figure 18, an extra right lateral in the permanent set. Figure 19 illustrates normally developed supernumerary cuspids which are all grouped

[6] Vertebrate Life in American Assoc. for Adv. Science, 1877.
[7] Dental Cosmos, 1894.

together upon the right side; the bicuspids being also duplicated on each side; indeed, all but the molars are duplicated. Figure 20 shows supernumerary third molars easily demarcated from the normal molars. The teeth, which fail to approximate their normal neighbors, assume the cone shape of the primitive tooth.

The fact that the cone-shaped tooth, as a rule, is perfect in construction, is found everywhere in the jaw but especially in the anterior and posterior part



Figure 24.

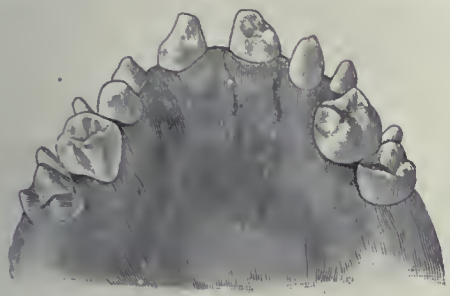


Figure 25.



Figure 26.

of the mouth, is of much value in outlining tooth and jaw evolution especially from degeneracy aspects. The upper jaw, being an integral part of the skull and fixed, is of necessity influenced by brain and skull growth, hence degeneracy is more detectable in it than in the lower.

The evolution of the jaw is toward shortening in both directions. This shortening will continue so long as the jaw must be adjusted to a varying environment. The jaw of man having originally contained more teeth than at present, lack of adjustment to environment produces from the shortening, degeneracy of the jaw and atavism of the teeth. While this may coincide with general advances of the individual it indicates that he is not yet adjusted to his new environment. The shortening of the upper jaw causes supernumerary cone-shaped teeth to erupt in mass at the extreme ends of the jaw as shown in the following figures. Figure 21 illustrates a cone-shaped tooth between the two central incisors, forcing them

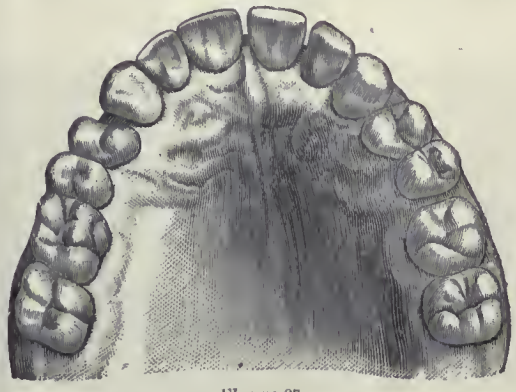


Figure 27.

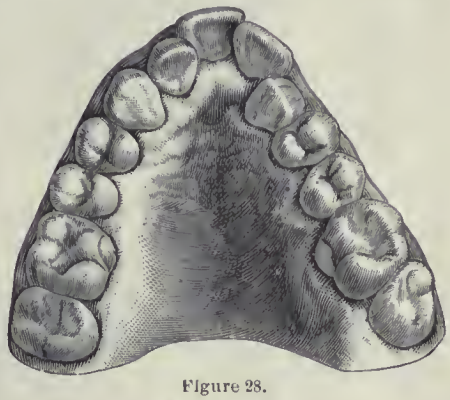


Figure 28.

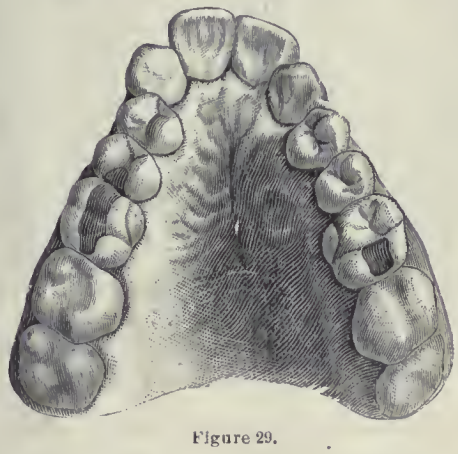


Figure 29.

out of position. Figure 22 shows three supernumerary teeth; a cone-shaped tooth between the central, lateral and cuspids out of position. The left permanent lateral is at the median line, another cone-shaped tooth remains in the vault, while the supernumerary left lateral is in place. As many as eight are at times to be observed in the anterior vault. Posteriorly these teeth are most often noticed in connection with the third molars usually on a line with other teeth, posterior to the last molar. Figure 23 shows two supernu-

merary cuspids in the anterior and two in the posterior part of the left arch; the molars have been extracted. Supernumerary teeth are not confined to these localities but may be observed at any point in the dental arch (Figs. 24 and 25). The primitive cone-shaped tooth is rarely observed in the lower jaw. In twenty-six years practice I have not seen a case. The mobility of the lower jaw prevents that mal-adjustment to environment present in the upper.

The continual shortening in both directions of the jaw causes the third molars frequently so to wedge in between the angle of the jaw and the second molar that eruption, if possible, is difficult. The third molar is often absent in the Caucasion races. In 46 per cent. of 670 patients it was missing. Frequently its development is abortive. This tooth in the struggle for existence seems destined to disappear. It is more often absent from the upper than the lower jaw. When absent or badly developed the jaw is smaller and frequently teeth irregularities, nasal stenosis, nasal



Figure 30.

bone and mucous membrane hypertrophy, adenoids and eye disorders coëxist. Figure 26 shows absence of the left third molar with irregularities of that side of the arch. In Figure 27 both third molars are seen to be missing coincident with irregularities on both sides of the arch. Anteriorly the lateral incisors are most often wanting; 14 per cent. of the laterals were wanting in 670 patients. In the progress of evolution man has lost one lateral upon each side of the mouth and the second lateral seems also destined to disappear. In Figure 28 the left lateral incisor has disappeared and in Figure 29 both lateral incisors are absent. Not infrequently does it occur that centrals, cuspids, bicuspids and even molars are absent, even their germs are not detectable. Figure 30 illustrates a cast showing three supernumeraries in the anterior part of the mouth and but two molars. The absence of teeth indicates lack of development of germs due either to heredity or defective maternal nutrition of the line of conception or during early pregnancy.

(*To be continued.*)

ERB'S PRIMARY MUSCULAR ATROPHY.

Read in the Section on Neurology and Medical Jurisprudence, at the Forty-seventh Annual Meeting of the American Medical Association at Atlanta, Georgia, May 5-8, 1896.

BY ELMORE S. PETTYJOHN, M.D.

MEDICAL SUPERINTENDENT ALMA SANITARIUM, ALMA, MICH.

Since Duchenne first described progressive muscular atrophy in adults and infants and regraded *each* form as of *peripheral* origin, the study of the clinical history and pathology of muscular dystrophies has only partially decided which are of muscular and which of spinal origin. We now believe that the hereditary form found during infancy and early life, especially if it attacks several members of the same family, is of muscular origin, and certainly so if there are present postmortem hypertrophied muscular fibers side by side with atrophied and degenerated fibers, and with no changes in the anterior horns of gray matter of the cord nor in the nuclei of the fourth ventricle or aqueductus sylvii.

One chief reason for considering this much talked about disease is the desire to establish a definite symptomatology, to accomplish a differential diagnosis and arrive at the rational treatment for the benefit of the patient, rather than to originate classifications.

Idiopathic muscular atrophy is primarily a disease of childhood and youth and usually develops before the age of 20. It is more frequent in males than



FIG. 1.—Primary muscular atrophy. Age 22. Left side shows more atrophy than right. Hands large by comparison. Right shoulder droops. Pectoral muscles wasted. Forearms unaffected. Dr. E. S. Pettyjohn. Case 1.

females, probably due to transmission through the mother, though she herself is exempt, as the son usually inherits the peculiarities of the mother and the daughter those of the father. In this way it is hereditary in three-fourths of the cases, and often appears in several members of the same family, but usually of the same type in the different members of the same family.

The onset of the disease is gradual and the atrophy and weakness progress simultaneously with or without any initial hypertrophy. In the parts affected the disease slowly increases and thence spreads. The shoulder girdle is first affected, *i. e.*, the pectorals, the trapezii, rhomboidii, latissimus dorsi, the upper arm muscles and the supinators, and later

the forearms, glutei, thighs and legs. The patient is often unaware of the wasting of these muscles on account of their relative unimportance. The deltoids are rarely involved and the serratus magnus often escapes noticeable changes.

On electrical examination the irritability of the affected muscles is usually lessened, on the use of either current and either pole, out of proportion to the atrophy present. The typical reaction of degeneration is not present; however, the action is not entirely normal. Were we to divide the *reaction of degeneration* into three stages they might be designated: Simple atrophy, atrophy with muscular cell proliferation and atrophy with muscular cirrhosis. The



FIG. 2.—Chest expansion, nipple line 37 inches; tip of sternum 40½ inches. Intercostals unaffected. Biceps atrophied with deltoid and pectorales. (Conditions not well shown in the picture.) The scapulæ are drawn up by the trapezius and levator anguli scapulæ in absence of opposition. Dr. E. S. Pettyjohn. Case 1.

reaction found in this disease would be that of the first mentioned stage. Febrillary twitchings are absent, though not invariably, and the sensibility to the faradic current and heat and cold is usually unimpaired.

The absence of nerve irritation alone would seem to prove the atrophy to have begun in the *end organs* of the nerve, and also in the *nerve* itself. Implication of the nerve is shown by the increased action of the muscles when the electrode is placed over the motor point, as compared with the reaction obtained when placed over the muscles. The reflexes are weakened or lost, never increased. The sphincters are not affected. The disease is painless.

Aside from heredity, acute febrile diseases, especially scarlatina and diphtheria, and over-exertion, lack of good food and exposure to vicissitudes of the weather undoubtedly enter into the etiology. The course and duration (from ten to thirty years) of the disease are exceedingly variable, but can undoubtedly be influenced by treatment. Death usually occurs from some intercurrent disease.

The treatment in its prophylactic form should include the prohibition of marriage of one so afflicted,



FIG. 3.—Wing-like projection of scapulæ, showing atrophy of trapezii and serrati. Drooping of right shoulder. Triceps complicated as well as the entire shoulder girdle. Age 22 years. Began at 14 years. Dr. E. S. Pettyjohn. Case 3.

and of bringing into the world other children by parents the physical *combination* of whom produced such dystrophies. Infants of such mothers should be reared by a wet nurse or by artificial feeding. All children of families where disease exists in one member, should be reared *hygienically* with every effort to increase and develop the muscles of the body symmetrically.

The active treatment should combine every useful agency to prevent nutritional deterioration of the skin, the muscles and the nerves supplying them. The cleansing of the skin and mild elimination there-

from has been shown to increase the assimilation and nutrition of the underlying muscles. Fomentations, followed by cold sprays, stimulate to greater activity the circulation of the part. Light friction continued for a considerable length of time and frequently repeated, especially with camphor liniment increases the cutaneous nutrition.

For the muscles, methodical, graduated exercise with or without apparatus (never tiring the muscle) will increase their nutrition. In addition to this, *massage,* skillfully used by the hand of an operator who understands the anatomy of the part and can *select* the various groups affected for treatment, is a most excellent aid to increasing the nutrition of the muscle. The wasted and degenerate tissue of the muscle is forced into the circulation, the blood vessels and lymphatics are emptied of the already accumulated débris and new material is brought to increase every elemental part. This treatment should be given twice daily, gradually increasing the force and time occupied. Electrization of the affected muscles and those in the immediate region, especially with the sinusoidal current, should be practiced daily. This should be done in an especial manner to every affected muscle. The current ought never to be strong nor continued until the sensibility is greatly increased. The current in use should rather be diminished than increased. One or two minutes should be allowed to each muscle, when the current should be distributed over several muscles; the entire séance lasting only from fifteen to twenty minutes, depending upon the area of the muscles affected.

The static current and alternating hot fomentations and ice to the spine, to stimulate the nerve centers supplying the affected groups of muscles, augments the innervation and increases the nutrition.

The very best internal remedy is, in my opinion, *wholesome, nourishing food,* a generous mixed diet combined with long hours of rest in bed and prolonged undisturbed sleep. Strychnia preparations combined with quinin are the best tonics. As the hemoglobin and the number of blood corpuscles are neither diminished, iron is not especially indicated.

I report a case in point: Two years ago Daniel L. presented himself at the sanitarium and gave the following history: Age 19, son of a farmer; one of seven children all in good health at the time. No neurotic heredity; father died at the age of 45, of some stomach disease; mother living, in good health. Family history good. At 9 years of age had scarlatina and made an uneventful and complete recovery.

At the age of 15 he performed a hard day's work, carrying bags and pitching bundles. No immediate effects were noticed, but a month afterward he began to notice weakness in the muscles of the chest, shoulders and arms. Some time after this these muscles began to atrophy. For the six months previous to my first observation the case had grown rapidly worse. During this time he complained of being very weak and tired after very moderate effort. While swimming his companions noticed the wing-like projection of the scapulæ. He gradually grew weaker, so he was hardly able to do milking. The family called him lazy, much to his discomfort.

On examination the entire shoulder girdle was found affected. The upper intercostals and pectorals were so weakened that the breathing was largely diaphragmatic. The expansion at the nipple line thirty-seven inches, just below the sternum forty and one-half inches. When the arms were at the side the scapulæ projected so that the two hands could be laid between them and not be seen on the line across. The trapezii, rhomboidii, latissimus dorsi, biceps and triceps were all affected, the *left side* more atrophied than the right. The forearms and hands were not noticeably changed or weakened, although the hands seemed large by contrast. He could not put either hand on the top of the head without the momentum of a swinging action for several seconds. On trying to lift him from the floor by placing the hands in the arm-pits the shoulders were raised nearly to the ears. He walked similarly to one with a lame back. The patellar reflexes were entirely absent, but there was no incoördination when standing. There were no muscular vibrations, convulsive twitchings nor momentary tremors such as are often found in progressive paralysis. The sensibility to heat, cold and cutaneous irritation were unimpaired, though the superficial temperature was slightly lowered, especially in the arms and hands. On electrical examination the irritability of the affected muscles was lessened generally, but the increased action of the muscles on both cathodal and anodal opening and closing were more marked when the electrode was placed directly over the motor point. The pupils responded to light and accommodation. The patient was not especially intelligent, his mental actions being sluggish though his judgment was firm and his emotions under control. After six months' treatment on the plans hereinbefore mentioned the patient has gained twenty-six pounds in weight; the superficial temperature of the affected muscles is normal; there is increased strength in the muscles and so far as can be discovered no atrophy in the previously unaffected parts.

A few weeks ago a younger brother, a boy of 11 years, was brought to me and upon examination was found to be afflicted in the same way, but in a lesser degree, the commencement unknown. There is true atrophy and a minimum amount of adipose tissue along with stunted growth for the child's age.

May 1, 1896, the patient has not grown especially weaker and the good fibers are increased somewhat in strength. The electric reactions and other physical signs remain about the same. His general nutrition has increased somewhat during the past year and there has been no further noticeable involvement of muscles.

GASTROSTOMY BY A CIRCULAR VALVE METHOD.

BY EMANUEL J. SENN, M.D.

INSTRUCTOR IN SURGERY, RUSH MEDICAL COLLEGE, CHICAGO.

Gastrostomy, since it was first suggested by Egeberg in 1837 and performed by Sedillot in 1849, has undergone many transformations in the evolution of technique. The primitive operations as done by Sedillot, Fenger, Foster, Durham, Langenbeck, Krönlein and Verneuil, consisted simply in making the external incision through the abdominal wall and fastening the stomach in the wound with sutures or steel needles as a support, and then incising it. There naturally was no resistance to the stomach contents, the great obstacle to gastrostomy. The operation fell into ill repute and practically lay dormant until the present decade, when it was revived and received an impetus in the modern methods of Von Hacker, Hahn, Witzel, Ssabanajew and Frank, in the hope of rectifying the

disagreeable features that are inevitable in a continual leakage of a gastric fistula. It is rather strange when we compare the great mortality attendant upon gastrostomy with that of colostomy, which is the identical operation lower down the alimentary canal, and entails little risk to life under corresponding conditions. The mortality varies according to different observers. Of 207 cases collected by Gross, 167 were for cancer and 40 for cicatricial stenosis, with a death rate of 29.47 per cent. from the operation itself. Dr. N. Senn estimates it at 25 per cent.; while Zesas is more radical than either of the other observers, and places the mor-

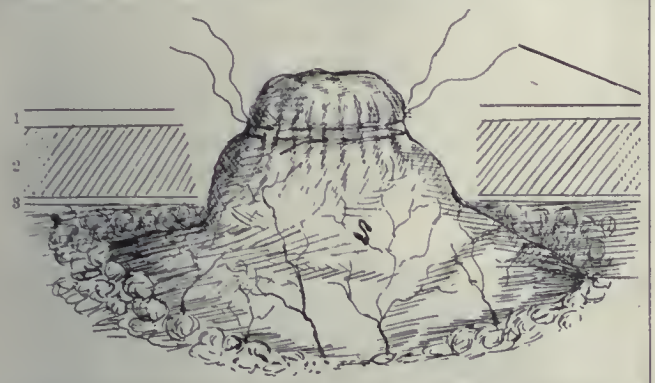


FIG. 1.—Puckering strings in situ. 1, skin; 2, muscle; 3, peritoneum; S, stomach.

tality at 60 per cent. for cicatricial stenosis and 84 per cent. for malignant cases. This great mortality is probably due in a great measure to the extreme emaciation which patients undergo before they will submit to operation. In stenosis of the rectum, both benign and malignant, we meet with the same conditions, but without such a frightful mortality. I am of the opinion that the great shock which so often follows gastrostomy is in a great degree due to the tension exerted on the rich plexuses of the sympathetic system which have such an intimate relation with the stomach. This is especially the case when



FIG. 2.—Puckering strings tied, forming a constriction.

there is considerable contraction of the stomach. Before dwelling on the subject of this paper, it will be in order to review the muscular structures of the stomach in a concise manner. The muscular coat, which here is exceedingly well developed, consists of three layers: 1, longitudinal, the most superficial; 2, circular or transverse; 3, oblique, the deepest layer. The use of the muscular fibers are: 1, adaptation of the stomach to the quantity of food; 2, to keep the stomach closed until the food is digested; 3, peristaltic movements. The contractile power of the walls in the pyloric region is the most energetic, as here more force is necessary to overcome the resistance of the pylorus. Nevertheless the stomach throughout its continuity is a powerful muscular organ and its walls tend to contract when stimulated. This phenomenon was beautifully demonstrated in the case of St. Martin, where the bulb of the thermometer was tightly grasped when placed in a gastric fistula. This natural adaptation of the stomach to its contents in the old-fashioned gastrostomy is interfered with to a certain extent by the adhesions which form between the parietal peritoneum and the stomach. It is in this area, surrounded by adhesions, that the fistula is made, being a straight incision into the stomach with no pretense of making a valve, or of devising an oblique or circuitous route. The strong adhesions to

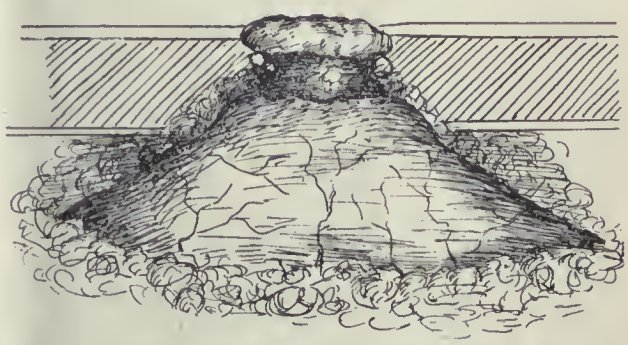


FIG. 3.—Omental cuff covering constriction and stomach sutured to abdominal wall.

the parietal wall prevented the muscular structures around the fistula to contract or dilate in conformity with the rest of the stomach, and consequently the fistula remained patent. It has been my purpose to plan a logical method of gastrostomy to meet the following indications:

1. To prevent leakage by making a valve of the stomach wall itself, instead of utilizing extrinsic structures to that end, and also for the same purpose to provide a constriction in imitation of a sphincter.

2. To minimize shock by putting the least possible strain on the stomach.

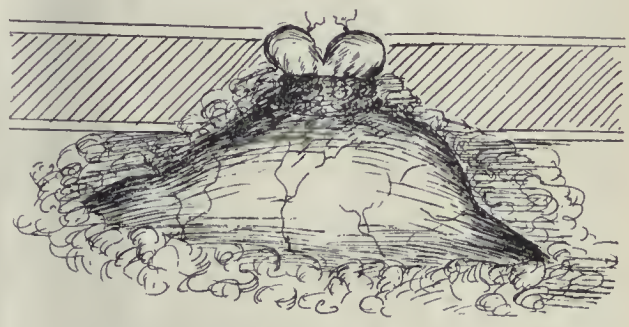


FIG. 4.—Inversion of stomach above constriction and sutured with Lembert sutures, forming a circular valve.

3. To have a fistula which remains closed during digestion and can be opened *ad libitum* for the ingestion of food.

In search of an ideal mechanism, I found a prototype in the valves of veins. These valves are, as a rule, semilunar, and allow the blood to flow in one direction; but when there is resistance they are set into action and are infallible to regurgitation. I modified the principle by making a circular valve. The operation consists of an abdominal incision of about four inches in length, and which can be made in any location deemed advisable, as no abdominal muscular structures are required for sphincter action. How-

ever, Fenger's incision, which is parallel to the left costal border left of the rectus muscle, is preferable. The stomach is seized as near the great curvature as possible and a cone is formed by an assistant, who holds the apex with his fingers or a tissue forceps. Two puckering strings of heavy chromicized catgut are placed parallel to each other about two and one-half inches below the apex of the cone. These sutures include the serous and muscular coats of the stomach (see Fig. 1). These sutures are next drawn taut and tied, forming a constriction or neck (see Fig. 2). This end may also be accomplished by folding the stomach with Lembert sutures, but requires more time. Next, a portion of the gastro-colic omentum is brought up and a cuff is sutured with fine silk over the constriction (see Fig. 3). The stomach is now ready to be fastened into the parietal wound. This is done with interrupted silk sutures which include the upper portion of the omental cuff, the peritoneal and muscular coats of the stomach, and all of the abdominal wall except the skin. The rest of the abdominal wound is now closed with silkworm sutures, leaving only that portion of the stomach visible which is to form the valve. This concludes the first stage of the operation.

The second stage can be done at this time or can be deferred for forty-eight hours until adhesions have formed. This consists of an incision about one-half inch in length in the center of the portion of the stomach exposed. A rubber tube is inserted through this opening into the stomach. The stomach wall is now inverted, forming a circular valve. The inversion is secured by Lembert sutures of silk (see Fig. 4). The tube is now withdrawn and the operation is completed (see Fig. 5). If properly performed, the valve should be below the level of the external integument. The retraction is greatly favored by subsequent contraction of the wound.

This method of gastrostomy entirely obviates the possibility of regurgitation of ingesta. There are two barriers against this mishap, the constriction and the circular valve. The tendency of the constriction, or neck, is to remain contracted on account of the omento-peritoneal adhesions which surround it. It is also under the inherent control of the muscular walls of the stomach itself, as the adhesions to the abdominal wall are above this point. This constriction, in all probability, would be sufficient to control regurgitation; but as an additional safeguard, stress is laid on the value of the circular valve, which is invincible to all passage of fluids from the stomach externally. The importance of the omental cuff is twofold, in that it aids the maintenance of the neck and acts as a plastic substance to fill in the spaces between the folds formed by the puckering strings, making a continuous surface for suture to the abdominal wall.

Following is the report of a case in which the circular valve method was used with most excellent results:

Mr. M. R. consulted me Aug. 26, 1896, for stenosis of the esophagus. Age 48 years, married; family history negative. He first became aware of difficult deglutition some six months before. This gradually became more marked until he had to subsist entirely upon liquid diet. Fifteen days before the patient came into my hands, the stenosis became complete. The patient was emaciated almost to a skeleton, and presented that cachexia so pathognomonic of malignant disease. He lost approximately sixty pounds in weight. Upon examination of the esophagus, I found the pathologic lesion at the cardiac end of the stomach. With careful manipulation, I was enabled to pass the smallest-sized olive-pointed bougie into the stomach. There were apparently two points of stenosis about an inch apart. The bougie would become engaged in the upper one, then become free, and finally pass through the lower one into the stomach. After exploration there was no bleeding whatever; nor did the patient ever have any hemorrhage. The diagnosis was conclusive of carcinoma of the cardiac end of the stomach, especially with the aid of the clinical history. I suggested gastrostomy as a palliative measure, and after consultation with his family and friends an operation was agreed upon and the patient sent to St. Joseph's Hospital. The man was so weak, the pulse being only 46, that an operation at this time would most certainly have been fatal. He was given 1-30 gr. of strychnin hypodermatically every three hours and enemata of milk, beaten eggs and whisky, until August 31, at which time he became somewhat stronger.



Operation completed.

Operation: Before taken to the operating room, patient was given an enema of black coffee, also a hypodermic of 1-30 gr. of strychnin. Pulse 56. Anesthetic, ether, which was sparingly given and was administered with great care by Dr. Homer Thomas.

Fenger's incision was made. The abdominal wall was unusually thin. Immediately after opening the abdomen the stomach presented itself, which I found very much contracted. I passed my hand along the great curvature up to the cardiac end, where I felt a hard nodulated mass, which confirmed the diagnosis. The point selected for the gastrostomy was at the greater curvature, and as near the cardiac end as possible without putting tension on the organ. The first stage of the operation was completed in the manner I described before. During the operation, which took twenty minutes, the patient gave evidences of shock and the pulse became almost imperceptible; but he was revived with hypodermics of whisky and external heat. I decided to defer the second stage of the operation, that of mak-

ing the fistula, for thirty-six hours, until firm adhesions had formed. After reaching his bed, the patient rallied. Temperature 99.2; pulse 82. The patient did well until the evening of September 2, when the temperature rose to 101.8; pulse 120. He also coughed considerably. Upon examination of the chest, I found that lobular pneumonia was present, a complication which is very frequent after gastrostomy. I concluded that procrastination in doing the second stage of the operation would be dangerous. The patient was so debilitated that no anesthetic could be given, nor was it deemed advisable to remove the patient to the operating room; so I completed the operation upon the patient in his bed. Four ounces of peptonized milk was then introduced through the tube. This was continued, with the addition of one ounce of whisky every three hours. The pneumonia gradually left and the patient grew stronger. Ten days after the operation he was able to sit up and he left the hospital after three weeks, although the disease was pursuing its relentless course.

Remarks: After each feeding the tube was removed, and at no time was there the least leakage from the fistula. The valve was easily opened with slight pressure of the tube, as was also the constriction. Upon withdrawal of the tube, the valve would close with the precision of a trap-door. I put the valve to the crucial test, by filling the stomach with milk and having the patient cough violently, and shifted him in every possible position to favor leakage; but the valve remained true to its purpose and there was not a vestige of regurgitation, a positive clinical demonstration. The wound contracted so that the mouth of the fistula was the only portion of the stomach exposed.

Note.—Since the preparation of this paper, I find in the *New York Medical Journal* of Nov. 7, 1896, that Dr. Willy Meyer describes a modification of Witzel's operation devised by Dr. Bronislaw Kader, assistant in the surgical clinic of Professor Mikulicz of Breslau. In this operation the stomach is inverted in the manner I describe, except that the inversion is carried to a greater degree by making two rows of Lembert sutures, instead of one; the principle being to form a canal of serous tissue. The rectus muscle is bluntly divided as in the Von Hacker operation, in order to be utilized for sphincter action.

31 Washington Street.

LITHOLAPAXY; SUCCESSFUL REMOVAL, FROM THE BLADDER OF A MAN 30 YEARS OLD, OF A WILLOW TWIG 7 INCHES LONG, WITH HEAVY INCRUSTATION OF CALCIUM PHOSPHATE.

BY W. S. FORBES, M.D.

PROFESSOR OF ANATOMY, JEFFERSON MEDICAL COLLEGE; CLINICAL SURGEON TO JEFFERSON MEDICAL COLLEGE HOSPITAL.
PHILADELPHIA.

In the month of September, 1895, I was called in consultation in Johnstown by Dr. A. N. Wakefield and Dr. F. Shill, to see a man about 30 years of age, who stated that he had gravel. The man showed us a small piece of willow twig, half an inch long and about the thickness of an ordinary match, incrusted for half its length with phosphate of lime making the mass one-quarter of an inch in diameter. He had passed this piece of twig from his bladder within a week, also two smaller pieces during the month of January last. He said that in November, 1895, he had shoved up in his urethra a long piece of willow twig and that it had accidently broken off at the head of his penis. As is usually the case with foreign bodies in the urethra, this willow twig had been carried by muscular action back into the bladder. The man was in a good deal of pain and could not lie down without increasing it very much. He could not retain his water longer than an hour. He had had three hemorrhages from his bladder within three weeks, and the last one was so extensive as to frighten him. On sounding his bladder the characteristic "click" was readily obtained. The "click" was observed on the right side as well as on the left side of the bladder. From examination, we concluded that the twig arched over from the right to the left side, the top of the arch being at the summit of the bladder. In consultation it was decided that I should attempt to remove the mass by crushing the lime incrustation with a lithotrite, and as far as possible to reduce the twig so as to remove the entire mass by the evacuator. If this proved impossible it was agreed that I should perform suprapubic cystotomy.

On September 4, in the presence of Dr. Wakefield, Dr. Shill, Dr. Lowman and his son, Dr. John B. Lowman, and other medical gentlemen in Johnstown, the patient was placed under ether by Dr. Wagoner, Dr. John B. Lowman assisting. It was observed that the foreign body had not moved from its previous position. I introduced my lithotrite, a No. 18 F,[1] and readily crushed the incrustation. By screwing down the male blade it entirely severed the encased twig, which was easily cut across. The crushing of the incrustation imparted a very different sensation to my hands from that of cutting the body of the twig. After performing this cutting and crushing for several minutes, the lithotrite was removed, and introducing a No. 25 F. canula, the evacuator drew out quite an amount of broken pieces of incrustations and a number of pieces of the twig. The operation was continued for forty-eight minutes, the bladder being washed out with a warm borated solution. The incrustations and the pieces of the twig weighed 184 grams. The pieces of twig placed end to end, by Dr. Wagoner, measured seven inches in length. The man had no untoward symptoms, was up and about in five days and went home well in ten days.

The action of the new lithotrite was everything that could be desired. Unlike the older lithotrites the present instrument holds in its grasp and then divides into pieces instead of only mashing. I described this lithotrite in a paper read before the American Surgical Association, at the meeting held in Washington June 1, 1894, and published in their proceedings, and also in the *Medical News*, June 23, 1894.

I have now performed twenty-one operations (lithotapaxies) with this new instrument. The ages of my patients ranged from a child of 4 years to an old man of 82. Of these twenty-one operations, my first lithotapaxies, eighteen are now living and well. The three deaths were occasioned by debility and suppression. They were aged respectively 58, 66 and 74 years. In the case of the man 74 years of age, perhaps it would have been well not to have operated at all, as his debilitated condition (from alcoholism), I told him, would probably prevent his recovery, but as

[1] Recently, six Forbes' improved new lithotrites were sent to Canton, China, through the Board of Foreign Missions. They were in size Nos. 33, 30, 27, 23, 18 and 15, French. The No. 30 was tested in the testing machine to 680 pounds and remained uninjured.

his sufferings were extreme and as there was some hope for him in the operation, I concluded to extend it to him, as he wished.

In these twenty-one cases of litholapaxy, seven of them were operated upon without ether, the bladder having been injected with four ounces of an 8 per cent. solution of cocain just before each operation. In every case a warm borated solution was used both during and after the operation.

The smallest stone weighed 90 grains, the largest 640 grains.

Mr. Gilbert Barling, F.R.C.S., surgeon to the Birmingham Hospital, England, in the *British Medical Journal* of May 5, 1894, gives the following tables as to the comparative mortality of the three operations, suprapubic lithotomy, perineal lithotomy and litholapaxy, in male cases under 20 years of age. This table presents the result of the practice for five years, 1888 to 1892 inclusive, in six provincial and six London hospitals, the majority being medical schools.

Suprapubic Lithotomy (males).

Under 10 years.			10 to 20 years.		
Cases.	Recovered.	Died.	Cases.	Recovered.	Died.
44	34	10	28	23	5

Total under 20, 72 cases with 15 deaths. Deducting 3 deaths, this leaves 69 cases with 12 deaths, a mortality of 17.4 per cent. The reason for this deduction is given in the text.

Lateral Lithotomy.

Under 10 years.			10 to 20 years.		
Cases.	Recovered.	Died.	Cases.	Recovered.	Died.
39	37	2	20	20	0

Total under 20, 59 cases with 2 deaths. Add one death from suprapubic operation after uncompleted lateral, making 60 cases with 3 deaths, a mortality of 5 per cent.

Litholapaxy (males).

Under 10 years.			10 to 20 years.		
Cases.	Recovered.	Died.	Cases.	Recovered.	Died.
43	42	1	16	16	0

Total under 20, 59 cases with 1 death. Add 2 deaths from suprapubic operation after uncompleted litholapaxy, making 61 cases with 3 deaths, a mortality of 4.92 per cent.

It is manifest from this very carefully prepared table that the rate of mortality in suprapubic lithotomy in young males is much higher than that following perineal lithotomy and litholapaxy in this class of cases. And this opinion has since been confirmed by the recorded practice of Indian, British and American surgeons generally.

Surgeon P. J. Freyer of the Bengal Army, India, states in the last edition, 1896, of his most excellent essay on the "Modern Treatment of Stone in the Bladder," that in the government hospitals of Punjab and Bambay alone there were 7,694 litholapaxies performed on patients of all ages in four years, 1891–94, with 255 deaths, or a mortality of 3.45 per cent.

In view of this experience, litholapaxy is no longer on trial. It is now a firmly established practice and destined to replace all forms of lithotomy, save in very exceptional cases.

"By litholapaxy," writes Freyer, "the surgery of the bladder has been truly revolutionized. The surgeon who would give his patients suffering from stone in the bladder the best prospect of recovery must practice litholapaxy and, I confidently anticipate," adds this experienced and able surgeon, "that with increased perfection in the instruments employed, larger calculi than any hitherto attacked will successfully yield to the operation."

901 Pine Street.

PISTOL SHOT WOUND OF ABDOMEN; WITH RECOVERY.

BY A. E. SCOFIELD, M.D.
TILDEN, NEB.

July 24, 1896, I was called into the country to see a 14 year old German boy, accidentally shot in abdomen with a pistol from a distance of 8 feet. He was quite weak; not much pain unless by pressure, and some dullness over lower abdomen; had vomited twice, temperature 97.5 degrees, pulse 85. The ball had entered $2\frac{1}{2}$ inches from umbilicus at a point $1\frac{1}{2}$ inches below a line from umbilicus to the anterior-superior spine of ileum. The sanitary conditions were most unfavorable, the family temporarily living in a 10 by 10 feet granary, with a dirty hen house attached.

I informed the family an operation would be imperative and had an abundance of water boiled and returned to my office for assistance, instruments and dressings. Being unable to obtain surgical help I invoked the aid of two non-professionals and returned, put the boy on a table out of door and prepared him for the operation. Chloroform was given. I made a $2\frac{3}{4}$ inch incision at site of wound. No vessels required ligation and no positive evidence that ball had entered cavity until peritoneum was reached. On opening the same about $1\frac{1}{2}$ pints of blood was found in peritoneal cavity, most of which was removed and nine holes were found in gut: lower jejunum and ileum. These were repaired by the Czerny-Lembert suture, with pure silk; the folding in corresponded lengthwise with the long axis of the gut. No holes were found through the mesentery. Considerable time was consumed searching for injured viscera and twice the pulse became imperceptible, but regained nicely by injecting very warm salines in the rectum. Large amount of the same was used in flushing the peritoneal cavity. After the rents in intestines were repaired, two rows of chromicized ligatures were put in to close incision, dressings applied and boy placed on a cot in the house and strychnia given hypodermically. Temperature was three degrees below normal and very much exhausted. Nothing was seen of the bullet, which was a 22 caliber, and as an odd number of perforations was made the supposition was it had lodged in lumen of the gut and would pass, but was not discovered in feces, though sufficient vigilance was used in the search. That night he was quite restless and vomited twice. Next day he vomited once, but was quite comfortable for the balance of the time. Recovery was complete in two weeks, when he was up and out.

Despite the filthy surroundings, his temperature kept below 100 degrees and there was absolutely no unfavorable symptoms during his convalescence. Tinct. opii deod. was given when required to quiet, but with extreme care not to prevent the absorbent power of the peritoneum, which does so much for the abdominal surgeon. Sulph. magnesia was also given in small doses after twenty-four hours and continued until motion of bowels, which was secured by the assistance of an enema of the same in solution.

ABOUT FEVER; REFERRING TO NATURAL ECONOMICS.

BY WILLIAM S. STOAKLEY, M.D.
MILLBORO SPRINGS, VA.

The stress which is laid on the hyperthermic condition which nature shows in her attempt to restore the "normal status of affairs" when she is aflame, as the leading symptom to be speedily suppressed by us, is, in my humble opinion, carried something to the extreme.

Fever is a signal to us that nature is offended, consequently perturbed, and she takes this course to relieve herself of the offenders. If it is only a symptom, it should not draw our attention too far from the cause, which latter, if we can remedy, will lower the temperature as a matter of course. This hyperpyrexic mobilization, then, is nature's way to get rid of her troubles; and we are induced to believe that the morbific elementaries are either destroyed or rendered *hors du combat* by this, we think, inhibitory action, when aided in the proper direction by art. How many gastric fermentative fevers ("upset stomachs") get well without remedies, through nature's modes. General practitioners can not tell the material characteristics of the microörganism that produces the fever; but give them the case, and they can approximate the diagnosis as to whether it be of the fermentative or putrescent type. Along with the temperature there are certain "inexplicable pointers" (derivatives of experience) taught clinicians as to its significancy; and the call for remedies as well.

Remedial theory can be spun into *dulce* and "catchy" shapes far from the sick-room. We admire such perhaps no less, only the bedside indications more. Our imaginations may be persuaded adverse to legitimate procedure in making us believe that certain diseases fit such and such drugs. We can not see it in that light. The converse of this should obtain. The "foot should not be fitted to the shoe," because it is not in accord with natural economics.

If this theory is not "hewed to the lines" of natural dictation, it is minus the *utile*, and practical, which latter is exactly what we are trying to get at when we don the "medical harness;" and get at it, too, from every legitimate source, with the freedom of all the sciences as integral aids to the accomplishment of a practical end.

As an illustration of one branch in our aid, note the close connection with meteorology.

Let us "make haste slowly," and surely as we can. There are many ways to accomplish our athermic object; none like the natural way. It may be well not to go at this fever with preconceived ideas that to cure the disease it must be hastily controlled, blind to other equally prominent points. We may obtund nature, and shut up in the system what should be eliminated as effete and offensive.

Doubtless you ask right here: "Must we not lower this high temperature?"

Most assuredly we should, and in an humble way I am attempting to give my idea about it.

The manner of doing this is a point in successful practice worthy of study. The compositeness of the grand harmonic "human machine" must be taken into consideration in this matter, and the laws of compensation likewise; never forgetting the controlling power the nerves have over the "driving wheel."

Should we handle them too harshly when perturbed, we bewilder the directors along our pathway; beside, "the machine" will have no mode of intercommunication with its several parts. Obtunded nature will not answer to the "fuel in getting up steam" again; thus a stasis is apt to occur as the result.

Yes, we should endeavor to get the temperature to the normal point, but not by too heavy a blow upon the nerves. We may attempt it indirectly by freeing the "escape valves" (emunctories), with an eye to compensation. This relief they will answer with a refreshing nap, a good warm sweat, and on awaking a big urination also not infrequently will occur. Just here "the madam" (Dame Nature) will smile upon us.

To establish a chain of reliefs is what we are "driving at" and what the nerves call for, and what will lower the temperature by normal stages, and draw the smile above noted.

This one symptom of fever may be made up of a combination of other symptoms, some of them of more import to us to look after than the high temperature. The most obstinate of all cases are those with less prominent temperature. Every physician knows that, as a rule, the gravity in pneumonia is proportioned to the lack of thermic indications. Witness those old cold, sweaty fevers, on and in the vicinity of rice plantations. Here, fever is not much of a symptom, but the want of it is. Indeed, there are some "ugly" and "scarey" presentments made to us in adynamic fevers when the nerves have been overwhelmed, and through them the heart, right in the start, and the case is "dead all over" because the "big wheel won't go." We attach fault to this latter organ (the heart) sometimes wrongly, and "whip it up" with strophanthus and other drugs, when really we have failed to clear the life-giving stream by looking to our "safety valves;" and this because so much of our attention was centered on "smothering" the morbific elementaries (noso-germs) in their "hollows." This way is all right and proper so far as it goes, and all of us believe in this mode of medication; still, we must look to the dictates of the *vis naturæ* first, especially so when these are made with such emphasis.

Modern medicine is an illustration of "history repeating itself" in some ways, notably in the treatment of typhoid fever with alterative doses of mercurous mild chlorid; and successfully, too. The late adjuvants which we owe to our never-tiring chemists have given us an impetus in the right direction, and doubtless with them in the near future we shall overturn many of the old plans of procedure, and extract from them at some time whatever points of value they may possess.

The power of this organ (the heart), which of late has been giving us so much trouble, we must remember is derived from a chain of interacting connectives, each dependent on another. The cause of this trouble opens a field for study, inasmuch as the affection is of such frequent occurrence now, compared with its rarity in time back.

When we take into consideration the interdependence of every link in the chain of our existence, it is patent that we should conserve with no partiality. There is hope in unison if it be only feebly expressed.

To sum up and conclude: It is not intended to condemn any other plan of lowering the temperature in fever, that this is written; only to advocate one which experience has shown to be a good one, and well-pleasing to the economy.

THE DOCTORATE ADDRESS DELIVERED AT THE COMMENCEMENT OF THE ILLINOIS MEDICAL COLLEGE.

BY SETH SCOTT BISHOP, M.D., LL.D.

Professor of Diseases of the Nose, Throat and Ear; Professor of Otology in the Post-Graduate Medical School and Hospital; Surgeon to the Illinois Charitable Eye and Ear Infirmary, etc.

Members of the Graduating Class: In conferring the degree of Doctor of Medicine upon you to-day, the honor and privileges conveyed with the title are not likely to be underestimated or forgotten. But you should be reminded that in accepting the privileges of physicians, you assume at the same time duties of the gravest nature. Your relations to the members of the community who will entrust themselves to your care are changed. Such relations become as sacred and inviolable as those existing between priest and parishioner—between lawyer and client. Your duties will involve an intimate knowledge of their affairs, their habits and their characters, such as no other professional relation in life conveys.

Our laws recognize, protect and dignify this high position which is maintained by every honorable physician. In the safety vaults of your memories will be treasured those confidences and secrets that are poured, confession-like, into every Doctor's willing or unwilling ears. In your power may rest the integrity and the happiness of families, the destiny of citizens and the sanitary welfare and safety of communities.

Let your influence protect the home and the family. Let your force of character encourage and uplift the fallen victims of disease and despair. Let your superior knowledge, skill and judgment protect the community from the devastating contagion of epidemics.

Modern medicine has increased your power for good many fold over that of your ancestors. It is truly a great privilege to practice medicine in the closing years of the nineteenth century. We possess a mastery of medicine not dreamed of by our plodding forefathers. The refinements of diagnosis made possible by the microscope, and the improved processes of the laboratories of chemistry and bacteriology; the prevention of diseases and their spread by vaccination and the antitoxins; the concentration of drugs and the extraction of their alkaloid principles, united with the palatable and elegant products of advanced pharmacy; the various adaptations of electricity to the service of medicine, with the Roentgen ray accomplishing the seemingly impossible; the economic division of labor, typified in the various specialties of medicine, permitting and enforcing the highest degree of perfection in every branch of medical achievement, place the advancing science and art of modern medicine above all others of vital importance to the well-being and the life of mankind.

No sphere of human activity excells the achievements of the coördinate sciences of medicine, and the brilliant accomplishments of surgery; and we may be permitted to indulge a pardonable pride in the part played by members of our own local profession in the great scientific drama of our day.

Let these truths broaden your views and stimulate you to put forth your best endeavors to achieve the highest ideals of attainment. Be not content to drone your lives away like tow-path mules of medicine. Rise above mediocrity. Strive to out-strip all runners in the race. With every nerve and muscle tense, leap forward to the goal.

Above all things, be studious. Be the first to know each new discovery. An ignorant doctor is an unpardonable sin. Doctor means learned. You should be learned above all your neighbors. You should be looked to as a leader in your community. You should diversify your learning beyond the confines of medicine, and to broaden your culture, you should strive to excel in some important branch of learning. If you live in a mining country, let geology occupy your leisure hours, for they will not be few in the first years of practice. Geology and mineralogy may lead you to a mine of wealth.

The profession and the people would profit alike if the able physicians of America, like the brilliant professors of foreign lands, of whom the erudite Virchow is an illustrious example, would engage in the study and actual practice of political economy. The philosophy of good government is a subject worthy of the work of the best minds a great country can produce. In such lands as Germany, Italy and the South American Republics, physicians of culture honor themselves and their profession in the highest councils of their governments.

When will the people of America awaken to their own most vital interests, and dedicate a government bureau, with a medical head, to the cause of disease-prevention, State medicine and higher education? We are blessed with a department of agriculture that predicts the weather; a department of war that relieves us of our surplus millions; a department of law that really fights the nation's battles. The time must come when State medicine shall be represented in the National government, to protect against invasions of contagious diseases and to safe-guard the nation's health in every quarter. Our local profession contains within its ranks the ability and the experience to organize, equip and properly conduct such a department of State.

Not until the government of the United States recognizes the vast possibilities of State medicine to conserve the health and vigor of the nation, and to save the great waste of human life that modern scientific research has rendered preventable, can it lay claim to being abreast of the times and the first of the nations of the earth.

It has been the custom in the past to say to graduating classes: "Your school days are ended. You now enter upon a life of activity, a career of usefulness," etc., but in these days of post-graduate schools, in which a college education can be supplemented by actual experience in the practice of medicine, your schooling should not end with a blue ribbon and a sheepskin. Time was, when no physician was considered to have been initiated into the highest degrees of proficiency until he had crossed the Atlantic and walked the wards of the Old-world hospitals.

The conditions are changed. American teachers of to-day stand abreast of the world. These are not idle claims. They are not only verified by Americans conversant with European teaching and practice, but are substantiated to the satisfaction of European scientists who visit our schools, laboratories and hospitals. It is evident, then, that you may enjoy the advantages offered by home institutions of learning to perfect yourselves in post-graduate work with far less loss of time and money than it cost your predecessors. But travel enlarges the views, expands the intellectual horizon and broadens culture. Visits to foreign countries lend polish to the manners, evoke the spirit of tolerance and stifle bigotry. The diversified teach-

ings of Old-world medical centers will arm you with those principles and methods that contribute to a finished education and a successful practice.

Therefore, let those who have walked the beaten path you are to tread exhort you to cap the climax of a collegiate course with the practical knowledge and skill obtainable under the direction of eminent specialists in hospital and dispensary practice, first at home, and afterward abroad.

It is appropriate at this time to tone down the roseate hues of your imaginative pictures of the future, with the neutral tints of reality.

'Tis pleasant, sure, to think you'll own a mint;
A mint's a mint, although there's nothing in't.

A diploma is not a lien on the public for a living. That pretty and attractive sign you have in mind, with the big M.D., in shining letters of gold, or of glittering silver, is not an unfailing magnet to draw the masses of suffering humanity into your health-giving presence. The fund of knowledge you have stored within the temple of the mind will not find quick appreciation and admiration. Then let the truth be spoken, and faced without flinching.

You now set sail under the smiles of heaven and the plaudits of teachers and friends. Good wishes and flowers illuminate your pleasant pathway; but no bouquets of rhetoric can screen you from the harassing storms or the dangerous breakers ahead. Your schooling, good sense and self-reliance must sustain you in the time of need.

We speak from experience when we predict that you will meet with that wise old doctor who will welcome you with a machine-made cordiality to the precincts of his practice. He has gone through the same formality many times before, and recalls the ghosts of practice abandoned by the little army of doctors who have pitched their tents in his door-yard, spent their little all, and moved on to new fields, a little wiser than before. This grizzled veteran, who can not boast like you of a real parchment and ribbon, owns the community in which he lives. Sooner or later this fact dawns upon your mind. He magnanimously promises you all his night work—that does not pay. He will help you out of your hard cases. He does. He helps you out of your cases, your fees and your patrons. This great-hearted individual volunteers to teach you how to make money while you appear to be sacrificing yourself for the benefit of the poor public. He tells you how you should charge less, and make many more visits; how you should ape the artful dentist who makes holes to fill, when he can not find them ready-made. He is a devotee of the black art. Beware of this Mephistopheles of medicine.

Another neighbor, you will meet, grown fat and sleek, who casts a withering glance as you pass by. You, poor novice, are an intruder; but you have heard that it is your duty, being new, to call on him. You honor tradition. He receives you with a fraction of a nod, a blighting look and a condescending wave of the hand toward his most uncomfortable chair. You inform him that you have come to—— "Ah," he has heard of it—" bad place to locate; next town would be better; here, it is every man for himself, and ——" and so forth. Are you discomfited, discouraged? No; you know your preceptors have been through the same mill, and still they live. You are a little stirred in the depths of your soul, but every fiber of your being vows that eternal success shall crown your life.

Undaunted, you make another sally. You visit the brother of your neighbor, less fat and sleek, but beneath his more careless exterior he reveals unconsciously a soul of truth and honor. His sympathetic words of cheer and sound advice anchor in your heart. He stands like an oasis in a desert, like a cross of hope, and you linger in his presence and cling to his personality. You feel him worthy of your fraternal love; no trust is violated and no confidence is betrayed. With a mind well stored with medical lore; with a wealth of the richest professional experience; with a broad philanthropy that the world has blessed with material abundance, this noble son of the healing art rescues the name of physician from the selfish and sordid estate to which the unworthy would drag it, and adorns it with the transcendent glory of a great manhood.

These three types of medical men, and more, you will meet. You will have no quarrel with any. You will cultivate the society and friendship of your equals and, perhaps of your betters. You will be guided by the principles of the immortal Hippocrates and the code of ethics of the American Medical Association.

With homeopaths and eclecties you will have an honest, but good-natured difference. Life is too short, and charity is too broad to permit of bickerings. Be generous enough to credit every competitor with sincerity, as you would be credited. Remember our laws, to which we all are alike amenable. Your privileges and theirs are identical, and their respect and friendship are worth many times their hate.

To your patients be true. Their interest and yours are one, for the greater good you do to them, the more success it will reflect on you. In the alleviation of suffering you will derive much satisfaction; in the conquering of disease you will delight. Commit one robbery at every opportunity—rob Death of his prey. While you may not be able to realize for this service a fee commensurate with the law's estimate of the value of a human life—$5,000—you will enjoy the consciousness of having rendered a fellow-being an inestimable service, and of having fulfilled the utmost requirements of a most exacting profession.

Adopt correct business methods. Whether you practice general medicine, or confine yourselves to a specialty, especially obstetrics, let your rule be "cash on delivery."

Finally, your personal influence over the sick and dying may turn tears into smiles, and darkness into light. The attributes of the true physician, united with an inspiring Christian character, present an ideal type of manhood and useful citizenship. Such a physician instills the dew of courage into the drooping soul; refreshes the withering heart with rainbows of promise, and paves the pathway of the dying with the peaceful flowers of hope.

SOCIETY PROCEEDINGS.

Medical and Chirurgical Faculty of Maryland.

Semi-annual Meeting held at Hagerstown, Md., Tuesday and Wednesday, Nov. 10 and 11, 1896.

First Day—Tuesday, November 10.

Dr. William Osler, President, in the Chair. Dr. John S. Fulton, Secretary.

After an address of welcome by Dr. J. W. Humrichouse of Hagerstown, which was responded to by Dr. Wm. Osler of Baltimore, the regular order of business began.

CONTINUED FEVERS.

This was the subject of a paper by Dr. C. Birnie of Taney-

town, Md. He related several cases of fever lasting from two to six weeks, or sometimes longer, lacking the characteristic symptoms or lesions of typhoid or malarial fever and not due to any definite lesion. He gave the points of distinction between the two cases related and typhoid fever. In many instances he treated the patients symptomatically. He finds that antipyretics were useless and harmful. Phenacetin is very successful in his hands.

Dr. JOHN C. HEMMETER asked what were the latest views concerning gastric fever; some persist that such fevers do exist and others that they do not.

Dr. BIRNIE said that no microscopic examination had been made in these cases and he was of the opinion that gastric fever was more of a gastric catarrh.

Dr. OSLER said that he had no personal knowledge of gastric fever.

Dr. CHAS. M. ELLIS of Elkton, has had similar experience as that related by Dr. Birnie.

Dr. A. S. MASON of Hagerstown, said that such cases as those related by Dr. Birnie were known to physicians and he was inclined to call them continued fevers. In some cases quinin had no effect at all. He referred to an epidemic that spread over this country twelve years ago, he had sixty or seventy cases, and typhoid cases from polluted water, but also many cases with no local disturbance. He did not know the classification of these fevers.

Dr. GEORGE J. PRESTON said that the subject of continued fevers was of great practical importance and spoke of the physiology of heat and cold production on fevers. We do not give due weight to the physiologic questions in the study of this fever. We often have distinct hysteric fever running over weeks; these are rare cases, but they do occur. We rarely see these cases in the hospital, because these mild cases do not enter the hospital as a rule. We do have certain cases in typhoid fever, such as walking typhoid fever, which is made known by the relapse. The enlargement of the spleen and liver are not diagnosed. The diazo-reaction has not met with much success in his hands. There are many cases of fever in which quinin is of no use.

THE NATURE AND TREATMENT OF GASTRIC ACIDITY.

This was the subject of a paper by Dr. JOHN C. HEMMETER. He asked if there was a distinct lesion in these troubles or not; that had been the question often asked. Not arriving at conclusions, he examined the gastric contents after double test meal of Salzer. In these two consecutive meals representing an ordinary diet one can determine the number of important pathologic states in gastric digestion almost without further analyses. These test meals consist, first of a cup of milk and a plate of rice with a piece of bread, followed four hours later by a roll and a glass of water. If the stomach contents be removed one hour after the second meal there should be no remnants if the stomach is healthy. Proteid remnants, such as meat and eggs would point to an acidity, while a hyperacidity would be indicated by a large amount of carbo-hydrates in the remnants. After some few words on the digesting power of the stomach, he concluded by some important directions on the dietetic treatment of this trouble.

Dr. GEORGE J. PRESTON read a paper on

CEREBRAL SYPHILIS.

The symptoms of this trouble are very varied and the history of the primary lesion is often uncertain. Moreover, the interval between the primary lesion and the brain trouble may be so long as to make the connection between the two uncertain. Meningitis from syphilis is nearly always chronic, the symptoms coming on gradually, the first one being headache, then there may be paralysis of the third pair of nerves, or the fourth or sixth, then there may be hemianopsia. The most common form is great mental depression, or rather apathy. He related six typical cases illustrating some of the most important symptoms of cerebral syphilis. We should make our diagnosis and then treat vigorously. This method of treatment is much more used in this country than in Europe, hence the better results obtained here. He has given as much as 300 to 500 grains of iodid of potash a day, and we are justified in doing this. He thinks that mercury very materially helps the iodid.

Dr. E. N. BRUSH thinks that the interval between primary lesion and the brain troubles is much longer than Dr. Preston intimated in his paper. In one case he has given 900 grains of iodid of potash a day. He does not believe in the therapeutic test and does not think that because a patient can take large doses of the iodid that it should be treated as specific; some syphilitics can not take large doses while those who have never had the disease can often stand very large doses.

Dr. JOHN WHITRIDGE WILLIAMS read a paper on

MALARIA COMPLICATING GYNECOLOGIC OPERATIONS.

He spoke of the importance of examining the blood in all febrile conditions, and the necessity for great accuracy and said that post-partum fever was more frequently attributed to puerperal fever than to malarial fever and that there were few references to malarial post-partum in the text-books. He had had two cases recently. In the first the examination of the blood had given him great confidence and had allowed him to exclude sepsis. In the second case neglect of the blood examination had resulted in a faulty diagnosis, and as a consequence an operation was performed, although as it turned out, this operation was entirely justifiable. These two cases convinced him of the importance of blood examination in all febrile cases after labor, even though malaria be suspected. He is confident that malarial fever is often mistaken and treated for other post-partum fevers.

Dr. J. M. HUNDLEY said that he had several cases of late in which malaria complicated gynecologic operations, and the blood examination had made the diagnosis certain. He thought that this year especially, such malarial complications were more common.

THE CYSTOSCOPE IN THE DIAGNOSIS AND TREATMENT OF DISEASES OF THE FEMALE BLADDER.

This was the subject of a paper by Dr. J. M. HUNDLEY. Heretofore the treatment of these diseases has been unsatisfactory. Drugs internally and washing out the bladder were the two methods of treatment used. Through the skill of Dr. H. A. Kelly, the modern cystoscope has been so perfected that the interior of the bladder may be examined and treated and the openings of the ureters may be seen. The bladder is more frequently subject to organic disease than was previously believed before the use of the cystoscope. Not only uterine, but also rectal diseases cause an irritable bladder. He thought that the routine examination of the bladder with the cystoscope should be made in every gynecologic case, whether the complaint was referred to that organ or not. He related two cases attesting the value of the cystoscope in his line of work and urged the profession not to neglect this modern means of diagnosis.

Dr. A. C. WENTZ of Hanover, Pa., related a case in which he applied ichthyol ointment on the balloon to the interior of the bladder, as recommended by Dr. Clarke. He also used applications of 10 to 15 per cent. nitrate of silver.

TO WHAT EXTENT DOES THE HYPERTROPHIED PHARYNGEAL TONSIL ATROPHY AT OR ABOUT PUBERTY?

This was the subject of a paper by Dr. S. K. MERRICK. He had been struck by the frequency with which the family physicians had told parents that the enlarged pharyngeal tonsils of their children would disappear spontaneously at from 12 to 14 years of age. Indeed he had found that several of the text-books gave this same opinion, or else avoided the question altogether. He had been able to collect a few statistics from his own practice and in all cases which he had seen which have refused operation in childhood, in none of them have the tonsils disappeared at puberty. There is some information obtained in observing the ages at which patients applied to him for treatment; out of fifty cases operated on in 1895 and 1896, sixteen were under 14 years of age, while thirty-four were above that age. If the tonsils atrophied after puberty it is strange that so many cases come to operation after puberty. We may conclude that an insignificant number of hypertrophied glands will disappear at puberty if left to themselves. Not only this, adenoids make a patient prone to repeated colds as other throat affections and may become tuberculous in character.

Dr. JOHN N. MACKENZIE said he had never allowed the case to reach puberty without operation. It is amazing what troubles these pharyngeal growths may cause and what fearful inroads these troubles make in the health. He had operated on infants in arms. The growth should be operated on as soon as discovered and should never be allowed to proceed unchecked. He spoke of the great disfigurements of the countenance from this trouble and the affections of hearing, etc.

THE EARLY SYMPTOMS OF GENERAL PARESIS.

This was the subject of a paper by Dr. GEORGE H. ROHÉ. We should look for the early symptoms although the results of treatment are not encouraging. The diagnosis must be made from a collection of symptoms of partly physical and partly psychical. The disease generally begins after the thirty-fifth year and rarely after the fiftieth. Those in the higher walks of life are attacked by preference and men more than women. Clergymen are almost exempt and actors are most frequently affected. Syphilis may be one of the causes. The symptoms are various and the treatment is unsatisfactory and

rarely does more than prolong life a few years. The iodids may be given.

Dr. Edward N. Bush was much pleased with Dr. Rohé's paper. He thought that the early symptoms of paresis occurred in this order: 1, vasomotor; 2, motor, and 3, psychic. Sometimes depressing ideas usher in the disease.

Evening Session.

Dr. Wm. Osler presented a case of diffuse scleroderma. The patient was a white man about 30 years old who has suffered from a hardening, thickening and gradual immobility of the skin. There had been inflammation, erosion and finally disability. This trouble was most marked in the hands and arms and face, although the skin of the whole body was somewhat hide bound; it is hard to pinch the skin, the patient can not close his hands tight. There are two forms of this disease, the diffuse form and the local form. This is a case of diffuse scleroderma. The etiology of the disease is not known and the pathology is very obscure. Thyroid extract is sometimes efficacious in this disease and sometimes not. In this case the man had been helped very much by it and there were chances that it would stop the progress of the disease, if not cure it. He can not elevate his shoulders. This is a slow progressive disease and it is very rare; he himself had been in practice twenty years before he saw a case and had seen only six cases altogether.

THE PATHOLOGY AND BACTERIOLOGY OF TYPHOID FEVER.

Dr. Simon Flexner made some remarks on this subject. We have every reason to believe that the disease comes from the germ, the bacillus, in the anatomic tract. There is no ground for believing that it gets into the body in any other way than through the intestines. This fact is based not only on the pathologic anatomy but on experiments as well. We can not produce the disease in animals. Not all parts of the intestines are alike prone to infection to the same extent. Infection takes place where the lymphatic follicles are in aggregation. Not all the lymphatic aggregations are affected to the same extent. There is a general distribution of these lymphatic follicles throughout the whole tract of the intestines, but not all are affected in typhoid fever. The agminated glands are more susceptible to the poison than the solitary ones and those nearer the lower part of the small intestine are especially affected. Here the infectious material of typhoid fever is kept a long time owing to the anatomic character of the parts. The ulceration produced by the bacilli may be very superficial affecting only the mucous membrane, or the whole thickness of the intestinal coats may be affected causing perforation. Many epidemics are from an affected water supply. The organism of this disease is not particular as to where it lives and can thrive in water a long time, also in milk. It is hard to discover and separate it from the other organisms. The growth is often invisible and causes no change in the color or taste of the milk infected, nor does it cause coagulation. This fact helps in its recognition because the organisms with which it is confused grow visibly, and recent methods allow the typhoid germ to be discovered in the intestines. By the use of the differentiation method of Elsner in culture media of varying acidities the growth of the typhoid organism in plate culture may be easily separated. The methods of Pfeiffer and Widal by which the disease is made out in its early stages is very ingenious. A bouillon culture of typhoid germs in mixed with blood from a suspected case of typhoid. If it is the disease, the effect of the serum from the typhoid case causes a loss of motility, a clinging together and finally a disintegration of the organisms. Wyatt H. J. Johnston has been able to make a diagnosis of typhoid fever in many cases in a short time in a hanging drop of a pure culture of the typhoid organisms to which serum from a typhoid patient has been added. This is a great advance in our diagnostic methods and should be made use of by all physicians.

Dr. Wm. Osler spoke of the prevalence of typhoid fever and said there were too many cases in the State of Maryland and in Baltimore. He said this prevalence was an index of the sanitary intelligence of the community and of the physicians and with the help of the public and of the politicians it could be stamped out within three years. He then called on Dr. Fulton, the new Secretary of the State Board of Health to make a few remarks on typhoid fever.

Dr. John S. Fulton said that within his one month of service as Secretary of the State Board of Health he had made one observation and that was that while the country-bred bacillus enjoyed great prevalence in the city, the city-bred bacillus seems to be especially prevalent in the country. As a preliminary step to obtain statistics he had written to fifty-six physicians throughout Baltimore and Maryland, and had received twenty-three replies, and to explain his opening remark he had found that the city physicians maintained that the cases in their care had originated from infection in the country, while the country physicians blamed the city infection for their cases. He said there was also many cases of typhoid fever concealed under the name of typho-malarial fever, the majority of persons apparently thinking that this combined form of the disease less serious than either one disease alone. To show how unreliable the statistics are he would quote from one of the hospital reports (Bellevue Hospital) which showed sixteen cases of typhoid fever with a mortality of sixteen, and seventy-six cases of typho-malarial fever with no deaths. Either their diagnosis was very bad, or their therapy was murderous. He had been studying the health reports of the State of Michigan since 1886 and had noticed that first many cases of typhoid and typho-malarial fever were reported, but gradually, year by year, the typho-malarial cases were disappearing while the malarial and typhoid cases were slightly increasing. He said that the State Board of Health of Maryland would shortly make a complete investigation to ascertain the sanitary conditions in reference to typhoid in Maryland and letters would be written to every physician in the State. This would be the happiest and most profitable investment Maryland ever made. If we could place with the board of experts enough money to make a substantial beginning of the reform they would realize the possibilities that Dr. Osler has maintained.

Dr. Wm. B. Canfield made some remarks on the

MODERN METHOD OF EXAMINIG URINARY SEDIMENT.

He said that, as a rule, the chemic examination of urine was easy, but the examination of the sediment was not so easy unless it was especially abundant. When the sediment was scarce or apparently absent, important ingredients may be overlooked. The method of allowing the urine to stand in a conical glass has some disadvantages especially in warm weather when decomposition may occur, also casts may remain suspended and often adhere to the sides of the glass and escape observation. Moreover, this method of examination involves a waste of time; for this reason he would advocate the more general use of the centrifugal. The centrifugal machine has been long known and used, for example in sugar refining and also in many physiologic experiments, but only of late has a smaller and portable machine been made which can be easily used. It was surprising to find so little mention in books of the use of this machine in even the most modern text books on urinary analysis and he also thought that, with the exception of the larger hospitals and a very few physicians, the centrifugal was still unknown. He then exhibited the machine which he used and demonstrated the method employed.

Dr. J. M. T. Finney then made some remarks on the "Use of the X Rays in Surgery." Messrs. Arnold and Smiles of the Edison Company, first explained the use of the machine and its simplicity as put out by the Edison Company. He explained the advantage of it in diagnosing dislocations, fractures or other deformities made visible by it, and suggested that by the use of photographs which could be easily taken in the light without a lens, that the surgeon could keep a complete record with illustrations of every case adaptable to the machine and thus protect himself against malpractice suits. In conclusion, Dr. Finney related some cases and explained the advantages of the machine from a surgical standpoint. After this there was a general discussion of the X Ray machine of various cases which had been brought in by local physicians.

Second Day—Wednesday, November 11.

Dr. Frank Martin read a paper on

CANCER OF THE TONGUE,

in which he described the character of the growth usually present, the epitheliomatous; the age most prevalent, 45 to 68; the length of time it took the growth to develop, six months to three years, and the various operations for its removal. He said that the symptoms at first were very undefined with very little pain. It usually begins on the side of the tongue and in its interior half and the duration of life without operation had been recorded as one year to eighteen months. He spoke of the various operations such as that done with the tracheotomy, with excision of the jaw and with operation through the mouth; he found that the operation by excision of the jaw bone gave the most complete results and in his experience the wound healed kindly.

Dr. John M. T. Finney said that his experience with the wound left by the excision of the jaw granulated very slowly and gave much trouble. He referred to several cases that he had had with the result.

Dr. J. W. Humrichouse of Hagerstown, then read a paper on "Some of the Results of Bacteriologic Research," in which

he reviewed what we know up to the present time of the various diseases and their specific organisms with the treatment. This paper was discussed by Dr. David F. Unger of Mercersburg, Pa.

Dr. RANDOLPH WINSLOW then reported two cases of "Gastrostomy for Esophageal Obstruction."

Dr. JOSEPH GICHNER read a paper on the "Present Status of the Treatment of Tuberculosis," in which he reviewed various methods of treatment of that disease of the present day.

Dr. H. O. REIK read a paper on "The Practical Use of Skiascopy."

Chicago Ophthalmological and Otological Society.

Regular meeting held at the Chicago Athletic Association, Oct. 13, 1896.

Dr. HENRY GRADLE in the Chair.

There were twenty-five members and guests in attendance. Minutes of the April meeting were read and approved.

The application of Dr. Will Walter of Marquette, Mich., was read and referred to the Committee on Membership.

The President then introduced Dr. G. C. SAVAGE of Nashville, Tenn., who addressed the society on

THE ACTION OF THE OBLIQUE MUSCLES IN OBLIQUE ASTIGMATISM.

Dr. SAVAGE'S chief object in addressing the Society was to endeavor to prove the distortion of retinal images by the eye with oblique astigmatism, the address being called forth by the denial of Dr. Hotz that such optic distortion took place. Dr. Savage showed numerous photographs taken with lenses made astigmatic and demonstrated by these a distortion of rectangular figures and of angles. Many of the photographs were new and had not been before used by him in any of his numerous articles on this subject. Many of the points presented have been embodied in his former communications on the subject but were set forth by him in a new light.

Dr. F. C. HOTZ—Honest criticism is certainly the best means for clearing up disputed points in science, and the question of refraction of astigmatic eyes offers a great many mooted points, as we all know. The question which Dr. Savage has brought up this evening of what he calls distortion of retinal images, which properly we ought to call rotation or displacement of retinal images, is one that requires our serious consideration. On a previous occasion I criticised his teachings, and I am glad to know that it has stimulated him to further investigation, and that his recent investigations will also stimulate others, among them myself, to give this matter renewed attention. The demonstration which I gave to the Society a little over a year ago was perhaps not as complete or as minute as it ought to have been. Perhaps it would have been better to make a cross cut to represent two light lines.

I understood Dr. Savage to claim at that time that a horizontal line in an eye with oblique astigmatism was displaced or rotated on the horizontal plane by prismatic action. I took exception to that. You will notice that the doctor now offers a different explanation altogether, which he bases upon the cylindric refraction and not on prismatic action. Whether this explanation will hold good or not we shall have to investigate. We can not decide by looking at the model presented, as the subject requires a more careful study. The photograph shows the obliquity of these images, but whether this is due to actual rotation or to the different refraction magnifying the image of the rectangle in one direction and shortening it in another, is still an unsettled point with me. If you look at a right angle through an oblique cylinder its image is magnified in one direction and the right angle appears acute or obtuse, according to the position of the cylinder. I stated at the time that Dr. Savage's teaching could not be proven—at least, I could not prove it—by clinical demonstrations. I took patients with oblique astigmatism and subjected them to the Doctor's test of the double prism before one eye, closing the other eye first, and then opening it while looking at a horizontal line. The double prism produces monocular diplopia and when the other eye is then opened, the patient will see a third line between the two. I failed with my patients, as well as with myself, my assistant and others, by oblique cylinders to see any obliquity of the third line. The Doctor in his answer takes me to task and says that was not a proper test; that he would not expect the parallelism of these lines to be disturbed because the oblique muscles were accustomed to action and would hold these lines parallel. Now, I expect that the oblique muscles act under the diplopia test, as the straight muscles, the recti, do; and when there is an abnormal action of the recti muscles, as in esophoria for instance, and we produce vertical diplopia, the double images are not seen in a vertical line because the muscular strain is released more or less as soon as binocular vision is abolished. I should expect the oblique muscles to do that also, and the Doctor admits that the oblique muscles do relax their abnormal action if binocular vision is suspended, when he speaks of adjusting the axis of a cylinder, for he says one eye being closed, while the other eye is tested. The oblique muscles will cease rotating and the eyes will find their natural position. If that was not the case I could not understand how the Doctor could ever place the axis of a cylinder correctly in oblique astigmatism. I still maintain that this double prism test should show obliquity of the image, if oblique astigmatism produces such obliquity.

Another point is this, that the photographs which have been shown are made with a camera and a comparatively high power cylinder. In the pictures he first made he used a —3 D. cylinder. Now, the two convex lenses in cameras have a refractive power of 3 or 3½ D. each, and if we add to these a —3 cylinder we produce in the camera an astigmatism which in the human eye would be equal not to 3 D., but to about 30 D.; for taking the refraction of the human eye as about 40 D., in the one meridian the refraction would have to be 40 D., and in the other meridian 70 D., to produce the same ratio of difference which we get in the camera by superimposing a —3 D. cylinder (4 : 7). That such an enormous astigmatism should cause marked distortion of images is not surprising. To reproduce in the camera the conditions of an astigmatism as high as 3 D. we must not use a cylinder of more than ½ D. I show you here the negative of a rectangular cross taken while a —.50 D. cylinder, axis 45 degrees, was held in front of the camera lenses. You notice a very slight obliquity of the lines of the cross; the angles are not exactly right angles. But the distortion is exceedingly slight as compared with the distortion in Dr. Savage's rectangles. Now, if a condition equivalent to an astigmatism of 3 D. produces so slight distortion only in the less degrees of astigmatism—and this means in the great majority—the disturbance becomes so faint as to be imperceptible.

But even admitting the obliquity of the images I should like to ask Dr. Savage to explain how binocular vision is to be benefited by the action of the oblique muscles. For if they rotate the eyeballs so as to bring the images of horizontal lines upon corresponding meridians of the retina, the same rotation deflects the images of vertical lines farther away from corresponding retinal meridians. While this supposed rotation might favor and assist the fusion of images of horizontal objects, it would undoubtedly render absolutely impossible the fusion of images of vertical objects. I have therefore not understood what benefit the eyes would derive from this rotation, and therefore still have serious doubts as to its occurrence.

Dr. W. F. COLEMAN—In regard to the case reported by me at the April meeting, I took Dr. Hotz's suggestion of leaving off the spherical lens and the patient is completely relieved, and I am indebted to the Doctor for this suggestion. In regard to the subject under discussion, I think the word displacement is a better one than distortion of the image. I have tried the experiment personally and I do not agree with the observations of Dr. Hotz. If I place before one eye a double prism and look at a horizontal line and place a minus 3 cylinder axis 135 or 140 degrees before the other eye, the middle line is decidedly distorted. Some eighteen years ago the subject of oblique astigmatism interested me very much. I collected quite a number of cases who took a cylinder at a different angle in reading as compared with the distance. I tabulated several cases and wrote it for the *Archives*, but for some reason it was not published. A few weeks ago I tested a patient who had 3 D. of astigmatism, the best angle for distance was 70 degrees and for reading was at 120 degrees, and the difference in vision for reading was 1.25 Snellen at nine inches with the angle at 70 and 0.5 Snellen at nine inches with the axis at 120, then I first noticed there was rotation on the antero-posterior axis by the action of the oblique muscles, and I can not conceive of any other explanation of displacing the meridian from 70 to 135 degrees.

Dr. HENRY GRADLE—It seems to me that we can scarcely dispute the premises Dr. Savage has brought forth this evening, but we are entitled to dispute the conclusions he draws therefrom, at least numerically. He exaggerates the importance of the subject. In the first place, as Dr. Hotz points out, the photographs were taken with cylinders which are of tremendous strength compared with the D. strength of the eyeball. The eye is about 40 to 50 D. if we measure the posterior focus from the second principal point, and with a cylinder of 2 or 3, or even 4 D. it represents but a small proportion of the refractive power of the eye, while a cylinder of 3 D. represents an enormous proportion of the refractive power of the camera lens of

four or six inches focus. Hence he exaggerated the condition of distortion or displacement in the eye. Furthermore, while this distortion must occur to a much less extent than Dr. Savage has represented, the fusion could not occur by rotation in one or the other direction, because other vertical or horizontal lines would not fuse on the same plane. This discrepancy in the position of the two sets of lines amounts to comparatively little; the effect would be a stereoscopic one, and with fusion of the horizontal lines the vertical lines would incline. On the other hand, the eye is undoubtedly capable of a certain degree of rotation in the form of line deviation. The apparatus which I devised some years ago showed that moderate deviation of one or both eyes is exceedingly common with and without asthenopia. There are few eyes which retain the horizontal and vertical meridians when binocular vision is abolished. A moderate rotation of 1 or 2 degrees is common; a rotation of 5 or 10 degrees is not uncommon, and this independent of the existence of asthenopia or interference with the integrity of the entire nervous mechanism of the eye. If such is the case we can readily see how a moderate deviation in the rotary direction of the eyes might occur in astigmatic eyes just as well as in eyes not astigmatic, or may occur in regular and horizontal astigmatism, as well as in astigmatism with obliquity.

Dr. J. E. Colburn—I have 1 D. oblique in my left, and 2 D. in my right, or nearly so, and I am conscious of the change of position when I cover first one and then the other with my glasses. I have never stopped to analyze it until I sat here to-night. I am conscious of a little movement of that kind. In noting verticals I would often close my right eye. I use my left eye in reading almost always. I have always had more or less difficulty in fusing verticals, but in looking at horizontals I am never conscious of the same disturbance, although in looking over some drawings I made years ago before I wore glasses I found I would always be out of my verticals, but never troubled with horizontal lines.

Dr. Hale—Without wishing to enter into the controversy, I would like to say that but little mention has been made of the possibility of correcting this oblique astigmatism by means of the ciliary muscle. We all undoubtedly admit that it is possible for the eye to correct an astigmatic cornea by means of unequal contraction of the ciliary muscle, or some similar process by which the lens becomes more convex in some meridians than in others. Why this could not occur as well in oblique astigmatism as in vertical or horizontal astigmatism, has not been made clear to me.

Dr. Wood—I would like to ask Dr. Savage if he has paid any attention to the question of cerebration in these cases of oblique astigmatism and distortion of the images.

Dr. Savage in reply stated that he believed the term distortion to be better than the term displacement because, as he conceived it, the images were twisted by the obliquely astigmatic eye. In answer to Dr. Wood, he did not believe that the unconscious cerebration had much to do with the fusion of images, but that the work was done by the action of the oblique muscles.

Dr. Ware showed an instrument for dividing the capsule in secondary cataract operation. It was shaped much like a crochet hook, but the barbed side of the instrument had a cutting edge. Dr. Ware sometimes used the instrument singly and sometimes used two of them, cutting against each other. He had found it of value in many cases of very tough capsule.

On motion, a vote of thanks was extended to Dr. Savage for his kindness in coming before the Society and expounding his theory of the oblique muscles.

On motion, the Society adjourned.

C. P. Pinckard, M.D., Secretary.

Southern Surgical and Gynecological Association.

Abstract of the Proceedings of the Ninth Annual Meeting, held in Nashville, Tenn., Nov. 10-12, 1896.

(Concluded from page 1105.)

THE TREATMENT OF PREGNANCY AND LABOR COMPLICATED BY FIBROID TUMORS OF THE UTERUS.

Dr. Henry D. Fry of Washington, D. C., read this paper. He advanced two propositions. First, that the production of abortion is unjustifiable. Second, that labors presenting serious difficulty to delivery are best treated by abdominal section and removal of the child and tumor. By maintaining this position the interests of the mother are not relegated to second place. While saving the life of many infants, the maternal mortality will also be diminished. After making a few brief remarks on the natural history of fibroid tumors complicating the pregnant state and reporting a few cases that had come under his care, he considered the treatment.

Dr. A. J. Coley of Alexander City, Ala., reported a case of cyst on the right side with a left uterine tumor, low down, involving the body of the uterus, which was firmly fixed in the pelvis and complicated pregnancy. The woman, 40 years of age, suffered so much pain that it was thought advisable to resort to hysterectomy, but it was not insisted on. The woman had been married a little over a year. She was closely watched and as pregnancy and labor advanced the tumor was pushed above the brim of the pelvis, the woman subsequently delivered naturally of a child, and is now attending to her household affairs. Dr. Coley counsels against operative interference in many of these cases.

Dr. R. R. Kime of Atlanta, encountered a case some two years ago in a debilitated patient with evidences of infection before labor. In introducing the hand a tumor was felt in the posterior uterine segment, crowding the cervix apparently above the symphysis pubis, and it looked as if the patient could not be delivered. However, by waiting and placing the patient in the exaggerated Sims position and elevating the growth, delivery of the child was affected.

Dr. Howard A. Kelly agreed with the conclusions of the essayist. There was a tendency on the part of the profession to interfere too much in cases of pregnancy complicated by fibroid tumors of the uterus. He had been called in consultation to see a number of such cases, but the indications were not such in some of them as to warrant the induction of premature labor. In many instances a consultation had been the means of postponing operative interference. When fibroid tumors complicating pregnancy were situated in the upper part of the uterine body, unless large and multiple, they were comparatively unimportant. If situated in the lower part of the uterus and it is found as pregnancy advances they can be pushed up, this should be done in order that labor may proceed naturally. On three occasions he had opened the abdomen and had done a myomectomy for tumors complicating pregnancy, the women subsequently going to full term and being delivered normally.

Dr. W. D. Haggard, Sr., of Nashville, mentioned a case of uterine fibroid complicating pregnancy, which came under his observation a few years ago. Hysterectomy was advised by the consultants but not resorted to. The woman was subsequently delivered of a child, and the tumor six months later had entirely disappeared. Dr. Haggard reported another similar case.

Dr. James A. Goggans of Alexander City, Ala., had observed during the last twenty years a number of cases of pregnancy complicated by uterine tumors. He had seen the case referred to by Dr. Coley. He thinks it is unwise to resort to hysterectomy in a great many cases, believing that the tumors can be pushed up and delivery effected without surgical interference.

Dr. James McFadden Gaston cited a case of dermoid tumor which complicated pregnancy. The obstruction was so great that it was utterly impracticable to undertake to deliver the woman by forceps, and it was concluded to lessen the obstruction by aspirating the tumor. This was done, and a little more than one quart of grumous material was drawn off, after which the woman was delivered, with forceps, of a dead child. Dr. Gaston believes the woman will have to be subjected to a radical operation for the removal of the dermoid before perfect relief is afforded.

Dr. George A. Baxter referred to the danger of postpartum hemorrhage in cases of fibroids complicating pregnancy, and related an interesting case. The fibroid tumor interfered with the natural contraction of the uterine fibers, and on this account it was exceedingly difficult to arrest hemorrhage. This was a complication which endangered the life of the woman.

Dr. E. S. Lewis said it often falls to the lot of physicians to meet with a series of anomalous cases, such as those that had been reported by the essayist, while other physicians with probably quite as large experience would pass through life without meeting some of the complications that had been mentioned. During an experience extending over thirty-four years he had never met with a fibroid tumor which justified interference before labor, that is, a fibroid occupying the lower segment of the uterus and impinging upon the pelvic cavity. Within the past year he had delivered two women having large fibroids. In one case when pregnancy supervened, after suspension of menstruation for two months, he was unable for several months to determine the existence of pregnancy. The uterus then reached above the umbilicus, but the woman was pregnant and was delivered at full term with forceps, but with no extraordinary difficulty. The other woman had an abdominal tumor the size of a six months' fetus. Although she had been married a number of years, she was about 40 when she

became pregnant. The tumor occupied the upper portion of the body of the uterus, but she was delivered without the use of instruments. He could conceive that in a case of fibroid situated in the broad ligaments or occupying the lower segment of the uterus, seriously impinging upon the cavity of the uterus, hysterectomy would be inevitable, but it has been his fortune to escape such cases.

Dr. FRY, in closing, was glad to note that the general trend of the discussion was favorable to conservative work in the treatment of pregnancy complicated by fibroid tumors of the uterus and of permitting women to go full term and trying to deliver them naturally. Some of the cases in the paper which he did not read exemplified the wonderful resources of nature in overcoming uterine obstructions. Postpartum hemorrhage was one of the serious complications of labor under these circumstances and was common. If the placenta was attached to the fibroid tumor hemorrhage was free. If it is found necessary to operate, Cæsarean section ought not to be resorted to, as the mortality following such a procedure was fully as high as 84 per cent. The best thing to do is to resort to hysterectomy, either the complete or supravaginal method.

SECOND DAY—MORNING SESSION.

Dr. R. R. KIME of Atlanta read a paper entitled

UTERINE DRAINAGE AS A FACTOR IN THE PREVENTION AND RELIEF OF PELVIC INFLAMMATION,

in which he drew the following conclusions:

1. A uterine tampon is not a true drain and even obstructs drainage in many cases.

2. Capillary drainage is secured by carrying a strip of gauze up into the uterine cavity, not packing it, and then it drains for a few hours only.

3. Gauze can not even act as a capillary drain when either end or center is constricted, or when coated with mucus.

4. Gauze when saturated with serum, unless it contains an antiseptic, forms a hotbed for germ development.

5. Never tampon the uterus in puerperal septic infection, except to check hemorrhage.

6. The good effect of a gauze tampon in cases of endometritis and after abortion is not due to drainage, but to its effects as a tampon, *i. e.*, checking hemorrhage, stimulating uterine contractions, prolonging medication of the endometrium and acting as a surgical dressing.

7. The uterine drainage tube is the most essential factor in the treatment of puerperal infection, and the best method of securing drainage when demanded in other diseased conditions of the uterus.

8. It will save more lives, relieve and prevent more pelvic complications, than any other one factor at our command.

Dr. W. E. PARKER of New Orleans read a paper on

GUNSHOT WOUNDS OF THE ABDOMEN,

and reported thirteen cases with six recoveries. In his paper he made the statement that he believed, in the hands of men skilled in abdominal work, 75 per cent. of cases of wounds of the small intestine should recover if the cases were seen early, the prognosis being better in this class of cases than in any other. He advised an early and rapid operation in all cases.

In conclusion he made the following general statements: The diagnosis is generally easy, but when in doubt he advised enlarging the wound or probing. In doubtful cases he was inclined to attach much importance to pain referred to the umbilicus as a symptom. He stated that he had never seen a case where this symptom was not present. There is frequently but little shock when grave symptoms are present, and when symptoms of it are present, the trouble is generally hemorrhage and not shock. Senn's gas test was not used in any of these cases, and he spoke of it as being unnecessary in at least a majority of cases, uncertain in the hands of those not skilled in its use, and making it more difficult to replace the intestines after sewing the wounds.

As to the technique he said: 1. Unless the wound is well to one side, it is best to make a median incision, and it should be long enough to enable the operator to make a thorough examination of the abdominal contents. 2. The whole intestinal canal should, as a rule, be examined. 3. All peritoneal wounds should be sutured with silk Lembert sutures. Intestinal wounds should, other things being equal, be sewn in the long axis of the bowel. 4. If the liver is wounded, better results are obtained from packing than from suturing it. 5. If the kidney has been wounded it is best to suture the peritoneal wound and treat the kidney extraperitoneally, if necessary. Of course, he did not refer to those where the laceration and hemorrhage are so great that it is necessary to remove the kidney at once. 6. Drainage, except in late cases, is not necessary if all hemorrhage has been stopped. 7. Cases in which the intestines can not be sutured without great risk of obstruction should be resected. 8. While enough time should be taken to do the work thoroughly, no time should be wasted. 9. Unless the bullet can be felt, search should not be made for it, as it causes unnecessary delay. 10. The superficial wound should be closed with silkworm gut or silver wire, and the author believes that a single suture should include the skin, abdominal walls and peritoneum.

Prognosis: 1. The sooner the patient is operated upon, the better the prognosis. 2. Those cases that have been reported in a series including all cases have shown a mortality of about 62 per cent. The prognosis is best in cases of wounds of the small intestine, and he believes that 75 per cent. of the cases will recover if seen early. By early he means in the first two or three hours. 3. We all know that alcoholics stand all surgical work badly, and yet most of these patients have been drinking before they come under our care. The prognosis in non-alcoholics would be better than in alcoholics. 4. If the stomach and intestines are empty the prognosis is usually improved by this fact.

After-treatment: While not favoring drugging these patients, strychnin and other stimulants should be given hypodermatically, if necessary. Especially should strychnin and alcohol in some form be given to alcoholics. Much depends on starting these patients well. If restless after the operation or suffering, small doses of morphin should be given. If the stomach is quiet and and has not been injured, small amounts of water and Ducro's elixir can safely be given at the end of twenty-four hours, and small quantities of milk or some light broth can be given. If the stomach has been injured, the feeding should be per rectum. The diet should be liquid for at least two weeks. If there is shock with the clammy sweat that is sometimes seen, atropin, gr. 1-60, may be given every three hours as may be necessary. When shall we give a purgative? This if one of the most important questions that we will be called upon to decide. If we give a purgative too soon, our stitches may pull out, and if we wait, adhesions may form and give us trouble. The bowels of these patients will usually act by themselves about the end of the fifth or beginning of the sixth day. If they do not, a mild purgative assisted by an enema should be given about the end of the sixth day, or on the morning of the seventh. As a rule, these patients should be kept in bed for at least two and a half weeks.

DISCUSSION.

Dr. JAMES MCFADDEN GASTON was not able to corroborate, either from his experience or reading, the favorable percentage of recoveries which the essayist had given in gunshot wounds of the abdomen. The fact that the bullet enters the abdominal cavity, if it does not wound the intestinal tract, was not necessarily a very serious matter, although wounding of the mesentery with hemorrhage was sufficient reason for exploration. As to the Senn gas test for determining perforation of the bowel, it was not used by very many surgeons to-day. Dr. Gaston is very positive in his convictions of the propriety of laparotomy after gunshot wounds of the abdomen, and the sooner the better.

Dr. N. P. DANDRIDGE of Cincinnati called attention to the importance of making a distinction between penetrating gunshot wounds and penetrating stab-wounds of the abdomen. The latter were much less dangerous. In fact, a very large proportion of these cases, where it seems as though the intestines must necessarily be wounded, get well without operation. In gunshot wounds, however, an exploration should be made in every case where there is reasonable supposition that the abdominal cavity has been entered. Gunshot wounds were much more serious than stab-wounds. He could not agree with the essayist as to the percentage of recoveries likely to take place. Personally, he had never succeeded in saving a case of gunshot wound of the intestine.

Dr. A. M. CARTLEDGE said that Dr. Parker's results were the best he had seen mentioned in literature, particularly in penetrating wounds involving the intestines. He had operated on five cases of gunshot wounds of the abdomen, three of them hopeless from hemorrhage from the beginning, one dying within an hour and a half from a short operation, simply from the enormous amount of blood lost from a wound in the mesenteric vessel. He had never saved a case of gunshot wound with intestinal perforation.

Dr. A. V. L. BROKAW of St. Louis considers every case of gunshot wound of the abdomen a law unto itself, and the surgeon has to meet the emergency as it occurs. He agrees with the essayist that a quick operation is absolutely necessary.

Dr. W. E. B. DAVIS emphasized the importance of early operation, and called attention to the almost hopeless condition

that is found if the surgeon operates after twenty-four or forty-eight hours. At the Charleston meeting of the Association, he said, he was criticised for making the statement that at the end of twenty-four or forty-eight hours usually a general peritonitis would develop after a gunshot wound with intestinal perforation. If the surgeon had this condition to contend with an operation would offer scarcely any hope of recovery, unless done very early.

Dr. B. R. Rhett happened to have had three cases of gunshot wounds of the abdomen during the past year. In one case, a little boy, there were several intestinal perforations. He was operated on, but died within three hours thereafter. Case 2 died eleven hours after the closure of the perforations. Case 3 was that of a negro boy who had six perforations, was operated on, the perforations closed, and made a good recovery.

Dr. H. M. Hunter of Union Springs, Ala., laid stress on the importance of early operative interference. He holds that very few patients will recover after twelve hours if not operated on, no matter how expert the surgeon may be. He had operated on a man thirty-six hours after the receipt of the injury who had two perforations of the colon, the ileum being just touched. The man died in three or four hours thereafter of general peritonitis.

Dr. John D. S. Davis does not believe it is possible to obtain 75 per cent. of recoveries from early operations in injuries of the small intestine in private practice. The cases saved by Dr. Parker were operated on two hours after they were shot, hence early operation was the keynote to success. While he was not prepared to agree fully with Dr. Hunter, that none of the cases could be saved after twelve hours, still, the majority of them would die if not operated on within twelve hours. The most serious injuries to the belly from gunshot wounds were seldom followed by symptoms. There may be several intestinal perforations without the manifestation of any symptoms.

Dr. F. W. McRae had seen and known of several cases of penetrating wounds in the abdomen, all of which had terminated fatally, with one exception, and this patient was operated on by the late Dr. Armstrong, in which there were several perforations. A foot and a half of the small intestine was resected and the man recovered. The speaker would have some hesitancy in opening the abdomen where there was apt to be some medico-legal complication.

Dr. Howard A. Kelly offered the following resolution, which was unanimously adopted:

Resolved, That it is the sense of all the members of the Southern Surgical and Gynecological Association that in gunshot wounds penetrating the abdominal cavity, the proper routine procedure is to make an immediate exploratory incision.

Dr. Parker said, in closing, that the late Dr. Miles in his first series of cases reported thirteen cases, the percentage of recovery being nearly 40 per cent. He had operated on probably twenty additional cases before his death, and the percentage of recoveries was very much better than in the first series. As to the medico-legal aspects of this subject, all surgeons should advocate the early opening of the abdomen, and if some fellow practitioner should get into trouble as a result of it, the profession should stand together and support him.

Dr. L. S. McMurtry of Louisville read a paper entitled

THE EVOLUTION AND PERFECTION OF THE ASEPTIC SURGICAL TECHNIQUE.

The author cited cases where surgeons of world-wide reputation had infected their patients through some imperfection in the aseptic surgical technique, and said the subject deserves much more study and attention at the hands of operative surgeons than has heretofore been given to it. So far as instruments, dressings, etc., are concerned, surgeons had an absolute guarantee against sepsis in sterilization by heat; but when it came to the operative field, the hands of the operator and his assistants, they were reduced to mechanical and chemic methods of asepsis, which were certainly far less efficacious and reliable than sterilization by heat. Every thing that comes in contact with the field of operation in the form of instruments and dressings is exposed to heat at a boiling temperature, hence the patient was safe against septic infection, but so much could not be said for the hands of the operator and those of his assistants and the field of operation.

Second Day—Afternoon Session.

THE PRESIDENT'S ADDRESS.

This was delivered by Dr. E. S. Lewis of New Orleans. Reference was made to the brilliant achievements of the masters of the art of surgery who had passed away and of the galaxy of shining lights who had followed after, who had created an era in the medical history of this century for all future time. How can we wonder that the "magnificent records obtained by experts have proved alluring temptations to the inexperienced and ambitious," and led to abuses which have left a blot on the fair page of abdominal surgery? As a representative body of the surgeons and gynecologists of the South, it should condemn the reckless and thoughtless plunging in this delicate and difficult work, without knowledge, fitness or preparation. The statistics of the skilled who had learned to minimize risks and cope with difficulties, should not serve as an argument with the inexperienced to secure subjects. The responsibility of human life should not be ignored in the craving and struggle for notoriety or fame.

With regard to the relative merits of the abdominal and vaginal operations for the removal of the ovaries and tubes, or of the uterus with the appendages, President Lewis said that divergent opinions are entertained and heated discussions have arisen. For the vaginal method it is claimed less shock is produced, better drainage is obtained, the abdominal walls are not weakened, and the extirpation of the uterus removes a menacing source of infection and of physical and nervous disturbance. For the abdominal operation rapidity of execution is contended, with increased security to adjacent organs and facility of repair when injured, as the structures are always in view. The removal of the uterus is also condemned as complicating and unwarrantable unless justified by the state of the organ. In the modified vaginal method, as practiced by Doyen and others, the uterus is not necessarily sacrificed, nor a sound ovary and tube. It is in touch with the conservative movement of the day, and is in marked contrast with the ultra-radical operation of Péan.

Dr. Richard Douglas, of Nashville, read a

MEMORIAL ADDRESS ON DR. PAUL F. EVE,

in which he said a retrospect of the lives of great men inspired us with the spirit of emulation and indicated to the ambitious mind the paths to fame. Prof. Paul F. Eve had three distinguishing characteristics—energy, consistency of purpose, and extreme modesty, and upon them he built for himself an everlasting reputation and secured an imperishable place in the temple of fame. It is not alone as surgeon and teacher that his reputation rests. As a contributor to current medical literature he was a conspicuous authority. In military surgery he was without a peer. His experience in Poland had engrafted a taste for the work which unfortunately in later years, as one of the chief surgeons of the Confederacy, he had more than ample opportunity to gratify. As the result of his observation and work during the war of secession he recorded many valuable facts which the surgeons of to-day would do well to ponder. As a lithotomist Dr. Eve was prominent. While his preference was for the bilateral method, yet he was not wedded to it, and appreciated the many advantages of the suprapubic operation and often practiced it, not, however, with the same success that he achieved by perineal section. Thoroughness characterized every undertaking of his life. When the great and good life of Dr. Eve came to an end, suddenly but peacefully on Nov. 3, 1877, he had reached more than his three score years and ten, and, dying, left behind him a name that was destined to live on in surgery through many generations.

Dr. J. McFadden Gaston of Atlanta, followed with a paper on

THE RELATIONS OF THE TUBERCULAR DIATHESIS TO ITS LOCAL MANIFESTATIONS.

He said that in considering the various forms in which tuberculosis shows itself in different structures, there must be an underlying element pervading the whole organism, which results from a general deterioration of the secretions. Whether there is a predisposition to the development of tuberculosis in certain parts or organs in advance of any constitutional disease or not, this change occurs in connection with the general impairment of the vital forces which characterizes the tubercular diathesis. While most recent authorities do not make a distinction between scrofula and tuberculosis, there is a fundamental difference in their general und local development. We have different characteristics of tuberculosis when it involves separate organs and structures of the body in a distinctly circumscribed form, or is defined as miliary tubercle in different structures, and yet the dyscrasia which marks the lymphatics under the designation of scrofula differs materially from any of the varieties of tuberculosis heretofore recognized. Dr. Gaston touched briefly on the causes of tuberculosis and reference was made to the papers that were presented before the last meeting of the American Surgical Association on important tubercular lesions. The presence of a condition recognized as a tubercular diathesis corresponds in some respects with the cachexia of carcinomatous tumors, and is held by many to be hereditary. There has been quite a revolution in the opinions of those best versed in

the pathology of tuberculosis as to the transmission of this disease from parent to child, and also in regard to the communicability from one individual to another by ordinary contact in social relations. It is fair to conclude that great caution should be observed in putting restraints upon the marriage of those suffering with pulmonary consumption, and the association of those laboring under this disease should be limited as far as practicable. Finally, the predisposition to tuberculosis can not be relieved by a surgical operation upon the diseased structures, but must be corrected by remedial agencies acting through the absorbent and secretory organs.

SECOND DAY—EVENING SESSION.

Dr. A. V. L. BROKAW, of St. Louis, read a paper entitled

THE RATIONAL TREATMENT OF THE DISEASED APPENDIX BY OPERATION.

He said the question had been vigorously discussed: Is appendicitis a surgical disease at all times, or only surgical at times? He wished to be put on record as favoring the first proposition. He was aware that some ultra so-called conservative practitioners claimed that the surgeon who advocated the removal of the appendix in every case when diseased, was a dangerous faddist, an extremist suffering from an inoculation of the operativue bacillue. He earnestly advocated early operation as soon as the diagnosis was made. Always operate when there is even a slight chance of saving a life, regardless of damage to statistics. Invariably operation should be insisted upon in the recurrent cases. With the knowledge of this dread disease, evolved from the mortuary chambers and the treacherous clinical course in a considerable percentage of cases, why should the rational treatment of all cases be other than by prompt surgery?

Dr. JAMES A. GOGGANS of Alexander City, Ala., followed with a

REPORT OF CASES OF APPENDICITIS.

From the fact that physicians generally take the stand that operative interference in appendicitis is called for only in exceptional instances where the disease advances to suppuration, gangrene and perforation make the treatment of appendicitis a never ceasing controversy, hence his excuse for reporting a few illustrative cases that had come under his observation, hoping thereby to add what he could to harmonize the difference between the physician and surgeon on this, the most frequent and important intra-abdominal lesion in his opinion of the present day. The main point at issue between the physician and the surgeon in the treatment of appendicitis depended much on a perfect diagnosis. This, too, accounted in a measure for their differences of opinion as to where the medical treatment should end, and when the surgical treatment should begin. According to his experience in the management of this affection, there is only one course to pursue, namely, to remove the appendix just as soon as the diagnosis has been made. Usually he defers the operation until the bowels have been evacuated by first administering a few small doses of calomel, followed by a saline purge.

Dr. JOSEPH TABER JOHNSON looks upon appendicitis as a surgical disease and believes it should be so treated. He deprecates the use of opium and considers it the patient's greatest enemy, in that it masks the symptoms and renders diagnosis exceedingly difficult. If opium were not given in some cases a diagnosis could be easily made, surgical interference resorted to and the patient's life saved.

Dr. JAMES MCFADDEN GASTON spoke of the importance of making a distinction between cases that have foreign bodies in the appendix and those of a catarrhal nature leading to a general inflammatory condition around the caput coli. Until we had inflammatory conditions which led to an exudate around the caput coli, it was difficult to definitely determine the exact condition which existed in supposed appendicitis. He was becoming more and more impressed with the fact that there were cases of appendicitis that were unattended with perforation, and that these were curable without operative measures. An illustrative case was cited.

Dr. F. W. MCRAE does not believe every case of appendicitie is a surgical one from the outset. A disease which shows so large a percentage of recoveries was not always an operative one. Treves and other English surgeons had shown that 80 per cent. of cases of appendicitis got well without operation. While demonstrator of anatomy he examined every appendix which came upon the dissecting table, kept an accurate record of each case and about 33⅓ per cent. showed evidences of previous inflammatory trouble around the appendix. The individuals, most of them convicts, had died of other diseases.

Dr. HOWARD A. KELLY favored early operation, alluded to the difficulty sometimes of distinguishing appendicitis from tubal and ovarian disease of the right side and related a case in point. In a woman with very high temperature and distended belly he opened the abdomen, evacuated a quart of pus, washed out, found a gangrenous tube and ovary as well as a gangrenous appendix. The patient recovered nicely from the immediate effects of the operation, but died on the thirtieth day thereafter from abscess of the liver.

Dr. CHARLES P. NOBLE said the safest general rule was to operate as soon as a diagnosis of appendicitis was made. It was impossible to differentiate the cases which would recover from a primary attack from those that would die.

Dr. M. C. MCGANNON of Nashville recalled one case of appendicitis, a boy, where the temperature rose to 105 degrees. The patient was delirious. Upon opening the abdomen the appendix was found to be black but not perforated. It was easily removed and the boy made a prompt recovery. He believes in many cases that if the physician waits and watches for distinct symptoms before operating the patient will die.

Dr. A. J. COLEY had met with six cases of appendicitis and made a strong argument in favor of early operative interference.

Dr. A. M. CARTLEDGE said the diagnosis was the only problem that practitioners were especially concerned with, together with the proper technique in the execution of the operation. The more he operates the more he is inclined to believe we should operate on every operable case as soon as the diagnosis has been made. Mistakes were made by waiting and watching for symptoms to manifest themselves. Very few, if any, surgeons could tell when an appendix had ruptured.

Dr. GEORGE BEN JOHNTSON said for the sake of statistics operations should be divided into two classes. First, those which are performed for recurrent attacks of the disease, and those which are employed for the relief of the severer varieties where perforation has occurred or will take place where there is pus present. If the surgeon is to operate upon recurrent cases, it is better for him to do so between the attacks in order that he may choose his time for operation. While there were cases of the disease that recovered without treatment, the best results were obtained by surgical interference.

Dr. N. P. DANRIDGE finds with increasing experience that he is more and more favorably disposed toward early operation; at the same time, cases present themselves in which he does not advise operative measures. He believes that some of the desperately bad cases were and could be saved by operation.

Dr. R. B. RHETT said he had operated twenty times for this disease. He cited some interesting cases illustrating the importance of early operation.

Dr. W. D. HAGGARD, JR., called attention to the method of Gerster to prevent contamination of the peritoneal cavity in opening appendicular abscesses that are not adherent to the abdominal wall or are not walled off. It consists in introducing thick layers of iodoform gauze through the abdominal incision and packing it between the walls of the abdomen and the abscess sac itself, so that in the subsequent steps of enucleation there is no possibility of soiling the peritoneal cavity.

Dr. D. FORD of Augusta, Ga., spoke in favor of early operation, believing that if cases were not operated on sooner or later, perforation would occur, followed by general peritonitis and death.

Dr. W. E. B. DAVIS thought there were few cases of appendicitis that gave rise to general peritonitis in which the surgeon was called and could do any good. Frequently the surgeon was called too late. Even though the family physician recognizes the condition, it was not an easy matter to persuade the patient to be operated on within the first twenty-four hours, and unless these cases were treated surgically within twenty-four or thirty-six hours, very few of them could be saved. All cases of severe attacks of the disease, in which pain is intense, if seen the first day and consent is obtained, should be operated on. In all cases where there is a second attack operative measures should be resorted to.

Dr. GEORGE A. BAXTER spoke of obliterating appendicitis and asked the essayists to give their opinion of it in their closing remarks.

Dr. BROKAW replied that obliterating appendicitis was nothing more nor less than the relapsing form of the disease as a rule or what had been termed "growling" appendicitis.

Dr. GOGGANS said, in closing, that he could no better present his views on early operation than to say, that if he had the disease or peritonitis supervening upon it, he should demand operation. If he was so low that he could not stand a general anesthetic he would take a local one and would ask the surgeon to open his abdomen and remove the appendix.

Dr. H. M. HUNTER of Union Springs, Ala., reported an interesting case of compound comminuted fracture of the radius and ulna near the wrist joint. He had been unable to find a

similar case on record in the literature of fractures. There were three points with regard to this case: 1, that he was unaware of a similar fracture being reported; 2, he had never read nor heard of the method he had described to reduce the fracture of the forearm; 3, he had never seen nor read of such perfect results as were obtained in this case, the wrist having perfect motion, and there is absolutely no interference with supination and pronation.

Dr. N. P. Dandridge of Cincinnati reported a case of transperitoneal ligature of the external iliac artery for inguinal aneurysm, in which he removed the aneurysmal sac.

In the discussion Dr. W. E. B. Davis also reported a case of ligation of the common iliac for aneurysm of the external iliac, which was followed by an excellent result.

The following officers were elected:

President—Dr. George Ben Johnston of Richmond, Va.

First Vice-President—Dr. F. W. McRae of Atlanta, Ga.

Second Vice-President—Dr. W. E. Parker of New Orleans, La.

Secretary—Dr. W. E. B. Davis of Birmingham, Ala.

Treasurer—Dr. A. M. Cartledge of Louisville, Ky.

Dr. E. S. Lewis of New Orleans was elected a member of the Judicial Council to supply the place of Dr. Hunter McGuire, whose term had expired.

The Association then adjourned to meet in St. Louis, Mo., the second Tuesday in November, 1897.

SELECTIONS.

A Half Century of Surgery.—An unsigned article in the *Boston Evening Transcript*, entitled "One Century of Surgery," is without doubt written or inspired by a medical authority of that city. Some of its points are so well and freshly put that we propose to quote at considerable length from it:

"The semi-centennial of the first surgical operation under anesthesia suggests to the mind the wonderful changes which have taken place in hospital methods during the last century. A visitor who should go through the wards of the hospital today and see the neatly covered beds, the dainty linen, the open, sunny rooms filled with pure air, the attractive nurses in their caps and aprons and the tables laid with the implements for caring for the surgical cases, as if for an entertainment, has but a small conception of the condition of the wards of a great metropolitan hospital in Europe in the latter part of the eighteenth century. There are few accounts which present an adequate conception of the mode of conducting a hospital service in those days. Some, however, are extant, to give some idea of the condition of such a hospital. There is one, for instance, of the Hotel Dieu in Paris. Reports show most clearly to what depths of misery the people must have fallen to accept the shelter of this pestilent hospital. In it were 2,500 beds, but during the winter season as many as 5,000 patients were in the building at one time. This involved the placing of several patients in each bed, and they were frequently arranged in tiers, one above the other, so that some were reached only by means of a ladder. There were no means of heating the wards of the hospital and such heat as there was came from the closely packed bodies of the patients. The mortality, as may be supposed, was excessive. There was one death out of every four patients that entered the hospital, and as that included those that were a little ailing, the insane and the maternity cases, some idea may be obtained of the frightful sanitary condition of the wards. Statistics of that period are unfortunately wanting, but it has generally been supposed that, as a rule, those who submitted to an amputation of a limb died of blood poisoning. Naturally, under these circumstances, surgical operations were few and far between. Nobody was willing to submit to such an ordeal unless absolutely compelled to do so by the necessities of the case. During war time, when these hospitals were crowded even beyond the limits which have been described, hospital diseases, as they are called, were frightfully prevalent. These included such affections as hospital gangrene, erysipelas, and blood poisoning. During the wars of the French Revolution and in the Napoleonic wars, surgical experience in these diseases was enormous. Extensive epidemics claimed thousands of victims. Nor were they confined entirely to hospitals, for history says that in the latter part of the last century and the beginning of this France and Great Britain were swept by epidemics of erysipelas, and about the middle of this century a most widespread and virulent form of that disease appeared in this country, carrying off thousands of victims in the New England States. It also prevailed in New York and Pennsylvania, spreading from village to village.

"It not only required a great deal of courage and resolution on the part of a patient to enter one of the great hospitals of France and England during the opening decades of the present century, but the terrible ordeal of the operation itself was alone sufficient to make the stoutest heart quail and the dread of what was to follow made the more intelligent naturally shrink from the risk which they were about to run. The Massachusetts General and the Pennsylvania hospitals were the only two large hospitals in this country in 1820. In civil life surgery was limited to 'operations of necessity,' and it was only after much persuasion and intelligent reasoning that the sufferer could be placed in such a state of mind as to be anxious for relief by the knife.

"During the first decades of this century improvements in surgery consisted principally in the development of a skilful technique in the handling of surgical instruments and in the dexterity and rapidity with which the operation should be performed. The great masters of surgery acquired wonderful skill in these principles and were enabled to this extent to mitigate the sufferings of those who were obliged to undergo surgical operations. The art of surgery had reached about this stage at the time when the use of ether was first introduced to relieve pain during surgical operations. Previous to the operation at the Massachusetts General Hospital on Oct. 16, 1846, surgery had been, as the elder Bigelow said, 'at all times agony.' The moment that it had been clearly established that an agent had been discovered which could relieve pain in surgery, the days of anxiety which had visited patients and their medical advisers previous to an operation, were immediately swept away, and the problem of the relief of surgery became vastly simplified. Holmes said of this sublime discovery: 'The knife is searching for disease, the pulleys are dragging back dislocated limbs, nature herself is working out the primal curse, which doomed the tenderest of her creatures to the sharpest of her trials; but the fierce extremity of suffering has been steeped in the waters of forgetfulness and the deepest furrow in the knotted brow of agony has been smoothed away forever.'

"The result of this great advance was that surgical operations increased in number. There was an activity in the operating theater in times of peace that had never before been known. Numerous operations were now performed which had never been attempted.

"But with great increase in surgical activity came a corresponding increase in the diseases which have been from time immemorial regarded as hospital pests and the inevitable accompaniments of surgical practice. It is true that then many operations could be performed in the country in private practice with results equal to those which are seen today. The country doctor could tell of triumphs in the healing of the wounds of his patients which the hospital surgeon rarely had an opportunity to observe. Among the scientific men who were attempting to solve the problem of bringing about ideal results that were obtained only in exceptional cases, was Sir James Simpson of Edinburgh, with his thoughtful and suggestive papers on hospitalism, and whose name afterward became so famous in connection with chloroform. On the breaking out of the civil war the art of hospital construction received a new impetus. It was thought that, by improving the atmospheric conditions, hospital epidemics could be more effectually controlled. Old buildings, which had served for years, were torn down and new and commodious pavilions took their places. During the civil war, however, notwithstanding the perfection to which this system was carried, epidemics raged with all the freedom which they had in the campaigns of France and Russia and in the naval combats of the last century. The writer can well remember at this period the epidemic of hospital gangrene in the Massachusetts General Hospital, itself a hospital which even at that time had a world-wide reputation for neatness and efficiency and a proper regard for the principles of hygiene. So formidable were its ravages that all surgical operations were for some time abandoned. The only method that existed at that time for controlling such eruptions of diseases was the system of isolation, as carried out in separate or pavilion wards, or by the removal of patients to tents in the open air.

"Anesthesia had already been in existence for twenty years when the first scientific attempts to control the infectious diseases of surgery were made. As has already been stated, it was known that under extraordinarily favorable conditions, a large wound might heal by what is called 'first intention'; that is, if it had been closed by stitches, its lips became firmly united together without any intervening period of inflammation or suppuration. The rule, however, was that, after a few days, inflammation would make its appearance, the edges of the wound would reopen and an extensive discharge of matter would take place.

"The wound in such a condition, although it might heal eventually by what is known as granulation, was susceptible to the various hospital diseases. It was to solve this problem that Joseph Lister, in 1867, first published his experiments on the antiseptic treatment of wounds. This event marked the beginning of a second great epoch in the history of surgery. The work which Lister presented to the profession was far from being appreciated at that time and was received with distrust and even with contempt. The man who would claim to heal wounds without suppuration was a visionary. Lister's work at Glasgow was received with much skepticism in London. He was a young and active surgeon at the full tide of life and he realized the great disadvantage under which a surgeon labored; so he was the first to appreciate the work of Pasteur and to make a practical application of his theory in regard to the chemical changes taking place in fluids during the process of putrefaction and applying them to the processes of repair in wounds. Lister's early attempts, looked upon at the present time, may be regarded as crude and imperfect. He succeeded, however, not only in arousing the interest and enthusiasm of the first scientific minds in the profession, but subsequently the principal workers. It is truly said that he did not expect his contemporaries to accept his theories, but he looked for the coming generations to evolve to their final perfection the theories which he had framed.

"So it has proved, and it was not until another twenty years had passed and a new generation of surgeons had grown up to take the place of those who had seen the beginning of antiseptic surgery, that surgery reached the perfection that it has today. More than one great teacher in former years has proclaimed that surgery had already reached this point. Is it there now? Who can tell what the greater surgery of the future is to be?"

The Intrusive Drug Drummer Abroad.—Under the caption "Samples," the editor of the London *Lancet* makes note of the pushing ways of the pharmacists' commercial travelers of the British Isles as follows:

Trade does not languish in our days for the lack of enterprise; excess of zeal rather than the want of it is its characteristic. That this condition is natural and in a sense even commendable need not be disputed so long as the methods employed are proper and the products for exchange are worthy of their professed reputation. Unfortunately, each of these needful provisions are frequently ignored in certain transactions which possess a commercial interest for the medical profession. The former of them was conspicuously disregarded in a case which was recently settled by a litigation in a county court. The defendant, a medical practitioner, successfully vindicated his action in refusing to pay for goods left with him by the agent of a firm of drug merchants as samples of their manufacture. How such an error came to be committed as to make a demand for payment under the circumstances it is not easy to understand. The second desideratum to which we have alluded—an article deserving of the position claimed for it—is likewise not infrequently absent where novelties in medical treatment are concerned. It is not, therefore, surprising that to most of our fraternity, and especially to those in busy practice, the pharmacist's traveler is not a too welcome visitor. His name is legion, his words not few, and his wares often merely ready-made prescriptions not suitable for general use, in fact, ordinary patent remedies. The medical profession, happily, has not yet sunk so low that its members need ask for aid from without in their own special business of prescribing, and they can hardly be expected to exchange for this responsible function the insignificant rôle of the mere promoter of nostrums. Yet this, it would appear, is what is expected of them. What is required in medical practice is not an armament of the phials or the preparations of some particular druggist, but a knowledge and a supply of the most efficient means of treatment, whether of drugs or no, and a competent body of properly trained pharmacists as dispensers.

Eucain in Urological Practice.—The *London Therapeutist*, August, quotes Goerl, of Nuremberg, as favoring the use of eucain hydrochlorid as an aid to cystoscopy. The first case wherein he used this substance was one of vesical tumor. An anesthesia similar to that of cocain was obtained, ample for cystoscopic purposes, but the patient complained of a burning sensation in the bladder, which was still present when the anesthesia had developed and cystoscopy was about to be performed. After the operation there was a severe hemorrhage. As with similar patients the use of cocain did not increase slight hemorrhages existing for years, the above result could only be due to a hyperemic effect of eucain. This corresponds with the observation of Vollert (*Münch. Med. Wochenschrift*, 1896, p. 516) that eucain causes slight hyperemia of the conjunctival and ciliary vessels. "Next time I employed eucain was for anesthetizing the bladder of a patient in whose urine I had found tubercle bacilli, and cystoscopy had been determined upon to discover whether there were vesical complications or simple renal tuberculosis existed. This patient also complained of a burning sensation, although complete anesthesia was effected. The prolonged anesthetic effect of eucain was in this case extremely favorable. Whilst generally more or less severe pain is felt, according to the sensitiveness of the patient, at the first urination after the cystoscope examination, in this case the patient felt no discomfort when he urinated half an hour afterward. In both cases a ½ per cent. solution of eucain hydrochlorid was used. Seven or eight cubic centimeters of the same solution injected into the urinary canal sufficed to bring about complete anesthesia. The anesthesia is certainly preceded by a burning sensation that lasts for a half to one minute, but in spite of this slight disadvantage, eucain is always preferable for producing anesthesia in the urinary canal, as it is just with cocain injections into the urinary canal that so many contretemps and even fatal consequences have been experienced. Moreover the extent of the operations usually effected in the urinary canal is generally not sufficient to warrant risking the danger of cocain poisoning. One advantage is also patent to the practitioner, that eucain is unaltered by boiling with spring water, so that sterile solutions can always be prepared extemporaneously and without the addition of any antiseptic. Besides, as far as experience goes, eucain is non-poisonous in doses up to thirty grains."

PRACTICAL NOTES.

Hydro-therapeutics of Tuberculosis.—Winternitz reports 160 cases treated, with 27 per cent. improved or relatively cured, and a still larger percentage, 32 per cent., in his latest series of 229 cases. The principle of the treatment is the general toning up of the system by the hydro-therapeutics, and the resulting increased power of resistance to the disease. He does not claim for it anything more than this.—*Journal d'Hygiène*, October 29.

Venesection in Nephritis.—Baccelli thinks that the importance of the venous stasis in the early stages of nephritis is not generally realized. It is his practice to relieve the pressure in the vena cava inferior by opening the dorsal vein in the foot and withdrawing 300 grams of blood (adult), repeating the operation if there is reason to believe that the renal stasis still persists.—*Gazzetta d. Osp. e d. Clin.*, October 29.

Effect of Antipyrin on the Kidneys.—To solve the question of the effect of antipyrin on the circulation and the secretions of the kidneys, Cardi and Vallini have been conducting a series of experiments on animals, from which they deduce the conclusions that it acts directly upon the renal blood vessels with a constricting effect, while it increases the general pressure of the blood, but only slightly and transiently. The central nervous system is not included in the vaso-constriction. It is accompanied by a diminution in the renal secretions, which is not transient but persists for quite a while.—*Gazzetta degli Osp. e delle Clin.* October 29.

Ozone in Treatment of Tuberculosis.—Labbé and Oudin are much encouraged over the results of their treatment of tuberculosis with inhalations of ozone. In two months there was a constant increase of oxyhemoglobin, increased numbers of red corpuscles, increase in weight, increased respiratory capacity, with rapid improvement of the functional symptoms, cough,

etc. Out of the total of 38 cases treated, they consider 7 cured in the first degree, 6 in the second, and 16 showed marked improvement, 6 died. They add that their patients all lived in unhygienic surroundings, and had no other treatment, and that the winter was long and severe. The inhalations were only administered fifteen minutes a day, and they expect much finer results with more comprehensive treatment.—*Presse Medicale*, October 24.

Treatment of Goitre with Thymus Preparations.—The Breslau clinic now has a record of thirty observations, which include Mikulicz's ten cases previously reported. No inconveniences were observed from its use. All the cases of goitre were submitted to it, even those in which no benefit could have been expected from the thyroid extracts. In twenty cases the treatment was successful; the goitre not only diminished perceptibly in size, which was confirmed by exact measurements, but also the subjective disturbances, the difficulty in respiration, etc., disappeared. The success was especially striking in two cases in which operative treatment would have been very perilous. It is noteworthy also, that in many of the cases previous thyroid treatment had not only failed to relieve, but had produced a distinct change for the worse. A complete recovery in an anatomic sense was only realized in two cases. The cases successfully treated included persons 49, 52 and 70 years old. With the exception of one case in which there was a combination of nodular and diffuse parenchymatous struma, the successes were all attained in cases of pure diffuse hyperplasia. The ten unsuccessful cases were five nodular goitre, and five diffuse struma. Four of them were under 20. In some cases fresh, chopped thymus from sheep was given, spread on bread, and in others thymus tablets from London (B. W. & Co.), which correspond to 0.3 grams of the fresh substance. Both were of equal efficacy. The dose of the fresh gland was from 10 grams three times a week, to 30 grams, but the larger doses did not seem to produce any more rapid effect than the usual quantities, 10 to 15 grams.—*Centralbl. f. Chir.* October 3.

The Dosage of Nitroglycerin.—Dr. W. L. Armstrong, *Medical News*, October 31, calls attention to the fact that little has been said in medical literature on the effect of the condition of arterial tension in modifying the physiologic and therapeutic action of nitroglycerin. That the continued use of the drug creates a tolerance had been noticed by Hare and others; sometimes very large amounts have been recorded as having been well borne. Dr. Armstrong carried out in St. Luke's Hospital, New York, three series of experiments; the first on six patients with normal hearts and arteries, and found that in these a total dosage of one-fifth of a grain in twenty-four hours would suffice to produce poisonous symptoms. The second experiment was really only the fortunate observation of an accident. A patient with well-marked atheromatous arteries took by mistake $2\frac{1}{2}$ grains at one dose without any uncomfortable results. The rigid arteries, Dr. A. explains, refused to relax and the poisonous action failed. The third series was tried on patients with marked arterial tension, one a case of asthma; the other of nephritis. In these the daily dosage was within thirty days gradually carried up to 76 and 125 grains respectively not only without uncomfortable symptoms, but with decided benefit, though this last was obtained before the extreme dose was reached. Dr. Armstrong offers the following as his deductions from these observations: 1. "It is only when dealing with arteries in which there is no more than the normal tonicity of the walls that the drug is liable to produce disagreeable effects. Under this condition it should be administered with caution and in small doses." 2. "In cases of arterial tension, the drug can be used more freely than has been customary among practitioners, the dose being proportioned to the degree of tension. 3. "In cases of arterial tension, tolerance to the drug is rapidly acquired, and by a slight increase day by day, very large doses can soon be taken with safety, the constant guide being the degree of tension in the arterial wall."

In a subsequent (November 14) issue of the *Medical News*, Dr. D. D. Stewart calls attention to previous reports by himself of a case where 20 grains of nitroglycerin had been taken daily and to the fact that he then remarked on the difficulty of the administration of the drug where extreme arterial tension existed. His papers were published in the *Philadelphia Polyclinic* of December 1888, and the *Therapeutic Gazette*, September 1893. He also emphasizes in his note the danger from the use of nitroglycerin from its effect in diminishing the oxygen carrying power of the blood corpuscles, which exists independent of the blood pressure and to which a tolerance can not be acquired. This, he holds, is a real peril with much smaller doses than those mentioned, especially with the long continued use of the drug.

Treatment of Mammary Tumors.—No affection has increased to such an extent in this country as cancer. Williams states that the total number of cases in England and Wales in 1840 was 4,500, while in 1895 it was 40,000. Should all tumors of the breast be operated for fear that they may become cancerous, or should they not be disturbed on women of 25 to 30? Cow answers these questions in the *Revue de Thérap. Méd.-chir.* No. 13, remarking that every mammary tumor is liable to become malignant in a proportion of 10 to 50 in 100 cases. Even with a proportion of 1 to 100, he considers an operation indicated. But aside from the question of malignity, he thinks that there are other and sufficient reasons that justify an operation in every case of tumor; the care and the pains, especially during menstruation, etc. A mild operation puts an end to all these disturbances, if the tumor is not diffuse nor malignant. He considers a previous microscopic examination injurious, as it may produce a rapid surrounding growth of the tumor, or may open a passage for the introduction of cancer cells leading to further infiltration. In actually malignant neoplasms, the pectoral muscle and glands, as also the fat in the axilla, must also be removed. He recommends to first open and excavate the axillary cavity, avoiding thus infecting the depths of the opened mammary tissue, and then remove the whole *en bloc*. This method diminishes the hemorrhage, as all the vessels that supply the tissue involved are ligated. Cachectic cancer patients or patients with generalized cancerous nodules should not be operated upon, except with the strict understanding that it is only a palliative measure, as otherwise surgery is brought into disrepute, and patients with operable tumors are deterred from applying for relief in time. When the pain finally compels the patient to seek relief, it is too late. —*Cbl. f. Chir.*, October 3.

Treatment of Chronic Empyema by Decortication of the Lung.—Decortication does not expose to much risk, and yet it offers the patient the inestimable boon of the use of a whole lung. Delorme stated at the recent French Congress of Surgery that it has now been done in twenty cases, among them one in America (Ryerson Fowler), others in various countries, and four by himself. One case reported from Constantinople, was a whirling dervish with a vast pyopneumothorax consecutive to a deep breast wound. The lung was easily loosened, when it filled at once the thoracic cavity. He left the hospital cured in twenty-six days, and his respiration since has been normal even when he performs his violent religious exercises. Another case was a child of 11, in a most precarious condition caused by chronic empyema following an attack of pneumonia. Several ribs were resected and the lung decorticated, resulting in permanent cure. The only means of determining the indications for the operation are to proceed straight to the lung and the membrane, and inspect them *de visu*. When the membrane is exposed at one or several points, it can then be deter-

mined whether it is possible to separate it or not. In the latter case a different operation is indicated, the modified Estlander, but in the former case decortication is performed, and the probabilities are that the loosened lung will expand and fill the cavity. The operation should not be attempted if the lung is found full of small superficial, tuberculous cavities. Delorme believes that decortication is destined to attain an important place in the therapeutics of chronic empyema, which otherwise baffles the surgeon. He considers it superior to thoracoplastic methods, as it surpasses them in its aim, which is to restore the lung to its functions. It is indispensable to disinfect the entire cavity with non-toxic antiseptics for several days beforehand. Extensive lavages reduce the chances of infection during the operation to the minimum, and cleanse out the pus which is apt to accumulate in the costodiaphragmatic angle. No special instruments are required, only those usual in costal excisions, with long, strong, steel grooved sounds, a tendon detacher, a spatula to loosen the membrane, a large right hand pair of Bauden's tonsil forceps, and a pair of pedicle forceps to arrest the flow of blood if necessary, ovariotomy forceps for seizing and pulling the membrane, polypus scissors to excise it, a large pair of hemostatic forceps, and curettes of various sizes, one extra large, shaped like a spoon, with a long handle, to clean the walls of the cavity. All these instruments should be long on account of the depth of the lung, and the edges should not be sharp, but almost dull, to avoid injury to the organs. The peculiar delicacy of the operation requires abundant space to work in, and he therefore advocates the thoracic "*volet*" or trap door, instead of the parietal breaches left by the excision of some of the ribs, which do not afford sufficient working room. The location of the *volet* must be determined by preliminary examination with the sound and finger, and if necessary, a part of the rib above the fistula can be resected. This preliminary examination avoids the dangers of wounding an adherent lung. Although the shock has never yet been severe, or more than in an Estlander operation, still it is best to reduce to the minimum the length of the operation and the amount of hemorrhage. The *Bulletin Médical* of Oct. 25, 1896, contains Delorme's additional minute directions how to proceed with the least waste of time and the least danger of injury to the organs. His first announcement was published in the *Gaz. des Hôpitaux*, Jan. 25, 1894.

Silver as an Antiseptic.—The JOURNAL reported June 27, page 1282, Credé's announcement of the value of silver as an antiseptic for wounds. He now confirms his early announcement with a report of his successful experience in 1,900 cases in which he has used it exclusively since he discovered last December that the lactic acid generated by pathogenic microbes forms a lactate in combination with the silver which destroys the microbes. He prefers it to asepsis even in those cases where absolute asepsis is possible, as it is much simpler, shorter, less laborious, less expensive and more certain, while equally favorable results are insured. Less time is required, as the dressings, bandages, aprons, etc., do not need more than a good washing, and only the instruments are boiled. Labor and considerable expense is saved also in the dressings, as they are much smaller and simpler than those required in asepsis. The gentle but effective action of the silver destroys germs that escape asepsis, and are not certainly killed by any other method. Any normally intelligent person can attend to the changing of the dressings, and even inexperienced practitioners can safely undertake the minor surgical operations with it. A really efficient, harmless and practical antiseptic will prove a great relief and boon to the general practitioner who is now in such a state of uncertainty in his surgical cases as nearly to rob him of all confidence. The laity are educated to the fact that suppuration of a wound is not always necessary, and in order to maintain his reputation he often has to send his patient to some institution or surgeon, when he might just as well have treated the case himself at the residence if he had had confidence in his power to guarantee equally good results. Credé states that this confidence is now insured him by the silver treatment which he describes as follows in the *Cbl. f. Chir.* of October 24: Wounds that he makes himself he covers with silver gauze, whether they are left open or closed, merely dusting the needle holes, possibly with itrol (arg. citric.) to prevent any secondary infection. The gauze is made with metallic silver in the form of the finest powder, and is absolutely unirritating. It can be sterilized, but he considers this superfluous, as it becomes antiseptic the instant pathogenic germs develop in the wound by the lactate of silver which forms in combination with their secretions. Other wounds he cleans with water, soap, brush and ether, including the surrounding parts, rinsing off with boiled water. The wound can also be rinsed with sublimate solution, 1 to 2000, or silver solution 1 to 5000. He only removes completely loosened tissue, and only opens up large underminings, otherwise leaving untouched every crevice, fold, etc., and merely dusting with a thin layer of itrol. If there is already an inflammatory process he applies a "wasserpriesznitz," for a few days, but if there is no visible reaction, he merely covers the wound with a little silver gauze, with a layer of cotton outside. If the bandage becomes soaked with the blood and serum he tries to dry it by uncovering the part more often, or else covers it with another layer of cotton, more to improve the appearance than for any other reason. He renews the outer bandage where there is excessive secretion. He is not disturbed at the knowledge that air is in contact with the wound, as he knows that the wound is positively protected from infection. If pathogenic germs had already penetrated into the depths of the wound, at the worst an abscess will develop, which he treats as such. The dressing is not changed if dry, until the fifth to the tenth day. The absence of eczema is notable in comparison with treatment with iodoform, etc. He has never yet observed a case of argyrosis. As itrol (arg. citric.) only dissolves at 1 to 3800, which is a great advantage in the treatment of wounds on account of its prolonged action, he uses tablets of actol (arg. lac.) at 0.2, made like sublimate pastilles and used in the same way. Armed with these and his itrol and silver gauze, the general practitioner is more prepared to meet all emergencies. The silver gauze will keep for years in any climate, without being affected in any way or losing its properties, which promises well for its use in military service. The itrol will also keep an unlimited time in brown or yellow bottles; if it turns brown under the influence of the light, a minimal amount is reduced to metallic silver, which, however, scarcely affects its action.

Credé's silvered catgut and silk threads also keep perfectly. He has described his method of preparing them in his pamphlet on this subject (Leipsic, F. C. W. Vogel) but he offers a sample to all his colleagues with pleasure. His experience with subcutaneous injections of actol in surgical infective diseases is more and more encouraging, but he does not consider himself justified in making any public announcement of this as yet. The dose he administers in erysipelas is between 0.5 and 1.5, and the chief point is not to use a more concentrated solution than 1 to 200, as otherwise the albumin coagulates and produces aseptic necrosis, which prevents the dissemination of the substance throughout the rest of the body, and detracts from its effect. In this respect the technique is still defective. He also states that his observations of the effect of actol in tuberculosis and neoplasms are still crude, although patients treated for a considerable period with the silver salts, applied as a powder to the wounds, or otherwise, present a lively and energetic appearance, like patients who have undergone a protracted course of arsenic treatment. As a gargle and rinsing solution he uses itrol and actol in a 1 to 4-8000 solution, although stronger solutions produce no irritating effect.

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SATURDAY, NOVEMBER 28, 1896.

LITHOLAPAXY AND A NEW LITHOTRITE.

The fundamental rule of the old lithotrity was that the evil consequences of the operation were in direct proportion to the length of time consumed in instrumental manipulation. It was supposed that the bladder was intolerant of all instruments, and the shortest time possible was occupied at a sitting, the smallest instruments used, and the fragments were left to be evacuated naturally. In 1878, Prof. H. J. BIGELOW of Boston startled the medical profession, and started a revolution in the surgery of the bladder by proclaiming the error of the lithotritists, and by stating that the bladder was far more tolerant of prolonged manipulation than was previously supposed, and that the temporary presence of smooth instruments in the bladder caused much less irritation than the prolonged lodgement of sharp fragments of a calculus. In the pursuance of his ideas BIGELOW formulated a new treatment of stone in the bladder. He availed himself of the discovery by OTIS of the dilatability of the urethra, and introduced an entirely new evacuating apparatus; he also used larger and stronger lithotrites than had ever before been employed, and proposed to remove all the calculi at one sitting. BIGELOW designated his method litholapaxy, and offered it as a substitute for lithotrity and lithotomy.

Despite the opposition and gloomy prophecies of the majority of British surgeons, led by such an eminent authority as Sir HENRY THOMPSON, litholapaxy has steadily grown in favor, and its efficacy has been demonstrated by thorough trial and unquestionable clinical evidence. KEEGAN reports that in the Government Hospitals of Punjab and Bombay alone, there were 7,694 litholapaxies performed in four years (1891–4) with a mortality of only 3.45 per cent. All ages and all conditions are included in these statistics. Convinced by KEEGAN'S reports and by his own experience in adults, notwithstanding the fact that he had successfully performed 145 lithotomies in male children without a single death, FREYER resorted to litholapaxy in such cases, and after performing the operation 165 times says: "The greater my experience of litholapaxy in male children the more am I fascinated by the operation. In most instances the little patient may be seen playing about the day after operation, untroubled by any urinary symptom." In all recent statistics the marked disparity between the mortality after cutting operations and after litholapaxy is significant and convincing proof that litholapaxy is a firmly established practice, and that save in very exceptional cases it has completely replaced all forms of lithotomy. The small percentage of cutting operations made necessary by such conditions as encysted calculi, enlargement of the prostate, and the coëxistence of some vesical neoplasm, is well shown by the experience of FREYER, who has possibly advocated litholapaxy more than any other living surgeon. He found that of 300 operations for stone only six lithotomies were necessary, litholapaxy being feasible in all the other cases, and moreover, he adds, that with his present knowledge, in several cases treated by lithotomy, he would have resorted to the later operation.

In the final establishment of litholapaxy as the rational treatment of stone in the bladder, after such persistent and obstinate condemnation of many men of eminent reputation (THOMPSON even denying that BIGELOW had suggested either an innovation or an improvement), we find a double tribute, first, to the superlative merit of BIGELOW'S discovery, and second, to the perseverance of such surgeons as KEEGAN and FREYER, who by their courage of conviction, regardless of denunciation, justified their belief and definitely proved for all time the advantage of litholapaxy over all other methods.

Viewing the present status of litholapaxy it seems that the only room for improvement lies in increased mechanical perfection of the instruments employed. Formerly calculi were vaguely called "very hard," "hard," "soft," etc., but never any exact classification attempted; and the operator was entirely dependent on a guarantee of careful forging in using the lithotrite, never knowing when he had exceeded its strength, or when it would bend or break, and become worse than useless.

In an address before the American Surgical Association, June 1, 1894, Prof. WM. S. FORBES of Philadel-

phia presented a testing apparatus designed by his son, Mr. JOHN S. FORBES, a mechanical engineer. With this machine he had been enabled to record the exact resistance in pounds offered by each of 184 calculi, indiscriminately gathered, of all sizes from a few grains to 6½ ounces in weight, and of vastly different chemic composition, specific gravity and age. He was also able to measure the crushing power of the lithotrite employed. FORBES prepared an elaborate table of his results, and by combining his anatomic and surgical knowledge with the mechanical skill of his assistant, he constructed a lithotrite which though weighing no more than BIGELOW'S and THOMPSON'S, by meeting the anatomic conditions and conforming to laws of mechanics, eliminates the defects of the older instruments, and is vastly more effective.

FORBES found that the greatest resistance offered by any calculus was 406 pounds. It is but fair to say that this stone was composed of oxalates, and had considerably hardened by many years' exposure on a museum shelf. His lithotrite had broken 184 calculi in the testing apparatus, had been subjected to a pressure of 500 pounds between the jaws on 13 distinct and separate occasions, and after this trying ordeal its ultimate strength was 650 pounds; moreover after this enormous pressure the instrument was closed and could have been introduced and withdrawn from a human bladder with ease, and without injury to the parts.

The value of such experiments is manifestly evident, and the manufacture of a perfect instrument capable of crushing any stone in the bladder is resolved to a simple question of mechanical ingenuity, an element of construction heretofore but indifferently used.

Besides his carefully and impartially conducted experiments, FORBES has demonstrated the fitness of his lithotrite by twenty-one operations on the living subject, one of which is reported in another column of this JOURNAL.

Limits of space prevent a description of the FORBES lithotrite, suffice it to say that its greatest advantages are its strength, and the fact that it is tested in the apparatus before leaving the maker's shop, and its exact crushing strength recorded on the handle. Its jaws are so constructed that injury to the bladder, impaction and flying fragments are avoided. There is perfect ease of operation, yet few surgeons will be able to exert sufficient manual force to render the larger sized instruments inoperative. If necessary for experimental work, an exact power-recording mechanism can be adjusted to the screw handle. Mr. FORBES has designed such an attachment. It seems as though with the improved lithotrite that the indications for litholapaxy are increased, and surely the mortality must be still lessened.

Let us have a Department of Public Health!

APHASIA OF THE HAND.

The seat of language, or rather of ordinary motor speech, has generally been held to be in BROCA'S convolution or the foot of the third frontal, and the lesion of aphasic disorder of the motor type has been considered as there located, at least in right-handed subjects. The expression of and communication of ideas is, however, not strictly confined to speech, and we have therefore among the different species of aphasia an amimia, or lack of capability of expression by signs, and agraphia or inability to do the same by writing. This last has been called by CHARCOT "aphasia of the hand," a term that has a certain appropriateness, but which lacks the essential element of aphasia in that writing is an indirect and accessory method of the conveyance of ideas, not the important and primary one. The real and only aphasia of the hand properly so-called, as Professor GRASSET says in a recent article in *Le Progrès Médical*, is that of the deaf mute who expresses his faculty of language by the fingers instead of the muscles of articulation. The cases of this kind are, as he remarks, very rarely reported in medical literature, and that which he gives has therefore rather more than an ordinary interest and importance.

The patient, an intelligent deaf mute, aged 50, was an arthritic subject who presented all the signs of arterio-sclerosis, and who had had for two years the symptoms of a gradually progressive softening of the brain, without initial *ictus*, due apparently to thrombosis of some branches of the left sylvian artery. There was no symptom of sensory aphasia, the hearing had been congenitally absent, and word blindness was lacking. He read easily and understood what was said to him in the sign alphabet. When requested he would point out words or letters on the page very accurately and readily; there was a certain degree of impairment of the intelligence as compared with what he had been, but enough remained to redeem him from any charge of absolute imbecility or dementia. He understood what he read or what was said to him, but was unable to reply as he had been accustomed to with his right hand, though he managed to do so with his left. He was also unable to write, and this disability was complete.

There was no such paralysis of the right arm or hand as would account for the phenomenon, though there was a certain degree of paresis. Neither this nor the impairment of intelligence sufficed to explain the existing defect, and the center of language by the deaf and dumb alphabet seems from this observation to be, in a measure at least, distinct from the motor center for the ordinary movements of the arm or hand. We have here a congenital deaf mute, intelligent, fairly educated for his condition, capable of understanding and of communicating his ideas with his left hand, but absolutely incapable with his right,

which was before his principal organ of language, so to speak. The power of writing, which had never been acquired by his left hand, was completely lost, while the ability of making ordinary coördinated movements with his right hand was retained. There was no statement as to any facial paralysis, as would have been the case had it existed; the paresis is mentioned as involving only the right arm. The question that is so clearly suggested by this is what center for speech was involved in this case. Was it the usual one for motor aphasia in the third frontal, or is it situated at the foot of the second frontal or in the adjacent portion of the anterior ascending convolution, the center for the arm and fingers? The fact that agraphia, which existed in this case, is a common result also of lesions of BROCA'S center would speak in favor of the existence of the lesion in the usual seat, but of course this is as yet only a matter of conjecture, while the attending brachial paresis might suggest the probability of its occurrence nearer the arm center, in the foot of the second frontal convolution in this particular instance.

It is to be reasonably expected that the case will not be lost sight of, and that at some future time this matter will be cleared up by an autopsy. As it stands the observation is almost unique as giving an example of a form of aphasia that has been very little noticed by writers on the disorders of speech.

THE HOODOOED TEXAS.

Old-fashioned sailors have certain cherished beliefs that no amount of argument can dispel. The tar who has "sailed the salt seas over," can not be persuaded that it is anything but flying in the face of that Providence, in which with all his impiety he devoutly trusts, to begin a voyage on Friday, and he quotes the legendary history of the ship *Friday*, whose keel was laid on Friday, which was launched on Friday, sailed on Friday, under command of Captain FRIDAY, and was, as might have been expected, lost on Friday with all on board. Is it consistent to ridicule the old salt's superstition in face of the fact that no young bride in Christendom, nor her doting mother, will deliberately select Friday as her wedding day?

Another of Jack's ineradicable beliefs is that certain vessels are *hoodooed* from the laying of their keels, and have consequently been so imbued with the spirit of evil, that whoever sails in them does so at the risk of his life. The unfortunate *Texas*, whose series of mishaps seems to entitle her to this gruesome distinction, might be supposed to have reached the culmination of her woes, short of her downright disappearance at the bottom of the sea, but even the incredulous may conceive that another chapter to her calamitous history is not at all out of the range of possibilities, and that the mere submergence in a mud bath is not a matter to be lightly considered, when that mud is the living pestiferous slime of the Wallabout, the outpour of the huge sewers debouching in the neighboring waters.

The broken valve may be replaced, the corroded machinery may be polished anew, the saturated fixtures and clothing may be sent on deck to be dried and every accessible part of her interior may be cleansed and wiped free from moisture, but how about the inaccessible nooks and corners, where the befouled waters have deposited their tiny germs to be awakened into morbific action under favorable conditions of temperature developed by steaming, especially in unhealthy climates? Much has been said about the possible injury to the machinery, but we have seen no reference to the possible detriment to the sanitary condition of the vessel by her unclean bath.

It is no simple problem to decide how such a complicated structure as the *Texas* shall be so thoroughly cleansed that there shall remain no hidden nidus for the development of disease germs, and the medical department has the opportunity of conducting on a large scale the experimental methods which have been found effective under restricted conditions. The efficacy of sulphurous acid vapor as a disinfecting agent on shipboard has been established, but we are not aware whether formaldehyde has been used in the naval service. Superheated steam has, however, been the prime favorite of naval medical officers, but it is to be seen whether it will be possible to permeate a vessel of this character with an atmosphere of dry steam, without such condensation of the vapor on contact with the cold iron sides and bulkheads, as to objectionably add to the moisture, or whether it will not be better to direct, by hand, sprays of live steam through small pipes, against every corner of her interior. Every particle of paint will be certainly scaled off, but the operation of repainting will itself be a sanitary measure and the cost a trifle compared with the introduction of disease. Without such thorough cleansing there would be great risk of exposure to epidemic influences in the insanitary climate of the West Indies, especially in and about Havana. Many of the vessels of the old navy, once stricken with yellow fever, were after years of fancied security, following a winter's freezing at a Northern navy yard, the scenes of fresh outbreaks, until they became notorious as "fever ships," and it is easy to understand how much more apt to happen this will be in the case of these great iron hulks.

So the responsibilities of the naval sanitarian increase apace with the development of naval architecture, as in the military operations which are conducted on the grand scale of modern scientific warfare the functions of the medical department become paramount in the conservation of the effectiveness of the personnel—whether it be the intelligent directing officers or the brave, obedient subalterns and privates.

Is not this as true in the civil administration of great cities, where masses of human beings are aggregated? Does not progress in the operations of men depend upon the intelligent direction of these operations in sanitary lines by experienced sanitary advisers?

A CENTURY'S ADVANCE IN PEDIATRY.

An excellent illustration of the advance in pediatry is afforded by a comparison of the discussion before the Chicago Academy of Medicine (JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, Vol. xxvii, pp. 958, 1004) of a single class of neuroses in childhood, with the work of the Swedish pediatrist, ROSEN VON ROSENSTEIN, translated by Dr. ANDREW SPARRMAN and published under the title of "The Diseases of Children and Their Remedies" in 1776. There is but one chapter on nervous disorders of childhood in the book, which is entitled "Convulsions and Their Ten Causes." The chapter opens as follows:

"The nerves of children are very sensible and irritable. They are more numerous in proportion to their bodies than those of a grown person, and as they have many juices or fluids they are so much more softened. They are also covered with a very thin membrane, which makes their sensations so much the greater. For this reason children are subject to starting, and these, at whatsoever time of life they occur, are called convulsions, but when the whole body is affected and the face at the same time appears bluish, it is then called an epilepsy."

A greater contrast than that with the space devoted in the discussion to a single class of neuroses can not well be imagined.

CORRESPONDENCE.

Tablet Medication.

CHICAGO, Nov. 18, 1896.

To the Editor:—I have read with considerable interest an article appearing in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, issue of October 31, under the above title. Our particular attention is drawn to a statement which reads as follows: "A very large proportion of the pharmacopeia is made up of substances which can very readily be made into tablets."

In looking through the list of about 1,000 official products eligible for a medicinal administration, we find between eighty and ninety which are suitable for this mode of administration without suffering loss of therapeutic value by manipulation, and a great portion of this number being powdered drugs, such as blue flag, snake root, buchu, etc., which are seldom, if ever, used in tablet form, being almost always represented by the extract.

Possibly if the writer of the article in question had investigated the subject fully he would have said that the pharmacopeia contained many substances listed by the average tablet manufacturer, but, in actual fact, the true substance is not combined in the tablet bearing its label. There can be no doubt that a tablet containing acetanilid pure, bismuth subnitrate, charcoal or other similar stable substances should be as efficacious in tablet form, if properly manufactured so as to effect immediate disintegration, as in any other. Unfortunately, however, there are but one or two out of the large number of tablet manufacturers who prepare this line of products skillfully, and as a consequence most insoluble salts when compressed are made so hard as to be absolutely valueless therapeutically. On the other hand, who would be so foolhardy as to contend that a fluid extract containing sensitive alkaloids or glucosides, having been made by cold percolation and having had the most extreme care bestowed upon every detail of its manufacture could be reduced to a perfectly dry powder almost black in appearance without affecting its medicinal activity?

Take, for instance, such a tablet as we have before us bearing the label of one of our principal tablet manufacturers. The formula calls for aloin 1-5 grain, strychnin 1-60 grain, extract belladonna ⅛ grain. Aloin is of a bright yellow color, strychnin sulphate pure white, extract belladonna leaves (properly) a beautiful deep green. The tablet before us, however, is something between a chocolate brown and a black, and when moistened makes a brownish black mark on paper. Moreover, the tablet weighs less than 1-20 grain more than the actual drug should weigh.

There is little doubt that the thoughtful practitioner would prefer administering drugs of this nature in a form that has more promise of result than that above described. We believe with our contemporary that a certain class of tablets and tablet triturates could be standardized and adopted by the pharmacopeia, but such a list would properly be very small, compared with the average dispensing counter style of tablet so largely manufactured.

If the skill and integrity of all pharmaceutic manufacturers could be absolutely depended upon, all would be well, but unfortunately, such is not the case and our only safety, therefore, would be in confining our patronage to those few houses whose reputation for excellence of product is undoubted and whose integrity and ceaseless endeavor has placed the standard of such preparations where we need feel no anxiety for their fidelity to label.

WILLIAM L. BAUM, M.D.

103 State Street.

Non-payment of Bills.

CHICAGO, Nov. 19, 1896.

To the Editor:—As the last of the month approaches I size up accounts and am impressed with the fact that the doctor is the first man called and the last man paid. Patients get sick without due financial preparation and consequently the doctor must trust or drop the case, a thing which few doctors are hard hearted enough to do. After recovery the patient soon forgets how sick he was, thinks the doctor did not help much anyway, must have charged for visits made to some other party, etc., and feels as though the bill was too big anyway. Paying an old doctor's bill seems to him like paying for a dead horse. The facts that people usually can not pay at once, and the doctor's kindness, have established the custom of paying doctor's bills whenever the patient gets "a good ready."

I would like space in your valuable paper to suggest that the doctors unite and establish a new custom, that of paying cash, or a promissory note at each visit. No more accounts. We know that while many patients can not pay cash, very few are unable to sign a promissory note. The main advantages of this plan are:

1. We would receive cash or the note at the time the work was performed and when the patient feels grateful and willing to pay. Cash patients very seldom kick about the size of the fee.

2. Immediate cash receipts would be greater because many trust patients would manage to pay cash rather than sign a note.

3. People have greater respect for, and make greater efforts to pay a promissory note than an account, although it is for the same work. They take pride in their name.

4. Patients will pay $2 and take up one of their notes, whereas they would feel ashamed to pay only $2 on an account.

5. Patients can not object to the amount of the debt after they have recovered and have forgotten they were ever sick.

6. Patients would make greater efforts, first to pay cash, and second, to clear up the debt.

7. No bother with bookkeeping.

Let this plan be discussed in the various medical journals and societies and proper resolutions passed. Have these resolutions published in daily papers as news, and each doctor send a circular to his patients. In this way the public would learn what they must do if they call a doctor. Then let us stand firm and demand cash or a note at each visit or drop the case. People would soon become accustomed to the new order of things and offer cash or a note, without waiting to be asked, as cheerfully and naturally as they now tell us they "have no money, but hope to have some soon."

By this means I believe a custom of paying cash or note C. O. D. could be established that would be beneficial to all kinds of business, but particularly so in ours, because we must do our work at a time when our customers are least able to pay and must be trusted. Yours respectfully,

MAURICE F. DOTY, M.D.

The Controversy over the Harvey Medical College of Chicago.

CHICAGO, Nov. 23, 1896.

To the Editor:—Some time ago a discussion was started in the medical journals in regard to Harvey Medical College of Chicago. In refutation of public statements we simply wish to state a few facts.

The Harvey Medical College of Chicago is an evening school, co-educational, as regards both pupil and professor. It has a graded four year course of nine months each year. The instruction is given from 7 to 10 P.M. Under the present mangement, which has controlled it for the past two years, over 100 students have matriculated, 17 have come up for graduation, and 7 failed to pass the examination. The college has graduated only ten students in the past two years. Of the ten students who graduated, three have diplomas from the Chicago Dental College with medical attendance of one year at Rush and two years at the Harvey. One was from a recognized dental college in Tennessee and attended a medical school in Iowa and spent one year in Harvey. Four students spent four years in the Harvey. One spent two years at the Detroit Medical College, one year at the Harvey and had two preceptors' certificates. One spent his time in a New York medical college and in Rush, with accepted credits from Rush as a senior. This student left Rush for financial reasons, entering the Harvey about January and graduating the following June. This is the student, no doubt to whom the writer evidently uninformed refers as having graduated in six months from the Harvey and from which he generalizes the statement that Harvey graduates students in six months. Does this show a disposition to place the Harvey Medical College in its true light before the public? One member of the Harvey freshmen class entered a prominent day school as a junior while his class-mates were still sophomores in the Harvey. He is now a senior in the day school while his class-mates are still juniors in the Harvey. This surely does not show a disposition on the part of Harvey College to rush students through their course to an easy and early graduation. One Harvey freshman passed the entrance sophomore examination of the Chicago Medical College with excellent marks, as the Chicago Medical accepts credits from no medical school. Harvey College is teaching more than the number of hours required by the Board of Health. What about the so-called standard medical colleges who teach half a day for six months, *i.e.*, four hours a day? Harvey College teaches 648 hours a year, minus the customary holidays, while the six months colleges teach 576 hours a year. What is the difference between four hours a day for six months and three hours a day for nine months? Is not the difference in favor of the nine months?

Harvey Medical College has some of the finest laboratory equipments of any medical college in Chicago. It has forty microscopes and forty individual laboratory desks with plate glass tops prepared especially with reference to bacteriologic work. It has a stereopticon lantern worth $300. The laboratory equipments in the Harvey are valued at $3,500 to $4,000. The practical anatomy rooms have all asphalt floors with special drains. In the storage room the bodies are embalmed and each laid away on a shelf until needed for dissecting and other purposes.

In a conference of medical colleges in regard to entrance examination of students by a State board independent of colleges, the Harvey representative was the only one who unreservedly favored this change. It was stated that many students graduate at the Harvey without having witnessed a single capital operation at the college. Where is it customary to make capital operations in the colleges before students? Are not such operations generally performed in affiliated hospitals? To my own certain knowledge dozens of capital operations have been performed before the Harvey College classes in hospitals affiliated with the college through the faculty members. The fact is that every one of the graduates of the Harvey Medical College saw many capital operations in the Harvey Hospital which was in the former college building.

It was also stated that "the facilities of the school are of the most limited kind." This statement is absolutely unfounded in fact. The school occupies three floors of a large building expressly arranged for the use of the college, after designs approved by the directors and the building has been named after the Harvey College and is now known as the Harvey Building in all real estate records.

Who are the teachers connected with Harvey College that they should be agents of a "diploma mill"? Does Dr. Eckley need to be advertised as anatomist? Is Dr. Clevenger not known by his writings and teachings? Dr. Evans of the P. and S. taught pathology last year. Dr. Coulter teaches rhinology, Dr. Lucy Waite teaches gynecology and Dr. Knapp is in charge of the laboratory. In short the faculty consists of a body of fifty reputable men and women, who are giving intelligent and thorough modern medical instruction.

In regard to the sensational statement that men and women are induced to leave the "work-shop and stock-yards, where they slaughter cattle, for the more remunerative occupation of slaughtering mankind," we leave to the good sense of the medical profession. Was not Lincoln a rail-splitter? Does this age impale men and women for previous condition of servitude? Beside, the time of the day in which a fact is acquired does not alter the value of the fact. Respectable and reliable knowledge can be acquired after sundown.

The article states that it is the purpose of Harvey Medical College to defeat the Medical Practice Act. Do the facts which I have presented go to prove such an assertion? On the other hand I wish to state emphatically that Harvey College has one of the most systematic and detailed four-years graded course in Chicago.

These facts can be ascertained by anyone with sufficient interest to investigate. Searching examination and investigation is invited at the Harvey College. Senior students in the Harvey have obligatory day-time work. During the past two years every senior saw one or more labors. In 1896 and 1897 in Harvey Medical College every senior will be obliged to witness at least ten labors. In general, what medical school does more for its students? In the light of the above facts, does Harvey College appear to be a "diploma mill"?

Who conferred the power of judgment on the writer in the

Western Medical Review hundreds of miles away to announce that there are eighteen medical colleges in Chicago, and of these seven ought to be recognized and no more?

The management of the Harvey College have never considered it necessary to answer unfounded and unreliable public utterances, that its methods of teaching are no secrets, but open to public scrutiny. But since I am a teacher of gynecology and abdominal surgery in the Harvey College, I take the opportunity of laying before the innocent the above facts, so that the appearance of evil may not arise.

Again, I would request those journals which have entertained the ideas contained in the heretofore published articles in regard to Harvey College, to copy this article in the interest of truth and justice. Respectfully,

BYRON ROBINSON, M.D.

The Physician as a Patient.

TECUMSEH, MICH., Nov. 18, 1896.

To the Editor:—Why is it, that an error in diagnosis is so frequently made when the patient is a physician? Within the past thirty years, a number of cases have come under the writer's observation, where an error in diagnosis has been made, and where the patient has been a member of the medical guild; it therefore has occurred to the writer, that if the patient had not been a member of the medical profession the mistaken diagnosis would not so frequently have been made.

Recently a case illustrating the above statement was reported to the writer, as follows: A physician, age about 53 years, had been complaining for a few days with a feeling of general malaise, some fever which increased from day to day, until the patient was taken to bed. A neighboring physician was called to attend him, who diagnosed the case as malarial fever complicated with rheumatism. As the disease progressed, and the condition of the patient did not improve, a second physician was called in consultation, who appears held similar views to those of the attendant. One or two physicians of the town were casually met by the attendant, and invited to see the patient, and "cheer him up," but declined being placed in the position of a layman. The condition of the physician becoming critical a third physician from a neighboring town, "eminent" (according to the local press), was called a few hours previous to the death of the patient. About twenty-four hours after death, a postmortem examination was made upon the body, and the pathologic lesions of typhoid fever presented, consequently the case was immediately reported to the local board of health as death from typhoid fever. A recognition of typhoid fever, and treatment accordingly adopted at an early stage of the disease might have produced different results; however it certainly would have been more satisfactory to the attending physician, unless he is so far behind the age as to believe that typhoid fever is frequently dovetailed into malarial fever. This and similar cases should lead the physician when called upon to attend a brother physician, to examine him as carefully as an ordinary patient, and never permit the views of the physician patient to bias his judgment in forming a correct diagnosis.

Respectfully, J. F. JENKINS, M.D.

"Parasite and Host."

PHILADELPHIA, PA., Nov. 18, 1896.

To the Editor:—In reference to the paragraph in your editorial of November 14 "Parasite and Host," in which you allude to the abuses of the review columns of lay-published medical journals, an instance has just come to my knowledge too opposite to be omitted: The publishing house of one of our most self-righteous and "honorable" journals recently got the author of a book to review the later work of a rival author upon the same subject. Instead of the review appearing after the usual and necessary lapse of time required to weigh and value the work judicially, it came out in the next issue of the journal after the book had dropped from the press, and was made up of snarling, fault-finding bumptiousness, derision and superficial disingenuousness. The rival publisher and rival author joined hands and danced in murderous joy over their powerless foes—but what a spectacle of ignominy!

Yours, etc., M.

Treatment of Neurasthenia.

KEY WEST, FLA., Nov. 18, 1896.

To the Editor:—In your editorial "Physiologic Treatment of Neurasthenia," October 31, you say, "The patient should also be instructed to sleep on his side (this may be accomplished by having him bind a cigar box on the back, or by tying a towel about the waist with the knot behind), etc."

Allow me to suggest a way that I have found more successful and comfortable in several instances. Let the patient tie a strip of soft but strong cloth to one side of the bedstead; lie on his left side (for instance) on the other side, extend his right arm to its full length across his body and fasten the right wrist with the free end of the cloth. It will be impossible for him to lie on his back, yet have plenty of freedom in other positions. Yours truly,

G. R. PLUMMER, M.D.

Information Wanted.

BROOKLYN, N. Y., Nov. 21, 1896.

To the Editor:—Who was the writer of the following lines? Can any of our readers cite for an inquiring friend their place of publication?

"God and the doctor we alike adore,
But only when in trouble, not before.
The trouble o'er, both are alike requited;
God is forgotten, and the doctor slighted."

R. M. W.

Location Wanted.

Nov. 12, 1896.

To the Editor:—Will you please send me such a list of desirable vacant locations for a physician as you may have at hand, or give me any other information you may have concerning desirable locations. I am a graduate of the College of Physicians and Surgeons of Baltimore, and have had some practice at Indianapolis, Ind.

Thanking you in advance for any favor you may be able to do me, and assuring you of my desire to return the same at the earliest opportunity, I remain, yours truly, A. G. S.

PUBLIC HEALTH.

The Importation of Rags.—Dr. A. H. Doty, Health Officer of the Port of New York, has sailed for the Mediterranean ports for the purpose of studying certain sanitary questions. The object of the trip is to enable him to thoroughly acquaint himself with all the details regarding the precautions taken in the various Mediterranean ports to prevent the spreading of contagious diseases. It is the intention of Dr. Doty to attempt to inaugurate a system of baling rags in foreign ports under consular supervision, whereby the United States consular authorities could conscientiously certify to their thorough disinfection. The Health Officer expects to be abroad until the middle of January. In his absence Deputy Health Officer Sanborn, who has been in the Quarantine service since 1878, will have charge of the entire business of the department.

Psittacosis.[1] — Several small family epidemics, resembling pneumonia and proving fatal to all of the elderly persons attacked, baffled the Paris physicians, until they discovered that it was a microbian disease contracted from sick parrots.

[1] See also an article in the JOURNAL, June 15, 1895, page 947.

In each case a parrot had been sick and died in the house. In one case Mr. X. bought three parrots, December 30, and sent one to a friend. This parrot died in a few days, and the friend and her servant were quite ill for three weeks and only recovered after a tedious convalescence. The two parrots kept by Mr. X. died within a fortnight, and he was taken soon after with chills, fever, vomitings, terrible thirst, insomnia, headache, indications of a pneumonic affection in one lung, tremor, carphology, delirium, coma and death in eleven days. The disease presented the picture of a typhoid fever, without abdominal disturbances, but with an excessive predominance of nervous disturbances. Mme. X. also succumbed in a few days, presenting the same symptoms, but with more decided pneumonic complications. The son was also attacked, but was only slightly affected, as usual in this disease with the young. The microbe was located by Nocard, who described it as a short, thick bacterium, with rounded ends, both aerobic and anaerobic, extremely motile, developing on all the usual neutral or slightly alkalin media. It does not take the Gram, nor liquefy gelatin, nor ferment lactose, nor coagulate milk. It is extremely virulent, and pathogenic not only for the parrot and man, but for mice, guinea pigs, rabbits and pigeons. His report states that keepers of bird stores should be warned against the dangers from sick parrots, and all owners of parrots should be instructed to isolate them when they show evidence of illness. It concludes with the remark that "the public should be warned that there is a serious and frequently fatal disease communicated to man by parrots. Some persons seem to experience for them a sort of passionate affection, increased by solicitude when they are ailing, and they express this affection by interlingual caresses from mouth to beak. If these caresses are not reprehensible from a moral point of view, they are most singularly so from the hygienic."—*Bulletin de l'Acad. de Méd.*, October 20.

Ohio Boards of Health to Regulate Plumbing.—Under the caption of "An act to promote the public health, etc.," passed in April, 1896, it is provided that any person, firm or corporation now or that may hereafter be engaged in, or working at the business in the State of Ohio, either as master or employing plumber, or as a journeyman plumber, shall first secure a license therefor, application for which is to be made to the president of the board of health or other officer having jurisdiction in the locality where he intends to engage in or work at such business, and the applicant shall at such time and place as may be designated by the board of examiners to whom his application shall be referred, be examined as to his practical knowledge of plumbing, house drainage and plumbing ventilation. In the case of a firm or corporation, the examination and licensing of any one member of such firm, or the manager of such corporation shall be deemed sufficient. In every city and each town of 5,000 or more inhabitants, and in each town having a system of water supply or sewerage there shall be a board of examiners, consisting of the president of the board of health, the inspector of buildings of such city or town, if there is one, two master plumbers and one journeyman plumber. The president of the board of health and the inspector of buildings shall be members ex officio of the board and serve without compensation. The other three members shall be appointed by the board of health, or if there is no board of health, then by the health officer of the city or town, to hold office for one year. If in any city or town there is no inspector the board of health is to appoint a fourth member, and in localities where the required number of plumbers can not be secured, such vacancies may be filled by the appointment of reputable physicians. This board, if satisfied after examining them of the competency of the applicants, shall so verify to the board of health which issues the licenses good for one year and renewable by any board of jurisdiction. The board of health of each such city or town is to appoint one or more inspectors of plumbing to be approved by the city or town council. They are to be practical plumbers and hold office until removed by the board of health for cause, which board is to determine their compensation, to be paid out of the city or town treasury. These inspectors are to inspect all plumbing work for which permits are granted and report to the board of health all violations of law, ordinance or by-law relating to plumbing work and perform any other appropriate duties required by it. The board of health of every such city or town is also to prescribe rules and regulations for the construction, alteration and inspection of plumbing and sewerage placed in or in connection with any buildings in such city or town which shall be approved by the council, and no plumbing shall be done except in the case of repairs or leaks, without a permit issued upon such terms as it may prescribe. Every violation of any of these provisions is punishable by a fine of from $5 to $50. All money derived from the examination of applicants shall go to the board of health at the place where each was examined. Licenses may be revoked for incompetency, dereliction of duty or other sufficient causes after a full and fair hearing by a majority of the examining board, but an appeal may be taken to the State Board of Health.

Serum Diagnosis of Typhoid Fever.—The Health Department of the City of Chicago has issued the following circular:

"Following the action of the Provincial Board of Health of Quebec, by its distinguished bacteriologist, Dr. Wyatt Johnston, to whom due acknowledgement is hereby made, the Department of Health desires to call the attention of the medical profession of Chicago to the fact that bacteriologic methods seem likely to afford a rapid and satisfactory means of diagnosis in typhoid fever which will compare not unfavorably in point of efficiency with the methods now so widely employed for the diagnosis of tuberculosis and diphtheria.

"It has been shown by Pfeiffer of Berlin and Widal of Paris that the serum obtained from the blood of a typhoid-fever patient is capable of so acting upon pure bouillon cultures of typhoid bacilli mixed with it as to abolish the active motion so characteristic of that organism in fluid culture media and to cause an agglutination of the individual bacilli in large groups or clumps. This change is easily recognizable under the microscope or in culture tubes and usually occurs within a few minutes.

"With serum from the blood of healthy persons, or those suffering from febrile diseases other than typhoid, the motion of the bacilli is not arrested but continues indefinitely when mixed with the typhoid culture.

"The method as originally introduced by Pfeiffer involved a somewhat difficult and complicated procedure for obtaining pure and sterile serum; but the process has been much simplified by Widal, who found that a few drops of blood collected in a sterilized glass tube suffice for the test.

"Widal and Sicard state that the serum and blood, when dried, retain their power of producing this effect, though they do not record any practical application of this circumstance.

"It has since been shown by Dr. Johnston that the fluid obtained by moistening with water a dried blood-drop gives the reaction in a prompt and satisfactory manner even after it has been dried for several days. This modification of the process makes it more suitable for a system of free public laboratory diagnosis, similar to that in the case of diphtheria, as a drop of dried blood can be more readily sent to a laboratory and examined there. Dr. Johnston was able to diagnose correctly by means of dried blood-drops sent by mail from Montreal to Buffalo, during the meeting of the American Public Health Association in September, 1896, those which were from typhoid cases and those which were not, using no other means than the method described above.

"It is not yet possible to state exactly what degree of accuracy will be obtained from this method when used for the routine diagnosis of typhoid fever on a large scale, but in order to test the practical utility of the method, the Department offers to examine and report (gratis) upon any samples of blood collected by physicians as directed in the instructions given with the outfits. A report will be sent by 2 P.M. upon the day following that upon which the sample is received and will be communicated by telephone when the number is given.

"In the Department outfits will be found pieces of sterilized mica upon which the drops of blood are to be dried. These

are substituted by Dr. Gehrmann for the sterilized paper elsewhere used, because the smooth non-absorbent surface of the mica facilitates the solution of the dried serum in water. Drops of the solution can also be more readily taken up from the mica than from the paper surface. These outfits, with full directions for use, may be obtained from any drug store antitoxin station, from the sub-laboratory at 43d Street and Cottage Grove Avenue and from the laboratory of the Department, Room 317, City Hall."

Health Report.—The following reports of mortality from smallpox, yellow fever and cholera have been received in the office of the Marine-Hospital Bureau, Treasury Department:

SMALLPOX—FOREIGN.

Rio de Janeiro, October 3 to 10, 10 cases, 6 deaths.
Santiago de Cuba, October 10 to 17, 4 deaths.
Japan, October 10 to 19, 202 cases, 57 deaths.
Guayaquil, October 2 to 16, 4 deaths.
Bombay, October 6 to 13, 1 death.
Callao, October 18 to 25, 4 deaths.
Gibraltar, October 18 to 25, 1 case.
Licata, Italy, October 17 to 24, 5 deaths.
London, October 17 to 24, 1 case.
Madrid, October 14 to 28, 159 deaths.
Nogales, Mexico, November 1 to 7, 5 cases.
Odessa, October 17 to 24, 26 cases, 5 deaths.
Osaka and Hiogo, Japan, October 3 to 10, 125 cases, 43 deaths.
St. Petersburg, October 17 to 24, 9 cases, 1 death.
Warsaw, October 10 to 17, 5 deaths.

CHOLERA.

Japan, October 10 to 19, 7,189 cases, 2,106 deaths.
Calcutta, September 26 to October 3, 5 deaths.
Madras, October 3 to 9, 5 deaths.
Osaka and Hiogo, October 3 to 10, 2 cases, 1 death.

YELLOW FEVER.

Rio de Janeiro, October 3 to 10, 11 cases.
Santiago de Cuba, October 10 to 17, 9 deaths.
Matanzas, October 27 to November 4, 15 deaths.

BOOK NOTICES.

Francis Delafield and T. Mitchell Prudden, a Hand-book of Pathological Anatomy and Histology. Fifth edition. New York: William Wood & Co. 1896.

The knowledge of pathologic anatomy, giving security to the physician at the bedside, has initiated the development of modern medicine; the progress of the latter is in direct parallelism with this study. Where postmortem examinations are scarce the student will not learn the rough pathologic anatomy, and pathologic histology must take the place. Such is the matter of fact in this country; this may be also the cause why this hand-book, written by two of our best investigators, has more a microscopic feature than that it will be the true and careful leader in the study of rough pathologic anatomy. Comprising so much, viz., the whole general pathology, the space for anatomic description seems to have fallen short.

The prominent feature of the book is given by the illustrations, mostly from microscopic preparations. In this report the authors are quite original, but I doubt if their experience is broad enough, relying more on personal observation than on the study of the literature of other countries.

Some references may illustrate this feature. On page 441 is treated that serious form of interstitial pneumonia with formation of granulation tissue in the interior of the alveoli. The authors have said nothing on the occurrence of those forms being found in Europe mostly in connection with insanity. The other forms of interstitial pneumonia identical with the infectious pneumonia of cattle is not mentioned at all. It may be heartily acknowledged that the microscopic illustrations are excellently executed.

As a very interesting observation, may be noted the tuberculous phlebitis, at page 569. In the amebic colitis (pp. 568 and 569) we would have preferred a more schematic illustration instead of the photographic reproduction. A case of appendicitis of twelve hours' duration (of the symptoms) is highly interesting, but the lymphatic nodules in the mucosa may find another interpretation.

The adenoma of the kidney (p. 678) seems to be not rare in this country. We think that it is always congenital, not originating in later years as remark the authors. The differential diagnosis from adrenal adenoma, originating from dispersed adrenal tissues, is not given, but very simple, as these latter forms are situated always under the capsule as a flat yellow mass. The true adenoma originates from the canaliculi of the kidney.

We will close these remarks by some critical words on the chronic nephritis, a part worked out especially by Delafield. As the author, so far as I know, has worked more as clinicist than as anatomist, he seems not very apt with the manifold features given by the pathologic anatomy of this disease. Remarking the important clinical differences that are observed in the scarlet kidney (glomerulo-nephritis), the great white kidney (chronic morbus Brightii), the amyloid kidney (often also great white) and the small red kidney without interstitial proliferation, originating only by alteration of the circulation, we would express the hope that the highly estimated author might revise this chapter.

Tenth Annual Report of the State Board of Health and Vital Statistics of the Commonwealth of Pennsylvania for the year 1894. Harrisburg: 1895.

This volume has come to hand with a note, stating that: "Owing to the destruction of the establishment of the State printer in the early part of 1895, the issue of this volume has been seriously delayed." On page 5 of the report of the Secretary, is a tribute to the late Dr. John H. Rauch, former secretary and president of the board of health of the State of Illinois, whose work as a sanitarian will ever endure. The contents of this volume are varied and interesting. It opens with the secretary's report and the minutes, and then is followed by the various reports of the different standing committees on registration and vital statistics, legislation, preventable diseases, water supply, drainage, etc., an account of the inspections, the annual reports of cities, towns, conferences and conventions—the whole forming an admirable book on public hygiene. The maps furnished by the State weather service constitute a striking feature of the volume.

The Medical Record Visiting List, or Physician's Diary for 1897. New York: Wm. Wood & Co.

Some changes have been made in this well-known list, and it will, as heretofore, be found one of the most useful.

The contents include: Various tables and summaries, the calendar, estimation of duration of pregnancy, approximate equivalents, posologic tables, miscellaneous facts, emergencies, composition of various solutions in ordinary use, surgical antisepsis, disinfection and other usual record pages. The book is handsomely bound.

The Medical News Visiting List, 1897. Philadelphia: Lea Brothers & Co. 1896.

This visiting list contains the usual material of interest to the physician and tabular matter beside the ruled pages for accounts and professional records, such as "signs of dentition," "to find day of confinement," "thermometric scales," weights and measures (both old and metric), examination of urine, important incompatibles, artificial respiration, table of eruptive fevers, poisons and antidotes, tables of doses, therapeutic remedies, ligation of arteries.

Postmortem Examinations in Medico-legal and Ordinary Cases, with special chapters on the legal aspects of postmortems and on certificates of death. By J. JACKSON CLARKE, M.B., F.R.C.S. Cl., 16mo, pp. 78. London: Longmans, Greene & Co. 1896.

This little manual contains some features that are not included in most works of this kind. The author has described rather fully his antiseptic method of making postmortems, by the use of photographers' gloves, and mercury bin-iodid solu-

tion, which he prefers to the bichlorid solution. There is also a special section on the legal aspects of postmortems, and on certificates of death. We commend the book.

The Physicians' Visiting List (Lindsay & Blakiston's) for 1897. Forty-sixth year of its publication. Philadelphia: P. Blakiston, Son & Co.

This "old reliable" list contains an accurate posologic table, thermometric tables, a chapter on asphyxia and apnea, with convenient pages for records. The fact of so many years' service shows that the book has been greatly appreciated by the profession.

NECROLOGY.

HARRY A. HODGEN, M.D.—The profession of St. Louis and the many friends of Dr. Harry Hodgen were shocked to learn of his sudden death in the month of September. It was known that he had not been in the best of health for some time, but so sudden a termination had not been anticipated. In the prime of life, just when the greatest measure of success was in sight, he was removed from the field of his work. Words are futile to express the personal sorrow over his untimely taking off, and the sincere sympathy of the writer with the loved ones left behind. It has been the pleasure of the writer to know him as boy and man since he was a little tot in short dresses; and no one knows better the many strong qualities of head and heart possessed by him. He never sought to make a favorable impression, but was satisfied to trust to the keen discernment of the worthy for proper appreciation. At an unusually large meeting of the medical profession of St. Louis, held in the hall of the St. Louis Medical Society, to take proper action, the following report of a special committee appointed by the president to present an expression of the society on the death of Dr. Hodgen, was made and ordered published:

Mr. Chairman and Fellows of the St. Louis Medical Society:—Dr. Harry Hodgen was the firstborn of the late Dr. John T. Hodgen, one of America's greatest surgeons; and by inheritance and association was well equipped for the making of a physician. The fact that his father died before he graduated in medicine was a great calamity to him, and yet it did not prevent him from applying himself earnestly and honestly to his chosen life work. He inherited ability from his father, especially along the lines of surgery, and, very happily, chose the department of orthopedics. The profession at large, and his many patients pay tribute to his skill in this specialty. He was earnest, industrious and faithful as a physician, as the head of a family and as a citizen. Ill health had been his constant companion for many years and yet he never complained, nor did he deviate from the straight line of earnest, honest work. His desire to achieve a place in his profession and to properly serve his family, to which he was almost fanatically devoted, prompted him to deny himself the rest and vacation from time to time, which he should have had during many years past. He kept in the harness, hard at work, almost to the last. Physical exhaustion finally drove him to rest, which was soon followed by his sudden death. The medical profession of St. Louis will never possess a member with a keener sense of professional honor and duty, and one who more unselfishly and heroically, although a sufferer, served humanity without regard to his own interests than Dr. Harry Hodgen. I. N. Love, John P. Bryson, Paul Y. Tupper, Committee.—*The Medical Mirror.*

W. W. WELLINGTON, M.D., of Cambridgeport, Mass., October 27. He was born in West Cambridge, now Arlington, in 1814, and was the son of a noted teacher, who gave him an early education. At the age of 18 he was graduated from Harvard College and taught school for a period of two years, at which time he entered the Harvard Medical College, graduating in 1838. He then began the practice of medicine in Cambridge and has since practiced in that city. He was a member of the Cambridge School Board for forty years. He was also coroner for Middlesex County for ten years. He was a member of the Massachusetts Medical Society, an honorary member of the Boston Obstetrical Society, associate member of the Boston Medical Improvement Society and the Cambridge Medical Improvement Society. The degree of A.M. was conferred upon him by Harvard College in 1871.

JOHN RUSSELL MCCLURG, M.D., of West Chester, Pa., November 3. He was a graduate of Jefferson College and he and Dr. Gross of Philadelphia were close friends. In 1864 he was commissioned major and surgeon, United States Volunteers and in this position he remained until the close of the war when he retired with the rank of brevet-colonel United States Volunteers. He gave valuable services while in charge of several prominent hospitals and soon was quoted as a skilled surgeon, which reputation he sustained up to his death. In 1864 he received from Governor Brough of Ohio, in testimony of his services a handsome sword, and on the occasion of its being given to him the late President Garfield, then chief of General Rosecrans' staff, made the presentation speech. It was while in charge of Jefferson Barracks at St. Louis that this pleasant episode in his life took place. Returning to Chester County in 1865 he resumed his former practice, and his continuous term in that line covered nearly fifty-one years. He was the father of the West Chester Philosophical Society and other kindred organizations, and during the past quarter of a century his labors in the fields of science, literature and philosophy were extensive and eminently successful.

JOSEPH C. THOMAS, M.D., of Cincinnati, Ohio, November 18, aged 56.——Henry C. Chapin, M.D., of Lincoln, Neb., November 1, aged 81.——John T. Langan, M.D., of Oswego, N. Y., November 5, aged 40. He was born in Lowell, Mass., and was graduated from the University of Vermont and the Bellevue Hospital.——D. R. Pelton, M.D., of Topeka, Kan., November 4.——Oscar D. Cheney, M.D., of Haverhill, Mass., October 29, aged 55. He was born in Plaistow, N. H., and educated at New London (N. H.) Academy and Dartmouth College, and was graduated from Harvard Medical School. He was a member of the Massachusetts Medical Society and had been in practice in Haverhill twenty-five years.——L. P. Knoll, M.D., of Montrose, Pa., October 20. He was struck by a locomotive.——Richard Beebe, M.D., of Alford, Mass., October 20, aged 72.——Levi H. Thompson, M.D., of Reading, Pa., October 23, aged 73. He was graduated from Jefferson Medical College in 1853.——Henry H. Hollembaek, M.D., of Burlington, Vt., November 5. He was graduated from Jefferson Medical College.

ASSOCIATION NEWS.

Appointments.—President Nicholas Senn has made the following appointments:

Commitee on Entertainment of the Members of the British Medical Association who will attend the next meeting at Montreal—The following members of the AMERICAN MEDICAL ASSOCIATION:

A. L. Gihon, M.D., U. S. N.
J. W. S. Gouley, M.D., New York.
S. C. Busey, M.D., Washington.
H. H. Didama, M.D., Syracuse.
Levi C. Lane, M.D., San Francisco.
Henry D. Holton, Brattleboro, Vt.
E. D. Ferguson, M.D., Troy, N. Y.
C. N. Hewitt, M.D., Red Wing, Minn.
I. N. Love, M.D., St. Louis.
William Pepper, M.D., Philadelphia.
W. H. Pancoast, M.D., Philadelphia.
William Osler, M.D., Baltimore.
Donald Maclean, M.D., Detroit.
J. T. Whittaker, M.D., Cincinnati.
R. Matas, M.D., New Orleans.

To deliver the annual address in State Medicine *vice* Jerome Cochran, M.D., deceased, John B. Hamilton, M.D.

SOCIETY NEWS.

North-Western Ohio Medical Association.—The fifty-second meeting of this Association will be held at Defiance, Ohio, Thursday and Friday, December 10 and 11. The following are the officers: President, Charles Graefe, Sandusky; vice-presidents, Charles E. Slocum, Defiance, W. S. Phillips, Columbus; secretary, J. P. Baker, Findlay; assistant secretary and treasurer, T. M. Gehrett, Deshler. There are twenty-five papers on the program and an interesting meeting is expected.

The American Laryngological, Rhinological and Otological Society.—The Western Section of this Society will hold its meeting in Kansas City, Mo., Feb. 2 and 3, 1897. Titles of papers to be read before this meeting should be sent to the Chairman, Dr. Jas. E. Logan, 1208 Wyandotte Street, Kansas City, Mo., before January 15. It is also requested that those who desire to join this society shall send in their names.

The North Central Illinois Medical Association.—The twenty-third annual meeting of this Association will be held in Streator, Ill., Dec. 1 and 2, 1896. Following are the officers: President, Thomas N. Cunningham, Princeton; first vice-president, J. Frank Keefer, Sterling; second vice-president, J. S. Whitmire, Metamora; secretary and treasurer, Wm. O. Ensign, Rutland. There are about twenty papers on the program.

Twelfth International Medical Congress.—An important committee has been formed at St. Petersburg to receive and entertain visiting physicians during the Congress, consisting of the surgeons-general of the army and navy, the directors of various scientific institutions, hospitals, etc., with the Professors Ott, Pawlow, Petersen, Sklifassowski, Tarenezki, Paschutin and Turner. The section of dermatology and syphilography give informally the following subjects as the preference of those in charge. The formal announcement will follow later: Actinomycosis, primary cutaneous tuberculosis, cutaneous sarcomatosis, acanthosis nigricans, pathogenesis of area Celsi, gonorrheal eruptions, malarial eruptions, mercurial eruptions, treatment of scleroderma, treatment of rhinoscleroma. When should the treatment of syphilis commence; how long should it continue; should the accidents be treated as they appear or should the treatment be provisory? Modifications of the figured elements in the blood of syphilitics during the condylomatous period. Treatment of syphilis with soluble and insoluble mercurial injections.

MISCELLANY.

Losing Flesh.—The long, gloomy, operating-room of the hospital is hushed and still; soft-voiced nurses move quickly about; a skilful attendant arranges the cruel looking instruments. Before administering chloroform to the patient, prior to the amputation, the kindly doctor asks him if he has any message for his friends. "Naw!" he murmurs wearily; "jest tell 'em dat you saw me, an' dat I'm losin' flesh."

Some Recent Bequests.—Professor Krassnig, M.D., of Klagenfurt has bequeathed 150,000 florins to found a children's hospital there. It is also announced from Tomsk, that a certain W. Simin has presented the University of Tomsk with 100,000 roubles to establish a bacteriologic institute on condition that the inhabitants of the city of Irkutsk shall always be supplied free with the remedies prepared in it. Mrs. Corrigan of Chicago has given $9,000 to St. Joseph's Hospital.

The Small Boy and the Mustard Plaster.—The small boy had been requested to do some errands, but insisted that he was feeling badly. As the family physician happened to call he felt the boy's pulse and looked at his tongue and said: "You had better make a good strong mustard plaster." The boy looked depressed and left the room. "When shall I apply the plaster?" asked the mother. "Don't apply it at all. He'll get well before that stage of the treatment is reached."

Increased Intensity of the Roentgen Ray.—Buka has succeeded in producing the ray with such intensity that the objects to be photographed can now be stationed quite a distance away from the tube, which allows a much better perspective. He discovered the extreme intensity of the ray by finding that it had penetrated into his zinc box under the heavy table on which the patients recline to be photographed, and had imprinted the zinc handle of the box on six sensitive plates contained in it, one beneath the other.

Diet is the Man.—Basing his remarks on the famous and untranslatable pun of the philosopher, Feuerbach, "Der Mensch ist was er isst" (man is what he eats), a Swiss physician has something to say regarding the favorite dishes of famous men. In a certain sense, he says, the words of Feuerbach are true. There is no doubt that the food eaten has great influence on the temperament of mankind, and that, on the other hand, a man shows certain characteristics in choosing certain kinds of food. When John the Baptist nourished himself with locusts and wild honey, it was just as much in keeping with his character as the preference of Zoroaster for bread, cresses and water.

Hirsch vs. Nordau.—Dr. Nordau has startled the reading world by his cry of "Degeneration"; Dr. Hirsch opposes his conclusions by demonstrating the difference between "Genius" and "Degeneration," and analyzing the social, literary and artistic manifestations of the day dispassionately and with a wealth of suggestive illustrations. In a brilliant explanation of the psychology of genius he shows that Lombroso and Nordau make no distinction between scientific genius based upon hard work and artistic genius; nor between genius and talent. He points to Goethe as an example of a perfectly developed genius. He answers specifically Nordau's claim that this is an age of hysteric disorder, and, after an extended, brilliant and informing discusion of art and insanity, in which he shows himself a confirmed Wagnerian, he summarizes his conclusions by absolutely declining to accept Nordau's point of view.—*Literary Bulletin.*

Not Proper Proceeding for Release of Lunatic.—Whatever may be a person's remedy to obtain release from illegal confinement as a lunatic, the supreme court of Pennsylvania says, in re Rust, decided Oct. 5, 1896, it is clearly not a proceeding under a statute intended, through a jury of six and a commissioner, to confine him, and so it affirms a decree dismissing a petition for an inquisition under the Pennsylvania act of 1836, one of the objects of which is to provide guardianship for the person of the lunatic, and its principal purpose is to protect his estate. It should also be noticed that the court declares in this case that it could not for a moment entertain the doctrine that in a great city like Philadelphia, with its numerous hospitals for the detention and cure of the insane, to which annually many unfortunate patients are removed from other States, that the courts are powerless to interfere, because the judicial proceedings resulting in the confinement were had in another State. The writ of habeas corpus, it suggests, is a writ of right intended to protect the individual against illegal confinement at the time it issues, without regard to the legality of the confinement at its beginning.

Retained His Homestead Rights.—A physician purchased thirty-seven acres of farming and pasture land, which he resided on and used for a home from 1869 until the year 1879, when, in order to more conveniently locate himself to practice his profession, he bought a lot in a small village one-quarter of a mile from his home, and lived on it until 1892, when he in turn sold that village property and rented a house in another village for two years, meanwhile either renting out the farming portion of his land every year, or having it cultivated by hired labor, but always retaining for his own use the pasture, and then finally went back to live on that property, with his sister, who composed his family, at the end. Believing that the evidence established that it was not his intention to abandon his homestead rights in that property, but that he always intended to move back to it in the future, if he should not be successful in the practice of medicine, the court of civil appeals of Texas holds, Farmer v. Hale, after a rehearing Oct. 10, 1896, that there was, under the circumstances, no abandonment of the homestead, and on that ground it perpetuates an injunction restraining a sale of the property on execution, levied in 1894.

The new Bender Laboratory at Albany, New York.—On October 27, the formal dedication of this workshop of science took place, being the outcome of a gift to that city by Matthew W. Bender, Esq. The board of trustees, of which Drs. Vanderveer, Hun and Gorham are members, took the keys. Dr. Abram Jacobs of New York, delivered an address on the rise and progress of laboratory research in sanitary science. The institution has been designated the Bender Hygienic Laboratory. It is thoroughly equipped with the most recent apparatus for the study of pathology and bacteriology, and every facility is furnished for acquiring a thorough knowledge of these important subjects. For physicians and scientific men this laboratory will be of inestimable value for the examination of sputum and pathologic specimens. The laboratory is in charge of Dr. George Blumer, late assistant in pathology and bacteriology in Johns Hopkins University. The building stands in a beautiful little park on Lake Avenue in the western part of the city, near the famous Dudley observatory. The structure, which is of fine red brick, is from an architectural standpoint plain, but it has a dignified and, so to speak, scholarly appearance. Inside the building everything is most perfect and complete for the purpose for which it is designed, the study of germ diseases.

Curious Superstition Concerning the Alder.—Dr. Robert Fletcher contributes to the *Bulletin of the Johns Hopkins Hospital*, August, an exhaustive historic compilation on the pharmacology of witches, quoting "Macbeth," Middleton's "Witch," Ben Jonson's "Masque of Queens" and many other old plays and verses. Of the elder tree, he says, there are many odd superstitions connected with it. The "fox-headed Judas," as an old writer termed him, alluding to the color of his hair, was believed to have hanged himself upon an elder tree, and that entirely credible writer, Sir John Mandeville, declares that he saw the veritable tree while in the Holy Land. There is a curious bit of folklore relating to the elder, well known no doubt to the witches, who rode on broomsticks in their night journeys. Coles, in his "Art of Simpling," 1656, says: "It hath been credibly reported to me from several hands, that if a man take an elder stick, and cut it on both sides, so that he preserve the joynt, and put it in his pocket when he rides a journey, he shall never gall." Richard Fleckno in his "Diarium" 1658, also tells us:

> "How alder stick in pocket carried
> By horseman who on highway feared [fared
> His breech should nere be gall'd or wearied,
> Although he rid on trotting horse,
> Or cow, or cowl-staff, which was worse.
> It had, he said, such virtuous force,
> Whose vertue oft from Judas came,
> (Who hanged himself upon the same,
> For which in sooth, he was to blame)
> Or't had some other magic force
> To harden breech, or soften horse,
> I leave't to th' learned to discourse."

In *The Athenian Oracle*, once edited by Samuel Wesley, brother of the famous John Wesley, is a confirmatory story; "A friend of mine," says the relater, "being lately upon the road ahorseback, was extremely incommoded by loss of leather; which coming to the knowledge of one of his fellow travellers, he over-persuaded him to put two elder sticks into his pocket, which not only eased him of his pain, but secured the remaining portion of posteriours not yet excoriated, throughout the rest of the journey." It is much to be desired that this very valuable information should be made known to the members of the hunt and to young cavalrymen going into the field.

Medico-Literary Notes.

The thirteenth edition of Ringer's Handbook of Therapeutics is now in course of revision and will soon be published by Lewis & Co.

Gould's Dictionary of Medicine is the only reference book of that description that is commended to medical students in the "Students' Number" of the London *Lancet* for 1896.

Mr. Edward Atkinson of Boston says that "Child Life Insurance" may more appropriately be termed "Child Death Insurance."

The publishing house of Cromwell & Company, New York, are about to issue "Famous American Doctors," by C. E. L. Wingate.

It is reported that a lady has presented the French Academy with 800,000 francs, the interest of which is to go to any one who will discover a cure for consumption.

Doctor—"Now, what did your father and mother die of?" Applicant—"Well, sir, I can't say as I do 'zactly remember, but 'twarn't nothin' serious."—*Punch.*

Boston is to have a magnificent new hospital in a few years, to cost $3,800,000. It is the gift of Peter Brigham, who died twenty years ago, and it will be for the indigent only.

The seventy-sixth birthday of Dr. Rudolf Virchow was duly celebrated on Tuesday, October 13. Many telegrams of congratulations were received from the four quarters of the globe.

Surgeon-Major Hueston of the British army, professor in the medical school at Tientsin, has been made a mandarin and received the decoration of the Order of the Double Dragon from the Emperor of China.

Dr. Lusk's work on midwifery is to be translated under a governmental direction into Arabic for the use of the school of medicine at Cairo, and for the female pupils of the school of midwives.

In Nineteenth Century, September, Dr. Percy Frankland argues in favor of having all milk boiled that is used in household consumption. Of all the articles of food, he holds milk is the one that affords the most congenial nidus for the bacteria of infectious disease.

The library of the late Dr. Thomas Addis Emmet, with his letters, pictures, etc., has been estimated to be worth $240,000. It has been purchased, however, in its entirety for the great Union Library, over which Dr. Billings now presides, for the sum of $150,000.

Lardowsky proposes the use of the new word "opotherapy" as a substitute for serotherapy and serum-therapy. These latter two words have had currency for some time, but the purists object to them as having a hybrid derivation. Opotherapy is shorter.

St. Basil the Great has the credit of establishing for modern clinic medicine its first hospital. He quotes with favor the saying of Hesiod, "The perfect man is he who of himself knows what is right. The good man is he who gains that knowledge from others; while the third man, who can do neither, is really good for nothing."

Monsignor G. H. Doane, D.D., of Newark, writes to the Boston *Medical and Surgical Journal* about the time when he was a medical student and witnessed the harrowing scenes of the pre-anesthetic period. This eminent and reverend prelate confesses that his interest in surgery and medicine continue unabated.

The Harveian Oration at the Royal College of Physicians was this year delivered by Dr. Joseph Frank Payne, Censor of the College, and the working editor of that laborious compilation of the College, "The Nomenclature of Disease," the last edition of which has recently been received and was noticed in the Journal.

It is not generally known that "Yankee Doodle," the so-called "national air" of the United States, had for its composer a member of the medical profession. Dr. Richard Schuckburg has the credit of writing it. He was a medical officer in General Amherst's army at the time of the French and Indian war in 1755.

Abdurrahman Khan, Ameer of Afghanistan, has introduced vaccination into his country, by the advice of his English physician. Two calf lymph stations have been established and a proclamation has been issued from Cabul calling on the people to bring in their children to be vaccinated before next spring.

A couple of teeth found near Weimar, are claimed by Dr. A. Nehring to be the oldest human teeth yet found in Europe. One of them, a permanent first molar, is remarkably like that of a chimpanzee, but much like that of the gorilla or orang. He also calls attention to the fact that the first premolar and last molar are reduced in size in modern man as compared with early man. This was known before; but he adds that he finds

the same state of things in domesticated, as compared with wild dogs. In the former, as in civilized man, the jaw is relatively feebly developed and there is a tendency to reduction of the last molar.

The Journal of Nervous and Mental Disease.—The management announces the following arrangement of the staff for 1897: Editors: Dr. Chas. L. Dana, Dr. F. X. Dercum, Dr. Philip Coombs Knapp, Dr. Chas. K. Mills, Dr. Jas. J. Putnam, Dr. B. Sachs, Dr. M. Allen Starr. Associate editors: Dr. Philip Meirowitz, Dr. Wm. G. Spiller. Managing Editor: Dr. Chas. Henry Brown, 25 West 45th St., New York, to whom address all editorial and business communications.

The Edinburgh Medical Journal will have a new publisher and a new editor and Edinburgh will, on Jan. 1, 1897, have a new monthly journal, the *Scottish Medical and Surgical Journal*, with Dr. William Russell as editor. The old editor of the older journal is one of the board of medical directors of the new journal. The profession will have absolute control of the latter, and all profits will go to the betterment of the journal.

The late Prof. Moritz Schiff of Geneva, died October 6, after a varied but most honorable career. The Italian press, lay as well as professional, teems with biographical detail regarding the late Professor Schiff, whose noble services to the country's medical schools are all the more remembered from his having been driven from his Florentine chair by an anti-vivisectionist agitation, largely fomented by "zoophilists" and homeopathists. His first wife, according to one biographer, was a Rothschild, who made it a condition of his sharing her fortune and faring sumptuously every day, that he would absolutely renounce his experiments on living animals. For a month after marriage he tried to accept the situation, but could stand it no longer and at the end of that time he had accepted the simpler life, with the return to the laboratory.

Index to the Semaine Médicale.—The *Semaine Médicale* announces that it is preparing an index of its files for the last fifteen years, which will be the most complete ever attempted. The name of every person mentioned in it will be found in alphabetical order, with details and date of the work or discussion in connection with which it is mentioned. Every organ, disease, treatment, etc., will also be indexed, as also its normal and pathologic anatomy, pathology and therapeutics, and for the diseases, the etiology, symptomatology, diagnosis and treatment. Even for those who do not possess back numbers of the magazine it promises a complete résumé of all that has been accomplished in the medical sciences during these last important years. It will not be ready for a year yet and it is to be sold by subscription for ten francs, until April. After it is placed on the market the price will be fifteen francs.

Cincinnati.

The mortality report for the week shows: deaths from zymotic diseases 12; phthisis 9; other constitutional 9; local 63; developmental 2; violence 6; under 5 years 25; total 101; annual rate per 1,000, 15; preceding week 99; corresponding week in 1895, 98; 1894, 103; 1893, 134.

Out of about 700 practicing physicians of Cleveland 40 have failed to register, and affidavits have been prepared by the county prosecutor with a view of causing their arrest.

The Association of the Surgeons of the Cincinnati, Jackson and Mackinaw Railway have decided to hold their next meeting in Cincinnati. Dr. G. I. Cullen has charge of the arrangements.

An epidemic of diphtheria prevails at Saville, Ohio.

A case of tetanus was treated at the City Hospital last week successfully by the antitoxin serum injections.

The case at the Cincinnati Hospital reported in the Journal last week, in which the patient was unable to tell his name or home, although otherwise apparently well, died after two weeks' confinement in the hospital. A postmortem revealed an abscess in the cerebellum.

The Cincinnati hospitals are now considering the feasibility of sending all cases of malignant disease considered incurable to the Branch Hospital. In future a committee of three members of the staff will be selected to purchase the books and periodicals for the library, instead of it being left to the librarian as formerly.

In the case of Young against Dr. J. L. Cleveland for damages for malpractice in the treatment of a fracture of the femur, the court gave a verdict for the defendant.

Dr. H. J. Stephens of London, Ohio, recently sued a woman for $1,181 for medical services rendered, in response to which she claimed that as a result of the treatment received she had contracted the opium habit and was damaged to the extent of $3,000. The Doctor lost his case and the defendant was given $15 damages.

The Kentucky court of appeals have affirmed the decision of the circuit court sentencing the dental student, Scott Jackson, to hang for the murder of Pearl Bryan.

Dr. F. Forchheimer is experimenting with subcutaneous vaccination at the City Hospital, the object being to avoid the sore arms. The virus is injected with a hypodermic syringe. The first experiment was made on November 20, and the result is being watched with considerable interest.

Dr. J. H. Leatherman of Columbus was found guilty last week in the Columbus police court of violating the Mosgrove registration law. Sentence was suspended pending appeal to the circuit court, to which the case will be taken as a test case.

A physician of this city was found guilty of misuse of the mails and fined $100 and costs by Judge Toft of the United States court last week. The violation of the postal laws consisted of sending a dunning postal card to a delinquent patient.

A case of buphthalmus was operated on last week at the Losanti Hospital. The eye was enucleated.

Hospitals.

The Olivet Day Nursery of Chicago, under the patronage of Dr. Julia Holmes Smith, Mrs. M. B. Carse, Mrs. L. G. Perce, Mrs. B. Hancock and Mrs. A. D. Wheeler, was organized in October, 1893, for the purpose of helping women who were obliged to leave their homes every day to go to work. With the other day nurseries of Chicago it is proving one of the most efficient and practical ways of helping those who desire to work. The nursery is situated at 281 Clybourn Avenue.

THE PUBLIC SERVICE.

Army Changes. Official List of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from Nov. 14 to Nov. 20, 1896.

Major Louis S. Tesson, Surgeon (Ft. Ethan Allen, Vt.), is granted leave of absence for four months, to take effect about Dec. 5, 1896.

The following named recently appointed Asst. Surgeons will report in person to the president of the Army Medical School, Washington, D. C., for the course of instruction: First Lieut. Louis Percy Smith. First Lieut. Marshall Morgan Cloud.

Major John D. Hall, Surgeon, is relieved from duty at Madison Bks., N. Y., and ordered to Ft. Wadsworth, N. Y., for duty, relieving Major Edward J. Comegys, Surgeon. Major Comegys, on being thus relieved, is ordered to Ft. Sill, Oklahoma Ter., for duty.

RETIREMENT.

Major John V. Lauderdale, Surgeon, retired from active service Nov. 13, 1896.

Change of Address.

Botterfield, F. A., from City Hospital to 713 Ashland Av., Rockford, Ill.
Bowers, C. E., from Anthony, Kan., to 4009 Russell Av., St. Louis, Mo.
Carnes, U. M., from Cleveland to Box 284, Canton, Ohio.
Coffman, G. L., from Thayer, Kan., to 1651 California Av., St. Louis.
Gallaher, Thos. J., from 1477 Clayton Av. to 1321 Race St., Denver, Colo.
Harvey, D. S., from 227 92d St. to Davis Bldg., 92d and Commercial Av., Chicago.
Maywit, L., from Chicago to 101st Pl. and Vincennes Road, Washington Heights, Ill.
Maughmer, G. C., from Waupecong to Kokomo, Ind.
Standish, Myles, new address, 6 St. James Av., Boston, Mass.
West, C. B., from Rome to 1723 S. Salina St., East Onondago, N. Y.

LETTERS RECEIVED.

American Journal Pub. Co., St. Louis, Mo.; Andrews, B. J., Burlington, Vt.; Alta Pharmacal Co., St. Louis, Mo.; American Medico-Surgical Bulletin, New York, N. Y.
Bluhm, Geo. J., Chicago; Battle Creek Sanitarium, Battle Creek, Mich., Brown, F. F., Advertising Agency, New York; Brown, Charles Henry, New York.
Canfield, Wm. B., Baltimore, Md.; Corr, A. C., Carlinville, Ill.; Cook, W. H., Comanche, Iowa.
Gilmore, J. A., Thomasville, Ala.
Hedden, J. W., South McAlester, I. T.; Hektoen, L., Chicago; Hummel, A. L., Advertising Agency, New York.
Jenks, E. P. New York.
Kime, R. R., Atlanta, Ga.; Kelley, Maus & Co., Chicago.
Ludwig, Henry C., New York; Laughlin Mfg. Co., Detroit, Mich.
Mohr, Chas. A., Mobile, Ala.; McFarland, George C., Jacksonville, Ill.
Nixon, J. W., Soldier, Kan.
Open Court Pub. Co., Chicago.
Pick, Dr. A. W., Hyannis, Mass.; Powell, N. A., Toronto, Canada; Penniman, D. B., Argyle, Minn.; Purdy, Charles W., Chicago; Parkinson, James H., Sacramento, Cal.
Ruck, Karl von, Asheville, N. C.; Reber, W. W, Leighton, Pa.; Reed, R. Harvey, Columbus, Ohio; Reeves, B. E., La Mar, N. C.; Rice, Geo. H., Sandoval, Ill.
Stoll, John J., Chicago; Shields, W. Bayard, St. Francis, Ark.
Todd, W. J., Mt. Washington, Md.; Tweedale, C. B. Cheboygan, Mich.; Tinker, K., Athens, Ohio; Tower. B. M., Conneaut, Ohio.

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ADDRESS.

RECENT EXPERIENCE OF SURGERY OF THE KIDNEY.

President's Address before the Twenty-second Annual Meeting of the Mississippi Valley Medical Association at St. Paul, Sept. 15, 1896.

BY H. O. WALKER, M.D.

PRESIDENT OF THE MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

DETROIT, MICH.

The paucity of literature upon renal surgery has prompted me to report three cases in which four operations were performed, representing nearly all the operative procedures that are now done upon the kidney.

Case 1. Sacculated kidney with suppuration and nephrolithiasis, nephro-lithotomy and subsequent nephrectomy.—Aug. 4, 1896, J. R., age 29 years, was referred to me by Dr. E. M. Houghton for operation, with a history as follows: When 6 or 7 years of age he remembers having experienced severe pain in the region of the left kidney, which lasted for a day or two. These attacks occurred afterward at intervals of from one to three months; at one time he had none for nearly a year. He did not experience any disturbance of the bladder until he was about 12 or 14 years of age. This combination of pain in the region of the kidney and the bladder continued, with increasing severity, until three months ago, when it was constant. He has observed a sediment in the urine for nearly fifteen years, but at no time did he observe any calcareous deposit. Dr. Houghton, from frequent examinations of the urine, found pus in quantity, blood at times, but no casts, and from the character of the symptoms diagnosed a cystic kidney with calculi. The patient presented a marked emaciation, pulse 100, temperature 99.6. Percussion revealed well marked dullness on the left side, extending from beneath the ribs to the brim of the pelvis and nearly to the medium line. By two days' observation I was convinced that Dr. Houghton was correct in the diagnosis. I had, however, suspicion of trouble in the right kidney. Therefore the character of the operation must be in accordance with that suspicion.

Aug. 6, 1896, I performed the operation by making an incision just below the twelfth rib, anteriorly, obliquely downward to the crest of the ilium (free exposure is necessary in any operation upon the kidney, therefore the necessity of a long incision). After thorough division of the structures down to the renal space and with pressure by the hand of an assistant in front, I stripped the fatty capsule off from the kidney in front with my fingers, giving a large exposure of its surface. Palpation and inspection revealed a large, irregular, fluctuating tumor, through the walls of which the calculi could be readily felt. Before incising the kidney I fastened the capsule to the lower opening of the wound with several catgut sutures to prevent the contents of the kidney escaping into the torn and divided tissues. A large quantity of pus and urine, probably two pints, flowed from the incision made into the kidney. There were several communicating cavities, from which I removed large calculi, somewhat embedded in the walls. I could readily feel the ureteral orifice with my fingers, but was unable to pass anything through it to the bladder. After thorough irrigation and introduction of rubber drainage the wound was closed by interrupted silkworm gut sutures. The after treatment consisted in irrigation twice daily. The discharge of pus and urine was considerable in quantity. He passed 17 ounces of urine per urethram the next day, aside from that through the drainage tubes.

The recovery following the operation was uneventful and the temperature never rose above 100 degrees and the pulse was from 80 to 100, the amount of urine increasing to 28 ounces daily. Although there was undoubtedly a certain amount of urine excreted by the left kidney, as was evidenced from the soaking of the dressings, that little escaped into the bladder was due to "the bending or oblique insertion of a non-stenosed ureter," as described by Dr. Christian Fenger (*Annals of Surgery*, page 637, 1895).

The circumstances of the patient would not permit the long-continued treatment necessary to follow out Fenger's "conservative operative treatment of sacculated kidney." I was also doubtful if there was much functionating power of the kidney left. It was therefore decided to do a nephrectomy, which was performed Aug. 29, 1896. I first inverted, by incision and suturing, the fistulous opening to prevent the escape of septic material. The incision was in the same line as before. Careful dissection liberated the entire kidney and the vessels and ureter were ligated separately. There was but little hemorrhage. The wound cavity was packed with a long strip of gauze and the edges approximated, as in the first operation. An analysis of urine on the day before the operation showed pus, specific gravity 1022, acid. The daily quantity was 26 to 28 ounces and the condition of the patient about the same as when I first saw him. On the following day the amount of urine passed was 18 ounces; this gradually increased until September 12, it was from 30 to 40 ounces. The wound has nearly healed, appetite good, and he walks about the halls of the hospital. There is still some pus in the urine but this is gradually disappearing. The following is the report of the microscopist: "Microscopic examination shows an abscess wall from which inflammation products are infiltrating surrounding tissues. The parenchyma of remaining portion of kidney shows chronic change which leaves very little, if any, of glandular portion of the kidney functional. The glomeruli are either contracted or have disappeared. The microscopic examination does not reveal cause of changes seen, but they are probably brought about by causes which produce abscess."

Case 2. Tubercular kidney, nephrotomy and nuclein treatment.—Mrs. P. H., age 28, came to me Aug. 9, 1896. While teaching school four years ago, she first noticed pain in her right side below the waist; she shortly afterward developed a leucorrhea. The pain in the right side gradually increased and was exaggerated on lifting or walking. Soon after the appearance of the leucorrhea a cystitis developed, which has been present ever since. She informed me that urination is very frequent, every half hour to two hours, and that the urine contains a large amount of deposit. Inspection of the abdomen revealed a large indurated, immovable mass which she has noticed for several months gradually increasing in size. It extends from below the ribs to the crest of the ilium on the right side and is extremely painful upon manipulation. She was very much emaciated, complexion sallow and her pulse was 110 and temperature 102.5.

My diagnosis was disease of the right kidney, probably tubercular, and I advised further observation before deciding as to the character of the operation. She entered the Harper Hospital, Aug. 10, 1896. Repeated microscopic examinations of her urine did not reveal any tubercule bacilli, but it

contained large quantities of pus and broken down kidney epithelium. Cystoscopy and catheterization of ureters showed discharge of pus from both, and although we did not find bacilli tuberculosis, I still believe that the patient was suffering from tubercular kidney; as she did not improve, I advised a nephrotomy, which was done Aug. 16, 1896, as I did not think a nephrectomy would be practicable, first from the fact that both kidneys were affected; second, that in these advanced cases adhesions are so extensive that in all probability death would be the result. On dividing the tissues down to the kidney I found it firmly bound by adhesions. When the kidney was incised pus escaped in considerable quantity, together with broken down kidney substance, which macroscopically, had all the appearance of a tubercular deposit and afterward proved to be so. It is not always possible to determine specifically the true character of secretions and excretions from important organs even by careful microscopic examinations. I removed as much of the cheesy material as was possible with the curette. The hemorrhage, which was profuse, was controlled by packing the cavity with gauze.

From such a history and condition the ultimate result must be necessarily fatal by any operative procedure that might be instituted. I therefore prescribed the nuclein treatment with which I have had very satisfactory results in surgical tuberculosis, especially of the genito-urinary organs. Little could be expected in so forlorn a case; she, however, began to improve in a few days, had a better color, improved appetite, and entire subsidence of bladder symptoms, retaining urine nearly all night. She left the hospital September 9, with the wound still open and discharging. The result in this case is uncertain.

Case 3. Movable kidney; fixation by modified operation.—Miss A. Z., age 23, was referred to me, at St. Mary's Hospital, August 25, 1896, by Dr. A. H. Steinbrecher of Detroit, for operation.

Since leaving her native country, Russia, three years ago she has been an invalid. Chronic constipation, flatulence, indigestion, supra-orbital neuralgia, were the prominent symptoms, together with distress and pain in the right hypochondriac and lumbar regions. This latter symptom, for the last eleven months, has been more distressing when she was in an upright position compelling her to remain in bed most of the time. A tumor, freely movable, was discovered in the right lower hypochondriac region, and toward the median line. No difficulty was experienced in displacing from and replacing it in the normal position of the kidney. The urine was found to be normal. My experience in fixation of movable kidney has been extensive but not always with the most satisfactory results, by the usual methods advocated. The operation that I employed in this case, although original personally, I find in looking up the literature on the subject that others have resorted to a similar method. I operated August 26, 1896. The patient was placed in the semi-prone position and the space between the ribs and the ilium made prominent by a sand bag. The incision was made in a similar manner as in the previous case and the kidney freely exposed, permitting thorough inspection and palpation, drawing it well out through the opening, which was easily done on account of the existence of a long pedicle. Not discovering anything abnormal either of the kidney or the upper end of the ureter, it was placed in its proper position and the capsule divided for a distance of three inches on its convexity longitudinally, using care not to wound the cortical substance. The capsule was then separated from the kidney, for a distance of half to one inch, entirely around the cut, and the cut edges were fastened to the fasciæ and muscles, by interrupted catgut sutures, so that when the suturing was complete, there was a solidity of fixation never equaled in any other method that I have used.

It will be observed that I did not, as others have recommended, introduce a suture through the deep substance of the kidney for the purpose of holding it in position while the suturing of the capsule was being done. This is unnecessary if it has been freely liberated from its bed. The deep suture very easily cuts its way through the substance of the kidney even though gentle traction only is made by the assistant. This cutting is often followed by almost intractable hemorrhage and leaves a damaged kidney.

The wound was united by deep silkworm gut sutures, excepting at its lower end, which was left open, and the cavity packed with a long strip of gauze, in order to favor slow cicatrization and a firm attachment of the kidney. It is a question, however, whether a complete closure at once would not result as satisfactorily as though the wound was left to heal by slow granulation. This solution will be better ascertained by further experience.

This patient, August 12, is still in the hospital with the wound nearly healed and will be kept in bed until after the expiration of four weeks, when she will be permittted to get up, as by that time, it is reasonable to suppose that the adhesions will be firm enough to hold the kidney in place.

The frequent occurrence of movable kidneys, about one in every five or six women, makes the subject one of importance and much depends on the surgeon to relieve the distressing symptoms that are liable to occur. Limited displacement is quite as apt to cause suffering as those more extensive, for it has been frequently noticed that a kidney with a long pedicle produces symptoms that are but trifling. The simplicity of the method just described commends itself both as to safety and a greater possibility of permanent satisfactory results. The various methods of transfixion of the kidney with ligature are uncertain as to results and to a greater or less extent dangerous as regards its future function.

In making a choice of a route to reach the kidney, it seems to me, there should be no hesitancy in selecting the anterior, in preferance to the lumbar route. The only reason would be the making of a nephrotomy for the purpose of drainage of an abscess of the kidney. Lumbar nephrotomy is much more difficult and dangerous than by the anterior route. In doing an nephrotomy for relief of a kidney, with multiple abscess, by the lumbar route, it would often be found necessary to do a nephrectomy as it is frequently impossible to empty all the abscess cavities without making a T incision. The danger from the hemorrhage is necessarily limited by full exposure of the kidney and there is less susceptibility of sepsis from a kidney where free dissection is made, than by the tearing and pulling by the lumbar route.

In conclusion, I am inclined to the following opinions:

1. That the most practical route to the kidney is anteriorly.
2. The selection of the lumbar route is largely by precedent and unnecessary timidity on the part of the surgeon.
3. A nephrectomy for tubercular kidney is not always practicable.
4. Fixation of a movable kidney by stitching its reflected capsule to the muscles is much to be preferred to that of transfixion and anchorage by stout ligatures.

ORIGINAL ARTICLES.

IMPROVED TRACHELORRHAPHY.

Read by title in the Section of Obstetrics and Diseases of Women, at the Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5-8, 1896.

BY AUGUSTIN H. GOELET, M.D.

PROFESSOR OF GYNECOLOGY IN THE NEW YORK SCHOOL OF CLINICAL MEDICINE, ETC.

The benefit afforded by properly performed trachelorrhaphy in appropriate cases is very generally admitted, and though the operation may be applied unnecessarily by some and may be performed incorrectly by others, upon the whole it has perhaps been productive of more good than any other operation in gynecologic surgery. The difficulty in those cases which do not yield satisfactory results lies usually in

not removing a sufficient amount of the diseased tissue of the cervix, or in removing too much on the outer or vaginal margin and not enough on the inner margin or that next the canal, thus leaving a wedge of tissue which prevents proper coaptation of the flaps and puts too much strain on the sutures. This is partly because the denudation is done with scissors, which can seldom be made to cut through such dense tissue where it is desired to cut. They invariably slip, and considerable trimming is necessary afterward to get the flaps in proper condition for the application of the sutures. This consumes a great deal of time and is a serious disadvantage, as well as the fact that the scissors will frequently cut where it is not desired to cut and too much or too little tissue is removed.

Another serious objection to the ordinary trachelorrhaphy is the great difficulty of inserting the sutures, because of the density of the tissue and the awkward position, for the operator, of the parts to be united. I venture to assert that any operator would rather do an abdominal section than one of these tedious and fatiguing cervix operations. It is therefore, because I believe I have simplified the operation and made it quicker and easier, that I have been encouraged to describe the method which I have employed with so much satisfaction.

In the first place, the denudation is done with a knife especially designed for the purpose, which consists of a short two-edged blade set at an abtuse angle to the shaft and handle (see Fig. 1). I am well aware

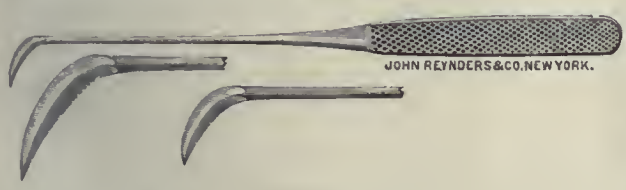


FIGURE 1.

that several knives have been designed for this purpose before, but so far as I know none have been made upon the principle of this one, and they have not proven satisfactory else they would have been more used. These knives are made in two sizes so as to be useful in all cases, since the cervix in some instances is thick and the flaps deep, and in other thin by compassion. The method of using the knife is to seize one angle of the laceration with a tenaculum and transfix it with the knife, which is then drawn forward, making a clean cut and denuding the flap out to the lower margin of the cervix with one stroke. It is then inserted again on the other side and the opposite flap denuded in the same manner. If now the tissue which is to be removed remains attached at the angle, a reverse movement of the knife severs it with its other cutting edge. Besides the greater ease of denuding with the knife, there is another advantage, namely, it can be inserted and held in such manner as to avoid leaving a wedge of tissue on the inner edge of the denuded surface.

In the next place, a special needle is employed for inserting the sutures. I have abandoned the straight needles and the needles with slight bend near the point, and use a nearly half-curved, round needle, much smaller in diameter than the needles usually employed in this operation, with a flattened spear point. These needles can be inserted into the hardest cervix with the greatest ease. I have never yet broken one of these needles, and find that they can be inserted with very much less force than any other needles which I have used.

Next I use for suture material either silver wire or silkworm gut which has been especially prepared so as to render it pliable and easily tied. I do not think catgut, silk, or any other suture which is not impervious should be used in plastic work upon the cervix. The silkworm gut is prepared in this manner: Each strand is carefully wiped off with a pledget of gauze or cotton saturated with ether, and a number of strands are put into a glass tube of suitable length, the ends being stoppered with corks. The tube is then filled with a 2 per cent. solution of lysol, one end is left uncorked, and it is placed in a sterilizer with the uncorked end above the level of the water and it is boiled for half an hour. The lysol solution makes the silkworm gut very pliable, so it can be tied as easily as catgut, and in addition it renders it thoroughly aseptic.

The operation is further facilitated by placing the patient in the lithotomy position.

Technique of the operation.—It is of the greatest importance that the patient be carefully prepared for the operation. For two weeks every second day a tampon of prepared wool soaked in glycerin is placed against the cervix to deplete and soften it. This is removed after twenty-four hours and a copious douche of hot water is projected against the cervix and vaginal vault by means of a syringe giving an interrupted flow. At each sitting for the introduction of the glycerin tampon any cysts of the Nabothian glands detected on the cervix are punctured and emptied.

Two days previous to the operation the patient is given a calomel and soda purge and she is placed upon a restricted diet. The morning of the operation she is given a saline cathartic, the vulva is shaved and washed in a 1 per cent. solution of lysol and she is given a vaginal douche of lysol solution also.

When anesthetized, she is placed upon the operating-table in the lithotomy position, and the vagina is thoroughly scrubbed with a 1 per cent. solution of lysol and afterward irrigated with a solution of bichlorid, 1 to 2,000. A speculum is then inserted and a ligature is passed through each lip of the cervix and tied with a long loop, which is held by an assistant, usually the nurse, who also holds the speculum and who stands at the left of the operator. The cervix at the angle on one side (the left first) is seized with a tenaculum and the knife (shown in Fig. 1) is made to transfix the cervix on one side of the angle. This done, the tenaculum is loosened and reinserted in the lip near the lower border near where the line of denudation is to terminate on that side, and the knife is drawn forward, making the denudation with one stroke. The knife is again inserted at the angle on the some side of the cervix, but on the opposite flap, and it is denuded in the same manner. If the tissue to be removed remains attached at the angle, a few strokes upward with the other cutting edge of the knife severs it so it can be removed. The same thing is repeated on the other side.

In making the denudation the knife is held at such an angle that rather more tissue is taken from the inner than from the outer surface, so as to remove the ridge along the margin of the new canal of the cervix, which if left would prevent satisfactory coaptation of the flaps. In denuding with scissors this nearly always remains and must be carefully trimmed off afterward, considerable time being consumed in doing so. The sutures of silkworm gut are inserted by means

of the special curved needles described above, being threaded with a carrying thread. It is preferable to insert the outer or lower suture first, so as to get perfect coaptation of the edges of the flaps. The sutures are brought out on the margin of the new canal upon the mucous surface and not upon the denuded surface. As each suture is passed it is clamped by pressure forceps and handed to an assistant to hold. All the sutures on both sides (three on each side being usually sufficient) are inserted before any are tied. Then the flaps are separated, and they are thoroughly irrigated with a solution of bichlorid 1 to 2,000 or 1 per cent. solution of lysol. The sutures are tied from without inward, or from below upward, tying that at the angle last. The ends are cut about an half an inch from the knot, the vagina is washed out, and the patient is removed from the operating table to the bed. No dressing is applied to the cervix or vagina.

108 West 73d Street.

CIRCUMCISION NOT NECESSARY IN YOUNG CHILDREN.

Read in the Section on Diseases of Children, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

BY W. B. PARKS, M.D.

ATLANTA, GA.

I do not propose to discuss the theory offered by the laity and some doctors that circumcision is necessary from a sanitary standpoint, nor do I propose to criticise a Jewish custom or change a church ordinance, but I desire to show the etiology of a long or abnormal phimosed prepuce in male children. I desire also to show how this abnormal prepuce can be shortened without circumcision. We will first notice these long prepuces found in children. The cause can be found by the following examination: If we retract the prepuce as far as we can without using any violent manipulations, we find at the juncture of the mucous membrane with the true skin a constricted band that has at some time undergone an inflammatory process; this constricted band plays just in front of glans penis, the action of which pulls down and forward resulting in a mechanical action, lengthening the prepuce. This mechanical force that pulls downward and forward is very slight, yet, if we will remember how loose the true skin is that covers the whole organ, the least traction together with a little aid from gravitation is enough to make this long abnormal prepuce. What causes this constricted band which has at some time undergone an inflammatory process. No doubt it is caused from improper adjustment of the cloth or napkin that is constantly used on babies which is intended to keep them dry, but keeps them wet, ordinarily, with careless nurses. This napkin steeped in hot urine, with the little organ imbedded in its fold or pushed on either side with undue force will be quite sufficient to set up an irritation causing the ordinary adhesions of the prepuce to the glans penis and the constricted band.

Treatment without circumcision consists in the plans laid down in the standard works on diseases of children, Starr, Keating and others, which operation is dilating prepuce, breaking up the constricted band. Much care must be observed in dilating this constricted band. A small sized uterine dilator or ordinary dressing forceps is a very good improvised instrument, but the dilation must not be too rapid. You must dilate every second day and as much as the child can bear each time, leaving the instrument in the stretched prepuce from three to five minutes at each operation. If the operator should use rapid dilation he would find on the second day much inflammation, and, while waiting for the traumatism to subside the constricted band and phimosis would be aggravated and this is the reason why so many can not see what they accomplish by this dilating process. When you succeed in relieving this constriction in a dilated state, the prepuce will gradually shorten until it is in the normal position. To complete this operation it takes from twelve to fourteen days. I have used very successfully in the after-treatment, or when the adhesions are broken up, campho-phenique with equal parts of olive oil. I inject this under the prepuce with a common rubber ear syringe, lubricating and distending prepuce, at the same time allaying irritation and preventing a return of the adhesions.

This constricted band was brought to my notice in the treatment of a young man for the ordinary specific urethritis. After making the first prescription for him he passed from under my observation for about three weeks on his summer vacation. On his return instead of prepuce showing one-third of glans penis (which I noted when he applied for first treatment) it had elongated almost an inch. On attempting to retract the prepuce I found this constricted band at the juncture of the mucous membrane with true skin, and retraction was a physical impossibility. After waiting for the inflammation to subside I practiced this dilating process until band was broken up, and in a few days prepuce had retracted and, instead of showing one-third of glans penis, it showed fully two-thirds, convincing me that when we have an abnormally long phimosed prepuce there is an abnormal cause and this can be removed by a very simple operation. By relieving this condition without the knife yon save the patient from mutilation, besides you protect a gland for which nature has provided a covering. I saw an article in the *New York Medical Journal* a few years ago advancing this theory: That instead of having a congenital stricture of meatus it was caused from an exposed gland robbing it of its natural moisture that the gland secreted and, thereby atrophying the tissue, also contracting the caliber of meatus.

The following are a few of the fifty successful cases treated within the last two years:

Case 1.—A boy aged 10 years, long prepuce with adhesions. Commenced treatment July 3, 1894; broke up adhesions after inflammatory symptoms had subsided; practiced dilating process every second day. On the 14th day constricted band was completely broken up with no inflammatory action and could notice a perceptible shortening of prepuce. Saw patient twelve months after operation, prepuce had shortened to normal length.

Case 2.—A boy 4 years of age, long prepuce with adhesions with the usual nervous symptoms; broke up adhesions with considerable inflammation to prepuce, used distention of prepuce with carbolized oil for six days, commenced dilating six days after adhesions were broken up; dismissed patient eighteen days after first treatment without any noticeable shortening of prepuce. Saw patient at intervals from one to three months; at the expiration of one year prepuce was shortened to normal length. This patient, however, had one convulsion two months after operation.

Case 3.—A boy aged 5 years, long prepuce. Commenced treatment Aug. 2, 1894; broke up adhesions; removed considerable amount of smegma; commenced dilation second day after first operation; dilated every second day for fourteen treatments. Constricted band relieved. Saw patient one year afterward, prepuce normal length.

This operation will not at all apply to that class of

patients who have reached the age, or near the age of puberty, for in those cases, after the constricted band has been relieved by dilation, there is a redundancy of tissue that will not allow the shortening to take place. Hence all those cases which have passed the age of 10 to 15 years can not be treated by the plan herein outlined, unless of recent origin caused from acute inflammation.

DISCUSSION.

Dr. BELL—I would like the doctor to give us the means of dilating.

Dr. PARKS—The small uterine dilator or dressing forceps, or any forceps with which you can make gradual dilatation, will answer the purpose. After each dilatation and after the adhesions are broken up, I distend the prepuce with carbolized oil, which insures their non-return.

Dr. J. W. BYERS, Charlotte, N. C.—Is the infantile prepuce not normally very long and adherent?

Dr. PARKS—Always. The point brought out in the paper is that the constricting band is the cause of the long prepuce. By breaking up the adhesions and then dilating this band, you shorten the prepuce without circumcision.

EXAMINATION OF EYES IN THE PUBLIC SCHOOLS OF BALTIMORE.

Read in the Section on Ophthalmology, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5-8, 1896.

BY HERBERT HARLAN, M.D., AND
HIRAM WOODS, JR., M.D.
BALTIMORE, MD.

The control and management of the public schools of Baltimore is in the hands of a board of twenty-three commissioners, one being elected by the city council from each ward, and the mayor, ex-officio. The city council must appropriate all the funds used by the board.

Early in the fall of 1895, a resolution was passed by this board to have the eyes of all children in the public schools examined by an oculist of recognized standing, provided such examination could be made without any expense. Later the matter was left in the hands of the committee on health, which committee was composed of three physicians. We were asked to consult with this committee as to what could best be done. As a result the following plan was adopted: First, to have the teachers instructed how to test the eyesight of all the children. Second, to have the eyes tested by the teachers and a blank (A) kept for each child showing the result of this testing each year. The blank to be transferred from grade to grade and school to school with the child. Third, whenever the vision was found to be below a certain standard or there were complaints of the head or eye pains produced by studying a notice was to be sent to the parents advising them to have the eyes examined by an oculist.

We expected by this means first, to have attention called to many unsuspected defects of vision. Second, to show by a glance at the record whether the vision grows worse in any case from year to year during the eight years of school life the Baltimore system contemplates. Third, possibly to show that there is a greater percentage of deterioration of eyesight in certain badly lighted and ventilated schools. Fourth, to have parents' attention called to defects in children's eyes and to have rest with them the responsibility for the proper care and treatment of the eyes.

In December the following circular and accompanying blanks and test cards were sent to the principals of all schools, and just afterward a meeting of the principals was called at which a practical demonstration was given of the method to be used in making the tests.

This plan was worked out in detail and submitted to the board and later our attention was called to an article by Dr. Allport, reprinted in the current number of the *Health Magazine*, from the paper published in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, March 2, 1895.

The two plans are almost identical and it would seem that like circumstances, such as gratuitous services and large numbers of children, resulted in a similar evolution as the best that could be done under the circumstances.

The chief objection to the plan is having the examinations made by the teachers. This objection can be greatly lessened by some trouble taken to enlist their hearty coöperation and care in the wording of the instruction for making the tests.

So far as the children are concerned occasional mistakes are of little moment as in cases of defective vision, the work is reviewed by an oculist if the parents do their part. So far as the statistics obtained are concerned, while interesting, there should not be much reliance placed in them, but, inasmuch as that is our opinion of all statistics, they are presented for what they are worth.

The eyes of 53,333 pupils were tested. Of these a little over 43 per cent. were found to have 20–20 vision in each eye, and 39 per cent. additional as good as 20–30 in the better eye. Fifteen per cent. came between 20–30 and 20–200, and 303, or 0.56 per cent. had less than 20–200 in the better eye. The lowest percentage (35 per cent.) of normal eyes was found in the first or lowest grade, and the highest (56) in the eighth or highest grade. Three things are to be considered, however, in explanation of these figures. 1. Many children in the first grade know their letters very imperfectly and so get credit for much less vision than they really have. 2. These reports are based on tests made with the correcting glasses on, whenever children wore such glasses, and defects have been frequently discovered and corrected by the time children reach the higher grade, and 3, unquestionably many children fail in their examinations and leave school before reaching the higher grades, on account of defective vision.

The standard was fixed at vision as good as 20–30 in the better eye and no complaints of head or eye pains caused by studying. Bringing in subjective symptoms, especially when many children are prone to prevaricate, was objectionable but it was the only way to include low astigmatism and hypermetropia with normal visual acuity in the number referred to the physicians for further examination.

Now, as to the results. Many parents paid no attention to the notices and public sentiment is not yet far enough advanced to enable a school board to require a return certificate, and we will next year omit them from the notices sent to parents. The greatest defect is closely associated with the question of dispensary abuse. Baltimore has good schools and even the books are free, and the people with comparatively few exceptions expect everything connected with the schools to be also free. The result was that, notwithstanding the wording of the letter of advice, almost all the children were sent to the dispensaries. The

clinics were overcrowded and it was impossible to give the deserving poor the attention they ought to have had. This will be better another year when there will be fewer cases to be corrected and we will have the testing spread over eight or nine months.

Much good has been done, both in arousing general public interest in the question and in the direct benefit many children have received. Much greater good may be expected to accrue in the future.

TABLE SHOWING TOTAL RESULTS OF TESTS BY TEACHERS.

	GRADES.								
	1st.	2d.	3d.	4th.	5th.	6th.	7th.	8th.	Tot'l.
Number of pupils in each grade whose eyes have been tested . .	14,986	10,370	8,519	6,975	5,350	3,633	2,198	1,302	53,333
Number having 20-20 in each eye.	5,340	4,278	4,049	3,322	2,581	1,776	1,207	735	23,289
Number having less than 20-20 in *each* eye, but as much as 20-30 in *better* eye. . . .	6,982	4,322	3,071	2,503	1,808	1,197	660	401	20,944
Number having not 20-30, nor less than 20-200 in *better* eye	2,624	1,700	1,342	1,094	909	628	293	158	8,248
Number having less than 20-200 in *better* eye. . .	40	69	54	40	37	26	33	4	303

The following circular was sent to each teacher:

OFFICE OF THE COMMISSIONERS OF PUBLIC SCHOOLS.

BALTIMORE, Oct. 29, 1895.

To Teachers:—At a meeting of the Board held on the 15th inst., the following resolutions were adopted:

Resolved, (1st), That the eyesight of all the children in the public schools shall be tested by the school teachers at the beginning of each school year (the work this year to be done as soon as practicable), and a record kept by which any deterioration which may take place may be noted from year to year.

Resolved, (2d) That the Committee on Health appoint two or more oculists of recognized standing (who shall serve without pay), whose duty it shall be to instruct the teachers in the proper methods of making said examinations and keeping said records, to fix proper standards of sight, and to make, from time to time, such reports and recommendations to said Committee as they may deem advisable, to the end that the children in the public schools of Baltimore shall receive the least possible injury to their eyesight during their school life.

Resolved, (3d), That said oculists shall be privileged to visit the schools when necessary, and also to examine any scholar's eyes.

Resolved, (4th), That the Committee on Health be empowered to prepare the necessary test-cards, instructions and blanks for reports, and to do whatever in their judgment may be necessary to carry the resolutions into effect, and that the Committee on Printing have the necessary printing done.

This Committee has appointed Dr. Herbert Harlan and Dr. Hiram Woods the oculists contemplated in the above resolutions. The gentlemen named have suggested, and this Committee has approved, the test cards and blanks sent herewith, and the following instructions.

JAMES BOSLEY, M.D.,
M. B. BILLINGSLEA, M.D.,
D. W. SMITH, M.D.,
} Committee.

Instructions to teachers in reference to the examination of the eyes of the school children.

A blank (A) is to be filled out for each pupil. The utmost care must be taken that the tests for vision be accurate. The records must be arranged in alphabetical order and kept in the envelopes provided for that purpose.

When a pupil is transferred the record card must also be transferred.

The tests for vision are made in the following way: The pupil is placed with his back to the light and twenty feet away from the large distant vision card. This large card should be placed facing the pupil and in the best possible light.

One eye of the pupil is then covered, as with a card, and he is directed to spell the letters on the distant card. The vision of one eye being noted in the column for distant vision for the year, the other eye is tested and noted in the same way. The size of the letters is such that the largest one should be seen by a normal eye at 200 feet; the next in size at 100 feet; the next size at 70 feet, and so on down to the bottom row, which should be readily recognized at 20 feet.

The distant vision is expressed by a fraction, of which the numerator is the number of feet separating the pupil and the test card, and the denominator the size of the type seen at that distance. For example, if at the prescribed distance of 20 feet the bottom row of letters is read, the vision would be 20–20 or normal.

Suppose, however, only the next to the bottom can be seen that row ending in the figures 30, in that case the vision would only be 20–30. If only the line above that can be seen the vision is 20–40, and so on up the card, until if only the large letter at the top can be seen the vision is 20–200.

PUBLIC SCHOOLS OF BALTIMORE.

BLANK A.

School No. _____

Name of Scholar, _____

Age, _____ *Years; Sex,* _____ *Color,* _____

Does he (or she) wear glasses? _____

		1895	1896	1897	1898	1899	1900	1901	1902
Distant vision without glasses,	right eye.								
	left "								
Distant vision with glasses worn,	right "								
	left "								
Nearest point to face fine print is read	right "								
	left "								
Farthest point from face fine print is read,	right "								
	left "								

Are there complaints of head or eye pains produced by studying? ....

Signature of Teacher Making the Examination.

1895 _____ 1899 _____

1896 _____ 1900 _____

1897 _____ 1901 _____

1898 _____ 1902 _____

PUBLIC SCHOOLS OF BALTIMORE.

BLANK B.

School No.

Baltimore _____ 189

Dr. M.

By examination, the sight of _____ your son, daughter or ward, is found below the standard necessary for safe performance of school work. You are advised to have the eyes examined by an Oculist. If you are unable to pay for such examination, you may have it done at one of the Eye Hospitals.

Take this certificate with you, have it filled out by whoever makes the examination, and return to me promptly.

Respectfully,

Principal

I have examined the eyes of _____ . *I find*

_____

With correcting glasses distant vision is R. E., _____ *L. E.* _____ *In my opinion* _____ *can safely perform ordinary school duties*

_____ *M.D., Examiner.*

Residence _____

Baltimore, _____ *189*

Blanks A. and B.

Some cases will be found where no letter can be made out at the distance of 20 feet. In this case the pupil must go slowly nearer to the letters, still keeping the eye not under examination carefully covered until it is found what is the greatest distance at which the largest letter can be recognized. Suppose a case where this can only be done at a distance of 15 feet, or perhaps 7 feet, the vision would then be only 15–200 or 7–200.

The test for near vision or reading is simpler. It is merely to note approximately in inches the nearest point to the eye and the farthest point from the eye the small letters or words on the near vision card can be made out.

In the distant vision test only that row of letters of which the whole row can be correctly made out is to be counted.

In the case of those pupils having normal vision, or who do not complain of constant headache, or eye pain, or inability to use the eyes for studying, the records are to be kept for the purpose of noticing if there be any deterioration of the eyes from year to year.

In the case of those pupils whose vision in the better eye is below 20-30, or who complain of headaches or eye pain, blank B is to be filled out by the principals of the various schools and sent to the parent or guardian of the pupil in question.

In case no attention is paid by parent or guardian to these notices after two weeks, the records of those cases are to be sent by the principals to the oculists of the board for their examination and consideration.

In making the tests two sources of error are to be specially guarded against: First, pretended inability to see, and second, a learning of the letters and their repetition by rote. The latter can generally be overcome by requiring that the letters be named from right to left or in irregular rotation.

DISCUSSION.

Dr. B. A. Randall, Philadelphia—While urging a more precise and exhaustive study of school eyes, if possible, in the report of the committee of last year, the doing of such work as this was commended as a forward step, far better than nothing, and better than much that had been previously done. The only fair criticism is, that as the medical examination of those found to be defective was not made at the school, many did not seek it and many more were neglected in the crowded clinics, but it is almost sure that the future results will be better and will create gradually the needed public opinion and pave the way to more ideal investigations.

Dr. H. B. Young, Burlington, Iowa—It embodies the idea which I maintained in my contribution, and not included in the report of the committee last year, the greatest good for the greatest number.

Dr. F. Allport, Minneapolis, Minn.—I am sure that Dr. Harlan and I both feel that Dr. Randall's plan is undoubtedly the best to be pursued because we should be satisfied with nothing less than perfection, but we are working in a practical line with the hopes that we will later be able to get what we want, while now we are compelled to take what we can get.

Dr. Herbert Harlan, Baltimore—We claim no priority for the plan and well know it is not perfect, but it is practical, has been put in operation and has already done much good.

THE COÖRDINATIONS OF THE OCULAR MUSCLES.

Read in the Section on Ophthalmology, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5-8, 1896.

BY C. M. HOBBY, M.D.

IOWA CITY, IOWA.

When two or more muscles act together for a common purpose, their movements are coördinated; but the term coördination is more commonly applied to the similar, but more complex function, whereby two or more members of the body are acted upon, by the muscles or groups of muscles moving them, to the execution of a common purpose. In this sense the movements may be simultaneous or successive; the objective, instantaneous, consecutive, or continuous. The chain of ideation, will, action, is the same as in a simple voluntary movement, only complicated by the necessity that the different actions should accomplish a single purpose. As certain movements occur from birth, and are therefore called instinctive, it has been supposed that certain other movements which require coördination must also be instinctive; but this is not to be accepted without demonstration. While the limits of this paper do not allow more than a statement of the fundamental principles which have been demonstrated in reference to the coördination of the external eye muscles; it may be premised that no hypothesis in regard to such coördination should be considered which is not in harmony with what is known of comparative anatomy and physiology, as well as human anatomy and physiology.

Paley defines instinct as "a propensity prior to experience and independent of instruction." The coördination of movements in suckling and in winking, are the instinctive coördinations exhibited by the human infant; associated movements of the eyes, arms and legs are observed also, but they are devoid of purpose, and are imperfect examples of coördination.

Without considering, at present, the influence of inherited habit in establishing coördinations, we know that the child, by experience, acquires control of the various muscles and learns to walk, a consecutive coördination of high grade, learns to use hands, and usually one better than the other; and by experience and long continued practice may learn to use both hands separately for a common purpose, as is especially illustrated by the rapid co-incident and consecutive movements of a great number of muscles of both hands, arms and legs.

We note in all these coördinations certain facts important to the consideration of the present subject. Not all persons possess the same facility in acquiring high grades of coördinative power; some engineers can, by long practice, train their steps to an approximately equal length; they can measure distance by pacing to an accuracy 98, 99, or 99½ per cent., others can never attain above 95 per cent., and the same is noticed among musicians; proficiency is the result of continual practice. There are differences between individuals in the quality of the work, and between the quality of the work, of the same individual, at different times. Disuse of the practice of coördination for a considerable time, diminishes its accuracy; examples of this are on every hand.

We can say of muscular coördinations in general, that they are acquired by practice, improved by repetition, and fluctuate in quality, independent of disease; they may, under favorable conditions, approach closely to perfection, but are always approximations.

We have no reason to consider the coördinations of the ocular muscles as different in any respect from the coördinations of the voluntary muscles in general.

The purpose of ordinary ocular coördination is to so move the globe of both eyes that the mind may interpret the retinal images singly; and this implies that one eye is directed so that the image of a particular part of the field of view falls upon the fovea, or place of fixation of the retina; and the other eye either simultaneously or successively is similarly directed, so that the image of the same particular part of the field of view falls near or upon the corresponding place in the second eye. It will be noted that the word "point" has not been used either in regard to the field of view, or in connection with the place of fixation; because the mathematical definition of the word, as ordinarily used in physiologic optics, would lead to inferences not intended. The so-called point of fixation is an area of considerable magnitude. The subject of binocular vision is too comprehensive to be taken up here, but some consideration of the compar-

ative physiology of vision, and of the method, use and value of so-called binocular vision will be required, especially as many modern text books ignore the profound work of the early physiologists.

What we see, is the interpretation the mind puts upon retinal stimulation; so-called optic illusions are mental deceptions. Binocular vision as it exists in man, is of doubtful existence in any of the inferior orders except the quadrumana. It is probable that in the inferior orders of mammalia a more effective peripheral and less effective central vision exists. The dog and the horse, for example, possess poor central vision, and they use the peripheral portions of the field nearly, if not quite, as well as the central.

In some of the orders no attempt at fixation is made. From an evolutionary point of view, binocular fixation was a late acquisition.

The habit of fixing an object with both eyes is not instinctive in the case of the human infant, and is not acquired until several weeks have passed, and then only near objects are transitorily fixed. Some birds, and some fishes, possess very acute monocular vision, and the fallacy that binocular vision was essential to the estimation of distance, shape and size of objects, was long ago pointed out, and illustrated by the marvelous acuteness of such estimations by birds of prey, that only possess monocular vision. Men with one eye easily acquire capability of estimating distance. In fact our estimate of distance depends upon our familiarity with the surrounding objects. Neither is the stereoscopic vision, or the appearance of relief produced by looking at two pictures on a plane surface through a stereoscope, a function of binocular vision altogether; the fusion of two parts of separate pictures into a common mental impression necessarily requires both eyes, but the appearance of relief on a plane surface can be produced with one eye.

The mental fusion of the retinal images of the two eyes is not the mixture of two impressions; it is either, mentally, when much displaced centrally, two different impressions, or it is a single mental impression taking varying characteristics from the two images; as the mind is directed to one, the other, or both. For example, using different colored glasses before the eyes, the mind does not recognize an equal mixture of the colors as the combined impression, but may recognize either of the colors alone or either tinted with the other. Nor were the old observers altogether wrong, who thought that the mind was affected alternately by the two retinal images; this is sometimes demonstrable.

So far as binocular vision is concerned it introduces no addition function, but augments the power of monocular vision and amplifies the peripheral field of view. Ordinarily in a healthy individual with normal eyes, the practice of binocular coördination is very accurate, and it must be noted that no sets of muscles are so frequently and continuously employed, from the earliest period of life, as the muscles that move and direct the eyes. Yet if a healthy individual looks at a star, with a card before one eye, when the card is withdrawn a movement of the star will appear to him, and this movement he can readily determine is due to the adjustment of the covered eye to the direction primarily fixing the object. There is an instant of diplopia while the error in pointing is being corrected. So long as the individual is able, with both eyes open, and without extraneous assistance, to so direct them that the mind accepts the two retinal images as a single communication we can say that there is coördination; when, however, the two eyes can not be brought into a common fixation, there is incoördination.

But while coördination may take place, it is possible for it to lack that high degree of perfection which we find, usually, in those who have perfect and easy vision. and these difficulties of coördination have been considered one of the sources of uncomfortable vision or asthenopia. Without accepting as demonstrated the significance implied by the various terms introduced by Dr. Stevens, the nomenclature of the deviations from perfect coördination, when the natural incentive is removed, is so convenient that it may be used in discussing the different phenomena in connection with coördination. We can say, therefore, that slight amounts of the so-called heterophoria are almost universal. and we find that from 6 to 8 degrees of exophoria and from 4 to 6 degrees of esophoria are compatible with normal coördinative power and ease of vision. As the whole practice of the ocular muscles is normally exerted in the planes passing through the optic centers of both eyes, but little deviation in a vertical direction is found in the movements of a normal eye; excepting under pathologic conditions rarely more than from 15 to 30 minutes of arc. When a card is held before one eye and the other is directed at a distant object the covered eye is normally directed toward the same object, but not necessarily directly at it. The angle the visual line of the covered eye makes with the visual line when the eye is uncovered, is called the angle of heterophoria, and is measured out or in from the vertical, and above or below the horizontal. It is easily seen that if the mind be able to direct the two eyes to a common point, when both are in action, the conditions for binocular vision are fulfilled. It has been claimed, however, that if the eyes were not directed to a common point, as well when one was covered, or when the natural incentive or stimulus to action was interfered with, as when both were at liberty, that the condition was an abnormal one, and that such deviations were the cause of many varieties of asthenopia. This brings us to the consideration of the relation of these apparent difficulties of coördination to asthenopic conditions. While convinced by repeated experiments and the observation of a considerable number of patients, that accuracy of coördination when one eye is covered or obstructed, as with the Maddox rod, prism or the phorometer, is not essential to ease of vision, it very frequently happens that asthenopia and difficult or imperfect coördination are coincident. If we examine the conditions in which heterophoria is found, we can assign as possible causes producing the so-called muscular asthenopia, such general diseases as produce enfeeblement of the muscles generally, and such forms of cerebral and spinal lesions as are capable of producing ataxic phenomena in other parts; also neurasthenic conditions, which render irregular, or enfeeble or make uncertain, the ordinary muscular actions; or which are accompanied by extraordinary manifestations in muscular control, or impaired continuity of action. We must consider also chorea and the allied disturbances of the nervous and muscular systems. Then we have the influence of ametropia, and especially of astigmatism, in producing demands for irregular and uncertain accommodation and convergence.

Very important is the influence of misdirected experience, such as the habit of using one eye.

whether congenital or acquired, or the result of forced monocular work in watchmaking, microscopy, the use of the transit, etc. In this connection, the habit of sitting obliquely at the desk in studying or writing, the consecutive succession of movements in copying from one book to another, as in the case of book keepers, and the copying from manuscript of typewriters. These conditions lead to excess of action of certain muscles, and a habit of use in directions away from the straight forward line which our methods of measurement assume as the normal.

Again, the individual who has had a long rest from books and close work may find great difficulty after a few years in resuming continuous application of vision to a book; and the asthenopia that comes on after resuming the steady use of accommodation and convergence may present all the painful symptoms of muscular asthenopia, with the least possible amount of muscular insufficiency, when tested in the morning, and with considerable after the day's work.

In testing these cases by the phorometer, the Maddox rod, or by the more efficient means of using in a dark room a colored glass dense enough to cut off all vision of other objects than a small light and leaves no inducement for the will to direct the eye; deviations from coincidence of the visual axes can be easily shown in the majority, and lack of spontaneous coincidence may be found in one or both eyes, and the apparent insufficiency can be located, sometimes in special muscles. But as stated before, a considerable amount of uncertainty of direction, when the natural guide of complete similar retinal images is wanting, may be compatible with perfect ease of work.

Excepting that they are weakened by disease or disuse, we can ascertain very little about the actual strength of the ocular muscles; we have no means of measuring the energy used in their contraction. The prism in no sense weights the muscle; by changing the angle at which an object is seen it introduces an obstruction to coördinative impulse, requiring readjustment to secure binocular vision, but it can not measure the energy used in contracting a muscle. Nor can we say, when we find an exophoria by our tests, of say 6 degrees, whether it is because the external pull is stronger than the internal, or whether the mind awaits the visual stimulus before directing action. So while we may have a great amount of assurance that all of these failures, in directing the axis of the covered eye, are to be considered rather as failures to look straight than "tendencies to look wrong"; and while it may be doubted if those failures in direction, which are so promptly rectified when the eye is brought under the domination of the will, are to be considered any more pathologic than the obstinate muscles of the back and legs that deny the would-be bicyclist, in his early trial, the assurance of equilibrium in the saddle; still the indications of heterophoria are not to be neglected in the careful study of muscular asthenopia. And whether they are pathologic or not, whether they cause asthenopia, are one of the symptoms resulting from a common general cause, or are of no significance whatever, there can be no doubt that back of all muscular insufficiency and difficult coördinations it is necessary to look for the source of the disturbance, and we may feel reasonably sure that while muscles may be enfeebled by disease or disuse, we shall rarely find failure of coördinative power resulting from abnormal increase of strength.

DISCUSSION.

Dr. C. W. Kollock, Charleston, S. C.—It has been my custom to prescribe the glass best adapted for the case and if there was insufficiency afterward to hunt for the cause of the trouble in the general health before prescribing prisms or cutting the muscles.

Dr. G. C. Savage, Nashville—I believe that the lower animals see just as men see as to direction. The acutest vision is when the image is the sharpest. We know how quickly the horse shys when it gets only a side view of an object, but goes properly the instant its head is turned straight toward it. When a dog chases a rabbit he fixes his eyes straight upon it. Watch two roosters fighting, they do not turn their heads side to side, but each is looking straight at the other. So I see no reason for believing that animals have better vision peripherally than centrally. There is such a thing as muscle coördination in muscle weakness. I think orthophoria is a normal condition. If that is so exophoria is abnormal. We may have exophoria of several degrees which may not excite trouble until the nervous system is in an abnormal condition, but while it may not give trouble it is always a sort of menace.

Dr. D. S. Reynolds, Louisville—I wish to correct a statement of Dr. Savage's. I have seen cock fights and have noticed that the roosters always turn their heads to one side and use their eyes separately.

Dr. C. M. Hobby, Iowa City—The anatomic structure of the retina of a man is as much superior to that of the dog as the retina of the eagle is to the eye of man. The assumption that if a covered eye does not follow its fellow it is abnormal is not well founded, neither is the assumption of the identical points of the retina. A difference of size of retinal images of 10 per cent. is compatible with mental association.

ON CERTAIN SUBJECTIVE VISUAL SENSATIONS.

Read in the Section on Ophthalmology, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5–8, 1896.

BY ALEX. W. STIRLING, M.D., C.M. (Edin.); D.P.H. (Lond.)

ATLANTA, GA.

I recently received from a committee of the Ophthalmological Society of Great Britain a request, tendered no doubt to all its members, for such observations on the visual sensations of epilepsy or migraine as I might be willing to record from my experience or practice. Interest in this matter had been specially developed by a lecture delivered before that society by Dr. W. R. Gowers, in which he had demonstrated the importance of these symptoms, not only in relation to the possible light which they may throw upon the true nature of these diseases, but also in connection with the anatomy and physiology of the still imperfectly understood centers for vision.

Fortunately for me, I am unable to record any personal experiences of those maladies which are most desired by the society, but I am able to describe them as related by a number of my patients. This will serve to illustrate the points of chief importance to ophthalmologists.

Such an experience, "though unreal, the subject of it is," as Gowers says, "as a sensation, a profound reality, which confuses the mind and may make even recollection painful. Hence the opportunities for ascertaining trustworthy facts are very rare, and when they come it is important that they should be made the most of." I venture, therefore, to bring before you some of these, partly for their own sake, and also because possibly by so doing some of the

members of the AMERICAN MEDICAL ASSOCIATION may be stimulated either to forward the wishes of the British Society or to form a collection for themselves.

I shall choose, as a type with which others may be compared, the case of a professional man, whose usefulness has been considerably impaired by migrainous attacks, dealing however, for the sake of time, almost solely with his visual experiences.

The attacks were of the following character: First came the spectra lasting some half hour, during which time voices sounded metallic and far away, and before their withdrawal pain began, especially behind the eyeball of the side opposite to that on which the field appeared to be affected, *i. e.*, in the cerebral hemisphere in which the pathologic process was going forward, but also piercing through from one temple to the other and continuing for perhaps twelve hours. The pupil on the side of the hemisphere involved was dilated to twice the size of the other, due, no doubt, to irritation of the sympathetic. While the pain remained, and afterwards for many hours, his mental faculties were dulled. He never vomited and had slight nausea only at the outset.

The spectra were of the following description: They might be divided into two kinds, one of which, by far the more common, was succeeded by headache, and the other, which the patient had experienced only some half dozen times and not at all during recent years, was of a different aspect and was unassociated with either headache or nausea.

The more usual type affected the left field of vision in about nine-tenths of the attacks, the first warning of which consisted generally in a sudden blank of small dimensions, on one side midway between center and periphery. This increased in size until it had blotted out the whole or part of the half field. Sometimes, in the early stage, when looking at a small object, the blindness seemed to be, as the patient expressed it, "trying to get hold," with the result that the object would be momentarily completely hidden from view (the fixation point being completely involved), then entirely visible, then hidden on one side alone, and so on until the cloud had settled down on some particular part of the field, generally in the middle zone.

In the course of a few minutes the blank was modified by the appearance of a bright silvery shimmer, more like sunshine on the gently rippling surface of a pond than anything else the patient can imagine, but having a definite form, a crescent, often confined to one quadrant of the field, concentric with the center and outlined on the convexity by zigzag lines in which no other colors were to be distinguished than the silvery sheen, while the lines forming the zigzags were generally longest in the middle of the curve and shortest at the ends, though he had seen them longest at one extremity, lying in the upper area of the field and crossing over the hemiopic line. They never trespassed on the central area of the field. This patient had also seen the spectrum lying as a curve horizontally above the level of the fixation point and reaching therefore into the second half field.

The spectrum, which he has also likened to an incandescent electric light, and which was on one occasion composed, except the angled outline, of bright spots in rapid motion, after from ten to twenty minutes appeared to burn itself out, leaving a blank which most frequently, in the patient's own language, "affected the whole vision;" about as frequently, however, central vision remained, the part of an object looked at being visible while all surrounding it was dark. At the expiration of two or three minutes the fog was dissipated from the center, though the sight continued impaired for some time afterward. The acute visual symptoms lasted, on an average, perhaps ome thirty minutes.

The second form of this patient's attacks consisted in a dark spot which appeared on the outside always, he thinks, of the visual field, over which it moved so as to involve at times the center and parts beyond it, lasted only about a minute, and was associated with no other symptom.

All cases do not correspond with the foregoing description. For instance, in another of my cases the spectrum formed an angled, silvery line in the middle zone, apparently an inch in length, lying horizontally on one side and pointing to the center, but never reaching it or entering the other half field, with sometimes a second similar line nearly but not quite joining the peripheral end of the first at an angle of about 50 or 60 degrees. Occasionally, and always as the signal of a specially severe succeeding headache, this spectrum was followed, or was altogether replaced, by a dark spot the size of half a dollar, below the fixation point, which, when the patient looked at a friend's nose, cut off from view the mouth and chin, affecting therefore a part of both half fields of vision.

In another patient, whose existence had been greatly embittered for many years by migraine, and in whom a large patch of the frequently associated xanthelasma occupied the inner end of both upper eyelids, zigzag or "fortification" colored spectra were associated with more complex figures, especially faces and forms of animals. Gowers has never found such complex spectra with migraine, though they are not uncommon in epilepsy. This patient is not a woman of high intellect and I have never been able to receive from her such a description of the angled spectra as I would care to transfer to paper, but her attacks appear to be pure migraine and, so far as I can understand, neither epilepsy nor hysteria, and there is no doubt about the deriding negro faces which she sees.

Gowers has described six varieties of spectra, and has presented to the British Ophthalmological Society at least three sets of painting or drawings of some of these as a nucleus for a fuller collection, to which he hopes that others will contribute. One of these is a second series by Dr. Airy, to whom the profession was already chiefly indebted for reliable descriptions of the spectra. Time is insufficient for the discussion of these here, yet one may draw attention to the peculiar fact noted by Gowers, and exemplified in my cases, that the position of most physiologic activity, the position of central vision, where one might expect excessive action, apparent as colored spectra,is in reality free from these,and also that the zigzag lines diminish in length as they approach it, while it is subject, on the other hand, to inhibition, appearing as a cloud or darkness. The lightening-like outline of the spectra is also worthy of note, and probably has radical connection with the physiology of discharge in the cerebral cells.

Gowers has considered epilepsy also. I have no such cases to record, but although the duration of the spectra in it is comparatively short, epilepsy and migraine have features in common and connecting forms. A marked difference lies in the more

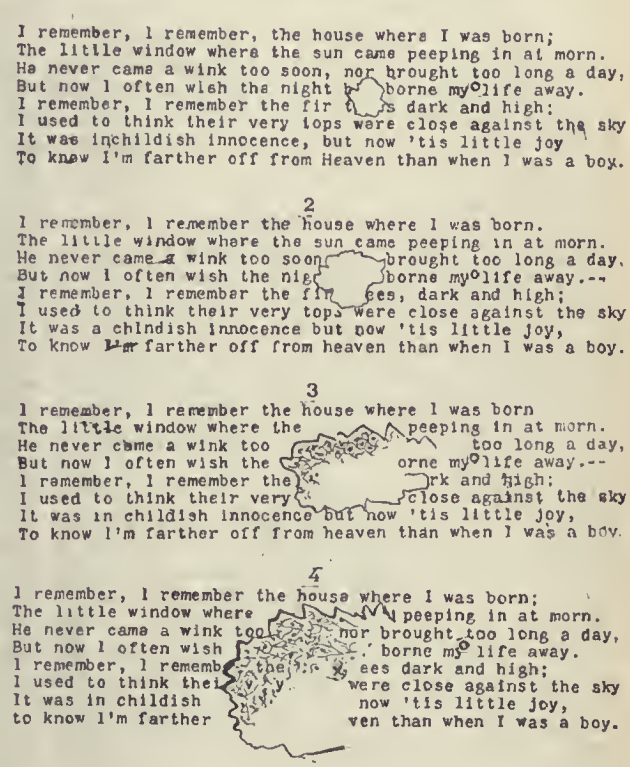
complex nature of the spectra already referred to as not infrequent in epilepsy, a feature, according to Gowers, never found in migraine.

There can be no doubt that these spectra originate in the brain rather than in the eye, although it is not contended that ocular refractive or muscular abnormalities may not at times be the exciting cause of an attack. They are associated in some patients with other cerebral symptoms, with similar affections of other nerves of special, as well as of common sensation and of motion. Besides, as ocular symptoms they are not explicable by our knowledge of the anatomy and physiology of the eye; ophthalmoscopic examination during attacks has not revealed conditions which would account for them, and the fact that the spectra move along with the eyes is, of course, no argument.

Certain of the features of these spectra require consideration in connection with the views generally held concerning the centers of vision in the brain. These are usually said to be in the cuneus, in the occipital lobe, and in the superior and inferior occipito-temporal convolutions, and partial or complete disease of these on one side produces partial or complete homonymous hemianopsia of the opposite side, involving sometimes the whole or part of the macula and sometimes leaving it intact. But these spectra, as Gowers has pointed out, suggest the participation of something distinct from these occipital centers. Discharge or inhibition taking place in them would not produce a picture such as is here exhibited. If unilateral, the sensations would be confined to one-half of the visual field; if bilateral, one would expect rather either a double visual manifestation, or at least one affecting more distinctly and separately each half field, than is shown by the practically constant appearance of the spectrum on one side, though not necessarily observing the hemiopic line, but passing, to some extent, into the opposite.

To explain this and other symptoms of these and other diseases, Gowers has been compelled to postulate the presence of the higher visual centers in the angular convolution of which Ferrier had already obtained indications by experiment, but concerning this work, which may be accelerated by a sufficient number of observations on such cases, has still to be accomplished before their nature is completely understood. He surmises that the visual nerve fibers are so arranged after leaving the lower centers in the occipital lobe, that both sides of each eye are represented in each of the higher centers. The exact manner of their distribution is still a matter of uncertainty, but in each higher center the opposite eye appears to have the more important representation, while the higher centers in the two hemispheres have apparently so intimate a connection that the one seems able to compensate for loss of function of the other, a feature altogether absent from the lower centers. The higher also differ from the lower in that, while in the latter partial disease produces a corresponding partial loss in the related half field, partial disease of the former lowers the function of the whole in a manner not yet understood.

The following facts indicate the presence of these higher centers: In the hemianesthesia of hysteria there is arrest of the functions of the other higher special sense centers in one hemisphere, but never the hemianopia which results from disease of the lower center. Instead, there is "crossed amblyopia," *i. e.*, loss of vision in both eyes, except in a small central area of the opposite eye and a larger central area of that on the same side, and without relation to the half fields. This indication is confirmed by organic disease due to hemorrhage in one hemisphere and by disease located in the region of the angular convolution. When hemianopia does result from disease in a cerebral hemisphere, the remaining half fields are also affected, that of the opposite side being the more



O—Fixation point. X—Occasional position of fixation point.

STAGES.—1, a blank; 2, a blank; 3, outline now silvery; 4, outline still silvery; 5, central vision intact, peripheral clouded by thick fog; 6, silvery speculum, in another patient

contracted. The presence of these higher centers, Gowers has found to be still farther confirmed by the manner in which they explain certain pathologic facts found otherwise inexplicable, and their necessity for the hypothesis of their presence coincides remarkably with the experimental results obtained by Ferrier. The remaining bilateral central sensibility of the retina in the one-sided functional and organic lesions just referred to illustrates the relationship of each higher center to the two eyes.

With loss of the higher center, say in the left hemisphere, we have loss of all vision in the right eye, except in a small central area supplied by the right hemisphere, along with loss of vision in the left eye, except in a central area larger than that in the right, and also supplied by the right hemisphere. Vision is lost in the periphery because both higher centers are required for its fulfilment, one being unable to carry on its functions in either eye. Here we may recall the final stage of the spectra in the case which I have fully reported, in which the periphery of both eyes was blind, the central region being sensitive.

The above facts being beyond dispute, Gowers has explained the relationship of the peripheral fields in the two eyes by the theory that when the peripheral visual fibers from the lower center pass to the higher center of the opposite side, they do so by traversing the higher center of the same side, and are therefore involved in disease of either higher center. Each higher center thus containing fibers from the complete periphery of both eyes, an interference with one higher center is sufficient to annul the functions of the complete periphery of both eyes. This theory may or may not be correct, but the bilateral spectra, as illustrated by the cases presented, seem to show a close connection between the visual centers in the two hemispheres, or even that they act almost as one center.

It is interesting to observe here the curious fact noted by Gowers, that the field for color in every area, even in the temporal where the color is seen by one eye alone, is larger when both eyes are open than when one is closed, and farther that "there is a remarkable extension of each areal color field if a small white area is in the central region, and that this extension is almost the same if it is opposite" the one eye only, the other being under examination, though it is greatest where the white area is opposite both eyes.

These demonstrations of the fact that increased stimulation of the retina of either eye produces increase in the area of the periphery sensitive to color in the other eye, supports the theory of the close connection between the two higher visual centers, brought out also by the blindness of the periphery of both eyes on interference with the functions of only one higher center.

DISCUSSION.

Dr. C. W. KOLLOCK, Charleston—I have had some experience with these visual sensations. They have always been traced to indigestion. My first recollection of it was some years ago, when it affected one eye only, beginning with haziness of vision and then the waves appear. At times they appear in the outer fields of both eyes at the same time. The wave passes across the field of vision and goes away at the upper angle of the orbit. Once only did I notice them begin in the center of the field. The attacks last about fifteen minutes.

TREATMENT OF OPTIC NERVE ATROPHY BY MERCURIAL INUNCTIONS IN CONJUNCTION WITH THE HOT BATHS OF THE HOT SPRINGS OF ARKANSAS.

Read in the Section on Ophthalmology at the Forty-seventh Annual Meeting of the American Medical Association held at Atlanta, Ga., May 5-8, 1896.

BY O. J. SHORT, M.D.

HOT SPRINGS, ARK.

It is not the object of this paper to consider the different pathologic conditions found in optic nerve atrophy, but to give my experience in the treatment of this condition, no matter what the etiology, by the use of mercurial inunctions of ungt. hydrarg. U. S. P. in conjunction with the baths of the Hot Springs of Arkansas.

I have selected from my records five cases, each arising from a different cause. The mode of treatment pursued is practically the same in each, only varying the conditions and circumstances as indicated. For fear there may be some question as to the correct diagnoses I will state that in each case a like diagnosis was made by at least two oculists, men of unquestionable ability and in most instances members of this society.

Case 1.—Mr. C. C. O., aged 39, referred to me in May, 1893. On examination I found a gray atrophied condition of both optic nerves. I could find neither specific, spinal, nor any other cause to which we could attach the blame. In his history he stated that his mother became partially blind soon after giving him birth and remained so until her death. The opinion of the attending physicians was that the blindness was due to childbirth.

His vision, in right eye, could count fingers at two feet if in good light; in left eye, 20-200. He was ordered mercurial inunctions of 1 dram each night applied to the back and spine, and in addition to take a tub bath of ten minutes at a temperature of 98 degrees F.; at same time to observe all necessary hygienic precautions. On the tenth day symptoms of mercury were manifest in the mouth, on the gums and fauces. The vision was the same as at previous examination. At this visit he was ordered to use the inunctions every second night; increase the baths to 99 degrees F., and fifteen minutes duration, and in addition to apply a douche, 110 degrees F. to the spine and a vapor bath of three minutes. For the benefit of those not familiar with these baths, I will explain. The vapor bath is in a room three by four feet which is full of steam, 130 to 140 degrees F., continually rising through the open slat floor from a stream of hot water which flows underneath. On the twentieth day examination showed no sign of improvement in the vision of the right eye; while in the left eye it was 20-100. The inunctions were discontinued and he was placed upon kali iod. sat. sol. three times a day, commencing with 10 drops and increasing 3 drops each dose, until 60 drops were reached, which was continued until the thirtieth day, when examination revealed no improvement in vision of right eye; in left 20-100 minus. He was ordered to discontinue the kali iod. and to resume the inunctions alternate nights and to continue the baths as before, at the same time I began the use of hypodermic injections of strych. nit. in the region of the seventh cervical vertebra, beginning with 1 40 grain and gradually increasing to ¾ grain; toxic symptoms of the strychnia began to manifest themselves and its use was discontinued by gradually decreasing the dose. On the fiftieth day, still no change in vision of right eye; left eye 20-60. He was instructed to use the inunctions as before. On the sixtieth day no change in right eye; left eye 20-50. The patient decided to locate in Hot Springs. Although he has been under my care since and I have experimented with almost everything, there has been no change in his condition since the end of the third month.

Case 2.—A young lady aged 14. Referred to me June, 1894. Her father gave history of syphilis contracted five years before marriage and seven years before the birth of this daughter. The patient had always been healthy except the trouble with her eyes. Her sight began to fail about nine months previous to this consultation. My diagnosis was optic nerve atrophy due to inherited syphilis. I found the vision in right eye, 20-100; in left eye 20-150. She was promptly placed upon the mercurial inunctions, in conjunction with the hot baths, and at the end of the first week upon kali iod. in addition, and instructed to report to me once a week for examination. She improved rapidly from the first and at the end of the second month her vision in both eyes had returned to normal for the central, while the extreme outer fields seemed smoky or blurred. She was discharged and I received a letter some months later from her father saying that she was attending college and that her eyes gave her no trouble.

Case 3.—Mr. G. A. H., age 47, consulted me in November, 1894. He told me that he had gray atrophy of the optic nerve and said he was getting worse all the time, although he had been under the treatment of a prominent oculist since the previous May, and that he had taken mercury pills until he was salivated and potash by the pound.

Examination showed atrophy of both optic nerves, with

vision in right eye 20-500; left eye 20-200. I could find no cause except that in March previous while on a railroad train, a steam heater burst, causing him to be unconscious for twelve hours and laying open his abdomen, in right iliac region, for four or five inches, allowing the intestines to protrude. This was properly attended to at the time and he made a good recovery and has felt no bad effects from it since. He noticed that his vision began to fail in May following, when he immediately consulted an oculist and had been under constant treatment since with the above results. He was ordered to begin the inunctions of mercury, 1 dram each night, applied to his back and spine, and to take a bath of 98 degrees F.; this was continued, with interruptions as the necessities of his physical condition demanded. The progress of the disease was almost immediately arrested and he claims he could see better at the end of the second week, but this I failed to verify by actual tests. At the end of the third month I could find no improvement in his vision, although he persisted in saying he could see better. He was then advised that he could gain nothing by remaining longer at the Springs at that time. He resumed his duties on the road until the following June, when he again consulted me; I found his vision the same as when he left. He was again put upon the inunctions and baths. In twenty-one days his vision improved to, for right eye 20-400; left eye 20-100. Although he has taken two courses of treatment since, there has been no change in his vision.

Case 4.—Mr. T. P. M., consulted me in June, 1895. He had been poisoned by lead fourteen months previously. His vision began to fail a month later, when he consulted an oculist who treated him for several months, and as he continued to grow worse he went to Denver where he was told he had optic nerve atrophy, due to lead poisoning and advised to visit the Hot Springs for the baths. On examination I found an atrophied condition of both optic nerves with vision in right eye 20-80; in left eye 20-300. He was instructed to begin the use of the mercurial inunctions, and in addition to take a bath of ten minutes at a temperature of 98 F. On the eleventh day toxic effects of mercury were noticed; the inunctions were ordered every third day. In addition he was put upon kali iod. beginning with 10 drops and increasing 3 drops each dose, and ordered vapor baths. This treatment was continued until he was taking 300 grains of kali iod. three times a day, when symptoms of iodism presented and its use was discontinued by decreasing 10 drops per dose. He was then ordered ten baths without the use of any medicine and dismissed at the end of the twelfth week. His vision began to improve during the second week; final examination showed right eye 20-40; left eye 20-200. He is still using the unctions of mercury two or three times a week and writes me that his vision is improving.

Case 5.—Mr. W. T. R., referred to me in December, 1895. He gave history of syphilis contracted twenty years ago. His sight began to fail two years ago and he had been under the treatment of an oculist. On examination I found a dirty gray atrophied condition of both optic nerves, accompanied by Argyll Robertson pupil, ataxic gait, and knee reflexes in right knee entirely gone; in left greatly diminished. Vision of right eye 20-800; left eye only light perception. He was placed upon mercurial inunctions together with the hot baths. He insisted that he was getting worse both in vision and gait until the eighth day when he reported that he could walk much better and could tell the time of day by his watch, which I verified. The reflexes had slightly improved. His ataxia has continued to improve up to the present time, March 1, 1896, with a vision in right eye of 20-500; left eye no change.

My conclusions, based upon my observation of forty-one cases treated since residing in Hot Springs are:

1. That in those cases having only light perception, treatment is of no avail; but where there is any vision left, that the progress can be checked, and if the vision has not gone below 20–200, unless from traumatic origin, we may expect benefit.

2. That the mercurial inunctions in conjunction with the hot baths are always beneficial.

3. That unless the origin is from specific, blood or mineral poisons that the use of kali iod. is more often harmful than beneficial.

4. That strychnia, as a rule, is good only in cases of spinal origin.

Let us have a Department of Public Health!

THE INCREASE OF INSANITY AND TUBERCULOSIS IN THE SOUTHERN NEGRO SINCE 1860, AND ITS ALLIANCE, AND SOME OF THE SUPPOSED CAUSES.

Read in the Section on Neurology and Medical Jurisprudence, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5–8, 1896.

BY THEOPHILUS O. POWELL, M.D.

MILLEDGEVILLE, GA.

The negroes of Georgia, and I might say of the Southern States, up to 1860 enjoyed remarkable mental and physical health, and they were almost entirely exempt from certain diseases to which they are now not only very susceptible, but are dying much more rapidly from these maladies than the whites; namely, insanity and consumption.

While they may indicate much less susceptibility to miasmatic fevers, they are becoming more and more susceptible to them every year, and when we consider that heredity is one of the leading factors in the causation of insanity with the whites, and know that twenty-five or thirty years ago insanity and consumption in the negro could not have been attributed to hereditary predisposition save in a very few cases; couple this phenomenal increase in this race since 1860 with the inherited tendencies to these maladies, which we might say is just beginning to be manifested in full force, and when we remember that it is the insane and consumptive diathesis that widens and deepens by heredity from generation to generation, unless the laws of health are properly appreciated and conformed to, are we not justified in apprehending that the number of colored insane in the Southern States will soon be as large, if not larger, than the whites in proportion to the population?

The census of 1860 will show that there were forty-four insane negroes in the State of Georgia, and the majority had white blood in them; consumption in the full-blooded negro appeared to be just as rare at that time. Up to and during the war, the negroes were the principal nurses for the consumptives of the South. They washed the cuspidores, bedding and clothing of the consumptives, swept and dusted and in many cases slept in the rooms with them, and were more exposed to the tubercle bacillus than now as a general thing; still they resisted the disease. Why then this sudden and radical change which makes them so susceptible to both consumption and insanity? These 44 were of a population of 465,698, or one insane negro to every 10,584 of population; and there is no good reason from family pride, or fear that their future hopes would be blasted, to suppose that the census of 1860 was incorrect as so far as it relates to the negro insane.

The census of 1870 shows that there were 129 insane negroes in the State in a population of 545,142, or one colored insane to every 4,225. The census of 1880, colored population 725,133; insane, 411, or one to every 1,764. The census of 1890, population 858,815, insane 910, or one colored insane to every 943 of population.

The rapid increase of insanity and consumption in this race, is due to a combination of causes and conditions. This race has developed a highly insane, consumptive, syphilitic and alcoholic constitution which predisposes them to diseases which formerly they were free from. In this disturbed and unstable condition they seem to be totally unable to resist the

slightest exciting causes. They are liable to succumb much more readily than the whites; especially is this true in regard to insanity and consumption. These causes could not have existed prior to 1860 to any large extent, or we would have had the same pathologic changes and results that we have now. Up to 1865 it was to the interest of the owners not to allow them to violate the laws of health; therefore, their hygienic surroundings were carefully guarded from their youth. Their lives were regular and systematic, and they were absolutely restrained from all dissipation and excesses, and when sick they had the very best medical attention and nursing, until pronounced restored by the physician. Freedom removed all hygienic restraints and they were no longer obedient to the inexorable laws of health, plunging into all sorts of excesses and vices, and having apparently little control over their appetites and passions. It is very manifest that these morbid tendencies and susceptibilities have been growing for the past thirty years; hence, their unstable condition, and susceptibility to and inability to resist attacks of disease.

Dr. Eugene Corson, in his paper on the "Future of the Colored Race in the United States," says, "All the information which I have been able to obtain has satisfied me that the race was a healthy one—even healthier in the main than the whites. Since the war things have been reversed; the colored race as a race is not a healthy and robust one; their vitality is in a condition of unstable equilibrium, liable from any undue strain to give way. To the physician practising in their midst this fact is constantly being brought home, and in many striking ways. Before the war consumption was rare among them—to-day it has become very common, and the mortuary statistics show that about two colored to one white die of this disease. The reports from cities show an even greater mortality. The race has developed a highly scrofulous and tuberculous constitution which is manifesting itself in many morbid conditions and tendencies." "In returns from death from consumption in the last five years the colored death rate is nearly triple that of the whites." This was in 1887, and I have no doubt that it is now increasing rapidly in the rural districts.

I am indebted to my old friend, Dr. T. S. Hopkins, of Thomasville, Ga., for the following letter in regard to consumption in the negro race.

"Since my return home I have been searching the records in my office hoping to find something therein in reference to consumption in the negro race. I have in my office journals and books dating from 1783 to the present time. In none of these have I found any reference to the matter. When the negro is referred to at all he is placed among the immunes. Knott and Gliddon in their book on the 'Nonunity of the Human Race,' ask, 'Whoever saw a negro with consumption?' If that question was submitted to you and me now, our answer would be, 'yea, many of them.'

"Finding nothing of interest in these old records on the subject, I propose to give you my own experience after an active professional life of fifty years. Twenty years of my professional life was among the large plantations on the coast of Georgia, where I saw and prescribed annually for hundreds of negroes. During these twenty years of practice, among all the negroes I prescribed for, I never saw but three cases of pronounced pulmonary tuberculosis.

"During the war between the States I was stationed for some time at Andersonville. I was assigned to duty with the Engineer's Department, where a large number of negroes were employed on the fortifications. I had to register all the patients for whom I prescribed. I registered several hundred, but not one case of consumption appeared on my register.

"Why, then, is it that the negro, who was until a recent period, exempt in a great measure from consumption, is now the chief sufferer from that disease in the same climate where he was born and raised, and enjoyed an immunity therefrom. In our cities which have become popular resorts for the consumptives the negro is the chief sufferer. This is so with us, and it is so with all other consumptive resorts of which I have any knowledge. Consumption among the negroes here commenced among the chambermaids, laundry-women, bell-boys, and waiters at our hotels and boarding-houses, where the consumptives spend the winter. They contract the disease from the visiting consumptives, and have disseminated it through their kin and kith among our negro population. I do not believe that consumption is a palpable contagion, but that it is a communicable disease I have no doubt. I believe that it is to some extent a preventable disease."

From observation and investigation I am forced to believe that insanity and tuberculosis are first cousins, or at least closely allied. The sudden outburst of insanity with the colored race of the South came associated with tuberculosis, hand in hand, keeping pace one with the other; hence, in obtaining histories of cases as they are brought to our institution the hereditary predisposition to consumption is carefully inquired into. The prognosis of phthisical insanity is unfavorable. I am not surprised at any time to find insanity in a family strongly predisposed to phthisis, and phthisis in a family strongly predisposed to insanity.

Dr. McKinnon, the first Medical Superintendent of the Royal Edinburgh Asylum, says, "that scrofulous and insane constitutions are nearly allied."

Insanity, in my judgment, is frequently a symptom of tuberculosis. Tuberculosis is much more frequent with the insane than with the sane, and especially is this true with the colored insane. I believe that more colored people die in our institution from consumption than in the entire county in which it is located. While I have no statistics to sustain me, I am satisfied if I could obtain correct statistics from the county, it would bear me out in this statement. In comparing the death rate in the Georgia Asylum between the whites and negroes, although the care and treatment is the same, the proportion of deaths from this disease is larger in the colored race, and I find the results are the same in other institutions where both races are treated. I am fully satisfied that consumption is communicable, but it can not be entirely attributed to their surroundings in the institution, for a large number of them are brought to us in a tuberculous condition. Does not the above clearly show the connection between tuberculosis and insanity? Esquirol says that "scrofula is one of the causes that predisposes to insanity." In my opinion, a large number of cases of marasmus that are recorded as the cause of death in asylums upon careful postmortem examinations tubercular deposits would be found.

Dr. Clouston of the Edinburgh Asylum says, "the

general results to which my investigations have lead me are the following: Phthisis pulmonalis is much more frequent as an assigned cause of death among the insane than among the general population. Tubercular deposition is about twice as frequent in the bodies of those dying insane as in the sane. Phthisis pulmonalis is the assigned cause of death in about one-half of those in whom tubercular depositions are found after death.

Some near relatives of patients were insane in 28 per cent. of the men and in 25 per cent. of the women who were tubercular, while the percentage of hereditary predispositions among the admissions since 1840 had been 19 per cent. of both males and females. This may show that phthisis is most frequent among those with hereditary tendencies to insanity, or that insanity is apt to appear in more than one member of families with phthisical predisposition."

"When such expressions as exhaustion, general decay, natural decay and marasmus are put down as the cause of death in 10, 15 and in one as high as 60 per cent. of the cases, we can not arrive at any correct idea of the true causes of mortality in asylums."

Consumption or lung diseases are the causes of death of 22.5 per cent. of the males and 32 per cent. of the females who have died in all the public asylums in Scotland for the last four years, according to the reports of the Commissioners in Lunacy. In eight of the North American asylums the deaths from consumption amount to 27 per cent. of the whole according to Dr. Workman. He says that "deaths from consumption in New York City are twice the rate per cent. of any of the others except his own at Toronto," and says, "I am strongly inclined to the belief that the New York City asylum records have been based to a large extent upon postmortem evidences rather than antemortem suppositions."

The direct and indirect effects of syphilis is one of the leading factors in the causation of insanity with the colored race. On some of the plantations where there are a great number of negroes, few of the adults are free from the taint of syphilis. I have conferred with a number of physicians who were engaged in practice, before the war, on some of the large plantations, as to syphilis in that day. They are fully agreed in the statement that secondary or tertiary syphilis was almost unknown with the country negro. If one had syphilis the family physician was sent for, and the treatment was continued until the patient was pronounced fully cured. The patient had to tell from whom it was contracted and if it was from a neighboring plantation the owner was notified, and that individual infected was subjected to the same treatment. They were quarantined to prevent the spread of the disease and they dared not communicate it after it was known.

The owners appreciated the great danger of delay and neglect of such a disease, and every precaution was taken to check it in the beginning. The treatment of syphilis in this race now as a general thing is very unsatisfactory. They are disposed to be treated first by some other negro, and it is seldom that they go to a physician before the secondary and tertiary stages, and then they will not carry out the directions. If they have a physician in the early stages, as soon as the chancre heals the treatment generally stops, if not before. Overcrowded sleeping apartments, neglect of personal cleanliness, poor and irregular nourishment are causes for the development of these diseases. Before the war they ate from one-half to one pound of fat meat regularly every day and literally lived in the open air.

I am indebted to Dr. J. C. Patterson for the following information: "Some fifteen years ago, while engaged in the general practice of medicine in the southwestern portion of the State, my attention was called to the ravages made by consumption among a settlement of negroes comprising about three or four hundred, who lived near together upon three adjacent plantations. There is nothing in the location or surroundings to cause such a condition of things, but apparently everything that was conducive to health. I made special investigation and inquiry as to the causes. One of the plantations was owned by an old physician who had been the attending physician on all three of the plantations for thirty or forty years. He was a gentleman of intelligence and of an investigating turn of mind, and had given considerable thought to the subject, and from him I obtained the following facts: Prior to the war they enjoyed remarkable mental and physical health; consumption, insanity and like wasting diseases were altogether unknown among them. When the negroes were emancipated there were upon these three plantations, including children, between four and five hundred as healthy individuals as could be found, and free from all hereditary taint or tendency to any disease whatsoever. The negroes as a rule remained on the plantations where they were born. It was not long, however, before syphilis appeared among them, and it gradually spread over these plantations, the disease in nearly all cases going into the tertiary stage. Some ten or fifteen years later consumption and insanity began among the adults, and many of their children died from scrofula and tuberculosis, and it was the exception rather than the rule that the children lived. Bodily deformities and idiocy and other morbid conditions were very frequent among them.

Alcoholic intemperance is another leading factor as a cause of insanity. The ultimate results of alcoholic intemperance in this race are to be apprehended more than any other influence, from the fact that there is a tendency, not only on the part of the men to alcoholic intemperance, but also with many of the women. Could we expect a perfect mental and physical organism from parents both of whom were drunkards? Legitimate results would be insanity, intemperance, depravity, crime, idiocy, epilepsy and various morbid conditions. Persons addicted to alcoholic excesses are almost liable to transmit to their progeny a strong tendency to these defects as one who is himself subject to one or more of them.

A distinguished alienist said, "that the children of intemperate parents are liable to become insane, intemperate, epileptic, and much more liable to be congenital imbeciles, is beyond dispute." I have long thought the worst effects of alcoholic intemperance is to be found visited upon the succeeding generation of drunken parents. The fact that both parents are seldom drunkards is all that saves descendants from utter ruin.

Blandford says that "if we could ascertain the statistics of insanity in other countries, civilized, semi-civilized and barbarous, I think it probable that we should find insanity in proportion to the use of intoxicating liquors and substances." I do not think brain tension or mental anxiety as to the care of their families in the future is a cause as yet of insanity among the negroes.

There are other factors in combination with the above, which I deem unnecessary to mention, that have had their influence in the conception and development of these highly insane and consumptive constitutions in this race, which are making them so liable to these maladies from slight exciting causes. Too much liberty and freedom, so far as the laws of health are concerned, is dangerous to the mental and physical integrity of any people.

DISCUSSION.

Dr. CAMPBELL, Knoxville, Tenn.—There has been a large increase in both consumption and insanity in the negro race since the Emancipation Proclamation, but not to the extent that Dr. Powell suggests. His paper is valuable in showing how the excellent care taken of the negro before the war induced his exemption from many diseases.

Dr. Powell says that in 1860 there were but forty-four insane negroes in the State of Georgia. I must question these statistics, and I think they can be accounted for. We find in the asylums now a great many of what are called "defective classes." These are people who are not able to make their way in the world against strenuous competition, and who have become a nuisance in society. Such people on the plantation, however, were not called insane; in fact, they made useful hands. The very same endowed individual now is at Dr. Powell's hospital.

In reference to consumption, I have no doubt there has been a large increase, but I must question his statement that the negro race was comparatively immune before emancipation. I have personal recollection that it was not so. We all know that excellent hygienic surroundings, a regular and carefully selected diet, will do much in warding off consumption; and the one-half to one pound of bacon that these negroes consumed every day was a most excellent prophylactic when the stomach was able to digest it.

In the mountains of Tennessee there are many negro families that have died out since the war. It was due to the lack of this bacon; the negroes were not nourished and they fell a prey to the ravages of tuberculosis.

Acute miliary tuberculosis before the war was called "negro consumption;" it had that name because whole plantations died off with it. They would die in a few months after the disease was recognized.

Dr. D. R. BROWER of Chicago—A few years ago I investigated this very subject. I found that in Virginia before the war all insane negroes were gathered together in a small ward of one hospital. They were a perfectly insignificant factor; fifteen or twenty was about the average number, and all the insane of Virginia among the negroes were there. Now Virginia has in a large hospital, Petersburg, containing about 700 patients; at the time I made these investigations there were about 500. The patients in the Petersburg asylum were not the class of patients whom the Doctor has just spoken of as "defective." In Virginia the rule is very rigid, and all these patients *demanded* the care and custodianship of the insane hospital; so that so far as Virginia is concerned I am sure that the statistics of Georgia bears out Dr. Powell in his conclusions. It is a menace to the white population, this rapid increase of tuberculosis. Some means must be devised by which the three great factors of insanity, tuberculosis, syphilis and alcohol, may be done away with. If we could exterminate these three things, there would be but very little necessity of discussing the etiology of insanity. Added to these is a fourth factor; that is, improper food.

Dr. POWELL—While there was no good reason why the census report up to 1860, and even up to the present, should not have been correct, this is especially true of the census up to 1860 so far as Georgia is concerned, from the fact that there was no family pride existing to prevent the return of these data, but more especially from the fact that these negroes were *mere property*, and do you suppose that an individual would return his negro as sound—when he would be worth $1,400 or $1,500—if the negro was in fact unsound, or even if he was defective? It is natural for us to suppose that the census returns in that day, and under such circumstances, were correct.

THE PHYSIOLOGY OF DECUSSATION OF NERVES; A ONE SIDED BODY MEANS A ONE SIDED BRAIN.

Read in the Section on Neurology and Medical Jurisprudence, at the Annual Meeting of the American Medical Association held at Atlanta, Ga., May 5-8, 1896.

BY GEO. M. KELLOGG, M.D.

CHICAGO, ILL.

The brain hemispheres are paired, and are as organically distinct as the two hands or eyes. From all parts of the body surface pass in each lateral half of the spinal cord and in the cranial nerves the afferent or sensory nerves pass into each brain. The motor or efferent nerves reversing this, pass from each brain to every muscle of the body. These nerves are so many living conductors whereby that complex organism a living man or animal is made a unity. To and from the spinal cord, also duplex, enter and emerge the nerves at each vertebral division. The posterior relay ganglia mark the entrance of the sensory nerves, while the motor nerves emanate from the anterior portion of the cord on each side. In each lateral half of the spinal cord these nerves pass up and down to join the medulla oblongata which also receives and gives off all but two of the cranial nerves. It also receives the accessions of the three cerebellar peduncles. A remarkable mechanism is here effected whereby the nerves decussate from the right to the left and from the left to the right, about 90 per cent. crossing while 10 per cent. pass direct. By this arrangement *either* brain receives and gives off nerves to and from both sides of the body. Above the pons the medulla oblongata divides into the crures. These right and left peduncles (perfectly independent of each other) expand upward and outward and through rapid accession of substance expand in the substantia radiata, becoming the right and left cerebra. The radiating nerves are the medullary substance which form the frame work and large interior mass of the paired cerebra. The nerve fibers can be traced from below until they reach the cortex and connect with the nerve cells. The cortex is about one-tenth of an inch in thickness and forms the convoluted surface of the brain. It is supposed our mentality has its seat therein. It is more vascular than the medullary substance. It is grayish, due to pigmentation of cells, granules and neuroglia. A cross section shows it made up of five layers of cells and neuroglia. These shade gradually into each other and are distinguished by the shape of cell constituents. Nerve fibers pass vertically and transversely interweaving among the nerve cells. Nerve cells are triangular, pyramidal and fusiform, are nucleated and filled with granular matter into which the fibers project. They are definite structures, do not increase in numbers from early life to advanced years, nor are they known to be reproduced when destroyed.

The olfactory nerves have no connection with the medulla oblongata, but emanate directly from the olfactory bulbs beneath the frontal lobes; they are eighteen or twenty and pass directly through the underlying foramina of the cribriform plates, and melt

away on the surface of the ethmoid cells and nasal passages generally. The sense of smell being centrally placed and with no motor reactions its nerves do not decussate. The optic nerve has no connection with the medulla oblongata. It has, however an independent mode of decussation. Its fibers unite and cross in the optic commissure. Here also a notable portion of fibers pass direct to the optic tract of the same side. Here we see the easily demonstrable type of decussation characterizing all sensory and motor nerves. The great preponderance of nerves, 90 per cent., crossing in the medulla oblongata gives a pronounced and primitive inhibition power to either side. This anatomic feature effects this remarkable result, namely, a *switching* off of one cerebrum in order that the other may rest. It would appear that nature designed that either brain through its crossed and direct tracts should be able to control *temporarily* all sensory and motor manifestations on either side of the body. We can not but suppose that this decussation structure is for temporarily holding one brain alone in action, just as is the case with the two eyes, which perfect counterparts as they are, we can hold one or both eyes in use with the same result upon the sensorium. The two eyes are functioned by habit to joint action, hence they are perfectly ambidextrous.

The question of habit is a large one. It has been defined as the tendency of acts or movements of living beings to be repeated. Certain nerves to and from a group of muscles control them, at first unequally but after many efforts the muscles are compelled to act in unison. At last in the effort of adjusting to harmonious action, a muscular movement first clumsy and slow becomes almost automatic, each detail of the movement is as if it were obliterated. We can not say each nerve conductor does not act separately though we say usually the action is instantaneous. However, we realize from experiment that the time element does come in and can be measured by delicate instruments. A certain less and less moiety of duration in all rapid conjoined movements is apparent. We also know the action is not strictly automatic, since if one or more of the nerves of the group is cut between the brain and muscle, the action is destroyed as certainly as though a wire was cut in a complex system of telegraphy. Habit begins with the first action till it becomes most confirmed and with each successive act becomes easier and more rapid. The effect of habit is especially seen in the successive or simultaneous action of voluntary muscles, which are united in motion as in writing. In these muscular associations if an impulse is started, it runs through a long list of words, etc., without fresh impulse. The adroitness of handling the pen in continued motion is a matter of education and habit. The musician affords a striking example in the development of the finger movement. The muscles of vocalization are so much under the control of association habit that were it not for this no one could learn to speak. The power of habit is shown in the association of ideas. We speak of habits of drunkenness, swearing, lying and of every modification of speech or thought; habits of industry, order, idleness, vanity, cheerfulness and melancholly; we are called "bundles of habits." Set a boy at a new lesson, his countenance, skin, pulse, demeanor, are much disturbed, as from great physical exertion; this disappears as he is familiarized with the process.

Habit also instead of increasing sensation lessens it. We habitually come to disregard our clothes after a while as well as sounds, though at first conscious of them every minute. Thus habitual motions become changed from volitional to so-called secondary-automatic actions, as in walking and speech. The action of the vocal muscles is preceded by sensation, idea and volition, but after speech is acquired it becomes purely sensational or ideagenous, easy and as it were automatic. Habit, first the offspring of volition, seems to become its successor. Repetition of volitional impulses, however, give increased force to the related centers of motion, because these centers become active. Many ideas, as the ego and non ego, have a natural tendency to conjoin, as the existence of one involves the other. But ideas casually clustered and linked together by the mechanism of volition will at last as strongly coalesce. The force of habit thus compares with instinct, and education vies with intuition, and habit becomes second nature. Habits once acquired are not easily discontinued, they are grooves in which the mind is accustomed to move. The great importance of habit is perceived to be economy of time. Through rapidity of muscular action a complete unity of our complex animal organization is effected. The tendency to form ruts or habits in the nervous system becomes the potent cause of one-sided action of body and brain. At last, actions, the result of education, become second nature. This is seen in the great right and left sided deftness, which becomes permanent and assumes an undue importance in the vital economy. It is sometimes the left side, but generally the right. It might as well be both sides.

Our body is built of paired limbs, paired muscles, paired nerves and organs, alike in form, structure and function, being simply counterparts like the eyes, ears, hands and feet, the only difference being the reversals necessitated by opposite sides of the body.

All mammals are made up of such paired parts, alike in function and strength. In man alone we find the exception of a difference of the two sides in strength, dexterity and usefulness, though none in form, make-up and function.

How has this great difference originated? A heredity of ages has had no effect in changing the form of limbs, hands, muscles and nerves of the two sides. But how great the difference in strength, dexterity and usefulness in the two hands and arms! I contend it does not arise from nature or necessity, but is simply a human contrivance or convention established in the infancy of the race, and kept up by habit arising alone from the tyranny of an antiquated if not foolish custom. A child is born weak helpless, without an instinct; it is dropped into the loving hands of parents, who enter at once upon its care, sustenance and training, teaching it by its external senses, organs, muscles and nerves to pass through those marvelous, though simple processes, the result of which is the education of hands, feet, eyes and all the special senses. The nervous system is an infinite congeries of conductors from all parts of the skin, from all internal structures to terminate in each brain, which in turn becomes the storehouse and place of record of all sensations resulting in memory, where all associations and ideas arise and are preserved in the cerebral tablet, so much more wonderful than Edison's. The brain itself is trained in turn to exercise itself in comparing sensations and ideas and in directing movements, and at length in the practice of the royal prerogative of reason, judgment and will.

A fair and perfect mechanism is committed to human care. Henceforth nature may be said to cease, for man begins. A primitive idea of nature means all outside of man.

Perhaps it is useless to inquire why the ordinary right-sidedness of body became established among us. I can only suggest that it originated in the early days, when fighting with each other was the chief occupation and duty among men. The wearing of the shield on the left arm and the wielding of the club, spear or sword in the right hand became established and the resulting effect has persisted ever since. The repeated appearance of left-handed persons is against the presumption of right-handedness being an institution of nature. Biblical history says that soldiers of the tribe of Benjamin were left-handed and thereby became expert "slingers and mighty men of war." The Carr tribe clan of Scotland are also said to have been uniformly left-handed. Notwithstanding the knowledge of the oft-repeated supremacy of the left hand and side, yet the thought of ambidexterity is a recent suggestion. The attempt to establish it has been made only in late childhood or early manhood. This, however, seems too late to effect any satisfactory results. Still the partial success among artisans and others, in effecting moderate ambidexterity is promising, and evidences what may be hoped for when it becomes general. It is hardly possible to estimate the advantages which would ensue by securing to the race the equal use of the right and left hands. An increase in the labor capacity, especially in the skilled crafts, would doubtless equal a third, not only from the coincident use of two strong hands, but from the respite afforded to nervous and muscular energy of either hand in use. It would obviate writer's cramp and other fatigues contingent upon continuous use, and relieve the great disability arising from injuries or disease of the practiced hand. I have seen many cases of partial ambidexterity among mechanics, and the accomplishment was regarded by them as of much importance. I have seen but one case of perfect ambidexterity. The late Dr. Alex. Mott of New York, could use equally well either hand in writing or in the most delicate operations and in nice dissecting. He was for years one of the most skillful operators in New York. When he was a child his father, the celebrated Valentine Mott, said, "My boy must succeed me in my business. I shall see to it that he has two good hands instead of one like his father." The training was a complete success in securing a two-handed deftness which was a marvel to all on-lookers. It is stated that Dr. Pancoast of Philadelphia was also a perfect ambidexter. It is extraordinary how few are known to have been so in past history. Homer's Iliad describes the warrior Asteropæus as throwing a spear with each hand at once. Also some of David's men-at-arms could use both hands. Leonardo da Vinci and Michael Angelo are known to have been perfect ambidexters. Leonardo da Vinci was not only a distinguished sculptor and painter, but an eminent machinist, engineer, architect and inventor. It is remarkable that these two great men, on account of this feature, are placed by our statistical and science gossip, Lombroso, among his mattoids or degenerates, who happen to share in the accomplishment of pickpockets. The latter, from neglected training or from obvious professional reasons, in the ratio of ten or eleven in a hundred are ambidextrous or at least left-handed. Each of these men, Leonardo da Vinci and Michael Angelo, lived to vigorous old age and were distinguished by fine physique as well as marvelous ability.

Physiologists admit that it is through the far and wide ramifications of the nervous system and the definite distribution of nerves and mode of conduction established, that habits are initiated and become confirmed, whereby second nature becomes the rule and first nature the exception. This may be seen in the many deftnesses of hand or foot secured by long practice. We know that novel coördinations of muscles, feats of strength and legerdemain are compassed by gymnasts and sleight-of-hand performers which seem preternatural, but become easy of execution. In course of time, too, movements at first special or occasiona lbecome overmastering, persistent and habitual and usurp an undue place in the vital economy. It is so with the right side; it might as well be the left: or it might be both sides. It seems to me anatomy distinctly points to this as the natural consummation. The only practical way to insure ambidexterity is to begin in infancy and keep up the effort through youth, while the body habits are being established through the nervous system.

My contention concerns not merely the physical training of the muscles and limbs. I believe that the brain is affected far more than the rest of the body by by our one-sided training. Within the past year I have had charge of a case of brain softening which involved the whole of the right crus or peduncle of right brain. In the postmortem it was found that all sound nerve fibers went entirely to the left cerebrum. The convolutions or cortex of both brains were sound. The pons, medulla oblongata and spinal cord were healthy. There was considerable thickening of the dura in places and a more or less atheromatous condition of the large cerebral vessels. In this case there was no paralysis. The special senses were all good. There was some loss of directive power of the eye, the right branch of the third pair of nerves being involved at its origin. The great failure seemed to be in will power and in a general indisposition to cerebrate. The patient could by suggestion perform all ordinary movements. His reasoning powers were normal, but he would fail in successive acts of cerebration. His word memory was good but he tired easily in putting words together as in writing. He recognized people, always calling them by name. Rising from a chair he would often stand timidly, uncertain in stepping, but by a word he would step off freely. By slight impulses, given by hand direction on upper part of the spine he would move off briskly round and about and up stairs, being guided as a horse by a bridle. Acts to which he was long accustomed, such as eating or smoking, he performed without suggestion and very well. He indicated in many ways the strength and persistency of established habits. This case proves that a man can think and act without help from the right cerebrum, and has been to me a crucial case.

My study of several cases of aphasia a number of years ago almost established the view above expressed, but I was long led to imagine that the right brain was responsible for what we call unconscious cerebration. Aphasia is characterized by loss of language and originates from cortex lesions in the third left frontal convolution. At first in aphasia words fail, but the patient may recognize words addressed to him. The

power of writing words is lost early. My dissections corroborated fully the determinations of Broca, who discovered the pathologic fact in 1861. Since that time, by more than a thousand cases, it is confirmed that in all right-handed aphasics the disease is located in the left cerebrum. It has been further observed that in all left-handed patients the softened area is in the third right frontal gyrus. The question invariably arises in these postmortems: Why does not the healthy right brain carry on the power of speech when the other brain is diseased? Is it not because the right brain by decussation of nerves in the medulla oblongata is preponderantly connected with the left side of the body, and is thus by habit untrained to action? The result of left-handedness is that the right brain becomes master. But the great majority of men are right-handed; the left brain has been elected in early life as the master of cerebration. It follows as a corollary that were both sides of the body trained exactly alike the two brains would be functional to coincident as well as separate action just as is the case with the two eyes. Among musicians, whose nervous systems are greatly exercised and strained by their calliug, aphasia or amusia is common. Here the area across the Sylvian fissure from the third left frontal is involved. The musician becomes dumb to music, instrumental or vocal, showing that his musical ideas or expression powers are stored in the left cerebrum, provided he is a right-handed musician. Though the pianist and the violinist use their left hand much, it is mostly as an accompaniment. He hardly ever attempts instrumental music until after the fifth or sixth year, when certainly the one-sided body habit has been fully initiated, and as we have stated, where one cerebrum has been functioned to control, it commands both sides of the body or the motor and sensory nerves of both hands just as it does the bilateral nerves and muscles of the vocal apparatus, as seen in common aphasia.

I have never seen any attempt to explain the *raison d'être* of decussation of nerves. In the case of right-handedness established in childhood this switching off of the right hemisphere is made permanent by habit, and the left brain is functioned or elected as the entire master of ceremonies, whereby it becomes the storehouse of all memories and associations, the home of will and ultimately of all thought. The plan which nature through anatomy established, whereby the two brains should be perfectly complementary to each other, is defeated by the custom of right-handedness. After the decussation of the nerves in the medulla oblongata there is an accession of crossed nerves from the pons and cerebellum; from these sources the motor and sensory filaments unite with the spinal cord fibers to form every sensory and motor nerve on both sides of the body. The use of decussation becomes thus of no further importance, after a one-sided body is formed. The decussation of the optic nerves is kept up in function, however, through the perfect coöperation of the eyes; one retina supplements the other. All the special senses must become in time functioned to the left cerebrum, owing to this establishment of supremacy by habit. The celebrated case of Professor Lourdet of Montpellier, a prominent lecturer of the French medical faculty, is both significant and convincing. He was struck by aphasia and lost all power of speaking or writing his mother tongue. After a while he found that by putting letters and words together he was able by degrees to relearn his own language. Thus beginning as a child, in course of time he taught himself by functioning his right brain again to write and speak. This has been repeated since after traumatic injuries of left brain involving the third left frontal convolution, especially in young subjects. The right brain has been gradually trained to the exercise of verbal memory and thus a modified cure is effected.

Miss A. of Cleveland, Ohio, was deprived of sight by amaurosis. She was an accomplished young woman, with fine memory and conversational powers. Her blindness continued several years, but her mental faculties seemed to increase with her infirmities. She was killed suddenly by a fall. A postmortem revealed a bony tumor springing from the orbital plates which embraced the optic commissure. The tumor had grown to the size of a man's hand and lay in the right cerebral fossa. It had effected a general atrophy of the right cerebrum. There were no failures during the growth of this tumor of any cerebral powers. This case shows that one cerebrum may be thrown entirely out of action by disease, as we consider it can be by habit.

Andral's case is significant. A man, 28 years of age, died with atrophy of the right cerebrum. A large cyst occupied the entire field of the right cerebrum, in which was not a trace of cerebral matter save a portion of the basal ganglia. This person took a fairly good education and used it to good purpose. "His memory was excellent, his manners fine, his understanding was above mediocrity." Cruveilhier gives two instances where but one hemisphere existed, yet there was bilateral action of sight and hearing as well as of all body muscles.

Lattemand describes a person of normal psychic constitution in whom the right cerebrum was found displaced by a cyst filled with serum.

The corpus callosum is a broad band of white medullary matter which passes from one side of the brain to the other; it is generally looked upon as commissural. This band completely roofs the lateral ventricles, arching over the great brain ganglia, with which it is more or less intimately connected. There have been several cases where three-fourths of this structure have been destroyed by softening and still no particular disturbance of mental or sensational powers were noted. It is also sometimes absent. Bruce collects fifteen cases of entire absence of corpus callosum. On the whole, he is inclined to reject the idea of the coördination of the two hemispheres thereby. The other commissures, the anterior, middle and posterior, are small and two of these have been known to be absent with little or no disturbance of coördination. The medullary fibers in the medulla oblongata and pons cross and interweave from side to side and seem exactly adapted to effect coincident action of the two hemispheres. Yet from the pressure of a notable portion of fibers, called the direct tract (uncrossed), which, uniting with largely preponderating crossed fibers, do enable each hemisphere to act independently, which independent power designed for temporary use becomes permanent by habit, and so all the commissural arrangements are made of little or no account.

There is no physiologic reason why the two cerebra should not act coincidently and in perfect harmony as do the two eyes, or by the switching off apparatus, viz., the decussation, which gives the primitive inhibitive function either cerebrum might respite the other

by acting alone. Moreover the free commissural connection would permit the counterpart areas to keep together in their record of memories and sensations. Thus we contend that one brain is unfunctioned inevitably. It needs no discussion to show that were one eye shut off from coincident action with the other for three or four years, the two eyes would never be able to act together. Indeed, I have known a life-long infirmity to follow a few months' separation of the eyes. So, if our cerebrum is functioned to act alone in singing, speaking, etc., it would become permanently divorced, or one cerebrum would be for life made master of cerebration.

"Man thinks because he speaks," says Leopold Noiré. "No language without reason," says Max Müller. If man thinks because he speaks, more often he speaks because he thinks. Language is the outcome of mentality, in particular of memories, comparisons and associations. All sciences, all philosophies, all religions even, find their entire expression in language, as all art, all experience, all poetry, the ideal and the real, find their interpretation here. How can the physiologist think of language as a single motor function like striking or kicking. Language is the voice of the mind concerning external nature, the body and all its members, and reports to us of our innermost consciousness. Its seat is where all our mental attributes are clustered and in easy reach.

When the right brain has been switched off from all direction by habit, it is only occasionally, by years of training, it can be brought into action. If the two brains were trained to joint action, exact counterparts as they are in form and purpose, our understanding or mental power would be greatly increased. If the aggregate of our mentality be not increased, there would surely result greater accuracy in our recollections and less likelihood of our forgetting, as we would then have two places of record. Beside, the brain commissures would be brought into free use between the cerebra, greatly to reinforce the accuracy of the mind in all its functions and adding much to the facilities of cerebration. What causes the great differences among minds is unknown. The volume of brain has been with reason considered important. At least this will be doubled if our contention is well founded. Certainly the wear and tear and susceptibility to disease and injury must be greatly increased by single cerebration. The strong proclivity to insanity might be obviated by joint action and the needed respite which one brain would afford the other. The tendency to monomania would be diminished and the evils of brain softening become far less common. If left-sided cerebration is brought about by the right-sided training of the body, how important that this ancient foolish custom should cease. "Custom only can alter and overcome nature," says Bacon.

Infants under my observation show little or no preference for the use of either hand. When a young child is laid on his back his legs and arms are always thrown out in every way, one side as much as the other. I have often seen mothers slap the baby's left hand or tie it up to the back to discourage its use. The result is then sure, that the right hand is put forward in all movements, also in judgments of matters of sensation, of weight and pressure, of the roughness and smoothness of bodies, of degrees of heat and cold. The right hand only is trained to strike with hammer or club. It only is practiced in throwing a ball or stone. It is indispensable that all these practices should be shared by the two hands through infancy and childhood in order to effect the desired result. In early childhood all these primitive sensations and movements leave their impressions on record in the left cerebrum with right-side training; this being continuous, must surely produce a permanent effect. Physiologists are agreed that the systematic use of the voluntary muscles must have great influence in the development of the brain. It is through muscular movements that we acquire through touch our ideas of matter, of the *me* and the *not me*, of time and space, much reinforced through the eyes and other sense organs. The very germs of volition are found in movements. Conscious movements are the source of pleasure and pain, which we recognize as germinal also in mental life.

With respect to the muscular system it is undoubtedly true that a prolonged non-use of a part leads to atrophy. This does not hold true of the eyes or the nervous system. In many cases of cataract, etc., which have continued for many years, when operated upon by removal of crystalline lens, the vision is restored, showing the normal susceptibility of the retina is in no manner degenerated. Though the right brain may be unfunctioned from infancy, its nutrition is kept and certain nerve tracts, when irritated or injured, must respond by left side symptoms and paralyses. This could hardly be different, for the nerve conductors are all there, nor are they destroyed by non-use. There is no good reason to suppose that brain tissue increases by exercise. The irritation or injury of cortex is one thing, and its responsiveness to the trained nerves from below is quite another. The right brain may be irresponsive to normal peripheral, muscular and cutaneous stimulation, yet show left-sided convulsions and paralyses by clots, embolisms or traumatic injuries. The right brain, though disfunctioned by habit, is still well nourished, and could perform its duties if its property of stimulation by nerves from below were not switched off. Injuries to the right brain by clots, embolisms, fractures, etc., are recovered from far more promptly than the same injuries to the left brain. The peripheral nerves pass to and from every part of the surface and every muscle to end in each cerebrum. These conductors pass side by side in the spinal cord and up through the medulla oblongata. Those from the right side cluster and pass into the left peduncle. Reinforced by the direct fibers, they spread out radiatingly to form the medullary substance. The nerves from the left side pursue the same course to form the right cerebrum. These radiating fibers form the body and framework of each brain. They sustain at their apices the cortex or surface gray matter with its manifold convolutions. This blanketing investment in which all our memories and sensations are stored, is comparable to the electric tension of the Leyden jar. This gray matter is a continuous layer, it dips down between the convolutions forming the sulci and returns on the other side of each sulcus to spread over the adjacent convolutions. These sulci carry and support the nutrient vessels, at the same time greatly increasing the surface. The convolutions have also what are called tangential fibers passing from one to another and to more distant areas. The crures, the legs of the hemispheres, may be well likened to the trunk of a tree whose expanding foliage is like the surface gray matter into which the nerves project. Indeed, the nervous system may be well called "the tree of life;" its roots are the sen-

sory, motor and organic nerves of the body. The culminating blossom and leafage is cerebration — the highest attribute of organized being. The circulation of blood through the brain is remarkable. It is estimated that one-fifth of the blood is continuously passing through it. Four large arteries enter the cranium through rigid, tortuous channels, by which the *vis a tergo* of the heart is much diminished. Again, these arteries at the base of the brain turn to a horizontal direction in the circle of Willis, whereby their oppositely directed currents serve to neutralize their momentum, that the delicate brain tissue may not be so readily lacerated. The greatest peculiarity of the brain circulation is, that from surfaces of contact the arterioles are given off parallel or in brush-like pencils to the various areas, and not in branches and subbranches, nor do they inosculate as the small vessels do in other tissues. When an embolism or clot forms in these vessels, the special area supplied ceases to be nourished and becomes the ready seat of brain softening. The most notable supply is through the great Sylvian artery, penetrating deeply into the brain and supplying each side of the fissure. This part of the brain being so well nourished, is especially adapted for the location of those early established functions of speaking and hearing and the mental associations therewith connected. The discovery of the speech center led to a great impulse among the evolution physiologists, to discover other faculty centers, and now we have the brain surface dotted over with figures. Although bullets, and even a tamping bar, have crashed through human brains, yet recoveries have ensued with much loss of brain substance. Still this wonderful material would patch up its rents indifferently, and the patient would recover nearly if not all his mental powers. This indicates that other parts do take up the parts of lost areas. I can not insist too strongly that the motor and sensory system, through the hand, establishes the primary relation with the brain and its functions. It is very significant that in Dr. Edward Seguin's study of the training of imbeciles, he found that the training of the idiotic hand led first and most surely and expeditiously to the development of the mental habit, whereby he was able to secure results hitherto deemed impossible.

Anatomists and physiologists have vied with each other in their expressions of admiration for the dainty and perfect structure of the human hand. It has been the text of a famous treatise as evidencing design in creation. The far away wonders of the firmament, of the solar system and the stellar universe have evoked no higher and more sincere expressions of wonder. Its exquisite adaptation to simple physical ends, its responsiveness to mind. has been a promise of the present in all the past, and is a prophecy of all future civilizations. No wonder the hand has been, with some philosophers, a most complete measure of the soul and its capacities. Why should there be, through human perverseness, but one hand instead of two? If language can be called the exponent of the mind, as truly so is the hand in the triumphs of art and in all mechanical industries; its responsiveness to intellect in the building and decoration of homes can be alone matched by its answering touch to the calls of benevolence, friendship and love. Let no one marvel that the hand should lead the mind through all the mazes of childhood to the heights and depths of life. The hand is as truly the organ of the mind as is the brain. What greater promise of improvement can be afforded than by two perfect hands and a double brain, healthfully responsive each to each through those exquisite conductors, the nerves?

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TREATMENT OF LUPUS VULGARIS BY MEANS OF ELECTROLYSIS.

Read in the Section on Dermatology and Syphilography, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5–8, 1896.

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As the *causa proxima* of lupus vulgaris has been established beyond any doubt to be the tubercle bacillus, and the intimate process to be a local tuberculosis of the skin, of necessity the question arises, whether we are able to destroy the tubercle bacillus by constitutional remedies. What, for a while seemed to be a certainty, remains still as a hope of the dermatologist. Several cases of lupus vulgaris have been referred to as completely cured by the Koch's tuberculin injection,[1] but impartial criticism and experience has failed to prove the so much desired assertion. Dr. A. Carruccio, at the last international medical congress in Rome, referred to twelve cases of lupus vulgaris treated with tuberculin injections in the clinic of Prof. C. Manassici. The minimum dose was 35 milligrams and the maximum 459 milligrams in twenty-seven injections. In every case the local reaction was apparent in swelling, redness, serous exudation, falling of the scabs, softening of the nodules, ulceration or necrosis of the same, erythema on the scars and new lupus eruptions. General symptoms were also apparent in every case as chill, headache, increased temperature, thirst, sleeplessness, pain in the muscles and joints, heat of the whole body, nausea, sometimes vomiting, abdominal pains, increased pulse and respiration and copious sweating. In three cases, after many injections, no result was obtained, so the patients were curetted and then cauterized with nitrate of silver. In some cases there was some improvement, but soon relapse occurred. In two cases the disease became much worse. The conclusion of the author is that the improvement was permanent only in those cases where local treatment was applied in combination with the tuberculin injections. I have seen unfortunate cases of lupus vulgaris, where tuberculin injections have been applied to the number of 200 and yet the lupus process inexorably continued its destructive work. It was therefore necessary to return to the old principles of treatment of lupus vulgaris, which have given good results in the hands of our teachers and in our own hand.

The old classic treatment of lupus does not ignore the general system. Cod liver oil is given in abundance, syrup of iodid of iron, phosphorus, creosote, hypophosphites, etc., are administered according to the peculiarities and to the indications of the case, not with the view of improving lupus locally but to improve the general system of the patient. Tuberculin can be used as treatment for the general system if found indicated, but I would not use it with the intention of curing a case of lupus. The attention of

[1] Report of a case of lupus vulgaris treated with Koch's tuberculin. Loomis and Fuller: Journal Cut. and Genito-Urinary Diseases, 1891.

the dermatologist is therefore called to the local lesion and his object is first to destroy the nodules of lupous tissue, and second to obtain a soft and regular scar without injuring the esthetics of the physiognomy.

To obtain the first purpose the surgeon will say that he can accomplish it in a moment with the scalpel. He takes off the affected skin, and then grafts with new, and without much trouble the case of lupus has in a few weeks been fully cured. Dr. E. Senger,[2] in Krefeld, advocated this method, claiming the complete destruction of the lupus-affected skin. I have under treatment a case of lupus vulgaris where a piece of skin one inch square had been removed from his forehead and grafts applied. The grafting had taken with good results, but all around the edge of the grafting new lupus nodules are again developing. I feel very much opposed to this kind of aggressive treatment, which I must refer to as a kind of surgical mania that every affection must be cured with a surgical operation. After having in the generality of cases discarded excision of the diseased skin, we find numerous methods of destroying the lupus nodules which can be referred to the curette, or to the caustics. The lupus tissue is so soft and friable that it can be easily removed with the curette. The resistance of the healthy skin indicates when to stop, as the curette does not scrape nor penetrate the healthy tissues. In cases of extended lupus ulcerations, with deep and thick infiltrations and large lupous nodules, the curette is the most speedy and satisfactory instrument for treatment.

In other cases when the lupus nodules lie deep in the derma and are small and scattered, the curette can not be of as much benefit as in the cases above mentioned. Here the linear or punctiform scarifications are indicated. The idea is to produce necrosis of the lupus tissue by cutting through the blood vessels which supply nourishment to the infiltrating cells. L. Brocq[3] recommended the linear scarification, followed by application of the galvano-cautery and dressing with a sublimate solution, completing the treament with cauterizations with nitrate of silver. The attention of the dermatologist has always been called to the possibility of producing necrosis of the lupus tissue, and as simple scarification was found insufficient for the purpose so as to help its action by means of caustics Auspitz and Schiff recommended that the point of the scarifier be moistened in some caustic solution, as iodin, chlorid of zinc or carbolic acid as to place in the middle of the lupus tissue a drop of the solution. Instruments were made for this purpose. But as the lupus tissue is soft and friable we can easily destroy the nodule by means of caustics, especially the stick of nitrate of silver, which can be easily inserted into the tissues.

When we discuss treatment we do not find difficulty in destroying lupus infiltration, but when we treat the patient we find many obstacles which we would never have foreseen. And for this reason we can not follow the same method of treatment in every case and often in the same case we must use different methods to bring about recovery. I wish, however, to mention electrolysis in lupus, which is not esteemed to the full extent of its merits. Indeed, the physician wishes to see a palpable effect from his application, and as the galvano-cautery produces a sudden destruction of the lupus nodules and the electrolysis shows little immediate change, we find the electro-cautery preferred to electrolysis. In speaking of the thermo-cautery of Paquelin, Unna[4] said that it must compete with the sharp spoon, and the scarification with salycylic and pyrogallic acid. In the electrolysis we have the scarification and a true and perfect disorganization of the tubercular tissue without the pain and destruction caused by other means.

We do not use any cauterizing action of the galvanic battery, but only that peculiar physio-chemic action of dissolution of the elements caused by the cathode on the organic tissues. According to the theory of Grotthüs, electrolysis consists of a series of decompositions and recombinations, and of a direct transfer of the elementary atoms from one pole to the opposite. The quantities of the substances which are thus decomposed will agree with the quantities of their chemic equivalents, but not with their atomic weights, for every eighteen parts of water decomposed, two parts of hydrogen will be freed and sixteen parts of oxygen, the combining equivalents of water molecules being in the ratio of one to eight. The action on the animal tissues is apparent at the negative electrode, which, when applied on the moistened skin, produces signs of local inflammation, swelling, redness, vesication and edema. When the current passes through the tissues with a negative electro-needle, a certain amount of water will collect around it. This may be considered due to a secondary formation, from the combination of hydrogen and oxygen the result of decomposition of the organic compound. This electrochemic action is not limited to the place touched by the needle, but extends to a larger area. The tissue becomes white, swollen, slightly edematous, forming gradually, an eschara, which is detached in the form of a crust after some ten or twelve days. When the tissues are vascular the destruction is greater and more rapidly accomplished, the blood is coagulated, the blood vessels are cut through, and the infiltrating tissue remains without nutrient supply.

A weak current, applied through a needle, in a hypertrophied tissue, will have more effect if continued for a long time, than an intense current for a short time. Moreover the weak current will not cause any inflammation in the tissues, but will induce a destructive metabolism.

A few months ago a young lady affected with lupus of the face came under my treatment. Miss A. B., age 22, a blonde, with sallow and freckled complexion, blue iris, scanty hair, extremely sensitive and nervous, Her general health has been fairly good. Lupus began around the nose when she was 10 years old, and gradually extended to the cheeks, lips and on the nose. When she first came under treatment she was very emaciated, pale and had a slight cough. The examination of the chest did not reveal any infiltration of the lungs. Lupus nodules from the size of a pin head to that of a hempseed were scattered on the nose, causing it to appear red and thickly infiltrated. Both nostrils were infiltrated and swollen, completely closed and covered with thick crusts. The septum was equally swollen thick and infiltrated, the infiltration extending toward the lips, which were equally thick. Numerous nodules from the size of a pin head to that of a split pea, were scattered all over the cheeks. A large lupus nodule was on the edge of the superior lip, causing swelling of that part. The patient had received fifteen or twenty injections of tub-

[2] Berlin Klin. Wochenschrift, No. 33.
[3] Journal of Cutan. and Genito-urinary Diseases, July, 1888.
[4] Monatshefte für Pract. Dermatologie, Band ix, No. 9.

erculin without any result. The nodules had been several times cauterized and scraped, but always with unsatisfactory results, and all this had made her so nervous that she would scarcely allow a close examination.

Internally she began to take cod liver oil and syrup ferri iodati; locally a salve was prescribed containing acid salicylic gr. xx, creosote gtt. xxx, vaselin 3i. This was applied on a piece of lint twice a day. As the nostrils were completely closed with lupus tissue, I deemed it better to use the curette and remove the flabby hypertrophic tissue. This was easily done very much to the relief of the patient. The thick swelling of the lips, and all the small lupous nodules, on the nose and cheeks were not easily curetted, especially on account of the excitability of the patient. I had already used electrolysis with satisfactory results in cases of different growths of the skin, and I thought to try it in the lupus nodules. It is well known, that altered tissues and lupus tissue offer much less resistence to the electrolysis than a healthy one, so that currents of small intensity will be sufficient to disorganize the lupus tissue, without injuring the healthy one. I used a galvanic battery limiting the power of the current from twelve to fifteen milliamperes. The active pole is the negative or the cathode, and the positive anodes is only passive, therefore the needle is attached to the negative and the sponge to the positive which the patient takes in her hands. The needle is inserted into the lupus nodule as deep as it can go. The tissue swells, serum flows out, forming around the needle and gradually the affected point becomes white in appearance. The pain produced is very little and in case of too much sensitiveness it can be diminished by local application of ethylchlorid or applying a 5 per cent. solution of cocain to the ulcerated surface, or by local anesthesia with the method of Scheink.

The needle is left in the lupus nodule for one minute or longer, as I prefer a relatively strong current of 15 or 20 milliamperes continued for one minute to a too mild current of 5 or 6 milliamperes prolonged from five to ten minutes. The electrolytic action is not limited around the needle, but it extends to the whole nodule. For this reason I consider an ordinary needle to be sufficient, and the multiple needle electrode of Prof. Lange should be used only in exceptional cases. The idea of the application of electrolysis in lupus vulgaris is nothing new, as G. T. Jackson[5] referred to six cases of this disease treated by this method with encouraging results. Gardner and Lustgarten had already reported in the *Medicinishe Wochenschrift* of Vienna, on the treatment of lupus by electrolysis with the flat electrode. They, however, were using an electrode in the form of a button, which was applied on the surface, while Jackson used the needle inserted in the lupus nodule. Kaposi too mentions the use of the electrolysis in lupus vulgaris, referring to the experience of Groh, Behrend, Gardner and Lustgarten, but it seems without personal experience.

Recently, at the last International Medical Congress, held in Rome. Dr. A. Santi of Berne, "Contribuzione alla studio dell'Eletrolisi nella Dermatologia"[6] recommends very highly the use of electrolysis in lupus vulgaris. He had applied it often in those cases where nests of lupus tissue are concealed in the scars, or in the healthy tissue and can not be reached by other methods. He refers to the case of a man affected for over twenty years, treated by different physicians and specialists with various methods, but without benefit. Santi treated him by electrolysis and obtained brilliant results.

The applications were repeated every three days, for the reason that the lupus nodules were very numerous and she could not endure a long sitting. Therefore it took a long time to destroy all the nodules. If electrolysis causes pain it is not lasting and the operation can be repeated the following day without any objection from the patient. In the application of electrolysis the diminution of the infiltration in the tissues is remarkable. The nostrils and the upper lip were hard, swollen and thickly infiltrated. The electrolysis was applied, taking care to place the needle into the lupus nodules by the help of a magnifying glass; the following day the swelling had decreased considerably over the whole surface.

What we obtain by means of electrolysis in lupus is the destruction of the lupus tissue, without burning or destroying, by a mild hystochemic action, which removes the fluid contained in the cells of infiltration and causes a disorganization of its hystologic elements. The nodule is changed in its hard eschar, which is gradually detached from the healthy tissues and leaves a small and scarcely perceptible scar. Its action is not injurious to the healthy tissues, which are not affected by the mild current, but is expended on the tissue of infiltration. The needle inserted into the tubercle of lupus acts similarly to scarification, cutting through the blood vessels, which bring the nutrition to the cells, with the advantage of coagulating the blood. The scarifications have been recommended by L. Brocq[7] in the treatment of lupus vulgaris, followed by the cauterization with the galvano-cautery. In electrolysis we have combined the scarification and the galvano-cautery, without causing great pain to the patient, and therefore can be repeated, as the patient will not refuse a second treatment should it be necessary. Unna[8] expressed his opinion on the application of the Paquelin cautery, saying that in lupus it must compete with the sharp spoon, the scarification and the application of salicylic and pyrogallic acid. In my opinion, the actual cautery not only destroys the lupus, but also affects the healthy tissues, causes a deeper scar and although applied under local anesthesia, is looked upon with horror by the patient, who will not submit to its application a second time.

In conclusion, the local treatment of lupus vulgaris has in view the destruction of the nodule, which is done either by surgical means, scraping, burning, scarifying, or by chemic action, as by applications of lysol, pyrogallol, salicylic acid, sublimate, chlorid of zinc, etc. The methods are often combined. Unna,[9] for instance, introduces a scarifier into the lupus nodule and then sticks in a wooden plug covered with cotton saturated with a solution of 1 part sublimate, 4 parts carbolic acid and 20 parts of alcohol, which is left in place for ten minutes. Good results are reported from this method and no doubt when we have destroyed the infiltrating cells we obtain recovery from lupus. In my opinion, the treatment of lupus must be subordinated to the individual case, and according to it the method is chosen. Electrolysis gives good results in lupus, but on a large ulcerated surface the curette

[5] Journal of Cutaneous and Genito-urinary Diseases, November 1890.
[6] Atti dell XI Congresso Medico Internationale, Vol. v.
[7] Journal of Cut. and Genito-urin. Diseases, July, 1888.
[8] Monatshefte für pract. Dermatologie, Band ix, No. 9.
[9] Monatshefte für pract. Dermatologie, Band ix, p. 33.

is to be preferred. On the contrary, on a swollen surface, from the aggregation of several lupus nodules, the application of the electric needle causes in a few hours the disappearance of the swelling. Electrolysis acts very gently, destroying the tubercle by the combination of scarification with its hystochemic action. In cases of lupus where small tubercles are scattered, especially on the face, I find it the preferable method. It leaves a small and scarcely perceptible scar; I use a salve consisting of salicylic acid, grains 20, creosote, drops 30 in 1 ounce of vaselin; with this application the crusts fall off and the tubercles show plainly as whitish points. Each of the tubercles are then treated with electrolysis, continuing the application of the salve. When the necrosed tissue has sloughed off and the granulation commences the sites of the tubercles are touched every alternate day with a 5 per cent. solution of nitrate of silver, covering the surface with a salve of zinc, or boric acid, until recovery.

With this method I obtained perfect success in five weeks in the case under consideration. Two more cases are at present under treatment with similar results, showing that electrolysis is to be considered as a most valuable agent in the treatment of lupus vulgaris.

A CASE OF SYPHILIS IN A YOUNG GIRL; PROBABLY ACQUIRED FROM HER MOTHER.

Read in the Section on Dermatology and Syphilography, at the Forty-seventh Annual Meeting of the American Medical Association held at Atlanta, Ga., May 5-8, 1896.

BY HENRY A. PULSFORD, M.D.
SOUTH ORANGE, N. J.

I. M., came to me in November, 1893, to be treated for a large ulcer on the front of the left leg. She was then an undersized, sallow-skinned girl of 13 years, who had not menstruated. The ulcer, situated just external to the crest of the tibia, four or five inches below the patella, was fully two inches in diameter and had all the characteristics of a broken down gumma. The bone was not affected. At the same time there was found upon the left labium majus a suspicious group of superficial ulcerating papules. Except for a slight general enlargement of the lymph nodes there were no traces of previous syphilitic lesions. At the time, no satisfactory history of the case could be obtained. Under the combined influence of mercury and iodid of potassium the ulcer healed rapidly and the genital lesions disappeared.

In the course of the two years following, the patient again came under my care first for a subacute periostitis of the lower extremity of one tibia, then for a similar affection of the other, and finally for a gumma, probably subperiosteal, of the vertical portion of the frontal bone. All of these manifestations rapidly disappeared under treatment, their appearance being separated by comparatively long periods of good health. Since the disappearance of the last lesion, some six months ago, the girl has improved wonderfully in her general condition, having added several inches to her height, become plump, lost her sallow color and began to menstruate.

Notwithstanding the absence of the classical confirmatory signs, I at first considered the case as one of hereditary syphilis. The history, however, seems to make it probable that the disease was acquired in childhood.

The father of the girl is perfectly healthy, denies all venereal diseases, and has no evidences of syphilis. The mother was healthy at the time of the patient's birth, two years before which time she bore her first child, a healthy girl now alive and well. One healthy child born two years later died in infancy. There is no history of abortions or miscarriages. The patient in early childhood was perfectly healthy, photographs of the two children and the testimony of intelligent observers proving that up to the age of 4 or 5 years the younger child was as robust and almost as well developed as her older sister. About this time the mother began to be loose in her sexual habits, becoming estranged from her husband in consequence. Soon after this she contracted syphilis. The disease was neglected in its early stages, and probably was not recognized until four or five years later, when she entered the Orange Memorial Hospital for treatment of severe tertiary lesions. A year or two later she died. The failure in the child's health began about the time her mother acquired the disease; and although I could get no satisfactory evidence of an initial lesion or of early eruptions, the child was so thoroughly neglected at that time that such manifestations might easily have escaped attention. At the age of 7 or 8 years she suffered from an ulcerated sore throat which was called diphtheria, but might very well have been either the primary lesion of the disease, or a severe angina accompanying one of the early eruptions.

In conclusion, then, the facts that the father escaped infection, that three apparently healthy children were born at intervals of about two years, and that there were no abortions or miscarriages, seem to prove that the mother could not have been syphilitic during the uterine life of the patient, while there is every reason to conclude that she was infected some five years later. That the child was infected probably by her mother, but possibly by one of her mother's paramours, is by no means satisfactorily proved; but taking into consideration the woman's ignorance, her neglect of her own disease, and the dissolute life she was leading at the time, it is less incredible that one child contracted syphilis, than that the other was so fortunate as to have escaped infection.

DO GRAPE SEEDS CAUSE APPENDICITIS?

BY EDMUND ANDREWS, M.D.
CHICAGO.

The laity of Chicago have become infected with the idea that grapes are a dangerous fruit. They have received from some of our best physicians an opinion that grape seeds cause many, or perhaps nearly all of the cases of appendicitis occuring among us, and the occasional discovery of a seed in or near a perforated appendix adds to the alarm.

Nearly all the grapes consumed in this city are eaten in the months of August, September, October and November. If they cause any large number of cases of appendicitis, we would expect that disease to be most frequent during the grape eating season, or at least within a reasonable period after its close.

To settle this question, I have obtained statistics of the disease in Chicago for every month during the last fourteen years. My friend, Mr. Tracy H. Clark, a medical student, has been kind enough to examine the records of Mercy Hospital, of the County Hospital and of the City Health Office, and to tabulate the results.

Some difficulty was at first encountered in conse-

quence of conflicting terms used by different recorders to designate the same disease; but by the exercise of some care it was found entirely possible to correct these errors.

The cases of appendicitis thus collected number 3,709, and appear in the following table:

Table showing 3,709 cases of appendicitis occurring in Chicago during fourteen years; arranged by months. Taken from the records of Mercy Hospital, of Cook County Hospital, and of the City Health Office.

	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	Oct.	Nov.	Dec.	Total.
1882	9	6	11	10	8	14	8	12	5	9	7	11	110
1883	14	10	9	11	13	15	8	2	5	13	6	6	112
1884	5	9	11	15	8	13	11	11	12	12	6	10	123
1885	12	8	7	10	14	6	16	11	13	11	6	13	127
1886	11	12	12	10	5	11	15	16	15	10	11	8	136
1887	20	16	23	8	14	12	15	21	14	8	12	17	180
1888	25	25	21	14	20	13	18	25	10	14	12	14	211
1889	10	8	10	11	19	17	12	17	11	14	12	22	163
1890	13	19	31	25	13	13	13	27	9	25	20	23	241
1891	20	19	33	26	39	21	29	27	29	24	31	27	335
1892	24	32	49	35	31	28	56	36	40	41	34	36	445
1893	25	35	40	42	54	41	56	57	53	39	27	46	515
1894	54	42	43	45	43	51	46	37	37	36	24	23	480
1895	42	46	62	48	52	51	58	35	42	33	35	32	531
Total	283	287	362	310	336	306	356	334	305	289	213	298	3,709

Statistics of this class do not afford conclusions of unerring certainty but they are sufficient to show that in over 3,700 cases extending over a period of fourteen years there was no increased frequency during the four grape eating months. In fact, there was a slight diminution, due possibly, to the fact that in these fruit consuming months there is on the average, less constipation and impaction of the colon than in other parts of the year.

There is a mechanical reason why it is difficult for a seed or other foreign body to enter a healthy appendix. This organ is by no means a "functionless" one as White and others have asserted. Though small, it is richly supplied with muciparous glands, which secrete a pretty large supply of a tenacious mucus like that of the fauces and of the rectum. Its use is to lubricate the cecal pouch so as to facilitate the gliding on of the fecal mass, and prevent its impaction in the head of the colon. As long as the appendix is in a healthy condition, this tough mucus is slowly moving forward into the cecum, and it is difficult for seeds or any other small foreign bodies to enter in opposition to its movement; but if a perforation occurs the motion is reversed. The mucus now flows into the abscess or peritoneum, drawing with it any seeds, bits of fecal matter, or other foreign bodies presenting themselves. I suppose this accounts for the occasional presence of these bodies when found in operations and autopsies. The foreign bodies rarely cause the perforations, but they merely follow the reversed current after the perforation has occurred.

Where a chronic fistula follows the attack it not unfrequently continues to transmit such objects for years, just as occurs in fistulæ in ano, and in fecal fistulas of various other locations.

It is a pity that this popular delusion about the danger of grape seeds has gotten possession of so many minds in Chicago, for it causes large numbers of our citizens to deprive themselves of the healthiest and most agreeable of all our fruits.

The majority of authors, while not denying the possibility of appendicitis being induced by foreign bodies, yet think this cause is a rare one. They believe that catarrhal inflammation is the origin of most cases, and that in others perforating ulcers occur from typhoid disease, from tuberculosis, from dysentery, from calculi of the canal and from other maladies. A few writers, however, believe in the frequent influence of foreign bodies. The following list of opinions shows the conflicting character of professional thought on the subject.

Helferich of Greifswald, says that catarrhal inflammation is the usual cause of the disease, and that foreign bodies do not ordinarily have anything to do with it.

Fowler holds a similar opinion. He reports 200 laparotomies of which only two showed any true foreign bodies.

White of Philadelphia, thinks appendicitis is caused by the organ being a "functionless structure of low vitality."

Pilliet of Paris, on the other hand, finds by microscopic study, that it is rich in glandular structure, which in a state of inflammation resembles that observed in follicular pharyngitis.

J. C. Lange of Pittsburg, thinks the disease arises from catarrhal inflammation, and not from foreign bodies.

W. Schell of Terre Haute, attributes many cases to typhoid infection. He says that of perforating typhoid ulcers, 10 to 30 per cent. are located in the appendix.

Forty-five years ago, when this disease was still called typhlitis, Favre of France, proclaimed with the positiveness which men were accustomed to assume at that time, that perforations of the appendix were always due without exception to foreign bodies.

Six years ago, Lewis A. Stimson asserted that in ten cases of excised appendix only two showed any foreign bodies or fecal matter of any consequence, and in neither of them is it alleged that the foreign material caused the disease.

Jules Simon thinks the appendix is liable to ulceration from dysentery, typhoid fever, or tuberculosis, but that foreign bodies, bits of ill-digested food and fecal matter have some connection with the condition.

Jalaguier of Paris, thinks typhlitis (which is usually appendicitis) is due in the immense majority of cases to the inflammation caused by the impaction of feces in a constipated colon, and very rarely to foreign bodies in the cecum. He seems to confound typhlitis and appendicitis together, as was common a few years ago.

It is a hopeless task to try to reconcile all these contradictory opinions, but the following conclusions are reasonable and mainly true.

1. The appendix is not a "functionless" organ. It produces every day a quantity of tenacious mucus to lubricate the cecum, and by thus facilitating the fecal movement prevents impaction in the head of the colon.

2. The current of this tough mucus is toward the gut, hence seeds and other foreign bodies can not enter the appendix in opposition to the movement as long as the organ is in a healthy condition.

3. From various causes perforations may occur in the appendix. The current of mucus is then reversed and flows outward, and small bodies in the colon may thus be drawn into the appendix, or even carried through it into the abscess or the peritoneum without being the cause of the perforation.

4. There is no scientific proof that grape seeds are any more dangerous than the hundreds of other small objects which we daily swallow with our food.

2520 Prairie Avenue.

THERAPY OF VERATRUM VIRIDE.

Read before the Pennsylvania State Medical Society, 1895.

BY JOHN M. BATTEN, M.D.
PITTSBURGH, PA.

Veratrum viride slows the heart's action and makes it more feeble. It was first used by Magendie and Andral in physiologic experiments in 1821. Meisner first discovered it in the seeds of veratrum sabadilla in 1818. Bardsley first used it in rheumatism and dropsy in 1826. The curative effect of veratrum viride lies in its influence on the heart to retard its action in acute inflammatory diseases wherein the pulsation is very much accelerated. I have been able to produce the physiologic effects of the drug in cases of inflammatory diseases with a dose of Norwood's tincture not larger than three drops every three hours. By this dose I have been enabled to reduce the pulse beat twenty or thirty in a minute, especially when the high pulse rate has been caused by inflammation. In inflammatory rheumatism I have had good results with this drug by keeping the pulse at or near normal until convalescence began. In the early stages of measles, scarlet fever, and in some cases of smallpox, it acts favorably in governing the heart's action. In typhoid fever where the heart's action is irregular, I have thought that this drug in one drop doses aided in steadying it. For this purpose I have in the treatment of typhoid fever continued the drug in one drop doses until convalescence set in. In all acute inflammatory diseases of the chest it is an excellent remedy; in acute pneumonia, pleuro-pneumonia and pleurisy. If in acute pneumonia the pulse can be kept at or near normal by this drug in the stage of congestion, we may often be able to jugulate it or prevent it from entering upon the hepatized stage. Even in a sthenic case in the second stage veratrum viride acts well. The heart's action is lessened without loss of blood as in venesection.

"Should we Bleed or not Bleed in Acute Pneumonia?" was the title of a paper read by a gentleman before the AMERICAN MEDICAL ASSOCIATION at its session held in Milwaukee, Wis., in 1893. In the discussion of the paper opinions were diverse. One gentleman advocated veratrum viride in the treatment of acute pneumonia. He had such entire confidence in the treatment of the disease with this drug by keeping the pulse at or near normal, that he made the bold assertion that all cases could be jugulated, or cut short, by this mode of treatment.

Feb. 27, 1896, I attended William McC., male, aged 46. The disease (pneumonia) was about entering the second stage, both lungs were involved. The pulse was 82, temperature 102 degrees, respiration 32. The expectoration bloody mucus. I prescribed veratrum viride, three drops every three hours. February 28, expectoration rusty, mixed with blood, temperature 101.5 degrees, respiration 30, pulse 80. I prescribed in addition to veratrum viride, gr. 1-40 of nitrate of strychnia every eight hours. February 29, temperature 99 degrees, respiration 28, pulse 79. Sputa less rusty. March 1, pulse 78, temperature 99.5 degrees, expectoration rusty. After this during the course of the disease, etc., neither the pulse nor temperature rose above normal. On March 5 the rusty sputa disappeared. On the 16th patient was sitting up in bed, and made rapid convalescence.

In the same house, on March 12, I attended a male aged 66, entering the second stage of typhoid pneumonia; both lungs were involved. Tongue thickly covered with a brown coat, red around the border: delirious; temperature 103 degrees, respiration 30, pulse 109; rusty sputa. I treated him in the same manner as the former patient till the evening of March 15, when he had an attack of heart failure. I withdrew the veratrum viride and substituted whisky, continuing the strychnia. From this time, during the course of the disease, the pulse did not rise above 90. The respirations for four days after that of my first visit were 36, 35, 35 and 38 respectively, then receded gradually. March 20 it was 30, and in a few days down to 19. The pulse became gradually slower, and March 22 it was below normal. The patient had convalesced April 6.

The heart failure of the second case was caused by the cumulative effect of the veratrum viride. It is my opinion that the failure of the heart acted favorably on the course of the disease, as the turning point seemed to be established at this time. In both of the cases I enveloped the chest in oil silk jackets.

RE-INFECTION IN CONSUMPTION.

Read before the Mississippi Valley Medical Association, St. Paul, Sept. 16, 1896.

BY JOSEPH MUIR, M.D.
SENIOR PHYSICIAN TO THE NEW YORK THROAT AND LUNG HOSPITAL.
NEW YORK.

That but a comparatively small percentage of consumptives actually succumb to a first attack of tuberculosis has been time and again demonstrated through necroscopic examinations. The question is no longer an open one. As a matter of statistics, indeed, not only is a first attack not fatal, but a large proportion of patients recover from it and their subsequent death is found to be due to causes disconnected with any pulmonary lesions. If that is so—if under reasonably auspicious circumstances there is a strong probability of a cure being effected where the lesion is yet in its initial stages, then to what cause or causes are subsequent relapses to be attributed?

The ordinary received idea of the re-development of the tubercle can not certainly explain all or even the major part of the phenomena, for in a large number of cases the bacilli are, by postmortem examinations, found to have been utterly discharged from the body. There must, therefore, be some other explanation, and the following considerations are offered, not to announce an established certainty, but to suggest a theory that may serve to reconcile many of the seemingly inconsistent cases which the practitioner encounters in his daily practice.

In the first place, there can be no serious dispute that in the vast majority of instances primary infection is owing, not to inherited tendencies but to external conditions. Were this not so, the influence of environment on turberculous conditions would not be so palpable and important as it is.

Among the rich, where the luxuries of exceptional food and frequent change of air are always accessible, very few cases of consumption prove intractable. The advantages which they enjoy are so far sufficient to immunize the lung tissue against further attack, that a life time may pass without any advance being made by the virus. Frequently, indeed, a permanent cure is affected.

But among the poor the case is very different. The incessant struggle for life demands their presence in the dust-laden atmosphere of labor; in the badly ventilated sweat-shops; in the imperfectly drained tenements; in the closely packed, squalid quarters of poverty. Every breath they draw, almost every particle of food they eat, contributes a little to the poison that renders the tubercle bacilli the dread of civilization. It is there, in these disease-laden districts, that primary infection takes place.

Then, in most cases, comes a period of comparative comfort at a hospital. The patient enjoys good food and fresh air, and the ravages of the dread destroyer

are temporarily stayed. Perhaps, indeed, the bacilli have been permanently expelled.

But what then? Consumption differs from other infectious diseases, such as smallpox for instance, in that the former, unlike the latter, does not immunize the sufferer from further attacks. On the contrary, the primary lesion renders the patient peculiarly liable to fresh invasions. The damaged lung has lost some of its elasticity and the natural fortresses against disease have been more or less weakened. If then the unhealthy conditions above referred to were sufficient to infect a healthy lung, how much more likely are they to overcome a damaged one? The patient's return to the old life brings with it a return of the old disease; another sojourn at the hospital, another return to the dreary drudgery; again and again until the whole fatal story is told.

This is the history of the consumptive. Now it will be practically impossible to prove in any given case, that the progress of the disease is due, not to re-development, but to a process which I have more or less faintly demonstrated, called "re-infection." The very nature of the subject suggests the obstacles to such a concrete demonstration, because, whether death resulted from re-developmdnt or re-infection, the bacilli are nevertheless present in the lung to frustrate any further inquiries. Still, as I have shown, if permanent cures are possible, and if patients discharged from hospitals as permanently cured, suffer sudden relapses on their return to the same conditions which were originally responsible for the first outbreak of the disease, the theory of re-infection in such cases is based certainly on substantial grounds.

The so-called doctrine of re-development is further inconsistent with the circumstance that patients, in order to secure a change of air, engage often in outdoor vocations exposed to the elements, frequently subsisting on indifferent and sometimes insufficient food. What conditions more favorable to re-development than these? Yet, as a matter of common knowledge, these cases present the largest percentage of permanent cures.

And the reason is extremely simple. First, the change of air and labor harden and refresh the tissues so as to render re-attack less probable; and, second, the respiratory impurities are no longer present to supply the conditions necessary for the vitality of the bacilli. These facts just noted can, it seems to me, be consistent only with the hypothesis of re-infection.

It only remains to state a few precautions which may be exercised to prevent re-infection.

1. A thorough disinfection of the premises occupied by patient.

2. A destruction of the sputum, not so much to prevent infection to the other inmates of the house, as to preclude the possibility of re-infection on the part of the patient—to protect the patient, as it were, against himself.

128 West Forty-fifth Street.

Vaginal and Uterine Septum.—Beckmann describes in the *St. Petersburg Med. Woch.* of October 17, the case of a patient who had a septum in both vagina and uterus, dividing the genitalia completely in two, but notwithstanding, bore a healthy child with an apparently normal delivery. As the child was born the cervical septum was ruptured, and the vaginal pushed to one side with a slight tear.

THE DEGENERATE JAWS AND TEETH.

Read in the Section on Neurology and Medical Jurisprudence, at the Forty-seventh Annual Meeting of American Medical Association, held at Atlanta, Ga., May 5–8, 1896.

BY EUGENE S. TALBOT, M.D., D.D.S.

FELLOW OF CHICAGO ACADEMY OF MEDICINE.

(*Continued from page 1140.*)

Crescent shaped bitubercular, tritubercular as well as all deformed teeth tend to the cone shape. The malformation of these teeth results from pre-congenital trophic change in dentine development. It consists in dwarfing and notching the cutting and grinding edges of the second set of teeth, a familiar example is the so-called Hutchinson's teeth, usually referred to a syphilitic etiology. Hutchinson's position has, however, been more strongly stated than his words justify since he admits that in at least one-tenth the cases luetic etiology could be excluded.[8]



Figure 31.

Lues only plays the part of a diathetic state profoundly affecting the maternal constitution at the time of dentine development. While these teeth may be due to secondary result of lues, they do not demonstrate luetic heredity.



Figure 32.

In Figure 31 are seen the teeth of an individual affected with constitutional disease and by referring to Figure 15 we shall see that the defective lines represent the respective ages of 2½, 4 and 5 years. The degree of pitting will depend, as a rule, upon the severity of the constitutional disorder. In the case just cited, however, although nutrition was but slightly disordered each tooth shows a tendency to conate. Not infrequently are cavities extended completely through the tooth. The cusps of the (permanent) first molars calcifying at the first year are usually attacked also and arrested in development, producing the cone shape. These data together with dates of eruption of the temporary and permanent teeth, furnish an absolute basis for calculation as to excessive or

[8] American System of Dentistry.

arrested development of tissue. Figure 32 shows a very degenerate jaw with cone-shaped malformed bicuspids. The right lateral missing, the cuspids are erupting in the vault and the dental arch is assuming a V-shape. The jaw as a whole is marked arrest in development. Figure 33 shows "Hutchinson" teeth. Were the first molars visible they would present marked contraction of the outer surface with a malformed center. Referring again to Figure 15 we observe that trophic changes affected the system at the age of birth. The outer surface exhibits a tendency to take the cone shape. Figures 34, 35, 36, 37 and the molars in Figure 30 exhibit malformations, assume the cone shape and the center frequently associated with this type of teeth. The coincidence in from between "Hutchinson" and malformed teeth and those of the chameleon, demonstrates that tropho-neurotic

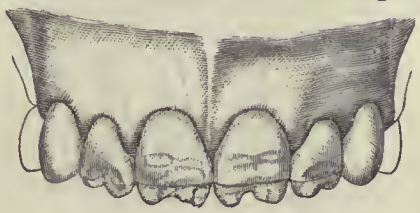


Figure 33.

change produces atavistic teeth. Figure 38 illustrates the tendency of human bicuspids (when there is no antagonism) to rotate one-fourth round, thus again demonstrating the atavistic tendency toward the teeth of the chameleon. Figure 39 exhibits extreme atavism; all teeth anterior to the molars are cone shaped. The third molars are missing and would probably never erupt. In Figure 40 appears more marked atavism. The upper and lower anterior are both cone-shaped and the superior first bicuspid exhibits tendency thereto. The right superior second bicuspid, second and third molars, the right inferior first and second bicuspids, second and third molars are missing. The same condition probably exists on the left side. The space in the upper jaw is due to the insufficient width of the teeth. Alternation of teeth in the upper and lower jaw is a reptilian feature.



Figure 34.



Figure 35.



Figure 36.

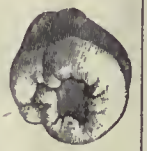


Figure 37.

Figure 30 furnishes an excellent illustration of the principles hereinbefore advanced.

In degenerate jaws the influence of the factors of the differentiation theory are also demonstrated. Every tooth in the jaw at one point or another may display rudimentary cusps. On the incisors they are always to be found on the lingual surface.

Figure 41 illustrates the centrals with two rudimentary cusps, the laterals with one and the cuspids with one also. Figure 42 represents cusps upon the lingual surfaces of the molars. The cuspids are not unlike the lower bicuspids with a rudimentary lingual cusp.

Thompson remarks: That there is a gradation from central incisors toward the bicuspids in evolution. This grading of form is not observed as we pass from the cuspid to the bicuspid in man. But we must remember that the cuspid often presents a cingulum on the lingual face that inclines it toward the bicuspid forms in lower mammals like the mole and that the first premolar or bicuspid is then more caniniform, the inner tubercle being much reduced. This inner tubercle is very variable and erratic as to its position. It appears as far front as the centrals and is often present on the lingual face of the laterals of man. The lingual tubercle is very constant on the first bicuspid of man and is well developed as the buccal. But in some lower forms, as in the lemurs, it is quite deficient. It attains the highest development only in the anthropoids and man. Considering these stages



Figure 38.

of development, the grading from the cuspid to the bicuspid forms was more gradual in the earlier species than in the later, where the individual teeth have taken on special development.[9]

I have the skull of a degenerate girl who died from tuberculosis at 13 years. Among other stigmata is a cusp on the external surface of a right inferior cuspid. This is a decidedly strong point in favor of the differentiation theory. Another strong point in favor of this theory is shown in Figure 43, where every tooth is present and a most remarkable display of cusps occurs. The cusps upon the cutting and grinding edges are not obliterated. Commencing with the left superior central incisor three cusps are present with a rudimentary palatine cusp. The laterals also show three cusps, while the cuspid has two very distinct. The first and second bicuspids have tubercular cusps, they being in line. The buccal cusps upon the molars

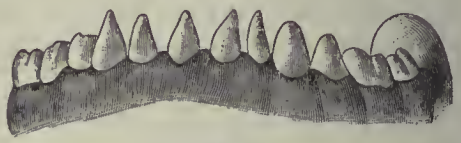


Figure 39.

two to three and are still in position. The palatine cusps are worn away. The same is the case upon the opposite side except that the cuspid has cusps that have fused together leaving a small projection upon the mesial side and a rudimentary palatine cusp. The cusp upon the third molar is lost. In another case (Fig. 25) the primitive cone teeth are seen trying to shape themselves into incisors. The lateral incisors, cuspids and bicuspids are still cone-shaped. The first permanent molar is fairly formed, while the second molars are still in a primitive condition. Thus the points made by Osborn are nicely demonstrated in the two last illustrations, namely, the triangular-shaped crowns and the leveling of cusps.

There is abundant evidence to show that degenerate teeth unite in twos, threes, fours and fives as indicated in the concrescent theory. These single cone-

[9] Dental Cosmos, May, 1894.

shaped teeth grow together and form bicuspids and molars. The germ of any two normal teeth may intermingle and unite; not only are the crowns found united with separate roots, but crowns and roots are united throughout.

Figures 44 and 45 show two superior central and lateral incisors joined together throughout the entire length of crown and root; Figure 46, two lower incisors are united throughout; Figure 47 shows a cuspid with two roots; Dr. George T. Carpenter of Chicago has a right superior second bicuspid with three well-formed roots; Figure 48 illustrates two bicuspids united at the crowns; Figure 49 shows two molars perfectly united; Figure 50 illustrates central and lateral incisors of the permanent set perfectly united; Figure 51 shows two molars united; Figure 52 a molar and supernumerary united, the supernumerary taking the cone shape with deformed center. Figure 53 shows



Figure 40.

three malformed teeth, each conated and completely united.

It is not uncommon to find three molars united together, as for instance the second, third and supernumerary molar. Dr. C. V. Rosser, Atlanta, Ga., has two small molars and a supernumerary cuspid perfectly united from crown to root and these three further united to the roots of a well formed molar. Thus we see the concrescence theory is fully established.

That human jaws, like the human ears, are degenerating is a matter susceptible of demonstration by actual measurements. Mummery examined the skulls of 200 Britons and Roman soldiers in Hythe church, Kent, England. He found the narrowest width 2.12



Figure 41.

inches, the highest 2.62, with an average of 2.50. The width of jaws of 402 British soldiers to-day is: narrowest 1.88, widest 2.63, average 2.28. The highest width was very rare, only eight measured 2.50. The jaws of the mound builders compared with the existing cliff dwellers show similar results, the average width is about 2.50 inches. This is also true of nearly pure negro races. Measurements of normal jaws of 855 Italians of central Italy were, narrowest 1.88, widest 2.63, average 2.17. Measurements of normal jaws of 4,935 Americans gave the following results, narrowest 1.75, widest, only one case, 2.56, average 2.13. If in the highest type of physical man the width of the upper jaw from the outer



Figure 42.

surfaces of the first permanent molars near the gum margin was originally 2.50 inches in diameter, the jaw of people now living in the same locality is from 0.25 to 0.33 inches smaller, although the jaw has been growing smaller, since there are no breaks or deformities in the contour of the dental arch this must be regarded simply as an adaptation to environment and not degeneracy in the proper sense of the term. The degeneracy of the jaws on which I would lay special stress are those in which deformity has resulted from inability to adjust structure to a changing environment. When arrest of development so takes place

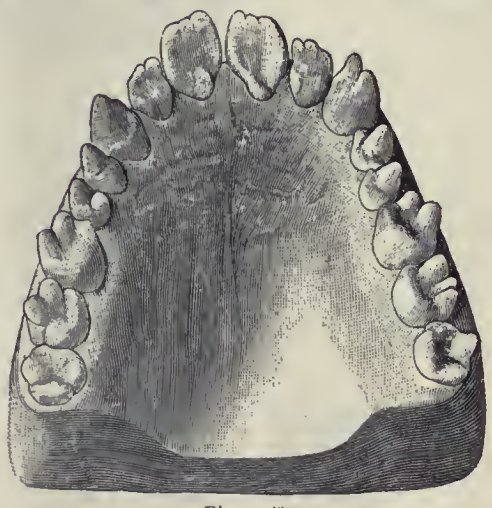


Figure 43.

that deformities of the dental arch results, the jaws vary from 2 inches to 1 inch in width. As a rule the teeth are the same size to-day they were 3,000 years ago. This is due to the fact that their growth is ante-natal and not influenced by post-natal systemic changes. The jaws do not contract as a result of mouth breathing, that erroneous but favorite hypothesis with so many dentists and laryngologists. If the jaw can be arrested and be smaller in circumference than the teeth, a break takes place in the dental arch

and deformity results. Two types of deformity occur, the V-shaped arch and the saddle arch. All other types of deformity not due to local causes are modifications of these two. These deformities always occur with the second teeth only. They are never seen before the sixth year, when the second set begin to erupt, and are complete with development of the second molars at twelve. They may become more exaggerated later in life from want of room, the eruption of third molar


Figure 44.


Figure 45.


Figure 46.


Figure 47.


Figure 48.

and want of harmony in relation of the two jaws when closed.

There are three characteristics of the normal arch. Independent of temperamental peculiarities the line extending from one cuspid to the other should be an arch of a circle, not an ange or straight line; the lines from the cuspids to the third molar should be straight, curving neither in nor out, the sides not approximating parallel lines. Absolute bilateral uniformity is not implied in this, as the two sides of the human jaw


Figure 49.


Figure 51.

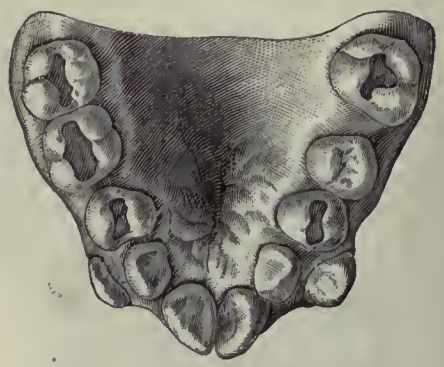

Figure 50.

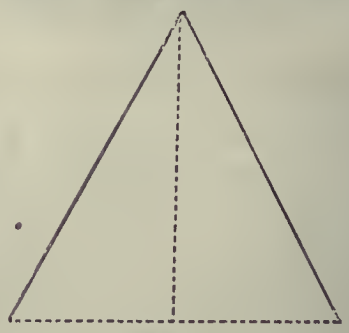
are rarely if ever wholly alike. A uniform arch necessitates a uniformity of development between the arch of the maxilla and the arch of the teeth and a correct position of the individal teeth in their relation to each other. When there is inharmony of development between the jaw and the teeth, as may happen when one parent has a small maxilla with correspondingly small teeth, and the other a large one with correspondingly large teeth, if the child inherits the jaw of one and the teeth of the other irregularities must follow.


Figure 52.


Figure 53.

Such difference in diameter between the arch of the maxilla and that of the crowns of the teeth is a constitutional cause of irregularity. Whenever there is a difference between these diameters the line formed by the teeth must either fall outside or within the arch of the maxilla and irregularities of arrangements result. The primary divisions of irregularities are the V-shaped and saddle-shaped arches. We have the V-shaped variety (Fig. 54)[10] (one of the typical forms), where the apex of a triangle is formed by the incisors, the base of the triangle being a line connecting the two first molars. If, because of premature or tardy extraction, the first molar moves forward or the coincidence of the arch of the maxilla and the arch of the crowns of the teeth in trying to accommodate itself to the lesser arch of the maxilla, becomes a broken line forming an angle at the incisors. This angle results from two causes, the thinness of the


Figure 54.


Figure 54.

process at this point and the diminution of resistance which must follow.

(To be continued.)

SELECTIONS.

Central Amblyopia an Early Symptom in Tumor of the Chiasm.—Mr. Nettleship, president of the London Ophthalmological Society, recently addressed that society in regard to ten cases seen by him in which failure of vision, at or near the center of the field in both eyes with little or no early ophthalmoscopic change, occurred in women. Three of them turned out to be cases of ordinary tobacco amblyopia, and in one it seemed probable that alcohol was the cause. Some five cases remained in which there was no reason to suspect a toxic cause and in which later events made it probable that some intracranial disease had caused the visual failure. Three of these patients had died with cerebral symptoms and in the fourth a post-mortem examination revealed a cystic tumor involving the chiasma, optic tracts and other parts at the base of the brain. The loss of central field in the earlier stages was more abruptly defined and less constant in position than in tobacco amblyopia and the symmetry was less precise both in time and degree than in the latter disease. In a later stage there was mental failure, loss of memory and irritability, with occasional headache and varying paralysis of one or more ocular muscles. The changes at the disc only amounted to pallor of the outer half until a late stage of the disease. If these cases were seen at an advanced stage the visual field would often have the form

[10] While the general outlines of the jaw and teeth are the same, in no two cases are they exactly alike. The cuts therefore are not drawn from actual cases, but are ideal diagrams of typical cases.

of a temporal hemianopia more or less. The case in which he had obtained a postmortem examination was that of a lady whose sight had failed while she was suckling her fourth baby. She had a black spot before the left eye and later one before the right. There was a central scotoma of oval shape beginning just outside the fixation point and extending about 20 degrees outward. There was no peripheral loss of fields. Her vision and mental condition got worse and she died after about three years. At the postmortem examination the brain was a good deal flattened on both sides. At the base there was a large membranous sac filled with fluid lying on the sella turcica and extending forward to the cribiform plate of the ethmoid. The wall of the cyst was loosely attached to the hinder part of the frontal lobe, to the median part of the temporosphenoidal lobe and to the hook of the uncinate convolution; it reached back as far as the middle of the pons. The chiasma was incorporated in the front wall of the cyst, the right optic tract could be traced back to the pulvinar, the commissural fibers could be followed a short distance toward the other side, as also the fibers which pass to the cerebrum. The left optic tract could not be found; it was so flattened as to be unrecognizable.

Dr. Mark Akenside (1721-1770).—The *Medical Times*, London, July 18, treats of one of the great medical faculty of St. Thomas's Hospital, Akenside, who was celebrated as a poet, philosopher and elegant scholar. His manner was solemn and reserved, his temper was irritable, and, despite Lettsom's opinion to the contrary, yet benevolent. Hardinge described his manner as most unfortunate: "He looked as if he never could be understood." He was no wit, and being devoid of humor was impatient of jests. His memory was powerful, his life "marked by a course of undeviating rectitude." His fame rests chiefly, however, on his poetical character. His "Pleasures of the Imagination" has been called "the most beautiful didactic poem that ever adorned the English language," though Dr. Johnson said he could not read it through. Lettsom left a manuscript description of his teachers, and he speaks of Akenside as a most supercilious and unfeeling man: "If the poor afrighted patients did not return a direct answer to his queries, he would often instantly discharge them from the hospital. He evinced a particular disgust to females and generally treated them with harshness. It was stated that this moroseness was occasioned by disappointment in love." Lettsom thus describes his personal appearance: "One leg of Akenside was considerably shorter than the other, which was in some measure remedied by the aid of a false heel. He had a pale, strumous countenance, but was always very neat and elegant in his dress. He wore a large white wig and carried a long sword." Lettsom never knew him to spit, nor would he suffer any pupil to do so in his presence. He would make patients precede him with brooms to clear the way and keep other patients from coming too close, and Richard Chester (a governor of St. Thomas's) once seeing this ceremony, reproved him with the words: "Know that thou art a servant of this charity." Akenside was once greatly incensed by one of his surgical colleagues, who disgusted with the poet's absurdities took what is vulgarly called "a good rise out of him." Akenside asked this gentleman, a Mr. Baker, what he intended to do with one of his sons who was weak-minded through epilepsy. "I find he is not capable of making a surgeon so I have sent him to Edinburgh to make a physician of him," replied Baker, and Akenside refused to speak to him again for long after.

Akenside belonged to a period when measured lines and stately verse were more admired than beauties of imagination and language gained greater admiration during his lifetime. Keats suffered neglect but his fame as a poet is immortal. Akenside on the contrary enjoyed his eminence while alive and is now well-nigh forgotten.

Akenside was born at Newcastle-on-Tyne, on November 9, 1721. His father was a Presbyterian and intended his son for the ministry but, like William Hunter, the mistress he preferred was medicine. Entering as a pupil at Edinburgh in his nineteenth year Akenside remained there two years, becoming much distinguished for his oratorical powers at the meetings of the medical society. From Edinburgh he migrated to Leyden, where after a stay of three years he took his degree of Doctor of Physic on May 16, 1744. His death took place in 1770.

Calomel in Diphtheria.—In the *American Therapist*, October, Dr. Lawrence F. Flick relates an experience in his own family which convinces him of the power of calomel over diphtheria. Our space will not admit of a more complete recital of his experience than is given below, but there will be many practitioners who will find unusual interest in the full paper:

All the children made a good recovery and were declared sterile within about ten days from the time the calomel treatment was begun. In addition to the calomel, of which from a sixtieth to the hundredth part of a grain was given every fifteen minutes, night and day, large doses of strychnin, whisky and digitalis were given at short intervals. This constituted the entire treatment. All of the cases showed great pallor and much prostration, but these were the only symptoms that occurred throughout the duration of the disease which could indicate severity of attack. Cleaning out of the nose and dusting with calomel constituted the local treatment.

In the second youngest child a recrudescence of the nasal symptoms also took place after several days, with a rise of temperature and depression of heart action. Although there was no nasal discharge, cleaning out revealed the presence of a small amount of purulent matter. After thorough insufflation the temperature became normal and all the symptoms again subsided. In both cases we now kept up the insufflations regularly and both rapidly advanced to recovery.

Another surprising effect of the calomel and a further evidence of its power over the disease was its action upon the enlarged glands. In the two youngest children the enlargement of the glands disappeared with the improvement of the nasal condition, and this was as expected. In the third child we did not recognize the nasal condition at first and we therefore did not use insufflation. In her case the glands became exceedingly large and painful, and although we gave the calomel internally and applied a solution of europhen in oil externally there was apparently no amelioration in their condition. Finally, reasoning from analogy from the other cases, we began insufflation and immediately the swollen glands decreased in size and in a few days were normal.

As to the mode of action of the calomel when used in this way in the treatment of diphtheria, I was at first inclined to think that it was by stimulation of cell action in the throat, but these recent experiences leave no doubt in my mind that it is by local germicidal action. The frequent repetition of the dose keeps up a constant sterilization of the soil, and the smallness of the dose prevents evil constitutional effects of the calomel. In no other way can be explained the failure of the action of the calomel upon the membrane of the nose when given by the mouth alone and its speedy action upon the nose when used by insufflation. The phenomenal action of the calomel upon the membrane of the baby's ear points to the same conclusion.

It was a matter of no little surprise to me to find that calomel was not absorbed by the nasal mucous membrane. From four to five grains of calomel a day by insufflation produced no action upon the bowels so long as the occlusion of the nasal passages prevented the calomel from passing into the pharynx, but as soon as insufflation was attended with the passage of the calomel into the throat, as could be determined by the cough set up by inspection of the throat, it was followed by purging.

So far as my experience enables me to say anything about the size of the dose of the drug to be given by the mouth, I think the best rule to follow is to give as much as can be taken without setting up constitutional effects. I usually begin with a sixtieth of a grain and go up or down according to results. If the bowels become loose I decrease the dose, and if they are constipated and I see no effect upon the local conditions in twelve hours I increase the dose. There seems to be a remarkable tolerance of mercury in diphtheria, and this seems to grow as the drug is given. I have reason to believe that a tolerance for the drug is also established by the disease, for I have found

it necessary to give larger doses in recrudescence of the disease than in the beginning of the attack.

The drug can best be given rubbed up with sugar and should be placed dry on the tongue. The secretions of the mouth will promptly distribute it over the pharynx. While the child is asleep the powder can be placed inside of the lips without awakening it. I have found no trouble in having the medicine administered every fifteen minutes, night and day, and I have in no case found it necessary to have the child's sleep disturbed.

A Summary of Dr. Waldemar Haffkine's Work Against Cholera.—The following sketch of the life of the distinguished cholera expert has been compiled by Mr. Ernest Hart, editor of the *British Medical Journal:*

Waldemar Mordecai Wolff Haffkine comes of a respectable Jewish family, and was born at Odessa in South Russia, on March 15, 1860. At the age of 12 he entered the Gymnase of Berdiansk, and from the very first the bent of his mind was in the direction of science, and rested on a firm foundation of fact that could be tested by direct experiment. This determined Haffkine's career. In 1879 he entered the University of New Russia, which has its local habitation at Odessa, as a student in the Faculty of Science. In 1883 he took his degree of Doctor of Science. The path of Academic glory was, however, closed to him on account of his Jewish birth. But although he could not hope for a professor's chair he remained in the University for five years working in a laboratory fitted up for his special use in connection with the Zoological Museum of the University of Odessa. Haffkine fully justified the liberality of his patrons by the truthfulness of his work. He grappled with difficult problems of the fundamental phenomena of organic life, and he opened up new and highly promising lines of original research.

At the beginning of 1888 Haffkine was appointed assistant to Dr. Schiff, professor of physiology in the University of Geneva, and about the middle of 1889 he found his true sphere of work in the Pasteur Institute of Paris. In 1891 he had so far progressed that when Prince Damrouy, brother of the king of Siam, called on M. Pasteur and asked him to supply a remedy for cholera, the illustrious scientist turned to Haffkine for aid. A few months later Haffkine's first paper on the subject was given to the world.

In 1892 M. Pasteur applied to the Russian government for leave to test the method in the dominions of the Czar, where cholera was then raging, but the request was not acceded to. M. Pasteur next asked permission of the king of Siam, where no year passes without the whole country being invaded by the disease. In the meantime, however, Lord Dufferin, the British Ambassador in Paris, had suggested that the place where the experiment could best be tried was the so-called endemic area of Bengal. Lord Dufferin, who during his brilliant career as Viceroy of India had always shown himself alive to the importance of what Carlyle called "the condition of the people question," took the liveliest interest in the matter, and urged it on the attention of the Secretary of State for India. At the same time the Russian Ambassador to France and others commended Haffkine to the British government. He began his operations in India in April, 1893, and continued vaccinating all sorts and conditions of men and women till the end of July, 1895, a period of twenty-nine months. During that time he vaccinated 294 British officers, 3,206 British soldiers, 6,629 native soldiers, 869 European civilians, and 125 Eurasians. The vaccinations were not in any way forced upon the people; no official pressure was brought to bear upon them; only those were inoculated who expressed a wish to be so. Mr. Haffkine's work was greatly facilitated by the fact that the principle of protective inoculation against infectious disease is claimed by the natives of India as a discovery of their own. At Calcutta, up to July 15, 1895, Mr. Haffkine vaccinated 4,397 persons. Opportunities for comparing the liability of cholera of vaccinated as compared with unvaccinated persons, living under precisely similar conditions, presented themselves in thirty-six houses. In these thirty-six the total number of inmates was 521; of this number 181 were vaccinated and 340 were not. Among the non-vaccinated persons there were altogether 45 cases of cholera, of which 39 ended in death; among the vaccinated there were only 4 cases, all fatal. These figures show that the non vaccinated persons were, roughly speaking, six times more liable to death than the vaccinated. In these cases no allowance has been made for the time that has elapsed since the vaccination. It is found, however, that the full protective power of the vaccination does not manifest itself until about a week after the material has been introduced into the system. If the figures are corrected in accordance with the fact, it is found that vaccinated persons are twenty times safer from attack and eighteen times securer from death than the unvaccinated. One instance which particularly struck Dr. W. J. Simpson, the distinguished health officer of Calcutta, was the following: About the end of March, 1894, two fatal cases of cholera and two cases of choleric diarrhea occurred in Katan Bagan Bustee, in a population grouped around two tanks. This outbreak led to the vaccination of 116 out of 200 persons in the Bustee. After the performance of the vaccinations nine cases of cholera, of which seven were fatal, and one of choleric diarrhea, occurred in the Bustee. All these cases occurred among the unvaccinated portion of the inhabitants, which formed the minority in the Bustee; only one of the vaccinated was affected. Then, take the case of Gaya jail. M. Haffkine was invited to go there in 1894, and at a time when cholera had already broken out; six cases, five of them fatal, had occurred. During the epidemic, which lasted a fortnight after his arrival, there were on an average 409 prisoners in the jail; of this number 207 were vaccinated and 202 were not. Among the latter there were twenty cases of cholera with ten deaths; among the former there were eight, with five deaths. Here again making the proper correction for lapse of time after the vaccinations, we find that during the last six days of the outbreak there were eight cases, with two deaths among the non-vaccinated, and not a single case among the vaccinated.

Enough has been said to show that there is already good evidence that Haffkine's vaccinations afford a very distinct measure of protection against cholera. More than this, it would not be wise to say at present. Haffkine himself, with that admirable reserve of judgment which is characteristic of the Pasteur school of investigation, does not claim that the efficacy of the method has been fully proved. In the opinion of Professor Koch, however, the demonstration is already complete, and Dr. Simpson is almost equally convinced. One thing may certainly be taken as fully proved, and that is the absolute harmlessness of the vaccinations.

Changes in the Cord in Pernicious Anemia.—The *Lancet* for September 19 has the following extract from a paper on the above subject by Dr. K. Petren of Stockholm in a recent issue of the *Nordiskt Medicinskt Arkiv*, from which it would appear that the cord changes are far from uniform in this diseased condition. Petren has examined the cords in nine cases of pernicious anemia. In two of these there was clinic evidence of cord affection. In four of the cases the vessels were found to be affected with hyalin degeneration; in five were found scattered throughout the cord small hemorrhages or patches of sclerosis which had been caused by hemorrhages. In two cases in which no spinal symptoms were detected there was chronic degeneration of the posterior columns. In the first of the two cases with spinal symptoms, that of a woman aged 36 years, these consisted in impairment of sensibility, ataxy and paresis of all extremities, especially the lower, loss of knee-jerks and incontinence of urine. Throughout the cord, except in the sacral region, there was degeneration of the posterior columns extending as high up as the medulla. In the cervical and upper part of the dorsal cord there was complete degeneration of Goll's columns; in Burdach's columns there were patches of sclerosis more or less confluent, while in the lumbar region the whole posterior columns were similarly degenerated. The second case was that of a man, 42 years of age, who had been troubled with weakness in the legs three years before. Under treatment this passed off. But two years later the weakness came on again and increased so that the patient was unable to walk, and before death there was evidence of pernicious anemia and of severe spastic paraplegia in the legs. After death there was found marked degeneration of the posterior columns of the cord, most marked in the upper part and gradually lessening toward the lower end of the cord. The lymph spaces round the vessels also were swollen and filled with granular bodies and detritus. According to Petren there are usually in the cord in the case of pernicious anemia small hemorrhages which may lead to some sclerosis without clinic manifestations. The vessels also not uncommonly have thickened walls. In many cases, however, of pernicious anemia there is a true spinal cord affection which is not to be regarded as merely coincident.

From the anatomic point of view no doubt differences are found in the affection of the spinal cord in different cases, but these differences are to be explained by the manner in which the process develops in different cases. Petren is of the opinion that those cases, as regards the affection of the spinal cord, make up a special group and that probably a toxic process underlies the affection of the spinal cord as well as of the blood.

PRACTICAL NOTES.

Athletics with Music for the Insane.—Dr. B. H. Mumby, formerly medical officer of health at Portsmouth, England, is now in charge of the Borough Asylum of the same locality. He is a kind of sanitary superintendent of his charges, and one of the writers in *Public Health* (London) states that he has witnessed a cricket match between an eleven of the asylum's inmates and a team of outsiders, which augurs well for the excursive efforts of the new superintendent in the way of recreating his patients. The asylum team acquitted itself right well, having a certain amount of encouragement in the strains of a full band, the instrumentalists of which were nearly all convalescents from among their own number.

Statistics of Tertiary Syphilis.—Besides the antimercurialists, there are two parties holding opposite views in regard to the treatment of syphilis. Fournier is at the head of one with his chronic intermittent treatment, administering mercury regularly to prevent the appearance of later and severer symptoms, even when all symptoms have apparently disappeared. The others consider the excessive use of mercury injurious, and only administer it symptomatically. In order to decide the question, Raff has been collecting statistics and urges others to continue the work. It has been his experience so far that the majority of cases of tertiary syphilis had received no or very inadequate mercurial treatment in the early stages.—*Cbl. f. Chir.* November 7.

Implanted Bones.—A. Barth describes in *Ziegler's Beiträge*, No. 1, a series of experiments to determine the processes that occur when bones are implanted. He used various animals, and sawed or trephined out a small piece of the skull or of some long bone, replacing it in five minutes, and then studying the healing processes of the wound. He found that necrosis of the replaced fragment speedily ensued, while proliferation proceeded in the surrounding parts, first forming granulations and then osteoid tissue. The sawdust and scraps of bone were taken up by the giant cells and gradually became merged in the osteoid tissue. By the third week new bone had formed around the Haversian canals, until finally the new callus completely covered up the dead bone substance. It seemed immaterial whether the periosteum was retained or not. The only exception to these processes was in the case of very young animals, as in them the replanted bone retained its vitality to a certain extent. The process was substantially the same whether macerated or calcined bone was implanted, or even pieces of sponge, ivory or bone charcoal. The *Deutsch. Med. Woch.* of October 20, remarks that Barth's results are more reliable than those obtained by his predecessors, as he used the microscope exclusively in his work.

Castration and Ligating the Arteria Iliaca Interna for Hypertrophied Prostate.—It seems that long before Ramm suggested castration as a means of relieving hypertrophied prostate, Professor Sinizin of Moscow had performed the operation, as he presented at the meeting of his surgical society in March, 1894, a patient whom he had treated with success in this way eight years before. Derjushinsky mentions this fact, and adds to the 148 cases collected by Bruns, 15 more in Russian literature, four of them personal. He considers this treatment preferable to all the former methods, stating that the indications for operating depend upon the residual urine; as long as this is slight, not over 150.0, it is best to wait. But if it begins to increase, or catheterization is accompanied by pain and loss of blood, castration is indicated, except in cases of excessive weakness or severe renal affections. He describes also a series of experiments on dogs; among them ligating the arteria iliaca interna on five dogs. It was followed almost immediately by atrophy of the prostate gland, which progressed for five months, when probably collateral circulation was established, as the gland then began to grow again, and by the end of the eighth month had recovered its former size. He thinks a similar experience would follow any attempt to carry out this suggestion of Bier's in cases of hypertrophied prostate.—*Centralblatt f. Chir.*, November 7.

Renal Surgery.—Israel describes in the *Deutsch. Med. Woch.*, No. 22, his experience with a case of stones in the left kidney, which he removed through a slit on the convex side, with a stone in a solitary cyst near by. The space left by the stones was packed with gauze, until "the kidney gaped like an open oyster shell." The gaping edges were sutured to the abdominal wall and the inflamed lining of the pelvis of the kidney treated by local applications, with complete recovery. Another case of surgical kidney, with hundreds of abscesses and enlarged kidney, resulting from a criminal abortion, with a recto-vesico-vaginal fistula and the severest general symptoms, was also cured by extirpation of the diseased kidney. In two cases he operated successfully for severe pyonephrosis complicating acute gonorrhea. In another case in which the ureter turned abruptly upward and then downward, he performed a plastic operation, a sort of pyeloplicatio, with the result that not only the troubles in miction passed away, but the urine became clear and normal. A similar plastic operation on a boy of 11 restored the valve at the orifice of the ureter in the kidney to normal functions. Twelve cases of tubercular kidney were operated upon, with three cases of entire recovery and five much improved. One patient died at the time, and three have since died with tubercular foci elsewhere. In one case only part of one kidney was removed, and the amputated surface was bled for several minutes through a gauze pad pressed directly and firmly against it.

New Treatment of Prolapsus Ani.—Dr. W. B. Platt in the *Johns Hopkins Hospital Bulletin*, July, offers the following as a modification of treatment of prolapsus by suture. He says this method of treatment is not at all original with him. He had operated on a child in vain by other methods. He had twice employed linear cauterization, thus endeavoring to bring about adhesion between the bowel and the tissues, but without avail. Dr. Earle of Baltimore recommended an operation which Dr. Kelly had suggested, and which completely cured the prolapse. Not long ago this second patient entered the Garrett Hospital with an obstinate prolapse of the rectum, which projected about four inches below the body each time the child had a stool. He did this operation, keeping the suture in for three weeks. It was entirely successful. He afterward learned that Dr. Kelly has used this operation in the vagina in cases of prolapse of the uterus. In the case of the anus the operation is as follows:

"At the junction of the skin and mucous membrane, just beneath the latter, a curved needle is inserted in the median line below, and a silk thread is carried half way around the anus and out again, in the median line above, re-inserted in the same opening and brought out at the first puncture, making a purse-string suture. The little finger is then put in the anus and the string tied snugly around it. Apparently this would cause suppuration, and possibly a fistula. It does nothing of the kind, nor does it cause any pain afterward. The child has his stools in the recumbent position. If the feces are at all hard, injections are given to soften them. After three weeks the suture is withdrawn and the place kept clean, when it heals immediately with no return of the prolapsus. By this method the bowel is kept in place long enough to contract

adhesions; by the other methods it is difficult to keep the bowel from coming down after or during a stool; no pad in the world will keep it up in the case of a young child. Two weeks after the removal of the sutures in these two cases one could not tell that sutures had been used."

Fraenkel's Method of Narcosis and After-treatment of Laparotomies.—Before the operation the patient receives a subcutaneous injection of 1 to 1¼ c.cm. of the solution: Morph. mur. 0.15; atropin sulf. 0.015; chloralhydrat. 0.25; aq. dest. 15.0. Fifteen minutes later this is followed by the chloroform or ether, and in all his thousands of cases, he has never had a death from chloroform, nor even a severe case of asphyxia, and subsequent inconveniences are scarcely ever observed. In the first and often in the second night also after laparotomy, the pain of the wound is arrested by an injection of the morphin atropin solution above. The patients are not allowed to eat or drink anything whatever in the first twenty-four hours. The second day, they are given cold Russian tea, and are kept on fluid food until the third or fourth day, until the first evacuation of the bowels has been obtained with castor oil or calomel. If the vomiting keeps up after the second day it is almost always an indication of beginning ileus. He traced the ileus in one case to a loop of the small intestine which had been drawn into the drain scar. He usually applies the drain to arrest the hemorrhage, according to Mikulicz. He removes the sutures the eighth or ninth day. He never extirpates the uterus for carcinoma, except where there is a possibility of radical recovery. He prefers palliative methods where the peritoneum or vagina are involved; enucleation of the neoplasm, carbonization of the inflamed surfaces with the Paquelin, and after the scabs have fallen, cauterization of the surfaces of the wound with a solution of chlorid of zinc, 2 to 3. He has patients who have had no relapse since this treatment three years ago.—*Cbl. f. Chir.* November 7.

Cure of Carcinoma with Injections of Alcohol.—The remarkable results obtained by Hassel with injections of alcohol are described in the *Therap. Woch.*, of October 11 and 25. The alcohol favors sclerosis, cirrhosis and cicatrization in all growths like struma, angioma, cysts, lymphatic gland tumors, sarcoma, carcinoma and especially carcinoma of the breast and cervix uteri. In fifteen out of eighteen cases of carcinoma of the breast the growth gradually dwindled away, until in a year there was nothing left of it but the connective tissue stroma, and there has been no return. The three cases that were not benefited were relapses in the axilla of long standing. Five cases of carcinoma of the cervix also recovered completely and the patients are still living and in good health. The effect on the general health is even more surprising. The pains and uneasiness pass away, and sleep, appetite, assimilation and strength return in a most remarkable manner. He uses alcohol diluted one half, or even more with very sensitive patients, as he has found it less painful, while equally effective with the undiluted. He prefers a Windler syringe to a Pravaz, as the needle is longer by 4 cm. and reaches farther into the depths of the tissues. He makes one or at most two injections at a time, drawing the breast out and inserting the needle so that the alcohol will penetrate into the retromammary cellular tissue beyond the middle of the gland. The contents of the syringe should flow out gradually on gentle pressure of the piston; if there is resistance, he withdraws it a little and inserts the point sideways in another direction. In this way the retromammary space is filled with the alcohol, 5 to 10 c.cm for small tumors and 10 to 20 c.cm. for larger ones. He is careful not to touch the rear wall of the tumor, but keep always well in the space behind it. After the needle is first introduced, he withdraws it to see if any blood flows out of the hole, showing that the needle had penetrated a blood vessel. If it has, he cleans the syringe and inserts it another place. The injections are made once or twice a week at first, and then later once in two or three weeks. The patients with carcinoma of the cervix were dispensary cases and received only six to twelve injections in all, extending over many weeks. A case of inoperable cancer of the rectum is also described as much benefited, but death ensued from heart disease. He has modified the Windler syringe to make it stronger, with a metal tip that screws on, and a handle to enable it to be more strongly grasped in making injections into the uterus above the cervix, which require considerable effort. He adds that he never draws down the uterus, but leaves it in its normal position, so that the alcohol can find its way into the tissues without undue distention, which might cause necrosis. Alcohol has no effect on mastitis chronica and is therefore a means of differentiation. Several cases of mastitis chronica refused to accept his diagnosis, and had the breast removed by other surgeons, when histologic investigation confirmed his statements.

Small Medicinal Enemas for Children.—"An enlightened return to the practice of administering medicines by the rectum seems to us a veritable progress." With these words Monteuuis concludes an urgent appeal for the more general use of the rectal syringe in treating children. In convulsions nothing acts more rapidly and surely than a teaspoon or half, of pure glycerin administered per rectum, followed in fifteen minutes by a second injection of 25 centigrams of antipyrin in the first year, and 50 in the second, increasing 50 centigrams for each year. According to the author, Comby and others, children tolerate quite large doses of antipyrin without disturbances, so that it can be prescribed with confidence. If there are febrile and convulsive symptoms it must be given in large and not fractional doses. In convulsions it should be administered at 1-10 to 1-20 according to the age. The solution at 1-5 produces a slight, transient smarting. In vomiting, with gastric disturbances and headache, antipyrin is again indicated, and the rectal method by far the one to be preferred for several reasons. Habitual constipation often yields permanently to small injections of pure glycerin. When it is necessary to supply the system with liquids in infective diseases, to ensure the proper functions of the kidneys, etc., the liquids can be supplied through the rectum and all the medicines administered that way. The doses are generally the same as by the mouth. Antipyrin seems to act more rapidly per rectum, and quinin is equally effective (the neutral hydrochlorate), and is compatible with antipyrin. None of the means in vogue will soothe the nervous system as rapidly and effectively as these small medicinal injections. They are the most powerful and the most practical as has been demonstrated again and again. The evils of the old fashioned bulb syringe are avoided by using a small glass pneumatic syringe containing 5 to 6 c.cm. with a rubber nozzle, "which should be in every mother's arsenal."—*Gaz. Méd de Liége*, November 5.

Eucain in Tooth-Extraction.—The London *Therapist*, September, states that the following procedure has in denistry been found acceptable.

1. Dissolve 1 part of eucain in 10 parts of water, and boil the solution; before injection the solution must be quite clear. It is best preserved in a small stoppered glass bottle.

2. Before extraction disinfect the mucous membrane thoroughly by washing with a plug of cotton-wool soaked in hydrogen peroxid or a 2 per cent. carbolic acid solution.

3. Make the injection by inserting the needle well into the gums, about half way up the alveolus, and only inject so much of the solution that the mucous membrane in the neighborhood becomes white and slightly raised. Both buccal and lingual injections must be made. It is most important that the solution should not be injected at the junction between the gums and the mucous membrane of the cheek.

4. The extraction is made about one minute after, when the patient has himself felt the anesthesia, and not directly after injection.

5. After hemorrhage had ceased, I remove the eucain solution by puncturing with the needle and pressing upon the part with my finger.

6. Slight swellings nearly always occur after every extraction with resection. If the operator has used much eucain and especially if it has been injected near the juncture of the gums with the mucous membrane of the cheek, so that edema is anticipated, the patient should be told that a swelling will probably appear but be perfectly painless and subside of itself within a day or two. I consider this swelling quite without danger, as it is completely painless and so quickly subsides, and because I have never observed any other secondary symptoms.

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It would greatly facilitate the prompt delivery of the JOURNAL to those members of the ASSOCIATION living in large cities, if they would kindly furnish this office with their street address in those cases where it is omitted from the wrapper of their JOURNAL, as we have been notified by the postmasters of the larger cities that second-class mail matter not having street address, would be placed in the general delivery to await call.

SATURDAY, DECEMBER 5, 1896.

CONGENITAL HYPERTROPHY OF THE PYLORUS AND STOMACH WALL.

Instances of congenital hypertrophy of the muscular tissue of the pylorus and stomach are so rare, the etiology of the condition is so obscure, and the ultimate consequences so serious, that the following brief reference to the report of two cases by JOHN THOMSON[1] may be of interest. PITT[2], PEDEN[3] and HIRCHSPRUNG[4] have reported cases more or less similar, but ordinarily the condition is not mentioned in the usual text-books.

The first one of the cases reported by THOMSON concerns a male infant, eighteen days old, who for a week had been vomiting all his food. The only physical sign of disease that could be found was great emaciation. There was no distension of the bowels, and no abnormality on palpation of the abdomen. There was nothing in the family history to throw any light upon the condition. When the infant was born it was well developed and well nourished. From the eleventh day of its life it vomited everything until it died. The vomited matter consisted of the milk he had swallowed; there were never any signs of blood in the vomited matter.

Postmortem examination disclosed the fact that all the organs were healthy except the esophagus, which was greatly dilated, and the stomach, which was greatly distended. The pylorus was very much thickened and felt like a solid cylinder; it measured nine-sixteenths of an inch in diameter and one and two-thirds inches in circumference. Compression of the stomach failed to force any of the fluid contents through the pylorus. There was no abrasion or scar of the gastric mucous membrane, but the muscular wall of the stomach was greatly thickened, especially toward the pyloric end. Microscopic examination showed the muscular layer of the pylorus to be more than three times its normal thickness, the greater part being made up of circular fibers.

The second case concerned a male infant nine and one-half weeks old. It was healthy at the time of birth, and the family and personal history of the parents contained no items that would throw any light upon the disease of their child, which was the fourth. While in good health up to about the fourth week, he nevertheless very frequently wetted his bib by vomiting a little after each nursing. At the fourth week he began to vomit everything, the vomiting usually occurring about a half an hour after the food was taken. The vomited matter consisted of the liquids taken, along with some yellowish mucus, but no blood.

Death occurred when he was nine and one-half weeks old. The postmortem examination showed considerable emaciation, but all the organs except the stomach were quite normal. The esophagus was dilated in this case also. The stomach was elongated and slightly hour-glass shaped; the pylorus was distinctly enlarged, feeling almost solid, and measured one and seven-eighths of an inch in circumference and five-eighths of an inch in diameter. No fluid could be forced through the pyloric orifice upon compression of the stomach. The wall of the stomach in the region of the pylorus was greatly thickened, and microscopic examination showed this thickening to be due to an hypertrophy or hyperplasia of the muscular tissue, the serous coat being normal, the mucous coat in a state of chronic catarrh.

In these two cases, as well as in the few similar ones reported, the essentially prevalent condition was hypertrophy of the muscular coat of the pylorus and of the adjacent stomach wall, but there are no data present sufficient enough to explain the causation of this hypertrophy fully. THOMSON is inclined to believe that the hypertrophy of the muscle was due to over-action, and that the exaggerated functional activity must have been continued for a long time, and must have occurred in utero. While it is doubtful whether the liquor amnii, swallowed by the fetus, contributes to its nourishment, it is admitted that a large amount of fluid passes through the stomach of the fetus during the latter part of pregnancy. This passage would excite some peristaltic action, and excessive and irregular contraction of the pyloric muscle would give rise to some hypertrophy of the

[1] Edinburgh Hospital Reports, Vol. 4, 1896.
[2] British Med. Journal, 1891, I, p. 896. Trans. London Path. Society, 1892, p. 63.
[3] Glasgow Medical Journal, 1889, p. 416.
[4] Jahrb. f. Kinderheilk., xxviii, p. 61.

muscular coat of the stomach. The cause of this spasm of the pylorus might be attributed to, 1, a local lesion, such as an ulcer of the mucous membrane, causing undue irritability of the nerves supplying the pylorus; 2, to some irritative property of the fluid entering the cavity of the stomach; 3, to some disturbance of the nervous mechanism which regulates the contraction and relaxation of the pylorus under appropriate stimuli.

Now, in these two cases, the first of these conditions may be eliminated, because there was no evidence of any local lesion, such as an ulcer of the mucous membrane, discovered at the postmortem. As regards the second condition, an abnormal composition of the liquor amnii might be present and give rise to changes in the mucous membrane in the stomach and to irregular muscular contraction, but this can not be said to be likely, because there were found no changes in the lining membrane of the stomach, or for that matter, in the rest of the alimentary canal.

Consequently, the third proposition may be looked upon as the most likely. If the coördination between the stomach wall and the pyloric sphincter were disturbed, even but very little, so that the two contracted simultaneously, it is easy to understand that both would be continuously and greatly overworked. It is not improbable that coördinated muscular action taking place in the uterus should occasionally become disturbed, apart from structural lesions, just as similar processes are apt to occur in later life. Hence the hypothesis that disturbed coördination is the fundamental factor seems at the present time the most likely of the theories that have been propounded to explain this congenital hypertrophy of the pylorus and stomach wall.

By drawing attention to these cases it may be hoped that the diagnosis of the condition might be made earlier, and that some radical treatment of a surgical nature might be put into practice, which would relieve this otherwise apparently irremediable condition.

SWYZER[5] reports a case of congenital hypertrophy and stenosis of the pylorus in a girl three months old of the same nature as THOMSON'S cases. He calls attention to the great importance of diagnosis in these cases and lays down the following diagnostic points: 1, constant vomiting, without any clinical reasonable cause; 2, evidences of retained gastric contents due to motor disturbances of the propelling forces; 3, absence of occlusion symptoms in the intestines; 4, the ease with which the stomach and the pylorus may be palpated. He also emphasizes the evident fact that surgical treatment, LORETA'S operation or gastro-enterostomy, offers the only chance for these small patients.

[5] New York Medical Journal, Nov. 21, 1896.

THE PROGNOSIS OF EXOPHTHALMIC GOITRE.

There are probably few disorders that are regarded as more uncertain in their prognosis than is exophthalmic goitre, and the general impression in the profession as regards the future of its victims, is undoubtedly an unfavorable one. While life is rarely threatened by the disease, at least directly, a cure is hardly expected, much less confidently promised in any case. It is consoling therefore to find from an analysis of statistics. presumably made with care and due estimation of all the facts, that the outlook is somewhat better than is generally admitted in the rather dubious state of the medical mind on this subject. Dr. R. T. WILLIAMSON of Owens College, Manchester, published in the *British Medical Journal* of November 7 an analysis of thirty out of fifty cases treated in the Manchester Royal Infirmary, in none of which was any operative treatment attempted. The remaining cases passed from under observation too soon to enable any opinion in regard to them to be properly formed and hence could not be properly utilized in the inquiry. The facts as to the thirty were obtained by careful investigation, either by direct observation or by correspondence.

Four of the thirty died while under observation with pronounced organic cardiac complications, two succumbed later under apparently similar conditions. In five cases, three of them well marked and of long duration, recovery was complete, and in two practically so. Six patients were very decidedly improved, only moderate inconvenience being felt from palpitation, enlargement of the thyroid, etc., that were remaining as reliquiæ of the disorder. In seven cases, all of a year or more duration, there was slight improvement, and in one well-marked case it could only be ascertained that the patient was following her ordinary occupation (that of a domestic) without details as to her exact condition. In only three was the condition stationary.

The above statistics are more favorable than many at the present time would have anticipated, recovery complete or practically so in 22 per cent.; an equal percentage of very decided improvement, and to these we should probably add the case of the domestic who was able to follow her occupation, for there would be necessarily very little disability permitted there, making a total of nearly 50 per cent. of recoveries or very decided improvement. "Eliminating the cases that have been under observation during the shorter periods, and including" says Dr. WILLIAMSON, "only those cases which have terminated fatally, those which have recovered, and those in which the disease has existed for over five years, we have the following results in twenty-four cases: Fatal termination in six cases; recovery complete or almost complete in seven; improvement in seven; condition much the same in three; patient alive and following her occupation

(exact condition unknown) one case." This gives a percentage of recovery of 29 and of recovery and decided improvement in nearly or quite 60 per cent., which the Doctor believes represents fairly well the average course or results of the disease.

When we consider that only two or three of the above cases were described as "slight" the significance of the above figures is increased. Many cases of exophthalmic goitre are unrecognized from incipiency to recovery and this fact should be considered in estimating the prognosis of the disorder. When the statistics of pronounced hospital cases are as favorable as the above, the outlook for the average, including the slighter home treated cases, and the actual but unrecognized ones occurring in the practice of those who are unfamiliar with the disease or that go altogether uncared for, is certainly very favorably modified from the one that is probably accepted at the present time by the mass of the profession.

CHANGES IN THE PUPILLARY REACTIONS IN THE INSANE.

Variations in the size of the pupils may be due to either local or remote conditions, morbid or physiologic. Glaucoma, myopia, amblyopia and amaurosis are likely to be attended with some degree of pupillary dilatation, while hyperopia, hyperesthesia of the retina and advanced age are usually attended with contraction of the pupil. The pupil will be large when the fibers it derives from the third nerve are paralyzed or those derived from the cervical sympathetic are irritated and it will be small under the reverse conditions. These effects may be induced by drugs and other physiologic agencies, or by inflammation, traumatism, new growths and other morbid processes. The usual reactions to stimuli fail whenever the reflex arc through either the cervical sympathetic or the optic nerve on the one hand, and the third nerve on the other, is interrupted at any part of its course. The reaction with convergence and with accommodation remains as long as the integrity of the fibers of the third nerve is maintained.

It was at one time supposed that a difference in the size of the two pupils was a certain indication of paretic dementia. At a later date this view was enlarged so as to include all mental disorders. Special instruments were devised for the purpose of determining the smallest variations in size and attempts were made to decide the character of the delirium in cases of paretic dementia by the behavior of the pupils. When the right pupil displayed the greatest variation the delirium was viewed as melancholic, and when the left the delirium was believed to be maniacal. Conclusions were also based upon the form of the globe and changes in the eyebrows. An accumulated experience has shown, however, not only that the pupils vary in size but that they may present marked degrees of inequality both in health and under other conditions.

While previous observers had given attention to the mobility of the pupils, in addition to differences in size between them, it remained for Argyll Robertson in 1869 to attach the proper significance to the reflex immobility of the pupil, that is, its failure to react to light-stimulation. After the importance of this phenomenon in the recognition of locomotor ataxia had been generally appreciated observation from the same point of view was directed toward cases of mental disorder, with the result of finding the sign to be common also in cases of paretic dementia.

In a collection of 3010 cases of paretic dementia tabulated by Siemerling (*Berliner klinische Wochenschrift*, Nov. 2, 1896, p. 973) the reaction of the pupils to light was found wanting in 1285, or 42 per cent., and diminished in 799, or 26 per cent. The diagnostic significance of this observation is obvious, especially as the phenomenon is likely to be present at a time when other symptoms are absent or ill defined. In the same group of cases inequality of the pupils was noted in not more than 963 cases, or 32 per cent. Comparative studies of the knee-jerks and pupillary reactions of paretic dementia have shown that their associated absence is the more common the further advanced the progress of the disease.

In the psychoses in general reflex immobility of the pupils is bilateral in the majority of cases, though there may be differences in degree between the two sides. Permanent unilateral immobility is, however, very rare. In most cases the shape of the pupil also undergoes change, becoming angular, zigzag or elliptic. Examinations of 300 insane patients by Musso have shown irregularity of the pupils in 182, or 63.3 per cent. On the other hand, of 100 healthy persons 89 had round pupils and not one elliptic, while of the insane 7.3 per cent. had elliptic pupils.

In two cases of paretic dementia uncomplicated by locomotor ataxia Siemerling found the peculiar reaction described by Gowers—primary contraction of the pupils on exposure to light, with secondary return to its original size, notwithstanding the maintenance of the light-stimulus. Reversal of the pupillary reflex, the so-called paradoxic contraction, is rare, the pupils dilating on exposure to light, and vice versa. In rare instances the pupils may vary in size at different times of the day, although they may fail to react to the usual stimuli. Hippus, or restlessness of the pupils, appears to be an uncommon manifestation of paretic dementia. Slight oscillation of the pupils is present in health, as a result of various forms of sensory and psychic irritation, to which the organism is constantly exposed; so that hippus may be viewed merely as an exaggeration of a physiologic manifestation, resulting from increased activity of physiologic stimuli or of undue susceptibility of

the centers controlling the movements of the pupils.

A study of 9,160 cases of mental disorder under observation at the Charité of Berlin during a period of ten years, in which examinations of the eyes were made, shows that reflex immobility of the pupils was present as follows: Paretic dementia, 1,524 cases (92 per cent.); locomotor ataxia in association with psychoses, 29; senile dementia and local disease of the central nervous system each 19; syphilis of the central nervous system 17; alcoholism 15; paranoia 7; epilepsy and hysteria each 4; head-injuries 1. On the other hand in previous examinations made by UHTHOFF in 550 cases of nervous disease and 12,000 of ocular disease, reflex immobility of the pupils was found only 136 times; in 92 cases of locomotor ataxia, 12 of paretic dementia, 11 of syphilis, 8 of other forms of focal disease, 2 of multiple sclerosis, 2 of railway spine, 2 of congenital origin, 1 of head-injury, 1 of aneurysm of the aorta, 1 of congenital idiocy, 1 of tobacco-excess, 1 of hystero-epilepsy and 1 of right hemianesthesia; in 3 cases no cause could be decided upon. From these data it will be seen that reflex immobility of the pupils is a most important symptom, and although not an absolute indication of such grave disorders as paretic dementia and locomotor ataxia, it may be looked upon as positive evidence of disease of the nervous system. In this connection it is to be borne in mind that sometimes long intervals may elapse between the appearance of the pupillary phenomena and the development of other distinctive symptoms.

It is well known further that the pupils often became dilated under conditions of fear, in the somnambulistic state and in that of ecstacy, especially in debilitated and neurotic persons. In the intervals between epileptic attacks the pupils have been observed to be not only large but also unusually susceptible to reflex irritation. In some cases the pupils also differ in size. During a paroxysm the pupils are both dilated and unresponsive to light. This last peculiarity is characteristic of epilepsy and distinguishes it from hysteria, so that if in a given case the pupils react to light in some convulsive attacks and fail so to react in others the condition may be looked upon as one of combined hysteria and epilepsy. The pupils are said to be usually contracted at the beginning of the hysteric or hystero-epileptic seizure, becoming dilated in the tonic-clonic stage, in which also oscillatory movements take place, to become pronounced in the stage of passionate attitudes. In the tonic stage of the epileptic paroxysm the pupils are dilated and in the clonic stage alternately dilated and contracted. In hypnotic and hallucinatory states the pupils are said to react in accordance with the distance from which imaginary objects are viewed. Attentive listening to the ticking of a watch has been attended with dilatation of the pupil corresponding to the listening ear.

Sensory irritation causes pupillary dilatation in health, though not always in the aged. This reaction has been found wanting in cases of paretic dementia, as a rule in association with absence of the pupillary contraction to light-stimulation; although at times pupils unresponsive to light-irritation underwent dilatation; the knee-jerk was often wanting. The reaction was active in epileptics and timid persons. It could be induced by irritation of anesthetic areas in cases of hysteria, but not when the impairment of sensibility was due to peripheral disorder. Pupillary reaction to sensory and light stimuli is wanting in conditions of coma and returns slowly afterward. There is no consensus of opinion as to whether the reflex activity of the pupils to light or that to other sensory stimuli ceases first. Hypalgesia of the skin appears to have no influence upon the sensory reflex of the pupils. It has been found that the reaction-time of the pupillary act is increased in paretic dementia and some other nervous disorders. Increased activity of the pupillary reaction has been observed following widespread circulatory disturbance and in cases of morphinism after withdrawal of the drug.

A consideration of the foregoing summary will show that a careful and systematic study of the size, form and activity of the pupils under various conditions is capable of yielding important information, which future classification and further experience may prove to be of considerable value in diagnosis and prognosis as well as suggesting certain therapeutic indications.

THE SLOWNESS WITH WHICH IMPORTANT MEDICAL DISCOVERIES ARE GENERALLY PUT TO PRACTICAL USE.

It is a remarkable and lamentable fact that many years often elapse before an important and scientifically established discovery in either the theory or practice of medicine becomes an essential constituent of diagnosis and treatment in the hands of the practicing physician. The newspaper-advertised fad is quickly enough caught up, but alas, the newspapers know nothing of the great scientific advances in medicine.

Too much caution can not be exercised in the investigation and adoption of medical innovations. It goes without saying, that as a rule, experimentation should not be pursued in private practice. The field for such work is generally in the hospitals and laboratories established for original research, and carried on by men carefully trained in practical knowledge and observation, and who by specializing their studies, are usually much more capable of producing valuable and definite results than their fellows engaged in the practice of general medicine. Conservatism in medicine is at all times highly desirable. But, alas! there are men who, either from indifference, scepticism, ignorance, or, if it must be said, from

absolute laziness, refuse to avail themselves of genuinely scientific and established methods. Take, for example LAVERAN'S important discovery of the plasmodium of malaria; how many men go on blindly prescribing ounce after ounce of quinin on the slightest suspicion or faintest indication in clinical history? Yet these very men are not seldom the faddists and fanatics who rush headlong in their eagerness to experiment with such remedies as antitoxin and tuberculin, made notorious by the newspapers. One can but laugh at some surgeons with inexperience in practical physics and photography, and working with crude apparatus, who publish elaborate reports and show skiagraphs of a foreign body located by the Roentgen rays. Personal vanity and desire for publicity stand out in every line of such reports. Yesterday by such simple means as inspection, palpation and percussion, in which these men had become expert by long use, they would have attained the same result in infinitely shorter time. The individual skill of years is ruthlessly discarded in bungling efforts to appear as an "up to date" surgeon.

On the other hand, when we review the patient struggles of JENNER to establish vaccination, of PASTEUR, LISTER, and their associates, to promote asepsis and antisepsis in surgical maneuvers, of the hygienists to instill into the public mind principles and laws of which the medical mind generally seemed ignorant, we find abundant proof of the truth of our contention. At the present time, how many graduates of medicine are seeing a dozen or more patients a day, and prescribing for their maladies without once resorting to a urinary examination, unless absolutely compelled by consultation, or by life insurance companies? The writer has personally known several instances in which men with large general practices never make an analysis of the urine. How many are treating headaches, neuralgia, nervousness, hysteria, dyspepsia and other disturbances that are often reflex, without the slightest means of determining the existence of some form of ocular asthenopia, or if they are incapable of making this investigation, without consulting an oculist, despite the reports of hundreds of reflex neuroses caused by some ocular trouble such as an uncorrected error in refraction? Trustworthy oculists and general physicians certify that sick headache frequently (some say always) is due to eye-strain, yet thousands of sufferers are today left in misery and ignorance of the fact by their physicians? The latest book from the press, by a distinguished specialist on diseases of the stomach, makes no mention of the indubitable influence of refraction anomalies in begetting functional stomach disorders. How many are daily treating blood-dyscrasias regardless of the modern methods of blood analysis and corpuscle-counting, which, beyond all sceptical argument, are important and infallible elements of diagnosis?

These and many similar questions can have but one answer; accurately estimated, the magnitude of the number is appalling of those in this sorry roll of sceptics (by inclination rather than proper motive) idlers, and even ignoramuses.

It needs no extended search to reveal the fundamental causes of it all. They are especially two: 1, the love of the community, innate, persistent, almost unconquerable, for its quacks—those both in and out of the profession proper; and, 2, the commercial medical college. A medical college should be an institution of preliminary training; the whole of the after-medical life should be reserved for study, taking advantage of the proper elementary education to further the slow evolution of a skilled physician. The graduates of poor or of fraudulent medical colleges are too frequently unable to understand, appreciate, or practice medical advances. They are helpless in their lack of laboratory knowledge and technic, and they are debarred from participation by their deficiency in clinical diagnosis. There is no more significant and convincing plea for higher medical education, and increased clinic and laboratory training than in these unfortunate facts. Early and late we should endeavor to have the State take commercialism completely out of medical education; abolish private institutions, and pseudo-medical colleges, whose motives are too apparent to be called ulterior, forever exterminate the monetary sale of medical diplomas, secret or open, for in many cases it is nothing more or less than this, and we shall then be able to meet the taunts of our co-workers in other professions, who while acknowledging the superiority and genius of the select few, say that medicine today, as practiced by the great majority is antiquated, empirical and unscientific.

No supercilious sneer from the safety of numbers, nor time-worn retorts, such as "calamity howler," "grumbler," and "professional objectionist," can suppress, at least, our lay critics. Reforms in medical education alone can convince the world, and place medicine in its deserved position among the sciences of the day.

CORRESPONDENCE.

Reply to "The Controversy over the Harvey Medical College of Chicago."

CHICAGO, Nov. 28, 1896.

To the Editor:—Being the originator of the discussion regarding the recognition by the Illinois State Board of Health of the Harvey Medical College and others of the same type, permit me to make the following reply to Dr. Byron Robinson's letter which was published in your last issue.

The writer of the letter, for some of whose opinions in his special field of work I have the highest respect, has undertaken with one master-stroke of his pen to apparently settle the difficult problem of medical education by proclaiming the Harvey Medical Evening College of Chicago the queen of med-

ical institutions. At least that is the tone of the Doctor's article.

Had I not known any more about the Harvey than is given in the above-named letter I should have unqualifiedly agreed with the Doctor and joined in his praises of Harvey and never would I have uttered a word in condemnation of its methods.

But Dr. Byron Robinson has only told us one-half of the truth. The fact is, that the statements as given in his paper have been handed him by the college secretary just as the dry-goods man gives an advertisement to the daily press. And here was a real opportunity to get cheap advertising. Besides, his statements have a fatal resemblance to those made in Harvey's Annual Announcement and in the lay-press of Chicago. It is well to remind those who have not followed up this controversy of the reasons why the Harvey has of late been mentioned at all.

Two of Harvey's professors have positively resigned their respective chairs because pressure was brought to bear upon them to sign diplomas of candidates for graduation who did not pass their very important branches of the practice of medicine and pathology respectively. It was also found that out of the eight candidates whose diplomas were to be signed—because the management decreed it so—not one had even *credentials* for pathology, some failed in medicine, few had credentials of any sort, not to speak of a preliminary education. Furthermore, examination papers in my posession show that not only do some students of Harvey lack the necessary qualifications for admission into a medical college, but that they are also devoid of the most rudimentary knowledge of English syntax and orthography.

To prove this: One sophomore student spells the word *infiltration* twice in two succeeding sentences, *inflatration*, and again *lukecytes* for leucocytes, *necrossis* for necrosis, *unpripard* for unprepared. I could fill up columns with the most unpardonable errors in syntax and spelling committed by Harvey night school students, but space does not permit it.

As regards the teaching faculty Dr. Robinson says: "In short, the faculty consists of a body of fifty respectable men and women, who are giving intelligent and thorough modern medical instruction." Of course, the Doctor then picks out five names and himself and wife and asks: "Who are the teachers connected with Harvey College that they should be agents of a diploma mill?" In answer to this question I will say that they are not the agents who get pay, but the tools of a diploma mill, whether they know it or not. They get their reward in being called "professors," which title enables them to throw dust into the eyes of an unsuspecting public.

Besides, as regards ability, one of Harvey's full-fledged professors would not even be admitted as a student into any school in good standing. I had occasion, as the then professor of pathology, to examine that professor in my branch; for that professor is still a student. For lack of space I can not give any of the syntax found in the professor's examination papers, but a few words as they are spelt by the professor may with propriety be inserted here: parenchima for parenchyma, adapoise for adipose, lucocytes for leucocytes, Kleobs-leifler, Kloebs-Leifler for Klebs-Löffler, vaginia for vagina, generaly for generally, fibronous for fibrinous, tomane for ptomaïne, odemia for œdema, disolution for dissolution, suporate for suppurate, vegatable for vegetable, etc.

The professor in question is still teaching at Harvey at the date of this writing. Of course, comment is unnecessary and every reader can form his own idea regarding the education of such a professor. But how Dr. Byron Robinson and his wife, Dr. Lucy Waite, happen to be mixed up with that class of professors, I can not comprehend; the fact remains, he is there. Surely there is another way out of the difficulty beside eulogizing the institution and its faculty.

The Doctor starts his letter with an enumeration of all the students who graduated from Harvey and speaks of their attendance at other colleges previous to their entrance in Harvey as seniors, and right there is where he mistakes mere matriculation for attendance. Everyone knows how easily a matriculation-ticket can be procured and that it is not even equivalent to admission into a school, still less is it evidence of having passed in junior branches, but that students have been admitted into Harvey College as juniors and seniors who have *never* produced a ticket of attendance anywhere, is quite sure, and the Doctor knows it.

Again, the Doctor mentions the fact that several Harvey students from the sophomore and freshmen classes were admitted to advanced standing into other respectable colleges. This speaks well for their good judgment, first in entering a good school and second, in working hard to be admitted into another school. None of the Harvey professors, not excluding the secretary, ever doubted that the freshmen students were far superior to the graduating class in intelligence and preliminary education.

One point in Dr. Byron Robinson's statements, upon which he expends considerable mathematical energy, should be particularly mentioned, namely, his figures of the number of hours that Harvey night students have as compared with the still existing standard day schools of six months instruction per year. But does not every physician who has been a student know that the mind can absorb knowledge more readily in the early part of the day than in the evening; that, when mind and body are fatigued, one might as well go to sleep as study? And is it not a fact that when one has followed any ordinary occupation for the entire day, that he is tired in the evening, and that even three lectures of the Dr. Robinson style, delivered from 7 to 10, evenings, will act as a hypnotic?

Occasional glances into Harvey's lecture-rooms during lectures have, beside, convinced me of the strong hypnotic powers possessed by Harvey professors. When can such a student find time to study and review when he must rise early in the morning in order to reach his place of occupation?

"Was not Lincoln a rail-spitter?" the Doctor exclaims. This point has repeatedly been made by all varieties of public declamers; but Lincoln ceased to split rails when he entered college; he no more belonged to the rail-splitters when he studied law, while Harvey night-school students do.

Again, "during the past two years every senior saw one or more labors." Of those that came up for graduation in 1896, I know positively that about one-half of the students never saw a case of labor. Students have been promised ten labors in 1897. To make a promise and to fulfill it are two things.

What the student should see beside labors, are the diseases that he may encounter in his daily practice. Why labors are made a specialty in Harvey College may probably be accounted for by the fact that there are so many ladies connected with the school.

As a last resort, Dr. Byron Robinson takes up an inventory of Harvey's belongings, and counts in everything he finds round about the building, even the poor students' microscopes, for it is a fact that each Harvey student must buy his microscope on the installment plan from the faculty if he wants to look through one. Harvey offers space for the storage of microscopes gratuitously. There are several things that Dr. Robinson left out in his inventory, such articles of wealth as chairs, benches, stationery, etc.

Speaking of the Harvey building, any one who takes a stroll through Clark Street will find—if he patiently searches for it, in spite of the deafening roar from the dime-museum orchestra across the street—a building inscribed the Harvey. In that building is a Good-luck store, above this a private dispensary, a dentist, and then the private offices of some members of the faculty. The top floor and the one below it constitute the Harvey College proper. The entire building, however,

has been christened "The Harvey," as per contract. This is the building which Dr. Byron Robinson has found in the real estate records under the name "Harvey."

That the medical profession has never recognized Harvey as a college in good standing, and that it has not even been given a passing notice in the JOURNAL, will be learned from the following editorial published in the JOURNAL of September 12.

. . . "There are many alleged medical schools not accounted for in this exhibit, but as a rule, they ought not to be considered. We have been informed that there are about fourteen medical schools in Chicago, alone; only a few of these have any reason for existence, and if rigid requirements were insisted upon they would close their doors.

"The struggle for existence is at the root of the evil; finding themselves unable to compete with the real college professor in obtaining practice from the public, these persons, with others of the same ilk, start a so-called medical college, and become a 'professor' themselves. There are few statutory requirements; an act of incorporation can be obtained for a silver dollar in any stage of depreciation, a building rented and a flaring sign put across its front. Verily, the 'professors' are as plenty as the leaves of Vallambrosa. If we look into the equipment of these raw institutions we find the laboratory woefully lacking in the most ordinary apparatus, and like Dothe-boys Hall, squalor and filth are the most prominent characteristics. The only wonder is that such men, with such miserable equipment, can find students; but they flourish in some way." And in the next number of the JOURNAL under the heading "The Medical Colleges of the United States," we find of Chicago colleges, the Northwestern University Medical School, Rush Medical College, College of Physicans and Surgeons, Northwestern University Women's Medical School, Chicago Policlinic and Hospital, and Post-Graduate Medical School and Hospital, but not a word is mentioned of either Harvey Medical Night School or any of the other so-called medical schools. This simply shows the good sense of the representative medical journal of this country and of the profession generally.

Dr. Byron Robinson evidently believes that the fair-minded editor of the *Western Medical Review* who so strikingly criticizes the sorry state of affairs in Illinois must of necessity, become a Harvey professor before he can acquire correct judgment.

But since Dr. Byron Robinson has become the teacher of gynecology and abdominal surgery in the Harvey Medical Night School, we are glad to learn that fact, "so that the appearance of evil may not arise."

And as a fitting supplement to Dr. Robinson's article I would request the journals to copy this article in the interest of the profession that stands not only for "truth and justice," but also for higher medical education.

Respectfully, JULIUS GRINKER, M.D.

952 Milwaukee Ave.

"A Prevalent Error in Refraction Work."

CHICAGO, Nov. 29, 1896.

To the Editor:—Dr. Ed. J. Brown's letter on "a prevalent error in refraction work," published in the JOURNAL of November 21, was to me full of surprises. "That most oculists have been giving low plus cylinders where minus lenses were indicated," was startling news to me, for I had never suspected this, though through private conversation and public discussions in ophthalmologic societies I am well acquainted with the views of a great many oculists on the question of correcting refractive errors. But I got a second and stronger dose of surprise when I found I, too, was counted among the guilty ones because I was supposed to have given a clergyman a + 50 cyl. axis 90 instead of a — 50 cyl. axis 180.

The oculists among your readers, of course, clearly understand from Dr. Brown's own report of the case, that in this instance the asthenopia was *not* caused by the refractive, but by the muscular anomaly. But to your readers unfamiliar with the mysterious jargon of ophthalmology this may seem an awful blunder, and I therefore wish to explain to them that the mistake, if one was committed, was not on my side. If the astigmatism had been the disturbing element, the + 50 cyl. would have permanently relieved the patient's trouble in reading, whether the astigmatism was hyperopic in the horizontal meridian or myopic in the vertical meridian. For if hyperopic astigmatism, the + cyl. rendered the eye emmetropic; if myopic astigmatism, the same cylinder made the eye uniformly myopic, a condition even more advantageous than emmetropia, for prolonged near work to a man now 38 years old.

Dr. Brown kindly gave me the name of the patient when I wrote for it, and I found in my records that he came to me in July, 1892, with + 50 cyl. 90 which he had been wearing since February, but without marked benefit. He chiefly complained of eye pain and headache after short reading, and incidentally remarked that one year previous he was given — 50 cyl. 180, which he could not use at all. I found a slight hyperopic astigmatism for which the + 50 cyl. were the proper lenses; and since these glasses had not relieved the patient I became satisfied that his asthenopia must be due to some other condition than the astigmatism. The muscle tests showed insufficient adducting power (6° only); marked divergence under cover and exophoria (9°) at reading distance. These findings convinced me that the case was one of muscular asthenopia; it was entered as such in my record book and my prescriptions to the patient were directed toward relieving temporarily the weak muscles during near work so as to make reading easier for him, and to improve the feeble adducting power by systematic exercise.

As to the cylinders the patient was wearing, I saw no reason why I should object if he wished to use them, for in my opinion it was of no consequence whether they were worn or laid aside. I do not attribute the relief the patient experienced for nearly two years afterward to the use of the cylinders but to the changed muscular condition, the adduction having gained considerably, as shown by Dr. Brown's report, and I am firmly convinced that this patient will be permanently relieved only when the forces of the eye muscles are properly adjusted by appropriate treatment suggested by a careful study of existing anomalous conditions. Though during the past year he seemed to have been better satisfied by the — 50 cyl. (which formerly he postively rejected), I am sure he will sooner or later return with his old asthenopic complaints, and, indeed, in his letter to me of November 25, Dr. Brown wrote: "I saw the patient Monday evening and he mentioned symptoms which are probably referable to the weakness of the externi." *Sapienti Sat.*

F. C. HOTZ.

"God and the Doctor we Alike Adore."

ST. PAUL, Nov. 30, 1896.

To the Editor:—The lines quoted by R. M. W. in your issue of Nov. 28, 1896, and concerning the authorship of which he asks information, are a translation of a Latin epigram written by Euricius Cordus, who was a professor of medicine in Marburg in the sixteenth century. The original Latin is:

"Tres medicus facies habet, unam quando rogatur,
Angelicam; mox est, cum juvat ipse, Deus.
Post, ubi curato poscit sua præmia morbo,
Horridus apparet terribilisque Sathan."

Yours truly, BURNSIDE FOSTER, M.D.

MONONGAHELA, PA., Nov. 30, 1896.

To the Editor:—R. M. W. of Brooklyn, N. Y., will find the lines,

"God and the doctor we alike adore,
But only when in trouble, not before.
The trouble o'er, both are alike requited;
God is forgotten, and the doctor slighted."

in Ben Jonson's "Magnetic Lady," Act II, Scene 1.

C. B. W.

Practice for Sale.

CHICAGO, Dec. 2, 1896.

To the Editor:—I leave Chicago on Jan. 1, 1897, to take special work in European hospitals and I desire to dispose of my practice without a total loss. I therefore write to you to inquire if you have any inquiries for such a location. I am well established in the largest family hotel in Chicago and will sell cheap, as all my arrangements are made to leave Chicago January 1 or before. J. D. W.

ASSOCIATION NEWS.

Philadelphia Semi-Centennial Meeting of the American Medical Association, June 1, 2, 3 and 4, 1897.—In view of the fact that the next meeting will be the semi-centennial gathering and that it will occur in the great medical center and near the other great cities of the Eastern Coast, the Committee of Arrangements for this meeting have already made provision for accommodation and entertainment of the delegates by the engagement of the Academy of Music, Horticulture Hall, the South Broad Street Theater and the large meeting rooms in the Hotel Walton and the Hotel Stenton. As these large buildings are all within a short distance of the great railroad depots in the center of the city and are all situated within one block on both sides of Broad Street, every department of the meeting will be conveniently arranged. The following hotels, all of them within a short distance of the meeting halls, have offered the following rates to the members of the ASSOCIATION:

Hotel Walton, Broad and Locust Streets (Headquarters): $1.50 and upward per day, European plan; $4 and upward per day, American Plan.

The Colonnade, Fifteenth and Chestnut Streets (three squares from meeting): $1 and upward per day, European plan; $3 and upward per day, American plan.

The Lafayette, Broad and Chestnut Streets (one and one-half squares from meeting): $1 and upward per day, European plan; table d'hôte, breakfast 25c to $1; luncheon 75c; dinner $1.25.

The Bingham House, Eleventh and Market Streets (six squares from meeting): $2.50 and upward per day, strictly on the American plan.

Hotel Stenton, Broad and Spruce Streets (opposite meeting): $2 and upward per day, European plan; $4 and upward per day, American plan.

The Continental, Ninth and Chestnut Streets (eight squares from meeting): $3 and upward per day, strictly on the American plan.

The Windsor, Thirteenth and Filbert Streets (three and one-half squares from meeting): $1 and upward per day, European plan; $2 per day, American plan.

The Stratford, Broad and Walnut Streets (one square from meeting): $1 and upward per day, European plan only.

The price quoted in each instance is for one person only. Rooms commanding only the lowest prices are naturally limited in number. All these hotels can be reached in a few minutes by trolley cars.

It is especially desirable that each member intending to be present at the meeting shall personally, or by letter, make his arrangement with the hotel at which he desires to stop.

At the last meeting of the ASSOCIATION it was decided to devote the first evening of the meeting, Tuesday, June 1, to dinners of the various Sections. The officers of the Sections desiring to give such a dinner will please communicate with Dr. G. E. de Schweinitz, Chairman of the Sub-committee on Accommodation, 1401 Locust Street, as early as possible in order that dining rooms may be engaged or other entertainment provided.

As it is expected that fully three thousand physicians will be present the Committee suggests that application for accommodations be made as early as possible. It is hoped that every member of the ASSOCIATION will make a special effort to attend. Further circulars of information will be issued by the Committee from time to time.

Individuals and firms desiring space for exhibition in the Exhibition Hall, which will be in the same block as the various meeting halls, will please apply promptly to the Chairman of the Sub-committee on Exhibits, Dr. Edward Jackson, 1673 Locust Street, Philadelphia.

Section on Obstetrics and Diseases of Women.—*To the Members of the American Medical Association:* Being desirous of securing a large number of papers for the section on Obstetrics and Diseases of Women for the Philadelphia meeting, and wishing to make this the greatest meeting of our ASSOCIATION, I take this method of urging the members of this section, and all who desire to read papers before this section on that occasion, to send the titles of their papers either to my address, or that of Dr. George H. Noble, Sec'y, Atlanta, Ga., not later than January 30. The necessity for promptness in this matter will be readly understood by all interested.

MILO B. WARD, M.D., Chairman.
332 Greenwood Ave., Topeka, Kan.

SOCIETY NEWS.

Association of American Medical Colleges.—*Committee on Syllabus.*—The work of this committee was published in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, April 18-25, 1896. A reprint was made, which can be furnished to teachers and colleges on application to the secretary. The work already done has received commendation from many educators, and has been found helpful in reorganizing and extending the course of many medical schools. A third meeting of this committee is called for Thursday and Friday, December 17 and 18, at the College of Physicians in Philadelphia, and an attempt will be made to complete the work of the committee both by revising the report already made and by completing the outline for "group 3," *i. e.*, medicine, surgery and obstetrics. Any college having membership in the Association would assist the committee by sending a representative to this meeting or by forwarding to the secretary written criticisms on the work already done or suggestions in relation to the unfinished portions of the curriculum. For each of the branches to be considered it will probably be well to discuss and formulate recommendations in relation to the following points:

1. The position in the four years' course which it should occupy.
2. The amount of time which it demands.
3. The method or methods which should be used in its presentation.
4. The equipment, apparatus, library, hospital or armamentarium necessary and desirable for the methods proposed.
5. The method of testing the proficiency of the student.

The committee will meet at 10 o'clock in the morning in the rooms of the College of Physicians and lay out and complete the work as rapidly as the subjects will permit.

BAYARD HOLMES, M.D., Secretary.
104 East Fortieth Street, Chicago.

NECROLOGY.

GUSTAVUS A. SABINE, M.R.C.S.E., of New York City, died November 17, aged 84 years. He was born on June 27, 1809, in County Dorset, England, and when 15 years old was a student of medicine in the office of Dr. McIntire in London. He remained there four years, and then entered Middlesex Hospital, London. In 1832 he received his degree from the Royal College of Surgeons, and one year later was appointed a sur-

geon in the East India Company service. In 1836 he came to America, and in the following year married a daughter of the late Captain Tufnell of the British Army. At various periods of his career in this city, Dr. Sabine was curator of the New York Hospital, demonstrator of anatomy in the College of Physicians and Surgeons, consulting surgeon to the Quarantine Hospital and Woman's Hospital. He was a member of the New York Academy of Medicine, the County Medical Society and of other medical societies and charitable and religious associations. He retired from practice about ten years ago. A widow, one son and three daughters survive him. He had been in infirm condition of health for a year, due chiefly to the effects of a busy life and the weight of years.

Sir Benjamin W. Richardson, M.D.—The recent death of this eminent man, in London, brings out some traits of character which are worthy of all emulation. First, he was thoroughly honest and broad in his conceptions and never dogmatic or positive that his views or conclusions were the last and final truths. He was ever open to new statements and arguments. He was a natural-born investigator and examined all topics, no matter what others had found, preferring to ascertain the facts for himself. His studies of alcoholic ethers began in this way, not willing to trust to the conclusions of others, he must examine for himself. Many of his researches are remarkable for their original work, and the conclusions he reached have been verified by others in many ways. His health studies were epoch making and placed him among the leading sanitarians of the world. Beside this real genius of discovery, he possessed a graphic power of description in matters of science so clear that any one could understand it. This gave him a high rank in societies and public meetings, where he was always able to make himself clearly and thoroughly understood. While he described scientific conclusions to the masses, he never sacrificed the truth, or dropped down to levels of obscure or doubtful descriptive language. Hence his popular discussions of science topics were as accurate as if presented in the most technical terms. Outside of medicine Dr. Richardson was widely known as an author and lecturer on temperance questions. His researches of the effects of alcohol were practically the first positive data that pointed out the action of alcohol on the body. These studies grew out of an invitation to deliver some lectures on alcoholic ethers and their value in sanitary matters. He began, as was his custom, original studies before he would make statements of facts. The result was the "Cantor Lectures," which has become one of the most widely published books of the times on alcohol. As a result of these studies Dr. Richardson became a total abstainer and was the most prominent physician in England who denied the value of alcohol in medicine except within very narrow limits. Dr. Richardson wrote and published a journal, "The Asclepiad," contributing all the matter, which was scientific and historical and of great value. He also wrote two novels of much interest and many works of chemical and sanitary science. He was a remarkable student all his life and was always investigating and following up some new line of studies. He was literally a great man in his scientific generosity, industry and efforts to impart to others the facts he believed to be true.

Wm. Remsen Taylor, M.D., of Long Island City, New York, died October 1, at Middletown, N. J. Dr. Taylor was one of the oldest practicing physicians in Long Island City and was a man widely respected. He was health officer of that city for six years and was a candidate twice for the office of coroner and once for mayor, on the republican ticket. Dr. Taylor was lieutenant colonel of the Twenty-ninth New Jersey Volunteers.

Thomas McCrossen, M.D., of City Island, N. Y., who died September 18, was an alumnus of the New York University Medical Department, of the class of 1879. He was a native of New York City, born there in 1851. He was graduated from the public schools and taught at Southampton and Amityville, L. I. Afterward he took a course in medicine at the College of the City of New York, from which he was graduated about twenty years ago. He located at City Island sixteen years ago, where he has ever since enjoyed a large practice.

Charles Bernacki, M.D. (Vienna, 1839), of New York died at Schandau, a Saxon watering place, September 17. He was born at Starasol, Galicia, Nov. 3, 1812. The first years of his career he spent in different military hospitals of Austrian Poland, and later in private practice in Vienna until he emigrated to the United States, as a part of the politico-social drift of 1848. In April, 1864, Dr. Bernacki was appointed medical director of the Germania Life Insurance Company of New York, in which position he remained up to his death. A widow and a daughter survive him, while a son, also a physician, and a daughter, died some time ago.

J. T. Wilson, M.D., of Galesburg, Ill., born in Sweden, Sept. 10, 1857, died Nov. 27, 1896. The following preamble and resolutions were passed by the Galesburg Medical Society.

Whereas, It has pleased Divine Providence to remove from us one of our ablest members,

Whereas, We the members of the Galesburg Medical Society, desire to place upon record our appreciation of the character of our deceased brother; be it

Resolved, That in the death of Dr. J. T. Wilson, the Society has lost a devoted, able and faithful colleague, whose earnestness of purpose and loftiness of motive, peculiarly fitted him for the profession which he adorned.

Resolved, That the loss which we thus mourn, is not limited to our Society, or even to our city.

Resolved, That we most respectfully and sincerely extend our heartfelt sympathy to his family, wishing for them that consolation which is the outcome of his noble life.

Resolved, That a draft of these resolutions be spread upon the minutes of the Society and that a duplicate be sent to the city and medical press and that a copy be transmitted to the family of our deceased friend. H. P. Beirne, Sec.

MISCELLANY.

The Health of the Explorer Stanley.—Mr. H. M. Stanley is recovering from a severe attack of gastritis. It will be remembered that he was at death's door for nearly a month when he returned home from Lake Nyanza to bring up the Barttelot rear column, that he had another serious illness when he was with Emin Pasha's people, and that he was so ill before his marriage that during the ceremony in Westminster he had to be given a chair. In each case gastritis accompanied by recurrence of fever is the cause of illness. Mr. Stanley is 55.

McGill Alumni at New York.—The second annual meeting of the New York Graduates' Society of McGill University, Montreal, was held November 10. Among the officers elected for the year were the following: The vice-presidents, Dr. Wolfred Nelson and Dr. James A. Meek; secretary, Dr. W. Ferguson; treasurer, Dr. H. N. Vineberg; executive committee, Dr. George C. Becket. The graduates of the faculties of medicine, law, arts, science and veterinary medicine of McGill University, now residents of the United States, number over 500, of whom 50 live in and near New York. The society will found a scholarship, to be known as the Sir John William Dawson Scholarship, in memory of Sir John William Dawson, who has devoted his life and energies to making McGill University the leading teaching body in the Dominion of Canada.

The Loomis Mountain Sanitarium.—The name of the late Dr. A. L. Loomis of New York city is in perpetuity identified with an undertaking for the treatment of incipient phthisis, located at Liberty, Sullivan County, N. Y., about four hours' distance from the city. At present the following structures are included in the sanitarium: Administration building, of stone, 200 feet in length and three stories high; casino, of stone, and four one-story cottages. The examining physicians are Dr. H. P.

Loomis, No. 58 East Thirty-fourth Street; Dr. C. E. Quimby, No. 44 West Thirty-sixth Street, and Dr. J. E. Stubbert, at the sanitarium, who is also physician in charge. The sanitarium has been in active operation only since June, and the demand for accommodation has been so great as to necessitate the use of wards originally intended for emergency cases. Bedrooms have been arranged in the casino to partially meet the demand. The present capacity is thirty-one beds.

Carriers of Sick Passengers.—If a carrier accepts a passenger knowing that he is sick or infirm, the appellate court of Indiana says, in the case of Furgason v. Citizens' St. R. Co., decided Oct. 13, 1896, it must use ordinary care to see that he is transported safely, and is given a reasonable time and proper assistance in getting on and off its cars. But it will not be required to accept and transport one having a contagious disease, which might be communicated to other passengers. Neither will it be required to accept as a passenger one who is physically disabled and unable to take care of himself. A carrier, the court continues, is not bound to turn its cars into nurseries, prisons, or hospitals, or its employes into nurses or jailers. Neither is it required to furnish medical attendance, medicines, or other articles necessarily needed by the sick. If a person desiring to become a passenger is unable, on account of extreme youth or old age, or any mental or physical infirmities, to take care of himself, he ought to be provided with an attendant to take care of him. The carrier is not bound to furnish him an attendant. Finally, it is the duty owing from a carrier to all of its passengers alike, whether sick or well, able-bodied or infirm, old or young, rich or poor, white or black, to use at least ordinary care in their transportation; and any negligence on its part resulting in injury to a passenger without the passenger's negligence contributing thereto must be answered for in damages.

"In the Crowd," a Study of the Popular Mind.—M. Le Bon lays stress upon the importance to legislators and statesmen of the study of crowds, and after this preliminary he takes his crowd and proceeds to submit it to a masterly dissection. He brings out the almost appalling powers which a crowd possesses on account of the irresistible power given by its numerical strength. "An isolated individual knows well enough that alone he can not set fire to a palace or loot a shop, and should he be tempted to do so he will easily resist the temptation. Making part of a crowd he is conscious of the power given him by numbers, and it is sufficient to suggest to him ideas of murder or of pillage for him to yield immediately to temptation." Of course, this feeling may be exerted for objects which are morally or religiously correct. M. Le Bon cites, among other instances, the Crusaders and this, perhaps, is the most wonderful example of how a crowd can be acted upon. Let anyone read the history of the Crusades and mark how all classes set forth from the highest to the lowest, many without arms, food or clothing, how they traversed half a continent and were content to die within sight of the Holy City. Such acts show, as perhaps nothing else could do, that crowds, unreasoning, impulsive and essentially feminine as they may be are still capable of the most heroic acts.

The Naval Hospital, New York.—The overcrowded condition of this institution has been the subject of a careful investigation by the Department of the Navy, and as a result an appropriation of $10,000 has been secured for the erection of three new buildings. These buildings, the plans of which have been approved, will consist of a pavilion, the kitchen and laundry and the mess hall and dispensary. They will all be connected with the main building by means of corridors. The ward building will be erected on the site in front of the present structure, and will be the largest of the new structures. It will be two stories in height, and when completed will have room to accommodate 100 patients, beside having quarters for the ward officers and the corps of attendants. The building is to be lighted by electricity, and the elevators will be operated by the same power. This building, when completed, will be one of the finest in the State for hospital purposes. It will cost about $50,000. The other buildings are to be erected in the rear of the old hospital. The kitchen and laundry will be situated near the cemetery, and will be the smallest of the new structures. The third building will contain the mess hall and a large room on the first floor for the use of convalescents. On the second floor will be the dispensary and chapel, while the third floor is to be given over to the operating room. Like the first building, the other two will be fitted with all modern appliances. The roof of the dispensary building will be fitted with glass to admit light into the operating room. The operating room will equal those of the finest hospitals in the country. These buildings, with the old ones, will make the naval hospital at this station equal, if not superior, to any connected with the naval stations in the country.

New York State Commission in Lunacy.—Dr. Carlos F. Macdonald has resigned the presidency of the above named commission, in order to assume charge of a large private institution in Westchester County. He had held that important position under three governors, and his recommendation of Dr. P. M. Wise to become his successor was influential and controlling. Dr. Wise, the new president of the commission, has given a quarter century to service of the State and the care of its dependent insane. In 1873 he was appointed assistant physician and in 1884 he was promoted to the medical superintendency of the Willard asylum. In 1889 he accepted the medical superintendency of the new St. Lawrence State Hospital at Ogdensburg. The latter institution was conceived in a most enlightened spirit of progress, and was intended to be an exponent of the latest and most approved plans of hospital construction and administration. In the seven years of Dr. Wise's incumbency, the policy of the hospital and basis of its organization has been completed. It is recognized throughout the scientific medical world as a model of convenience and adaptability for its purpose, and has already attained a high reputation as a curative institution. Dr. Wise thus brings to his new position a mature experience gained in long and active duty in the great department of which he is now the head. Dr. Wise was highly commended by Dr. Macdonald as his successor and the Governor's action in appointing him is most commendable.

The Jubilee of the London Pathological Society.—On October 20 or four days later than the Boston jubilation over surgical anesthesia, the pathologists of London celebrated the fiftieth anniversary of their society. Of the original members only one, Sir Richard Quain, was present, and he reported that besides himself there were now surviving from other charter members, Sir John Simon, Sir William Jenner, Mr. Holthouse and Mr. Wagstaff. Sir Richard Quain said he could recall the meetings fifty years ago and regretted that he was the only original member who was able to be present that night. At the first meeting of the society a memorandum was addressed to the profession putting forward the claims for the formation of a pathologic society in London, which should not be behind Dublin and other towns which already possessed such a society. He referred to the original founder of the society, Thomas Bentley, who, however, remained comparatively unknown. He commented on the great advance that had been made in pathology since the time when pus was decribed as "a clear fluid containing globules." The work of the society had been well done, as was evidenced by the value as books of reference of the Transactions of the Pathological Society. Dr. Wilks said he could remember how the proposal to form a society for the study of pathology originated at a meeting held at the house of Dr. Thomas Bentley, who at that time lived in Trinity Square, Dr. Barlow being in the chair. He compared the present position

of pathology and morbid anatomy and regretted the tendency to neglect the latter for the former, and more especially the separation of clinical medicine from pathology. He pointed out how slow the profession had been to accept views which today were well recognized. He alluded to the great value of the work of the Pathological Society and the excellent papers which were to be found in the Transactions of the society. During its fifty years of existence many who have since risen to eminence in medicine and surgery have owed their first introduction to the notice of the profession to this society. Its published transactions no doubt reflect the gradual evolution of pathologic doctrine, but at the same time they embody the observations of some of the most gifted minds. A society whose meetings have seen among the most constant attendants and contributors such men as Jenner, Bristowe, Quain, Peacock, Hulke, Hutchinson, Hilton Fagge, Moxon, Wilson Fox, Bastian, Gawen Sutton, Murchison, Gull, De Morgan, Prescott Hewett, Dickinson, Holmes and Greenhow, to name but a few, must be able to embrace all branches of the science with which it deals, and ought to enjoy perpetual vitality. The full address of the president of the society, Mr. Henry T. Butlin, delivered on that occasion, is published in full in the *Lancet* for October 24.

The Flagellate Form of the Parasite of Malaria.—Dr. R. J. Marshall, writing from a malarious section of the south of Spain, refers to the views of Manson and Ross about the passage of the parasite of malaria into the mosquito before its introduction into the human victim. Surgeon-Major Ross examined human blood from the stomach of mosquitoes fed on the blood of a malarious patient, in whom crescents were abundant, and he found that crescents after being half an hour inside the stomach of a mosquito were all converted into spherical bodies or flagellate bodies. Dr. Manson considers that these results strongly support his theory. "Living in a district where malaria is at certain seasons very rife, though mosquitoes scarce, I have been unable to make any experiments with blood from the mosquito's stomach, but have by a very simple process observed occurring what Surgeon-Major Ross found occurred after blood had been half an hour inside the mosquito's stomach, *i. e.*, the conversion of all crescents into spheres or flagellates. Lately, while examining a specimen of blood rich in crescents, I in accordance with a suggestion made to me by Dr. George Thin, placed a drop of distilled water on the edge of the cover of a preparation of the fresh blood. In the ordinary preparations of this blood I had found numbers of cresents, but very few spherical bodies, and only one or two flagellates. On examining the specimen so treated after a few minutes I found no crescents, but numbers of spheres with more or less movable pigment and also a large number of flagellated bodies. I therefore prepared a few specimens by placing a minute drop of distilled water and inverting on it a cover charged with a minute drop of blood. I examined this immediately and found that the crescents almost at once became spherical. Their pigment granules, previously clustered in a bunch, became scattered and movable. After a short interval the pigment granules became more and more active, then violently agitated, and soon flagella made their appearance lashing about in the most lively manner. In less than five minutes there was not a single crescent to be seen, while I had beautifully displayed to view large numbers of flagellate organisms, to find a single one of which I have often sought in vain in blood fairly rich in crescents. The flagellate manifestation lasted for half an hour or more, and the specimens when examined three or four hours later only contained spheres with still pigment or clusters of free pigment granules. I also observed that red corpuscles containing small parasites retained their normal color amongst the decolorized corpuscles not containing parasites, and the parasites themselves became swollen and globular and more distinct, with their pigment granules more visible than formerly. What bearing these phenomena may have on Dr. Manson's theory I can not venture to say, but only express the opinion that they are due to the imbibition of water by the crescent, and that this may take place as well in the stomach of the mosquito as in any other place where blood containing crescents is mixed with a comparatively inert fluid. Anyone desirous of seeing flagellated organisms can thus very soon see them if he only will mix blood containing crescents with a minute quantity of water before making his examination."

Things Experts Can Testify To.—The case of Quinn v. O'Keefe, in which the appellate division of the supreme court of New York handed down a decision Oct. 6, 1896, was an action brought by a physician to recover damages for injuries received in consequence of a collision between the phaeton in which he was driving and a truck alleged to have been negligently driven by the servants of the defendant. The vehicles were proceeding in different directions, and according to the evidence in behalf of the plaintiff, they would have passed one another without accident if the truck had continued to move upon the same line as it was moving along when first closely observed by the doctor. His fall, there was evidence to show, resulted in a progressive malady of the spinal cord, from which it was reasonably certain that he would never recover. The jury returned a verdict in his favor for $8,000, and the above court affirms a judgment entered therefor and an order denying a new trial. Numerous points were raised for review. As a result the court holds, among other things, that the testimony of the plaintiff to the effect that, in his best judgment, the men on the truck were partially intoxicated, was properly admitted. It was proper to receive the evidence which the plaintiff gave as to the difference in his weight before and after the accident. Whether the change was due to any injurious effects of the accident or not was a question for the jury. It is proper to ask an expert witness what certain symptoms which are exhibited by the plaintiff indicate in respect the part of the body which is affected. He does not give additional force to his testimony, nor harm the defendant, by answering when asked whether he can state positively to the jury that, if one or other of two assumed conditions existed it would produce that condition, without speculation and from his own knowledge of the case as a physician and surgeon—that "a physician or surgeon has very little positive knowledge. He gives his judgment. I can give my judgment in this case. That is all." Nor can the court compel an expert witness to give a categorical answer to a question of opinion evidence which the witness says he is unable to answer categorically. A hypothetic question is unobjectionable if the assumptions contained in it are within the probable or possible range of evidence. It is also proper to ask whether the accident described in the hypothesis is capable of producing such physical results as are ascribed to it. And a question is not objectionable which asks whether such a wrench to the backbone as has been described does not sometimes involve some sort of disorganization of the spinal cord or its coverings. Probabilities are proper to be considered in reference to an existing physical condition, and it is held that it would be manifestly unjust to keep from the consideration of a jury the expert evidence of a physician that the plaintiff exhibited symptoms which were equally characteristic of two different internal conditions, either of which conditions could be occasioned by the accident which had befallen the patient, simply because the witness was unable to say with certainty which of the internal conditions actually existed. Physician or layman can testify as to the change in the plaintiff's appearance after an accident.

Louisville.

Louisville Clinical Society.—The members of this society met at the Pendennis Club of this city as the guests of Dr. J. W. Irwin. A brief business meeting was held prior to the

banquet, and election of officers entered into for the coming year. A very spirited canvass had been waged by the friends of two members for the presidency, the canvass finally being decided by the election of Dr. Irwin. Dr. George W. Griffiths, the retiring president, acted as toastmaster, and the following toasts were responded to: "The Clinical Society," Dr. T. P. Satterwhite; "Deceased Members," Dr. Peter Gunterman; "Specialists," Dr. William Cheatham; "Young Members," Dr. F. W. Samuel; "AMERICAN MEDICAL ASSOCIATION," Dr. Joseph M. Mathews; "The Future," Dr. S. G. Dabney; "Doctor as a Traveler," Dr. August Schachner; "Medical Education," Dr. I. N. Bloom; "Microscopists," Dr. Carl Weidner; "Ethics," Dr. W. C. Dugan; "Quackery," Dr. W. H. Wathen; "Professional Writing," Dr. J. W. Irwin. Louisville is essentially a city of medical clubs, there being four or five societies which meet once or twice a month, the business and scientific part of the meetings being followed by a collation. Several attempts in the past have been made to create a general society, the Academy of Medicine, which lived a year, being a sample; either the absence of a collation or too many societies was the cause of its demise.

KENTUCKY VALLEY MEDICAL SOCIETY.—At a recent meeting of this association at Jackson, the following officers were elected for the ensuing year: President, Dr. B. D. Cox, Sr.,; vice-president, Dr. B. D. Cox, Jr.; secretary, Dr. D. B. Littlepage.

HEALTH OFFICE.—The annual report of the Health Officer for the month ending the 28th of November has just been printed. The total number of deaths was 223 as compared with 235 for the corresponding month of last year. Consumption heads the list with 26 deaths; heart disease 15; pleurisy 11; typhoid fever only 3, a very small death rate from the number of cases there have been in the city; 38 cases of diphtheria were placarded, with 8 deaths; 19 cases of scarlet fever, with no deaths; 90 persons were vaccinated by the Health Department; 33 diseased cattle killed and 377 diseased cattle condemned and sent from the city.

Medico-Literary Notes.

THE NEW YORK HERALD offers the following apology and explanation: "Dr. William Hirsch, the brilliant German author of 'Genius and Degeneration,' is now traveling in the United States. He has a namesake in New York City. Both are physicians, eminent each in his own line. Both have written books of great scientific value. But each is satisfied with his own laurels and unwilling to filch any from his neighbor. Last week we reviewed 'Genius and Degeneration.' By a curious but not unnatural oversight the portrait of the other Dr. William Hirsch, which was filed away for use among its archives, was published with the review. Both gentlemen have called our attention to this oversight, which we cheerfully set right, with expressions of the highest regard for both."

THE UNIVERSITY OF TOMSK IN WESTERN SIBERIA.—This university, which has now been in existence about nine years, and consists at present of a single faculty—that of medicine—had, according to a recently issued report, 413 students, of whom only 3 were of native parentage, the majority being sons of priests. In the year 1895, 64 out of 117 who entered five years previously completed their course, 54 of whom received their diploma as Vrach, or medical practitioner. Up to the present time the university has educated 151 medical practitioners and is evidently partly supplying a very great want, as in such a sparsely populated country as Siberia medical men are necessarily very few and far between.

DR. R. W. FELKIN of Edinburgh, a high authority in African climatology, has written a book in which he discusses the important question, "Can Europeans Become Acclimatized in Tropical Africa?" He is strongly of opinion that it can only be possible if emigration occurs step by step, and its development must be counted by generations, not by years. The continent of Africa is divided by him into eight divisions, and the natural characteristics of prevalent diseases of each of these divisions are discussed. There is a fuller consideration given to such special diseases as malaria, beri-beri, yellow fever, dengue, etc. The map illustrating the geographical distribution of certain diseases is ingenious, and not being overloaded with details, is easily read. By placing alongside this a map giving the topographical features of the continent, their relationship to special diseases can be easily seen.

THE PUBLIC SERVICES.

Army Changes. Official List of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from Nov. 21 to Nov. 27, 1896.

First Lieut. Benjamin Brooke, Asst. Surgeon, ordered to Chicago, Ill., to appear before examining board for examination as to his fitness for promotion.

Capt. Eugene L. Swift, Asst. Surgeon, leave of absence granted on surgeon's certificate of disability is extended two months on account of sickness.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the two weeks ending Nov. 28, 1896.

Surgeon A. F. Magruder, detached from the marine barracks, Washington, and placed on the retired list, Nov. 16.

P. A. Surgeon J. S. Sayre, placed on retired list Nov. 16.

Medical Director H. M. Wells, detached from the naval laboratory, New York, ordered home and placed on waiting orders, Nov. 18.

Medical Director T. C. Walton, detached from the naval academy Dec. 15, and ordered to the naval laboratory

Surgeon C. T. Hibbett, detached from the "Independence," ordered home and granted three months' leave.

P. A. Surgeon F. W. Olcott, detached from the "Enterprise" Nov. 27, and ordered to the "Independence."

P. A. Surgeon W. F. Arnold, detached from special duty and ordered to the "Enterprise" Nov. 27.

P. A. Surgeon J. M. Moore, detached from the "Texas" Dec. 7 and ordered to the "Castine" Dec. 8.

P. A. Surgeon, L. H. Stone, detached from the "Castine" Dec. 8, ordered home and placed on waiting orders.

Asst. Surgeon S. B. Palmer, detached from the "Vermont" Dec. 7 and ordered to the "Texas."

P. A. Surgeon P. Leach, promoted to Surgeon from Nov. 15, and P. A. Surgeon T. C. Craig, promoted to Surgeon from Oct. 14.

Surgeon A. G. Cabell, detached from the "Michigan," ordered home and granted three months' leave.

P. A. Surgeon F. J. B. Cordeiro, detached from the "Constellation" and ordered to the "Michigan."

Asst. Surgeon L. Morris, detached from the naval hospital, Philadelphia, Dec. 5, ordered to examination for promotion at New York Dec. 7, and then placed on waiting orders.

Asst. Surgeon R. G. Brodrick, ordered to the "Constellation."

Medical Director T. C. Walton, detached from the naval academy Jan. 18 instead of Dec. 15, and ordered to the naval laboratory, New York, Jan. 19, Nov. 24.

Medical Director H. M. Wells, detached from the naval laboratory, New York, Jan. 19 instead of Dec. 19.

Surgeon W. S. Dixon, detached from special duty in Washington and ordered to the "Brooklyn" Dec. 1, Nov. 25.

Change of Address.

McMahon, C. Agnes, from Chicago, Ill., to 17 Grove Street, Asheville, N. C.

Carveth, C. B., from Bloomfield, Neb., to 13 and 14 Berkshire Blk., W. Superior, Wis.

Quales, N. T., from 241 Milwaukee Av. to 42 Fowler St., Chicago, Ill.

LETTERS RECEIVED.

Alta Pharmacal Co., St. Louis, Mo.; Advertisers' Agency, The, Philadelphia, Pa.

Bock, Charles, Fort Wayne, Ind.; Boylan, J. E., Cincinnati, Ohio; Brillinger, Geo. W., Syracuse, N. Y.; Blakiston, P. Son & Co., Philadelphia, Pa.; Beirne, H. P., Galesburg, Ill.; Bodine, J. M., Louisville, Ky.

Center, Chas. Dewey, Quincy, Ill.; Cobb, W. F., Lyle Minn.; Crawford, J. K., Cooperstown, Pa.; Collius, M. H., South Charleston, Ohio; Coe, W. B., Tonganoxie, Kan.; Crosby, John B., Buffalo, N. Y.

Dibrell, J. A., Jr., Little Rock Ark., (2); Dossey, W. F., Rome, Texas.

English, W. T., Pittsburgh, Pa.; Eureka Chair Co., The, Worcester, Mass.

Fassett, Charles Wood, St. Louis, Mo.

Gihon, A. L., New York, N. Y.

Holmes, Bayard, Chicago, Ill.; Hesing, Washington, Chicago, Ill.; Hare, H. A., Philadelphia, Pa.; Houston, James, Swartz Creek, Mich.; Hammond, J. C., Hanna, Wyo.; Hummel, A. L., Adv. Agency, New York, N. Y., (3).

Johnson, M. M., Hartford, Conn.

Kelsey, R. C., Indianapolis, Ind.; Kimmel, B. G., Monmouth, Ill.; Knauth Bros., New York, N. Y.; Katharmon Chemical Co., St. Louis, Mo.

Laycock, R. G., Hopedale, Ill.; Link, J. A., Cincinnati, Ohio; Long Island Bottling Co., Brooklyn, N. Y.

Marshall, John S., Elyria, Ohio; McClelland, W., Washington, Iowa; Madden, John, Milwaukee, Wis.; Mayfield, W. H., St. Louis, Mo; Mayhew, S. J., Newark, N. J., (2); Mariaunl & Co., New York, N. Y.; Malone, G. B., Memphis, Tenn.; Merriam, G. and C. & Co., Springfield, Mass.; Murfin, W. W., Patoka, Ill.; McKellar, James, Hazleton, Pa; Morse, L. D., Adv. Agency, New York, N. Y.

Nelson, D. T., Chicago, Ill.

Ott, Isaac, Philadelphia, Pa.

Parke, Davis & Co., Detroit, Mich.; Proctor, S. A., Doniphan, Mo.; Puckey, Wm. & Bro., Wilkesbarre, Pa.

Robertson, C. A., Nashville, Tenn.; Rosser, J. C., Grand Rapids, Minn.; Robinson, S. E., West Union, Iowa.

Souchon, Edmond, New Orleans, La.; Saunders, W. B., Philadelphia, Pa.; Strong, F. H., New York, N. Y.; Scribner's Sons, Chas., New York, N. Y.; Strong, B. F., Howard, Kan.; Schueider, M., Paris, France.

Talbot, E. S., Chicago, Ill.; Trumbauer, Chas. A., Keokuk, Iowa; Todd, Wm. J., Mt. Washington, Md; Trout, E. H., Chicago, Ill.

Ward, Milo B., Topeka, Kan.; Way, J. Howell, Waynesville, N.C.; Wandless, Henry W., Dallas, Texas; Wakely, T. A., Jacksonville, Ill.

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ORIGINAL ARTICLES.

IDEAL CATGUT STERILIZATION.

BY N. SENN, M.D., PH.D., LL.D.

PROFESSOR OF PRACTICE OF SURGERY AND CLINICAL SURGERY, RUSH MEDICAL COLLEGE; ATTENDING SURGEON PRESBYTERIAN HOSPITAL; SURGEON-IN-CHIEF ST. JOSEPH'S HOSPITAL, CHICAGO.

The aseptic absorbable ligature is one of the greatest achievements of modern surgery. In his first communication to the profession on this subject Lister alludes to the advantages of the aseptic ligature as follows: "If the antiseptic ligature be employed it merely inflicts a wound or injury upon the vessel, without introducing any permanent cause of irritation. The injured part, therefore, becomes repaired after the manner of a subcutaneous wound, without passing through the process of granulation and suppuration, which is induced by the employment of the ordinary septic ligature." Perhaps no other surgical procedure has ever enjoyed the confidence of the entire profession throughout the civilized world to the same extent as the aseptic ligature. The universal faith in the reliability and safety of the aseptic ligature is only a natural outgrowth of the superior results following its use. Protracted suppuration in wounds the result of retained ligatures, secondary hemorrhage, and suppurative inflammation of vessels, have been gradually diminishing in frequency, and bid fair under the influence of the aseptic ligature to be almost completely expunged from the future category of wound complications. Nussbaum very appropriately remarks: "Catgut is without doubt Lister's greatest discovery." And again: "How pleasant it is to cut the ligatures short and leave them unconcerned to their fate in the wound! In ovariotomies, etc., their value can not be overestimated. The cases in which catgut adheres to an artery, forming connections with it and the surrounding tissues, assisting at the same time in forming a firm ring around the coats of the artery, are exceedingly welcome occurrences, guarding against secondary arterial hemorrhage in ligating in the continuity of a vessel, and rendering even the application of a ligature in close proximity to a large collateral branch void of danger. All this silk can not do." The advantages of the aseptic animal ligature are now generally recognized. Lister's crude method of rendering catgut aseptic has been variously modified during the last quarter of a century. Different methods have been devised and nearly all of the antiseptic substances have been employed in the preparation of catgut. The very fact that so many different methods of preparation have been employed is the very best and most convincing proof that none of them have proved entirely satisfactory. Kocher abandoned the use of his juniper catgut. Carbolized, sublimated and chromicized catgut have been used very extensively, but every surgeon knows from actual experience that not infrequently wound infection could be traced to imperfect sterilization of the material. Dry sterilization of catgut seemed to become the general procedure a few years ago, but extensive trial has shown that it can not be relied upon in rendering the material absolutely safe for practical use. The many failures of catgut as an aseptic suture and ligature, as heretofore prepared, are responsible for the substitution of silk for catgut in the practice of many surgeons. Silk can be readily sterilized by boiling, the simplest and quickest method of effecting absolute sterilization.

The ideal sterilization of catgut consists in rendering the material not only absolutely sterile but also mildly antiseptic without impairing its tensile strength. Every surgeon has been anxiously looking for a method by which catgut could be prepared so that it could be sterilized by boiling without impairing its strength. Fortunately this hope has at last been realized. Experiments have shown that catgut and leather immersed for forty-eight hours in a 2 to 4 per cent. solution of formalin undergo an unknown chemic change which alters their texture in such a way that its tensile strength is not impaired but rather increased by boiling. The commercial catgut is subjected to the action of the formalin without any previous preparatory treatment of the raw material.

Hofmeister, who has done such excellent service in perfecting the formalin preparation of catgut, gives the following most recent method: 1. The catgut is wound on a glass plate with slightly projecting edges, so that the gut is free from the sides of the plate and exposed to the circulation of the boiling and flowing water. The ends of the gut are fastened through holes in the plate. 2. Immersion twelve to forty-eight hours in aqueous solution of formalin 2 to 4 per cent. 3. Immersion in flowing water at least twelve hours to free the gut from the formalin. 4. Boiling in water from ten to thirty minutes. Ten to twelve minutes is amply sufficient, as all microbes and spores are killed by exposure to boiling heat for that length of time. 5. Hardening and preservation in absolute alcohol containing 5 per cent. of glycerin and one-tenth of one per cent. of corrosive sublimate.

Experiments on animals with catgut thus prepared have proved that it is absorbable, though not as quickly as the ordinary material. One of the essential conditions of success in this method of catgut sterilization is to wind the gut quite tightly around the glass plate or hollow glass cylinder during the process of sterilization.

The first attempts to sterilize catgut by this method under my own direction were made at the St. Joseph's Hospital by the sister in charge of the operating room. The result of experience has led us to modify the procedure in several ways. Instead of glass plates ordinary abdominal glass drainage tubes have been employed, upon which the gut is wound quite

tightly. These glass drains have been found an excellent substitute for the plates. An ordinary large test tube would answer the same purpose. The remaining directions given by Hofmeister were followed to the letter. Numerous inoculations with fragments of catgut prepared by this method in sterile gelatin invariably gave negative results. The catgut is as strong as the raw material, hard and the knot is less liable to slip than when the ordinary material is used. We have also ascertained that the formalin catgut can be reboiled almost any number of times without impairing its strength.

Catgut to be safe should not only be absolutely sterile but should contain a sufficient quantity of efficient antiseptic to render it unfit as a culture medium for pathogenic microbes. Hofmeister renders it antiseptic by immersing it in an alcoholic solution of corrosive sublimate. Others have substituted carbolic acid for sublimate. Both of these antiseptics unduly irritate the tissues and increase the primary wound secretion, effects which can not fail in interfering to a certain extent with an ideal healing of a wound by primary intention. The valuable and interesting experiments made recently by Lauenstein leave no doubt that it is almost next to impossible to render the field of operation absolutely aseptic by any of our present methods of disinfection. We are forced to admit that nearly every wound inflicted by the surgeon's knife contains some pathogenic microbes notwithstanding that the strictest aseptic precautions may have been carried out. The experiments made by Ewald have also furnished positive proof that sterile catgut often contains a sufficient quantity of an unknown toxic substance which by its destructive action upon the cells engaged in the reparative process transforms them into pus corpuscles, resulting in the production of a limited aseptic suppuration and the formation of sterile pus. Undoubtedly many of the stitch abscesses which occur in the practice of painstaking aseptic surgeons have such an origin. These experimental researches force upon us the conclusion that catgut should not only be sterilized but that it must be made sufficiently antiseptic to at least inhibit the growth if not destroy the pyogenic microbes which enter the wound during the operation or which may reach it later through the circulation. In this part of the preparation of catgut I have modified Hofmeister's method by substituting for the corrosive sublimate iodoform. After boiling the deformalinized catgut for twelve to fifteen minutes it is cut into pieces of desirable length, tied into small bundles containing from six to twelve threads, when it is immersed and kept ready for use in the following mixture: Absolute alcohol 950, glycerin 50, iodoform (finely pulverized) 100. The alcohol dissolves part of the iodoform. The bottle containing the catgut should be closed with a well-fitting glass cork and should be shaken well every few days to bring the dissolved iodoform in contact with the threads. The catgut can be kept in this mixture for any length of time without losing its strength. One of the valuable properties of iodoform applied to a recent wound is to diminish the amount of primary wound secretion. It does not destroy pus microbes but inhibits their growth. I have used catgut prepared by these modifications of Hofmeister's method with the most satisfactory results and shall continue to use it until some better method is devised.

In conclusion I would advise hospital authorities and surgeons to prepare their own catgut by this or similar processes and not rely upon manufacturers for their supply.

THE OCCURRENCE OF LUPUS VULGARIS IN THE WIFE AND DAUGHTER OF A TUBERCULOUS SUBJECT.

Read in the Section on Dermatology and Syphilography, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

BY JAMES MACFARLANE WINFIELD, M.D.
BROOKLYN, N. Y.

Allow me to make a quotation from Kaposi[1] as an excuse for the following paper: "No experimental proof has been offered that characteristic lupus vulgaris can be produced by inoculation of tubercle bacilli. The inoculation of lupus tissue and of the bacilli derived from it has given rise to inflammatory products, but not to lupus, nor has any clinical proof been found, unless we accept extremely careless statements. This is less true concerning a few published cases such as that of Besnier (lupus in a vaccination scar), Sachs (lupus after piercing the ear), etc. These and other similar, although less carefully observed cases, might demonstrate the occurrence of clinical lupus from inoculation of tubercle bacilli."

The cases to be related are not experimental proof, but rather examples of clinical lupus from probable inoculation of the tubercular germ. There is very little, if any, reason to consider one of the cases (the child) to be of spontaneous origin, while in the other there is none whatever.

To make the evidence of inoculation more convincing, a brief history of the tubercular subject will be necessary:

J. C., a native of Ireland; of his family history very little could be ascertained. He believed his father died of consumption. The cause of his mother's death is not known. The same is true of two sisters who died when he was a boy. The patient was a healthy young man. Denied ever having had gonorrhea or syphilis. Married when he was 20 years of age. He drank a considerable amount of intoxicants since puberty, although not to excess until health began to fail, when he was about 25 years old. At that time he noticed shortness of breath and an annoying hacking cough. A year and a half before his death he had an attack of synovitis of the knee, lasting about six months, resulting in a stiff joint. After that his health began to fail very rapidly and he was unable to work at his trade, that of carpenter. At this time the diagnosis of "lung trouble" was made. He gradually became worse until he succumbed, at the age of 32, from an attack of acute pneumonia. According to the statement of his wife, the cause of death on the certificate was pulmonary phthisis and acute pneumonia. During his illness the patient was very careless regarding personal cleanliness. He generally preferred to expectorate on the floor rather than in the cuspidor. He was also in the habit of wiping his lips, after coughing, on the towel used by his wife. These, with other dirty habits, would make the inoculation of tubercular germs very possible; and as the subsequent history showed, there seemed to be no doubt but that this man, suffering from pulmonary tuberculosis, could easily have been the means of inoculating his wife through the medium of a con-

[1] Disease of the Skin, Kaposi.

taminated towel; and also his child, who was creeping about the floor, from the contact with expectorated matter. Twelve years have elapsed since this man died, but there is no doubt about the correctness of the clinical history, as the utmost care has been taken to verify all the facts.

Case 1.—Mrs. J. C., widow of the above, aged 46, native of New Jersey, but of Irish parentage; family history good. No evidence of syphilis or tuberculosis, except that a maternal uncle died at an advanced age of "slow consumption." Personal history: Health always good; married at 22 years of age. She has had three normal labors and three miscarriages, all of the latter resulting from injuries of some sort, the nature of which is immaterial. The first child, a boy, lived to be about 4 months old, when he died from acute enteritis. Second, a girl, died from diphtheria at 1½ years of age. The third, also a girl (Case 2), is still living (September, 1895). When Mrs. C. was about 30 years of age and about three months pregnant with her last child (this being about four years before the death of her husband), in wiping her face with the family towel she rubbed the scab off an insignificant sore on the tip of her nose. This slight excoriation failed to heal and soon assumed a nodular and warty appearance. It slowly spread until all the cutaneous covering of the nose became involved. The accompanying photograph, No. 1, taken January, 1895, shows the amount of destruction present. The center of the diseased area was the site of characteristic irregular scars, while around the margins there were nodules, ulcerated patches and crusts. Bacteriologic examination of tissue taken from some of these nodules, demonstrated the presence of anatomic tubercle and one or two tubercle bacilli. The operation consisted of curettage and cauterization with creosote. After healthy granulations appeared the denuded parts were covered with skin grafts, and a fair result was obtained.

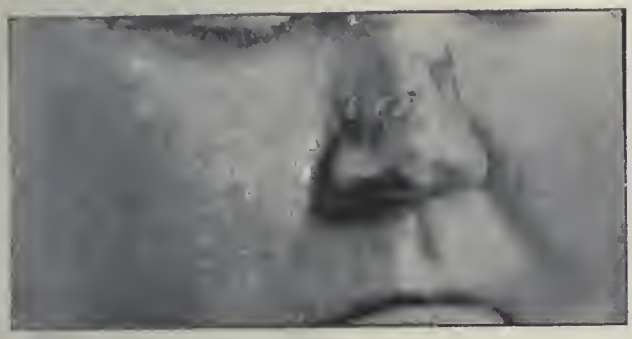


FIGURE 1.

Case 2.—Mattie C., aged 15, native of the United States, last child of Mr. and Mrs. J. C. She was perfectly healthy at birth, remaining so until she was about 2½ years of age, which was two years before her father's death. She then crushed the soft parts of the second finger of the right hand; the bruise and torn skin healed after a few weeks under applications of home remedies; six months later the joints of this finger began to enlarge and finally suppurated. One year after the primary injury, the diseased phalanx and the metacarpal bones were removed. Her health was very much impaired, and in addition to the almost certainly tuberculous finger there appeared an eczematous-like eruption on the ears, eyelids, lips and nose. The remedies applied cured all of the patches except the one on the upper lip; that gradually changed its character, became indurated and nodular, spreading upward toward the nose, and finally destroyed the cutaneous covering and the nasal cartilages. Healing took place in some parts, leaving extensive cicatrices. New nodules were constantly forming, which in turn would break down. For nearly thirteen years the skin affection had never been entirely cured. The physician consulted had treated both mother and child with antisyphilitic remedies, from which no benefit was derived in either case. The tonics given to the child however, improved her general condition. She continued in fair health until puberty, about her fourteenth year. The changes incident to that period seemed to aggravate the lupoid process. At this time, she first came under the observation of the writer. The accompanying photograph, No. 2, was taken before any attempt at operation for the cure of the disease or relief of the deformity was made. As will be seen by the picture, the disease has involved nearly all the cutaneous covering included in a line drawn from below the eyes across to one just anterior to the ears, down to a point over the thyroid cartilage. Much of this area was filled with scar tissue, and in some parts there were numerous bright glistening nodules deeply imbedded in the tissue, some of which had broken down and were covered with crusts. The lips were thickened, the angles of the mouth were obliterated, the mouth itself was greatly contracted. The inside of the lips were filled with scar tissue; the roof of the mouth, the floor of the nares, the pharyngeal vault, were filled with crusts and ulcerated patches. The upper incisor teeth had dropped out, from the destruction of the alveolar process. The bones of the ring finger of the left hand were thickened, presenting all the appearances of bone tuberculosis. The operation (in the latter part of March, 1895) consisted in scraping out all the nodules and ulcerated patches, afterward cauterizing with caustic solution of peroxid of hydrogen. The mother refused to have the diseased finger amputated. The patient made a good recovery and left the city for the summer. In September of last year she submitted to a plastic operation for the relief of the mouth deformity. The finger became more diseased; a sinus had formed, from which necrosed bone and cheesy particles were discharged. The removal of the finger being still objected to, my assistant, Dr. Napier, curetted the sinus and removed all the dead tissue possible, finally packing the cavity with iodoform gauze. The wound rapidly closed and remained so for three months; the face and mouth presented a good appearance; there had been no recurrence of the disease in



FIGURE 2.

the parts operated on in March, although there were three or four nodules over the left temporal region, and one larger in the side of the neck. These were curetted and a plastic operation was done on the angles of the mouth which, when healed, gave her a useful and fairly presentable organ. Physical examination gave dullness in the apices of both lungs with changed respiratory murmurs over the whole left side. About Christmas, 1895, she developed a cough, shortness of breath and night sweats, and lost flesh rapidly; in fact, all the symptoms of pulmonary phthisis were then present. Examination of the lungs showed the presence of a cavity in the left side, and consolidation of the right apex. The face and mouth had remained healed, except that a small portion of the engrafted skin at the angle of the mouth had broken down and was ulcerated. The diseased finger having become a source of great annoyance, on account of the pain and discharge, the patient insisted on its removal. Her general condition being so bad we hesitated about amputating, but finally consented and performed the operation. The amputation wound made a good recovery. Her condition grew rapidly worse, and on the morning of April 10, she succumbed to the pulmonary disease. Autopsy was refused; but from the physical signs there is no doubt regarding the cause of death.

Microscopic examinations of the nodules and portions of the skin removed at each operation, as well as the sputa, showed the presence of the anatomic tubercle and tubercle bacilli. the latter varying in quantities. From the clinical symptoms, the bacteriologic examinations and the ineffectul results of antisyphilitic treatment, there appears to be no doubt of the disease being true lupus vulgaris. The source of infection seems as certain in these cases, as it does in those reported by Besnier, Wolters and others. And as such they may be of some little value in further study of this interesting disease.

NOTE.—Since the above was written Prof. Joshua VanCott has submitted a partial report of the findings in specimens from the cases. He says: "Great difficulty was experienced in getting the tissues (finger) decalcified; but finally sections were obtained which revealed the typical structures of tubercle, many epithelial cells, and small round cells in a connective tissue net-work, with areas of coagulation necrosis and giant cells whose nuclei were characteristically arranged around the peripheral portions of the cells from the findings. I hope to be able to stain the tubercle bacilli" [bacilli were found in earlier specimens.—J. M. W.]. "In the event of not finding them, the histology taken in conjunction with the definite clinical history render it certain in my opinion that these ulcers were tubercular."

1273 Bedford Avenue.

FURTHER OBSERVATIONS ON URTICARIA.

Read in the Section on Dermatology and Syphilography at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5–8, 1896.

BY T. C. GILCHRIST, M.R.C.S. (Eng.), L.S.A. (Lon. Eng.)

ASSOCIATE IN DERMATOLOGY, JOHNS HOPKINS UNIVERSITY HOSPITAL. CLINICAL PROFESSOR OF DERMATOLOGY AT THE BALTIMORE MEDICAL COLLEGE AND WOMAN'S MEDICAL COLLEGE OF BALTIMORE.

In a paper which I read before the last meeting of this ASSOCIATION in Baltimore I gave the results of some experimental observations on the pathology of urticaria. A brief account of these results would not be out place before discussing the present paper. I mentioned that the cases chosen were those of urticaria factitia. Wheals were produced artificially by drawing down the finger nail sharply over the skin and small portions were excised at definite periods after stimulation, viz., at two minutes, five minutes, eight minutes, ten minutes, fifteen minutes, twenty-five minutes, forty minutes and sixty minutes; the results obtained were particularly interesting in that the whole pathology could thus be followed out in detail. It was found that in fifteen minutes after stimulation a complete picture of acute inflammation of the whole derma was presented by these sections. There was an extensive emigration of polynuclear leucocytes, exudation of serum, small quantities of fibrin, particularly in the neighborhood of the vessels, pronounced dilatation of the lymphatic vessels and a large number of lymphoid (morphologically speaking) cells around the blood vessels, whereas the epidermis remained practically normal.

My present paper concerns observations of three additional cases of urticaria factitia and the examination of spontaneous wheals together with the application of improved technique. In the three cases of urticaria factitia with which I experimented I excised portions of the wheals fifteen minutes after stimulating the skin, because it was found in previous cases that the results obtained were particularly pronounced at that stage. In all three cases the sections showed again the typical picture of acute inflammation of the skin, but some were more pronounced than others. There was not only extensive emigration of polynuclear leucocytes but always an increase in number of the lymphoid cells, and what is rather extraordinary, an apparent increase in the number of the *mastzellen*, which were stained after Unna's method. Other factors present in the sections were pronounced dilatation of the lymphatics, the presence of fibrin and a large amount of serous exudation. Nuclear fragmentation not only of the polynuclear leucocytes was observed, but even of the fixed connective tissue cells, a point which was brought to my attention by Dr. Welch. This phenomenon of fragmentation seems to indicate the presence of an irritant of some kind in the tissues in the area of the wheal.

In connection with the *mastzellen* I used a slight modification of Unna's stain. He recommends that after staining the sections in his polychrome methylin blue solution that they be discolorized with his glycerin-ether mixture. The latter I was not able to obtain, so I used a very weak acid solution of alcohol and decolorized carefully for a few seconds, alternating with water. The results obtained showed a most satisfactory and double staining of the *mastzellen*, the granules of which were red and the nucleus blue.

The observations on the spontaneous wheal of about two hours' duration showed practically the same results in an acute inflammation of the whole derma.

My experimental work on these three additional cases of urticaria factitia and one case of spontaneous wheal have confirmed my earlier observations on the pathology of the wheal, viz., that it is a true inflammation of the skin.

We now come to the consideration of the cause of the wheals, either arising spontaneously or produced artificially, and here a question at once arises, viz.: What is the irritant which causes a wheal to appear and where does it come from? The fact that not only an acute inflammation of the whole derma occurs when a wheal is produced, but that there takes place nuclear fragmentation of the emigrated polynuclear leucocytes and even of the connective tissue cells, clearly suggests that an irritant of some kind must have been brought to this region.

The explanation that it is due to stimulation of the vasomotor nerves is not at all tenable, because the factor of simple dilatation of the blood vessels resulting from stimulation of these nerves would not cause inflammation and certainly not fragmentation of nuclei; neither was the injury produced by the finger nail sufficient to cause these results, as was proved by control experiments in previous cases.

Dr. Welch made a valuable suggestion to me while examining my specimens. He thought that there must be a toxemic condition of the blood at the time wheals could be produced and that some of the toxin was set free into the tissues of the derma, thus constituting a sufficiently acute irritant to set up inflammation with the accompanying marked nuclear disintegration. After due consideration it appears to me that this theory will explain all the phenomena of urticaria and its accompanying wheals, not only in the factitious form, but also in many other varieties of urticaria.

I mentioned also in my previous paper that indican or some of its salts were present in large quantities in the urine of some of the cases of urticaria factitia which I examined, and since this would point to the presence of proteid decomposition in the intestine, it might be possible that the toxin in some of the cases was of a chemic constitution. This theory would also

explain why it is that saline purgatives relieve acute attacks of hives so readily by expelling the toxin poison. It does not necessarily follow that one kind of toxin alone is the producer of wheals, but, as is well known, certain drugs will sometimes produce them, *e. g.*, quinin, tartar emetic, etc., and the decomposition products from certain fruits, *e. g.*, strawberries, etc.

I examined lately a typical pronounced case of urticaria pigmentosa, which I exhibited before the Johns Hopkins Medical Society, and as almost always occurs in this disease wheals could easily be produced. I excised a number of these wheals at certain periods of time, viz., at four minutes, eight minutes and fifteen minutes, as well as a portion of the skin. The results show that even in the eight-minute sections the *mastzellen* were increased in number in the neighborhood of the vessels. This latter observation I should wish to confirm by further experiment before I would give as being final. A few polynuclear leucocytes were also observed and a pronounced quantity of serous exudation.

Unna made the suggestion that the increased number of *mastzellen* found in wheals might come from the blood but he did not prove this important fact.

In conclusion I now quote a sentence from Prince Morrow's system of genito-urinary diseases and syphilology and dermatology (1895) written by Dr. E. B. Bronson, which is as follows: "Though urticaria has been commonly classed with inflammation there is little more reason for this than for regarding a simple rubor or a mechanical edema as inflammatory." I have found, and my statement is supported by Dr. Welch, that in all cases of urticaria which I have examined, eight in number, I have seen a typical picture of inflammation which varied in severity. I have chosen for my work the most pronounced cases because the results were most marked and more easily studied. There is no doubt then that all varieties of urticaria must be classed as inflammatory affections, as Duhring has done in Vol. I of his last addition on cutaneous medicine and surgery.

Unna's theory of spasmodic contraction of the muscular coat of the veins situated in the deeper portions as the cause of the production of the wheal is not at all acceptable and appears distinctly improbable, judging from the standpoint of the causes of inflammation, and also does not agree with my observations, which proved rather the contrary, viz., that the veins were dilated.

EXCISION AND SKIN-GRAFTING FOR TUBERCULAR DISEASE OF THE SKIN.

Read in the Section on Dermatology and Syphilography, at the Forty-seventh Annual Meeting of the American Medical Association held at Atlanta, Ga., May 5-8, 1896.

BY M. B. HUTCHINS, M.D.

ATLANTA, GA.

I have only a few words to say upon this subject. My experience is limited to two cases, and these are naturally insufficient for the formation of an opinion as to the merit of the method. Given a localized tubercular lesion of the skin, of not too great area, the pathologic condition would seem to justify the suggested treatment. Actual metastases, as in "cancer," are not to be expected, neither do we anticipate such an insidious creeping along the lymphatic channels. We do have a localized inflammatory condition, with tubercular structure and usually few bacilli.

The ordinary treatment is slow and generally painful. In lupus vulgaris, especially, the scar often presents a recurrence of the disease. If we can, under thorough antisepsis and asepsis, totally remove the disease, without infection of the wound with the tubercle bacilli, and then by grafting minimize the resultant scar we have a method superior to the old.

Surgeons and some dermatologists recognize the value of excision, but I believe the procedure unpopular with the majority of dermatologists. Thorough excision, with care not to re-infect the wound surface, followed by proper grafting should enable us to end the treatment of a not too extensive case within two weeks. Ordinary methods, especially in lupus vulgaris, often occupy years. White, in advocating excision, says that the bacilli may finally find their way to vital organs if the local disease persist too long. Here it might be asked if the general tubercular condition certainly has its origin from the local lesion or are not all the tissues, in cases ending thus, in so favorable a condition for the bacilli that they receive them just as easily through other channels?

My two cases were treated at my clinic at the Atlanta Medical College. The first was that of a mulatto girl aged 15, with a history of suppurating tubercular glands in the neck, for a year, which finally healed about a year before the appearance, five years ago, of the disease upon the lip. The lesion was upon the surface of the left segment of the lower lip, being about the size of a silver quarter, occupying nearly half the thickness of the lip. It was an ordinary lupus vulgaris, with fine nodules, covered with thin scales, save in the center which was crusted and papular. There was a marked, firm, red, raised border.

The patient was anesthetized and as strict asepsis as practicable was employed. The button "point,' of the Paquelin cautery at a dull red heat was used to cauterize the tissues diseased and kill the bacilli. The entire patch was then carefully dissected away, allowing sufficient margin of healthy tissue, and to the depth of about one-half the thickness of the lip. Small grafts were then taken from the previously prepared thigh, and properly applied. About 80 per cent. of these lived. A few more grafts were applied two weeks later, to points left vacant by the slipping of some of the first. The success of the treatment was vitiated by some error in asepsis in later dressings. After some weeks a faint vesicular point was noticed at the inner edge of the healed surface, but this soon disappeared spontaneously. There was also a tendency to keloidal growth of the cicatrix, but secondary contraction soon relieved it.

My second case was that of a white boy of 12 years, in a poor general condition. Occupying the dorsum of the right wrist was an oblong, transverse, flabby, irregular ulcer with an unhealthy base and soft, indolent, pale, undermined edges—in short, the lesion formerly described as a scrofuloderm. I believe the duration of the disease was over a year.

Under anesthesia and with asepsis, a free incision, well outside the margins of the lesion, ovally, without lifting the knife, was carried around the diseased tissues. A clean dissection was then made from the annular ligament, care being had not to allow the lesion, or anything which had been in contact with it, to touch the wound. Large grafts were shaven from the skin of the thigh and applied in the usual manner. The grafting was a failure, but a good, flexible scar was obtained. In addition to the usual dressings, a splint was used to restrain motion.

Inability to see or hear from my patients directly, prevents my reporting their present condition. The first case seemed cured when seen two or three months after her discharge; the second is said to have had a "recurrence" in the scar.

My two cases simply demonstrate what I believe to be the proper method of operation, while they also constitute a warning as to the absolute necessity of thorough asepsis both at the operation and in the after-dressings. The second case also needed considerable preparatory treatment, which our haste to operate too often causes us to neglect.

Excision without grafting is not so promising as the two combined, but perfect technique and extreme care in the later dressings would obviate much of the danger of future trouble in the cicatrix. We hope with grafting to get a minimum of granulation, and, later, scar tissue, which offers a minimum of liability to recurrence.

The cutaneous tuberculoses being now classed in one group, we can well generalise in their discussion, with a special allowance for the marked tendency of lupus vulgaris to return in its scar tissue.

NOTE.—The lupus patient was seen a few months after this paper was read. A young brother had died of tuberculosis meanwhile. The site of operation showed entire cure of the lupus. The cicatrix was still a little nodular and pigmented, though smoothing and whitening at edges. The fine hair included in grafts from leg had become long and coarse. She declined their removal by electrolysis. The final result in this case is satisfactory.

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SYPHILIS SUCCESSFULLY TREATED BY HYDRIATICS.

Read in the Section on Dermatology and Syphilography at the Forty-seventh Annual Meeting of the American Medical Association at Atlanta, Georgia, May 5-8, 1896.

BY ELMER LEE, A.M., M.D., PH.B.

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CHICAGO, ILL.

There is, perhaps, no disease whose character is so black, and whose ravages are so universally distressing as that under consideration. The name syphilis strikes terror into the soul of its victim, and measureless encertainty in the mind of the professional attendant upon whose shoulders the responsibility of treatment is placed.

The exact origin of syphilis is uncertain. The records do not clearly establish by whom or at what time in the history of the world the disease was first discovered. There has been much discussion concerning this point, but little satisfaction has resulted. It is the common habit of Europeans to associate the disease with the return of the followers of Columbus, in 1493, from their discoveries of the West Indies. However this may be, without the shadow of a doubt, the same disease must have existed centuries before among the races of the Orient. The first record of syphilis in France dates only to the siege of Naples, in 1494.

Syphilis is spread by direct contagion upon an abraded surface or a breach in an exposed membrane or tissue, and thereby contaminating virus enters the system. A period of variable duration between the inception by contact and the lesion follows. It may be a few days, or it may be weeks before the systemic exhibitions appear. Two reasons may be assigned for the variability of incubation, viz., the virility of the poison and the susceptibility of the individual. As in other diseases, there are some people insusceptible to syphilitic virus.

The precise nature of the infecting virus has eluded the researches of scientific processes of determination. It is an open question whether the serious poisoning which results is caused by a direct entrance of the contagion into the circulation or whether it is by reason of the secondary absorption of the product of the initial ulcer. For my part it is not possible to decide the question, but fortunately the practical treatment of the disease does not depend upon this mooted point. The answer to the problem is, probably, that both influences together produce the result.

The first manifestation of syphilis appears in the form of macule or papule upon some mucous or skin surface. The lesion may extend quickly to the deeper tissues and viscera. During the period of healing of the initial lesion the disease is regarded as in the first stage. The subsequent appearance of surface and other lesions constitute the second period of syphilis. If there are still subsequent exhibitions at some later time, usually measured by years, such a manifestation establishes the third period of the disease.

One invasion of the body generally precludes a second. The disease may be transmitted by the secretions of a sore upon any part of the body within and during the earlier stages. The power of transmission during the third period of the disease is regarded as unlikely, although there are some differences of opinion on this matter. It is, further, reasonably decided that the normal secretions of the body, such as saliva, mucus and other fluids do not transmit the disease. But in the first stage of syphilis the blood as well as the material from the initial lesion may infect another person. Some investigators have asserted that a germ has been found constantly associated with the blood during the earlier stages of this disease. This position can not be accepted as it has not been substantiated. As in some other diseases, the symptoms of this are similar to those of certain other forms of toxemia. But it is undoubtedly true that syphilis is due to a definite and specific contagion. The blood is poisoned thereby and a series of mild or severe disturbances of the health ensue in a somewhat regular order. The principal changes that occur, according to Virchow, begin by the production of a small-celled solid growth, which at first resembles granulation tissue, but which soon shows a vesicular occlusion with consequent degeneration. This statement is, to me, one of the most important in the pathology of syphilis. If studied according to the light of experience and analogy it has the significant indication pointing out the requirements for treatment. Variation in the caliber of the minutest channels through which the circulation is carried forms the earliest pathologic manifestations in internal diseases. The recognition of this fact is of the greatest significance in the direction of a correct understanding of the truth concerning pathologic conditions. Alterations in the size of the vesicular spaces produce either congestion or hyperemia, either state producing destructive changes in the delicate cell structures. Should the disturbance in the circulation occur in the cells of a vital organ the influence upon the whole body will be proportionately serious. If at the same time the resisting power of the general system as well as the special locality in which the lesion occurs should be of low

vitality, great structural changes necessarily occur within short periods of time.

In the treatment of syphilis there is always one imperative indication, namely, sustaining the natural resisting forces against auto-infection. Upon the weakened and demoralized system disease preys rapidly and furiously. It is more important to preserve the integrity of the individual by supplying it with natural nutrition and relieving it of the occlusions in its neighborhood than it is to attempt to overwhelm the circulation by some extraneous and poisonous material with the view of neutralizing a virus of disease. It is a serious question whether an organic or inorganic chemic substance pervading any part of the living tissue structures, is able to be neutralized by the introduction of another chemic agent. The various organic and inorganic matters used for the treatment of syphilis is based upon the supposed property of a matter to destroy or antagonize another. It is easy to produce a definite reaction under favorable conditions in a physiologic or chemic laboratory when we know the exact nature of the materials with which the experiment is conducted; definite reactions, however, in living structures are not possible.

The influence upon the contagion which enters the circulation from without, by the fluids and solid elements of organized living tissues, can not be definitely determined by scientific methods. Moreover, when a given mineral or vegetable reagent enters the stomach, and during its passage through the system, it is lost to the senses of the scientist, consequently whatever reactions there may be are determined by no reliable data. It was recently stated by a clinician who gives nearly all his time to the treatment of syphilitic manifestations, that up to the present moment the materia medica offered but two agents with which to control the symptoms of this disease. Fortunately, indeed, it would be did the materia medica possess so many as two remedies which could, in truth, cure syphilis. Every physician whose experince has been even moderate, knows that mercury and iodid of potassium are not able to cure syphilis, all that may be said to the contrary notwithstanding. The philosophy of a cure of the impaired tissues by further impairment of that tissue is allopathy, but it is not true to nature. It is necessary to do more than conform to the theory included within the confines of a name. Syphilis is not curable by the alleged principles of "allopathy," or the infinitesimal folly of homeopathy, or by the vagaries of the eclectics. If the disease is curable the remedial forces of that inherent tendency for good which resides in every vegetable and animal cell are able, when properly aided, to conquer against its enemies.

By reference to one of the most recent reviews concerning the latest improved treatment of syphilis, the following remedies are advocated as essential: The list comprises blue pill, gray powder, gentian, quinin, iron, opium, alum, chlorate of potash, jalap, gamboge, epsom salts, green iodid of mercury, perchlorid of mercury, iodid of potassium, perchlorid of iron, red iodid of mercury, tannate of mercury, sarsaparilla, antimony, aromatics, iodid of sodium, iodid of ammonium, carbonate of ammonia, tartarated iron, bitter infusions, arsenic, iodid of mercury, iodoform, bromid of potassium, bromid of sodium, bromid of ammonium, strychnin, cod-liver oil, mineral acids, vegetable bitters, sulphur, calomel, black wash, carbolic acid, ointment of ammoniated mercury, ointment of oxid of zinc, mercurial ointment, mercurial vapor bath, borax, chromic acid, permanganate of potash, iodoform ointment and atropin. Of this bewildering array of anti-syphilitic soldiers, how is the young doctor to discover who is general and which are privates? The life of the doctor is too short to examine each remedy and calculate its value. The numerous remedies really constitute a disadvantage to the patient as well as to the doctor. The choice of the materia medica will be determined very largely by the number of years since the year of graduation. The lectures emphatically encourage the necessary use of mercurials, and with this recommendation in mind the young medical man feels consciously strong in his ability to treat syphilis. He is encouraged to think that while there is difference of opinion concerning the use of medicines in the treatment of whooping cough and measles, that the profession is a unity in its approval of mercurial treatment of syphilis. When a few cases have been entrusted by chance or some other influence to his care, doubts will come into his mind and his security will be undermined. In what way is syphilis pathologically and radically different from other functional and organic diseases that it may not be cured? There are conditions which we frequently see that are quite incurable, both in this and in other diseases. The degenerate tendency becomes stronger than the resistance of the cells can endure and the natural termination of such cases is fatal. Other cases are incurable because of the utter wilfulness and disregard of reason by the patient.

The experiences of the profession clearly show that the natural termination of this disease is toward recovery. The disease may be light or otherwise and in either case complete restoration often takes place, either with or without professional treatment. It would seem to show that if a single case of either mild or severe syphilis recovers without treatment, that the restoration is solely due to the principle of inherent preservation of cell integrity through a natural agency. My line of experience has taught forcibly the lesson that vitality maintained through physiologic and hygienic management is a scientific, a safe and satisfactory treatment of syphilis in the earlier stages. In the last stages, when the forces of life are sadly weak and declining, it is worse than useless to hope for honest relief through the administration of organic and inorganic substances. It is, perhaps, rash to controvert the position of the general profession in its attitude favoring the use of mercurials in the treatment of syphilis, and it would have been unnatural to an orthodox medical education prior to the last third of my medical career. But it matters not, rash or otherwise, the only concern of the physician is to know the truth, and if syphilis can be successfully treated by hydriatics, is it not a worthy triumph? The treatment of syphilis by water as the principal remedial agent, is not so simple or so well known as the agent itself would seem to indicate. Neither is the method mysterious or devious. But it must be mastered and experience will teach more than may be learned from a study of the brief literature on this subject.

My attention became attracted to hydriatics, as a successful method of treating syphilis, through the necessity of personal responsibility in the treatment of this disease. My position has been gained by actual clinic experience.

There came to my office in the spring of 1895 a negro, George F., age 25, single, waiter, who applied for relief on account of phimosis. The symptom which led him to consult me was inordinate accumulation of smegma. Circumcision was done and the case disappeared from my observation. Perhaps a month later the patient appeared again to exhibit an ulcer located on the dorsum, at the point where the division had been made. This ulcer was enormous before it healed and was characteristic in every particular. Finally it healed and some weeks subsequent to its cicatrization the negro returned with unmistakable secondary symptoms of syphilis. The rash was typical, the knees and ankles were swollen and painful and the indications upon the exposed mucous membranes were indicative of contagion poisoning. The treatment was instituted from the inception of the diagnosis. The case was seen by several experienced confrères and the plan of management as outlined was followed by them as well as by myself. The agreement in diagnosis was emphatic. Water was the remedy prescribed in regulated doses to the extent of between two and three liters per day during a period of between eight and ten months. In each glassful of water some harmless dose of medicine was incorporated for the purpose of producing the desired mental effect upon the patient. The agent used for this purpose consisted for the most part of one or two drops of carbolic acid to six or eight ounces of water, which was altered in color each time the prescription was refilled. The dose from the bottle was a teaspoonful to be mixed with the portion of water which was to be taken at definite intervals during the day. There was a period of two weeks, during the second month of the treatment of the disease, when the young man was unable to work on account of the unsightly appearance of his face and hands, as well as the general discomfort from which he suffered. The symptom which remained the longest was edema of the ankles. It has, however, entirely disappeared at this time. The symptom of next longest duration was the raised patches, some of which broke down, covering the unexposed surface of the body. The negro at this time is free from any discoverable lesion or symptom of syphilitic sequelæ. The skin is smooth and the discolorations have practically disappeared. The case has frequently been observed by several physicians, and at the last visit to my office he was pronounced cured so far as symptoms could be discovered.

During the winter of 1894–5 a woman, Lizzie B., single, 26 years old, fair, a stenographer, presented an ulcerated throat. The case was not suspicious and the ulceration was considered benign; simple treatment was begun. A few weeks later she complained of vesical hemorrhage. Examination revealed erosion of and an ulcer upon the inner surface of the anterior lip of the cervix. The case was immediately suspected to be a contagious disease. At that time no personal interrogation of her previous conduct took place and for a period of several weeks the case was observed and the diagnosis gradually and emphatically determined to be syphilitic. Soon after this determination she was confined to her bed with a fever and during this time secondary eruptions manifested themselves in the form of papules. They broadened and extended over the whole body. The hair fell out in considerable quantities. Her treatment, with the exception of local applications to the cervix, was directed in the same general line as in the preceding case. The patient, however, during all this period of treatment, which covered perhaps ten months, regularly added teaspoonful doses of the scented and colored water from the druggist's prescription bottle to the doses of water which were given her at stated intervals, and in sufficient quantity, during each day of the ten months. In addition to internal hydriatics, the bowels were irrigated daily during a period of the first three months of treatment. Subsequent to that time, irrigation was performed at intervals of once each week. The recovery of this woman is satisfactory to herself and no physical symptoms of syphilis can be found.

The local treatment consisted principally of hydrozone applied in full strength to the chancres in each case. The surface eruptions on the skin were anointed with a liquid soap, which was rubbed in till it was dry and allowed to remain until washed off at the bath on the following day, to be again rubbed in as before.

In conclusion, the heralded treatment of syphilis at water cures, such as Hot Springs, Ark., and other places of the same character, are, in my opinion, dependent upon the quantity of water which is used internally and externally, and not upon the quality. Furthermore, the relief of the symptoms is dependent upon the large and regularly used internal hydriatics, and not upon the morbid effects produced by the mineral and vegetable materials which are administered in enormous and destructive doses. By reason of the preservation of the functions of the vital organs, through the internal use of water and the external baths, nature withstands and permits the awful abuse to which it is subjected by the tons of mercury and the barrels of iodid of potassium that are imposed upon credulous patients.

103 State Street.

A PLEA FOR CONSERVATIVE TREATMENT OF CARBUNCLE.

Read in the Section on Dermatology and Syphilography, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5–8, 1896.

BY W. E. SHAW, M.D.

CINCINNATI, OHIO.

In these days of neophilism, I feel that an apology is due for presenting so apparently threadbare and homely a subject as the treatment of carbuncle, for there are few subjects upon which the text-books are in such near accord as in the treatment of this disease. Nineteen out of twenty articles mention as the chief means of combating this disease, incision, caustics, total excision, curetting and poultices, etc., when the disease is of any severity. This paper does not consider the treatment of anthrax.

The histories of two cases recently related by a medical friend, with those of three others of which I was informed during the last year, one of which was fatal, all five threatening life, deepened the impression formed several years ago, that the knife or caustics should very rarely, if ever, be used in the early stages of carbuncle. These facts, with the experience that I have had recently with a case of severe carbuncle of the lip and cheek in a very feeble subject where the more conservative methods were used, and because the patient recovered without a noticeable scar, made me still more strongly in favor of con-

servatism. After having my attention again called to this subject, I turned to the article on carbuncle in Prince A. Morrow's exhaustive work, and there found what I suppose to be the latest statement of the management from the surgical standpoint, from which I quote. The author says "there are only three methods which wholly commend themselves to the surgeon of today, treatment by incision, by total excision and parenchymatous injection." After describing the mode of incision and curetting he says: "The relief that follows the operation is immediate. The patient feels better. The temperature may fall to normal."

After describing the method of complete excision of large carbuncular masses, in which we know the hemorrhage is apt to be severe, he says: "The relief following the operation is instantaneous and marvelous. The temperature sinks at once, the pain ceases absolutely, the patient, who may have been in a state of delirium and sopor, recovers his normal condition in a few hours."

If we go back for a century and examine what has been written on this subject, we find the same fundamental ideas governing the majority of writers, viz., that carbuncle is a malignant thing, out of which can come little or no good tissue. This has been the basal thought in treatment. The operative technique has been greatly improved by the advances along the line of asepticism.

In opposing operative measures as a rule and making it the exception, I am offering nothing new, for there has been for many years past occasionally a surgeon who would have the temerity to depart from the beaten path and advise conservatism.

I believe that the wonderful results accomplished in these latter days under aseptic surgery, have had a tendency toward causing surgeons to depend too largely upon the brilliant and spectacular results of the knife, and too little upon the slower and less impressive methods of nature. Fame is relished by all, and it may be at times difficult for us to resist the temptation to cut the Gordian knot and thereby gain the plaudits of the crowd, even though worse for the patient. I believe that a conservative feeling in regard to the treatment of carbuncle is more widespread than works on surgery would indicate, but the weight of these articles, and the practice of the surgeons who wrote them, throws the majority of the best opinions upon the side of positive methods. As most of the severe cases of carbuncle, in cities at least, are seen by surgeons in consultation, the treatment is largely guided by surgical specialists. When a surgeon is called in consultation, the very circumstances largely demand that something decisive be done, and with such abundance of authority, in the same direction, it is no wonder that the apparently slower method should be placed at a disadvantage. I have not made an exhaustive examination of the surgical literature on this subject, but have found only three strictly surgical specialists who decidedly oppose the surgical tendency. Ashhurst, after naming these older methods, says "it is not proven that any of these methods are effective either in limiting the extent or duration of the disease." Walsham, 1887, says "that the crucial incision and caustics were formerly favorite practices, but the majority of surgeons now use expectancy." Moullin, 1891, says "that the old free crucial incision is pretty much abandoned, and strongly condemns poultices, which have a tendency to increase the trouble." The article which made me a convert to conservatism was read before the American Medical Association in 1885, by the honored president of this Section. The cardinal principles Dr. Bulkley laid down in this article were, 1, careful avoidance of all irritation of the carbuncle by applications or pressure; 2, avoidance of hot or moist applications during the whole course of the disease; 3, avoid incisions and caustics, leaving the whole process of opening and discharging to nature; 4, avoid stimulants unless absolutely necessary to sustain life; 5, protect the inflamed surface from first to last with a soft ointment, preferably one containing ergot and oxid of zinc spread thickly upon lint, changing as often as required; 6, administer ¼ grain calcium sulphid every two hours, from first to last; 7, support the patient, not by stimulants and medicine, but by placing him under the best possible hygienic surroundings; 8, remedies: Occasional laxative Dover powder if necessary, and a mixture containing mag. sulph., ferri sulph. and acid sulph. in water after each meal.

These principles appear perfectly sound, especially in so far as they caution non-interference. Some one has aptly said "that the wise man is he who knows when to stop," and it has often occurred to many of us that our profession, which is rushing along under the stimulating impetuosity of the age in laudable efforts to discover something new, is frequently, under the guidance of our noble and enthusiastic advance guard, led to conclusions and carry out practices which are to the detriment instead of the advantage of the patients. I am as firmly convinced that the early excision or incision or caustic destruction of every carbuncle is wrong practice, as I am that bleeding to syncope would be wrong in any case of pneumonia. I know not how much virtue there is in calcium sulphid in these cases, but many cases of disease, where there is tendency to suppuration, do well under it, and I shall use it until I find a better remedy. I do not place great weight upon any special formulæ that Dr. Bulkley or I may have used either internally or as a protective ointment. I believe they have virtue, but the greater benefit is that of excluding meddlesome interference and giving the great physician, nature, a chance to assert herself.

Many times when perplexed, I have turned with profit to a little book, a towering monument to the genius and discernment of John Hilton, "Rest and Pain." Hilton speaks in this book of cases of carbuncle that were not progressing satisfactorily under the care of eminent London surgeons, where a speedy termination was secured by neat adjustment of the parts, a cotton wool compress and so bandaged as to keep the parts at rest. I have treated about a dozen cases by this method, but will report only four because of their greater threatened severity in the beginning and the good results following the treatment:

Case 1.—Mrs. J., aged 35, a German housewife of moderately good health, had been suffering with a swelling on the back of her neck for a week when I saw her, Nov. 8, 1885. The swelling extended from the angle of one inferior maxilla to the other. In the middle the carbuncular mass was 3½ inches in width and there was at least 18 square inches of tissue involved. The swelling was very dense, dusky red in color and exceedingly painful. Within a diameter of 2 inches there were five or six pustules which had the appearance of beginning sloughs, that would in a few days communicate with each other. The temperature was 102 degrees, and the general constitutional disturbance was affecting her strength. No albumin or sugar in the urine. She was given the treatment advised by Dr. Bulkley, and during the next week the swelling remained about the same, but she was more comfortable. At this time she was seen by my friend Prof. P. S. Conner, who advised poul-

ticing, which I reluctantly carried out for two days, but as they were troublesome and no seeming benefit was obtained, I abandoned them, and again used the ointment. Two days afterward, as there appeared some deep fluctuation, an incision not more than three-fourths of an inch wide was made through the dense leathery mass, and about one ounce of pus discharged. The original treatment was continued and there was not the slightest slough around the wound nor extending from the pustules, although it was about six weeks before the induration disappeared.

Case 2.—Chas. W. G., aged 40; American, of good personal history, but had suffered several times during the previous six months with ague. When I saw him he had been under the charge of another physician for a week. The induration extended from ½ inch to right of median line to angle of left inferior maxilla, about five inches, and was 2¾ inches broad at widest point. There were between 8 and 9 inches of surface involved. There were eight pustules and the appearance was threatening. The treatment was about the same as in the former case and he was discharged November 30. He suffered very little during the last weeks, and there was not the slightest sloughing.

Case 3.—Chas. S., aged 20, a feeble German with incipient phthisis. He had worked as glue maker until the previous evening, although he had felt a painful swelling for three or four days, increasing in size and painfulness, on his neck and extending to angle of left jaw. The swelling was 4 by 2½ inches in extent. There were four well-marked pustules about the middle. Within a week there were about a dozen pustules, but they dried up, only extending through the thickness of the skin. He was able to resume his work at the end of three weeks. No sloughing.

Case 4.—Jno. L., aged 55, a teacher by profession. He had suffered greatly with insomnia for several years. His nervous organization had been greatly shattered by dissipation, but for the last four years he had lived a temperate and correct life. For several weeks preceding this attack he had felt very much debilitated, sleeping very little except when under the influence of anodynes. I saw him Sept. 14, 1895. He said he had been suffering with a "boil" at edge of nostril for nearly a week. For two days he had fever and chilly sensations. No appetite, foul breath and badly coated tongue. Temperature 100 degrees. On examining the lip, which was nearly an inch in thickness and very dense, I found there were four pustules nearly communicating. The mustache was closely clipped and an ointment of acetanilid, balsam Peru and zinc ointment applied. Calcium sulphid, gr. ss. every two hours (the dose I gave in all four cases), and phosphate of soda given as a laxative. This treatment, with trional occasionally as a hypnotic, was continued through the whole course of the disease. At the end of a week the induration and swelling had extended, closing the left eye. There were ten threatening pustules, two on edge and two on the under side of the lip. About one inch in width of the lip seemed to be perfectly honeycombed with bands of necrotic tissue, and hope of saving the lip was almost abandoned. After several days the swelling began to subside. The gangrenous strings began to separate and were removed, and by the end of the third week the lip was perfectly healed.

I have treated quite a number of carbuncles of less severity by this method, and with satisfaction. I do not think it can be doubted by any one that these four cases were severe, sufficiently grave in the beginning to give the treatment a severe test, notwithstanding the fact that none of them were diabetics. I thought that each one demanded my best efforts, and had I seen them before being converted to the more conservative method, I am sure that they would have fared much worse under the knife or caustics. The treatment of any case of carbuncle will vary in the minutiæ according to the patient's individual condition. My experience compels me to emphasize a few "don'ts:" Don't cut, scrape, burn, poultice, chill with ice, blister or irritate in any way, but gently protect the part with some soft antiseptic ointment, over which apply a soft cotton compress. If sloughing supervenes, do not destroy any sound tissue, or cause any hemorrhage in removing the dead tissue, but support the flaps as advised by Hilton. Give calcium sulphid, in ½ grain doses, every two hours.

Let us have a Department of Public Health!

A FATAL CASE OF MULTIPLE SUBCUTANEOUS GUMMATA.

Read in the Section on Dermatology and Syphilography, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

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The so-called tertiary lesions are not a necessary consequence of the syphilitic infection. They occur according to Finger's statistics, only in 5 to 40 per cent. of the cases; and Haslund, Mauriac and Neumann give the still lower figures of 5 to 15 per cent. No case of syphilitic infection is, however, safe from the possibility of their occurrence; and the length of time that has elapsed since the commencement of the disease is no guarantee against their appearance. Fournier reports a well authenticated case occurring fifty years after the initial lesion; and tertiarism appearing ten or fifteen years after the sclerosis is not uncommon. The average and most common time, however, is five years. On the other hand, they may appear quite early in malignant syphilis; Mauriac reported a case in which gummata occurred a few months after the infecting chancre, forming what the French call *syphilis maligne précoce*, or lues maligna. We are as absolutely ignorant of the reason for these differences, as we are of the causes of tertiarism in general. Apparently, it is entirely a matter of chance, and bears no relationship whatsoever to the severity of the original disease. It is not proven, as claimed by some, that improper treatment, or the want of treatment, or chronic alcoholism, or the presence of any debilitating disease, has anything to do with the occurrence of the tertiary phenomena.

The gumma is the characteristic lesion of tertiary syphilis, and it originates always in the connective tissue. It may appear in the skin, the subcutaneous tissue, the periosteum, the bones, the muscles, the mucosæ, or the parenchyma of the internal organs. It is most common, however, in the first two situations; and Neumann has shown that, of all the disease products of syphilis, those of the skin and its adnexa are the most permanent and refractory.

Anatomically considered, the gumma can not be distinguished from the tubercle and papule that mark the earlier stages of the disease; but clinically they are quite distinct. The gumma, like the tubercle, is composed of a dense, small-celled inflammatory infiltration, with a great tendency to peripheral growth. Like all similar neoplastic structures, these cells possess little vitality; the central and oldest ones, being furthest removed from the vascular supply, soon die and begin to undergo retrogressive changes, fatty, caseous and calcareous degeneration. The cell mass grows at the periphery, causing, by pressure, death of the cells of the tissue invaded; while the central portion softens and degenerates. A limit to its growth is, however, finally reached; the peripheral cells become organized into connective tissue and form an envelop for the mass; the central semi-fluid portions are absorbed or voided; the capsule shrinks; and a fibrous nodule with chalky or cheesy contents is left behind.

In the skin the gumma appears as a circumscribed brownish-red, hard, elevated nodule. It frequently occurs in groups arranged in circinate or oval forms, The mass grows steadily for a time, and may attain the size of a quarter of a dollar. It may then be

resorbed without liquefaction; or it may slowly soften and break down. A scaly crust forms over its center, on the removal of which a yellow or sanious glutinous fluid oozes out, and a deep irregular ulceration is revealed, covered with honey-like secretion and detritus. If the necrosis is slow, the softened matter under the epidermis raises it into a pemphigus-like bleb; if the secretion dries rapidly as the ulceration spreads, ecthyma or rupia, or an ulcerative serpiginous tissue destruction is set up.

The subcutaneous gumma begins in the cutis or subcutis as a small lentil-sized mass with intact and movable skin over it. The integument is not primarily affected. It slowly grows to the size of a walnut, and gradually invades the skin, binding it to the connective tissue below. The pale skin becomes pink, then red, and finally livid. As the center of the gumma softens, fluctuation appears, and the infiltra-



FIG. 1.—Multiple subcutaneous gummata, posterior surface right ankle. Cast from life.

tion closely resembles an abscess. Years ago I made the mistake of opening a large gluteal gumma under that supposition. But even when unopened, pressure and invasion finally cause necrosis of the skin. It breaks and the contents of the mass, a small quantity of bloody, sticky, honey-like fluid is expelled. The skin around the opening breaks down, and we have finally a round gummatous ulcer, with an undermined lardaceous border and a hard necrotic base.

The shape of the subcutaneous gumma is round or oval, depending on the anatomic structure of the part. On the fingers and toes it is elongated; in the general subcutaneous connective tissue, round as a ball. Its size is usually small, though Fournier records one that measured 14 by 10 centimeters; and Mandeville, one that reached from the orbit to the neck, and from the nose to the occiput, covering the lower half of the face and the upper half of the neck, and 5 centimeters in height. In the case that I am about to report, one gumma at least was 7 inches in diameter. The localization is usually symmetrical. The head, neck, shoulders and limbs are most frequently the site of the growths; but they may occur anywhere.

The number of gummata present at one time is usually not greater than one to six, Joseph says one to three. The more numerous they are, the smaller their size. Mauriac says that more than a dozen is very exceptional; and Cazenave's case with 50, Kaposi's with 50 to 100, and Lisfranc's with 160 gummata are rare and isolated cases. In my case there were over 50 tumors.

Subcutaneous gummata are rarely attended by any marked constitutional symptoms. Mauriac reports one of the anterior border of the masseter that prevented the patient from swallowing, and, by compressing Steno's duct led to the formation of a salivary fistula; and Ricord notes crural and cubital neuralgias from gummatous pressure. Usually, they cause no general symptoms at all, and the patients apply to us to be relieved from a disgusting and annoying sore. I have not been able, in the literature that is at my disposal,



FIG. 2.—Multiple subcutaneous gummata. Photographed on admission.

to find a case where death occurred from cutaneous gummata without the presence of any other complicating disease, and in this respect, as well as in regard to the size and number of the tumors, the case recorded below, while not unique, seems worthy of attention.

Charles L., aged 22, admitted to Lebanon Hospital, Feb. 6, 1895. The family history, so far as it could be obtained, was entirely negative. No personal history of syphilis or tuberculosis could be obtained.

The patient came to be treated for a number of tumors on the legs and the forearms, which, he said, first made their appearance six or eight weeks before. They grew very rapidly, especially lately.

Nothing abnormal was found in the internal organs; but the external surface of the body presented a striking picture. From the instep to the knees, and from the wrists to the elbows, the surface was practically covered with a succession of tumors. These tumors were more or less similar in shape, being oval, fusiform or orange-shaped, but varied greatly in size. The smallest ones were the size of a chestnut; the largest were as large as an orange. They were mov-

able, not painful and only the largest were tender to pressure. The smallest were firm to the touch, and the skin over them was movable and but slightly reddened. The medium-sized ones, which projected about half an inch above the surface, were softer; the skin over them was more or less pinkish or glazed, and adherent to the surface of the tumor. Over the large ones the skin was of a livid dark-red hue; and over the largest it was ulcerated and bathed with a thin secretion, the surface covered with very pale granulations, and discharging a sanious sticky fluid.

In all, there were over fifty tumors, varying from 1 to 6 inches in diameter. The largest were situated above each ankle, three on one side and two on the other in corresponding situations and each leg had in addition ten to twelve smaller ones. On each forearm were twelve or thirteen, mostly smaller than those on the legs.

The patient's general conditon is bad, he was ane-



FIG. 3.—Multiple subcutaneous gummata, right forearm. Cast from life.

mic and emaciated. He had some fever, but there were no symptoms of disease about any of the internal organs. He was put on a vigorous anti-luetic treatment, and this was persisted in with but few intermissions until August 2, the date of his death. It consisted chiefly of mercurial inunctions, the use of the iodids in as large doses as could be borne and the dressing of the opened gummata with antiseptics. On March 19, he was taking 150 drops of the saturated solution of iodid of potassium, three times daily. While no new gummata appeared, the smaller ones continued to increase in size and the larger to break down. The following extracts from the bedside record will show the steadily downward progress of the patient.

March 28: Takes 150 drops of the saturated solution of the iodid of potassium three times daily; one mercurial inunction daily; the bichlorid 1-5000 dressing is changed to iodoform. Evening temperature 103.

March 30: Two more gummata on the right ankle and one on the left ankle are beginning to break down.

April 2: Is taking 210 drops t. i. d. The ulcerated gumma bleed freely when the dressings are changed. They extend almost entirely around the ankle. Two more large and several smaller ones are commencing to break down. The discharge is profuse and foul and it soaks through the dressings though they are changed several times daily.

May 29: The patient's strength is diminishing fast, in spite of tonics, extra diet, wine, etc. He has lost his appetite and sleeps badly; is inclined to be somnolent during the day. The ulcerations seem more painful and it is impossible for the nurse to keep them clean. Maggots have appeared in the largest one and the stench is almost unbearable. The bichlorid dressing was returned to, but without effect;



FIG. 4.—Multiple subcutaneous gummata, left forearm. Cast from life.

then as strong solutions of permanganate of potash, creolin and other antiseptics as were safe, were employed. These measures had little effect on either the fœtor or the larvæ. The largest of the ulcerated masses now measures about eight inches across. At this period the casts and photographs were taken.

June 8: Patient developed a diarrhea and the iodid of potassium, of which he was now taking 720 grains daily by mouth and rectum, was discontinued. He was given the iodid of sodium, 45 grains daily, afterwards increased to 180 grains daily. The diarrhea was treated with lead and opium pills, starch and laudanum injections and the nitrate of silver.

June 19: Patient's diarrhea is better.

June 24: Patient's general condition is so bad that all medication, save strychnin and tonics, is discontinued. The only food that can be administered is milk punches, of which he takes six daily. The

evening temperature is 102 degrees. He lies in bed all day, apathetic and somnolent.

July 10: Diarrhea has returned and is refractory.

July 27: Diarrhea still continues. Temperature subnormal; 96 degrees P. M.

August 2: Death.

Here, then, is the record of a case of syphilis of the old-fashioned variety, a kind that, luckily, we see very little of today. It is the true *lues maligna*, the syphilis that in the middle ages devastated Europe and that in more modern times has ravaged the Sandwich Islands and Africa. Such cases as these were common in the past, and they are responsible for the very grave prognosis of the disease which the sixteenth and seventeenth century doctors gave, and the lay opinion of its incurability today. We rarely see such cases now, and have come to regard lues as a fairly mild and tractable disease. But occasionally it flares up with its old-time ferocity and we understand how it has been the scourge of nations.

The case that I have recorded is remarkable in the following respects: 1, in that there were no traces in the patient of past syphilis, I lay no stress on the history, knowing that willful and unwitting errors render it worse than useless; 2, in the number and size of the gummata, the case takes its place with those of Cazenave, Kaposi and Fournier as the half dozen most extensive cases of subcutaneous gummata on record; 3, in that death occurred from the gummata alone, from exhaustion and septic infection, without any complicating disease of the internal organs.

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SYPHILIS AND MARRIAGE.

Read in the Section on Dermatology and Syphilography, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

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As a brief contribution to the assigned topic, "Syphilis and Marriage," I offer the following summarized history of a case with accompanying photograph, which, as the attorneys say, is put in evidence. The hard facts do not seem to need comment and are sufficiently "practical" to meet the request of the Chairman of the Section.

Mr. ——, age 63, married at 30, father of thirteen children, seven of whom are living, aged respectively 27, 23, 20, 18, 15, 12 and 10. All of these are afflicted with what the mother calls "catarrh." Of the six dead, the first died in a few hours, the next "had trouble with the spine" and died at 17; the next "had water on the brain" and died at 1 year and 9 months. The two others, I think, were stillborn or died in infancy.

The wife also speaks of her husband's disease as "catarrh." She states that "he had headache and some small painful lumps on his head when married, thirty-three years ago, but that the lumps did not become large till about twelve years ago. He fell out of bed in a fit about fifteen years ago and hurt his head. The lumps were cut open by a doctor about seven years ago at which time they were solid." The large depressions, shown in the photograph, are ulcers in the seat of the former "lumps" that were cut open, with abundant purulent discharge and dreadfully offensive odor; the outer plate of the skull is completely denuded of soft tissue, roughened on surface, in two or three large pieces, loose and movable, with ragged edges. In addition to ulcers and necrosis shown, there is ulceration of nasal fossæ with necrosis of vomer and nasal bones; and he is also so nearly blind with syphilitic iritis that he has to be guided about.

He suffers with severe pain in the head and some mental depression. The patient gave in substance the following history: That over forty years ago, about eight or ten years before he was married, a single youthful indiscretion, and the only chance for infection that he knew of, was followed some weeks after by a single small sore on his genitals, which a doctor in New York cauterized with "nitre of silver." The sore soon healed. He never had a rash that he knew of and had no internal or other treatment.

Beside the bearing of this case upon the questions pertaining to syphilis and marriage—which are so obvious, particularly in the history of the offspring, as not to need elaboration—are some points germain to this question and relevant to the pathology and



Ulcerative syphilis contracted 40 years before; primary lesion cauterized; no immediate constitutional symptoms observed; no constitutional treatment; gummata on scalp incised when solid; ulcers in seat of gummata on the plates of skull; necrosed, rough, ragged edges of loose bone; very offensive odor; necroses and ulceration in nasal fossæ; nearly blind with iritis.

treatment of syphilis, that seem important to mention here: 1. The wife, and mother of the thirteen children, appeared to be in good health and gave no history of syphilis or treatment for that or other illness. Did she have syphilis by conception and become immune? 2. What would now be thought of the error of cauterizing the primary lesion and the neglect of systemic treatment, and the assumption that after healing the patient was free from constitutional disease? 3. The cutting of the gumma. It is impossible in the light of modern experience to resist the belief that had this patient been sufficiently intelligent or properly advised and treated from the first he might have been cured or saved the commission of the great moral error in marrying under such conditions.

The history of the case may serve as text or sermon.

The consideration of "Syphilis and Marriage" in their relations to one another is one of greatest importance to the welfare of the human race, and none are so well qualified to discuss it as physicians. None know its prevalence so well as they, nor the delicacy or difficulty of arousing public attention. Professional obligations prevent the use of a "modern instance."

We have legislative enactments enforced by public opinion to protect against smallpox and scarlet fever, and many other less actively contagious diseases; and sanitarians seek to have included in the class of "diseases dangerous to public health" such moderately communicable diseases as typhoid fever and consumption. The state also enforces enactments to prevent or restrict infectious diseases even among brute animals. These diseases, however, usually occur in epidemic waves or in periodic seasons, but syphilis, which outnumbers most if not all of them, like death, "has all seasons for its own."

Yet there is neither enlightened public sentiment nor legislation of any kind to protect against its ravages. There is no sanitary placard nor even a general knowledge that discriminates.

The tendency in the popular mind to classify all unsightly diseases of the skin as communicable, subjects to moral suspicion the innocent victims of acne, eczema or psoriasis, while less conspicuous but genuine case of syphilis go unrecognized and unchallenged. And this popular misconception of the laity is too often strengthened, if not founded on thoughtless or erroneous professional opinion. Prudish notions or false modesty forbid inquiry. Breeders of domestic animals intended for food or beasts of burden are careful to select the best progenitors. But men who could not pass the physical examination for entrance to the army or navy, or even a good life insurance company, are accepted or engaged to marry, and enter without question into the most solemn obligations a human being can take upon himself; perhaps infecting an innocent healthy wife, and procreating children fore-doomed to feeble, wretched existence, if not to premature death. A further medico-legal question might be raised: "Is syphilis a valid cause for divorce?" And the answer must be determined largely on medical evidence as to the conditions in a given case. It is easy to conceive a case where such cause would be sufficient.

The long list of transmitted and inherited diseases is a frightful comment on our civilization. The halt, the lame and the blind. the feeble, the hydrocephalic, the paralytic, the imbecile and the idiotic go far to fill our almshouses and asylums. In this list syphilis is a frequent factor.

Whatever has been done to mitigate the evil or lighten the shades of this not overdrawn picture has been done chiefly by medical science, and evidently further progress in solving the problems must be made largely by physicians, and from a strictly medical point of view, without bias or other considerations than those of individual and public health. Though here is a case in which the political economist, the philanthropist and the missionary might find ample material for the study of disease, of poverty, vice and crime, and opportunity to coöperate with medical science in the endeavor to remove a prolific cause.

If the question be, "ought syphilitics to marry while uncured?" every consideration, medical, moral, social and sanitary, oppose by an emphatic no.

If the question be, "is syphilis an insuperable obstacle to marriage?" the answer involves the larger question of the curability of syphilis. If we believe syphilis curable—as I think the most of us do under favorable conditions, and when the physician can control the treatment from the first and continue it long enough—then we should have the courage of our opinions and act and advise accordingly, and we should urge the compliance with necessary requirements. If the question be as to the proper course to be advised to those who acquire syphilis, or in whom it develops after marriage, particularly the mother, or if syphilitic children are born, well established principles of treatment determine methods of procedure.

It may be a practical view—for the race it is a fortunate view to take—that from illicit intercourse of syphilitics few children are born, and very few of them are born alive. Even of syphilitic children born in wedlock, few, as we know of the small proportion alive at birth, survive the fifth year.

Yet the popular conception of the doctrine of Malthus is abhorrent to the finer sensibilities of humanity. Nature is lavish in all her procreative material and facilities for reproduction of species. One plant contains germs enough to seed an acre. Thousands of spermatozoa are secreted for one that fertilizes. It would be fortunate if we could be sure that only "the fittest survive." Weeds grow without cultivation where the choicest flowers with tenderest care wither and die. It seems often true that in selected and over-cultivated species the quality deteriorates, and we go down to the lower strata for hardier stock with roots deep in the mother earth, with which to cross or graft more vigorous, even though more vulgar life. The popular conception in the minds of the laity of the malignancy and incurability of syphilis, a misconception exaggerated by quacks and their advertisements, and too much supported by medical opinion, and too much taken for granted in the average prognosis and inefficient treatment, tends to a condition of doubt and discouragement, the practical effect of which is to leave many unfortunates to hopeless misery and despair.

It must become the province of medicine as it is the aim, to cure, not only simple and self-limiting disease, but all the ills the human body is subject to. One of the theories of the Christian religion rests on the possibility of recovery, under essential conditions, from moral disease. The Divine Healer and his disciples were of lowly origin. "The stone which the builders rejected became the head of the corner."

Time is a great corrector of ills, acquired or hereditary. Many of the subjects of syphilis are literal victims and. have been as much or more "sinned against than sinning," and are as truly desirous of cure, in the largest sense of the word, as are the most penitent sinners who plead for moral and spiritual aids to reform.

Who shall say that a victim of syphilis, promptly and properly and sufficiently treated, can not recover and shall not be permitted by medical sanction to marry? Is there more danger that he will infect a wife or beget unhealthy children than if he had gonorrhea or tuberculosis.

The scope of this contribution to the discussion of a designated topic is limited by the supposition that other phases of the subject will be covered by other contributors; and also by the impracticability of more than

touching upon a few salient points that seem prominent in so vast a field, a field viewed from so many and varied standpoints by different observers and through different media. I have not considered the relative dangers to either parents or child, or the degrees of heredity, paternal, maternal or mixed; or the treatment appropriate to these varying conditions. It seems to me, then, if asked by a syphilitic man or woman, "can I safely marry without endangering my wife or husband or expected children?" we should be prepared to summarize the conditions under which marrige might be tolerated, if not justified, and the conditions under which it ought to be allowed.

In deciding these conditions we should remember, as Fournier says, that while syphilis is ordinarily contracted in youth and single life, its most grave and disastrous complications occur usually in mature life; in the late secondary or tertiary stage, a period almost indefinite in duration. For which reason the period of treatment, of observation and probation should be amply long; in general terms we may say from two to four years.

The period since infection, the character and extent of lesions, the involvement of particular organs, the occurrence of ulceration, gummata or nervous lesions, length of time, thoroughness and persistence of treatment, the absence or disappearance of adenopathy, may materially influence the time through which treatment should be continued in a given case. Further, to make whatever course may be accepted as the concensus of medical opinion of value to the human race in social, moral and sanitary life, it should be brought within the reach of those who do not consult physicians and therefore will not be benefited by it except it be carried to them. Can not public sanitation be enlisted to aid in spreading a more correct information on this subject. This seems important not only in the interest of the vast number of cases of venereal syphilis, but also in the interest of the very considerable number of cases of syphilis of the innocent.

The average popular professional skepticism as to the incurrence of syphilis only through venereal infection, is inconsistent with the extreme care taught and practiced in modern antiseptic medicine and surgery, to avoid chances of infection less probable and less dangerous. It is very probable that in the near future the syphilitic bacillus will be demonstrated beyond a doubt.

In the light of modern prophylactic science it does not require much of a stretch of prophecy to expect that we shall soon have some enthusiast offer a method of immunity against syphilis by artificial diluted inoculation or vaccination. Meanwhile, no doubt, conservative physicians will still rely on methods of cure.

THE MEDICO-LEGAL ASPECT OF EYE AND EAR CASES.

Read before the State Medical Society of Pennsylvania, May 24, 1896.

BY J. WALTER PARK, M.D.

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HARRISBURG, PA.

The subject chosen for my paper is one of special interest to me, and I feel assured it will be to the general practitioner, if I succeed in impressing upon your minds the necessity of a certain professional relationship which should exist between the general practicing physician and the specialist, in the examining and treatment of accidental eye and ear injuries, preparatory to what may become medico-legal cases. My subject is such an extensive one, that I will confine my remarks more particularly to accidental injuries. I wish to call your attention to the following points of interest: 1, the kind of an examination, and record of the case, that should be made by the physician in attendance at the time of the injury; 2, the kind of cases which should be examined by a specialist, or one skilled in the treatment of diseases and injuries of the eye and ear; 3, some of the requirements that are a necessity to the general physician and specialist in medico-legal cases, and their advantages to the plaintiff and defendant in suits for damages.

1. To illustrate the first division of my subject, I will cite a case which answers most every point I wish to impress upon you as regards the kind of an examination, record, etc., that should be made in such cases. In October 1892, I was sent by a railroad company to examine the eyes of Mrs. S., who one year and three months previously had been in a wreck on their road, and claimed that her present defective vision was due to injuries received at that time, and as a result brought suit against the company for damages. A careful examination of the fundus of each eye revealed dense opacities in the vitreous humors of both, and on account of their density no good view of either fundus could be obtained; yet to me it evidently was a case of disseminated choroiditis, which is generally the cause of these opacities and diminution of vision. Hemorrhages into the vitreous may also cause similar results; this the defense claimed was the cause, and was due to the blow she received as the car turned over. The attending physician had not made an ophthalmoscopic examination of either eye at the time of the accident, hence could not say what the interior of the eye looked like, whether any hemorrhages were present or not, but the patient claimed that from that time on her vision was impaired, and the jury awarded her damages accordingly. Had a careful ophthalmoscopic examination been made at the time of the accident, and a full record of the case been kept, either by the physician in attendance, or by a specialist, the opacities in the vitreous, I think, would have no doubt been discovered at that time already, and the verdict would have been the reverse. This case shows conclusively that in all accidental cases involving the eye or its appendanges, a careful history of the patient should be taken, a minute examination of all the injured parts should be made; notes of a careful ophthalmoscopic examination should be kept, and if the attending physician is not competent to do this, the patient should be sent to one who is competent, or a skilled man sent for to see the patient at his own home, and it should be done immediately.

2. I think that all accidents involving the eyeball, cornea, lens, iris, fractures of the orbit, or where the vision of your patient may be impaired in any manner whatsoever, from intra as well as extra ocular injuries or diseases, and in all cases where there are hemorrhages from the ears, signs of fracture of the skull involving the ear, where a careful examination for any previous existing deafness should be made, and a minute record kept, in all these cases the physician in charge should have in consultation a specialist,

unless he is capable of doing it himself in a skillful manner. As previously mentioned, the consultant should be called in immediately after the occurrence of the accident; this would be for the benefit of the patient, as well as for any future legal complication that might arise. Take nothing for granted, be sure you are doing all you can for your patient's welfare, as well as all parties concerned. A large sum of money may be due your patient for injuries sustained in an accident, or a like amount may be unjustly demanded of a corporation, especially when the cause of the alleged injuries existed prior to the accident. This can only be determined intelligently by a careful examination at the time of the occurrence of the alleged injuries. I was also asked to examine the hearing of a patient who had been in a railroad wreck, and had entered suit for damages against the company in which I am confident her deafness was due to a chronic catarrhal otitis media which has existed for years previously, yet this patient received several thousand dollars to settle the case without ever going into court. Was this justice to all parties concerned? Had this case been examined carefully at the time of the accident, and an accurate record kept of the case, it no doubt would have been tried by a jury, and the verdict would have been in favor of the defendant. At least both plaintiff and defendant would feel as though justice had been done, if a skillful examination of the patient had been made, regardless of what the verdict of a jury might have been. A third case of a severe neuralgia of the superior maxillary nerve, which at times involved the ophthalmic branch distributed to the eye, was sent to me by a prominent attorney, who claimed damages against a borough for alleged negligence on their part in not keeping the street crossings clear of snow.

His client had slipped and fallen, crushing in the malar bone, and thus injuring the nerve and causing a chronic neuritis of the superior maxillary nerve, with some pain in the ophthalmic branch, which occasionally caused him some pain in his eye, but had not in the least affected his vision. This accident occurred over a year previous to the plaintiff bringing suit for damages, and at the time the case was sent to me, almost two years after the accident, the claimant had perfect vision with his error of refraction corrected with lenses, very seldom any pain in his eye, and I could not discover any trace of impairment of vision in any manner whatsoever. This man wanted me if possible, to discover something wrong with his eye, so he could demand a larger sum of money when he instituted his suit for damages. No careful examination was made at the time of the accident, no records kept and as a result no definite testimony could be procured either for the plaintiff or defendant. Cases are rare indeed, where accurate and full records are kept, and yet we are constantly seeing them. Let us try at least to show professional skill in these cases, that we may appear as experts and not mere figureheads when summoned before a court of justice.

3. The requirements of the physician and specialist in a court of law in eye and ear cases, from a medical standpoint, are so numerous and complicated that I can but refer to a few of the more important ones. First of all, you should thoroughly understand the anatomy and physiology of the eye and ear, so that you can intelligently answer all questions relative to injuries of these parts. You should be familiar with the use of the ophthalmoscope, be able to use it, and differentiate a diseased eye ground from a normal one. It is well to know the general appearance of interstitial keratitis and that it is only syphilis, be it hereditary or acquired, that will produce that characteristic condition of the cornea, which when once seen is never forgotten. You should know how to treat them properly, and perhaps save your patient from becoming blind, and yourself from being sued for malpractice.

Gentlemen, it is necessary you should know something about such cases, or else send them to some one who does, and then you assume no responsibility. Be careful to always state the probable results be they good or bad. Make no promises of good recoveries, or as to length of time of treatment required, for if you do and your promises are not realized, but on the contrary your patient gets blind or deaf, and if you are unfortunately worth considerable money, you may soon lose it by paying damages and attorney's fees. In ear cases you should be able to detect a simulating case of deafness from a genuine one, the appearance of a recent ruptured tympanic membrane from a perforation produced by a suppurating ear. Suppose a pupil comes from school complaining of pain in one of his ears, and tells his parents his teacher hit him on his ear with the flat of his hand, the parent takes him to his family physician to have his ear examined. He finds a ruptured drum membrane, the case is taken into court, and under cross examination, you as the attending physician are asked: "Doctor, how do you know that the rupture of the drum membrane of this child's ear, is not an old perforation produced by a suppurating ear?" If you have ever seen cases of that kind, and remember their appearances, you will know how to answer intelligently. Traumatic perforations have traces of blood, fresh or dried, around the edges of the wound, and in using Valsalva's method of inflating the ear, the air passes out easily into the auditory canal, while in pathologic perforations it makes its exit only under greater pressure, and produces a whistling sound; also, that in rupture of the drum membrane from compressed air in the auditory canal, the rupture usually occurs at the periphery of the membrane, while in rupture from fractures of the bony parts, produced by kicks, blows, etc. upon the ear, it occurs in any part of the drum membrane. This is accounted for as follows, and is important in a medico-legal point of view. The drum membrane is generally somewhat contracted toward its center by the oto-muscular apparatus, and often favored by chronic hyperplastic forms of catarrh, atrophy and cicatrices near the periphery of the drum head, making this its weakest point where the rupture most always occurs. The examination of the ear should be very thorough following recent accidental injuries. You should always use reflected light and an ear speculum in examining it, so that when asked upon the witness stand as to what kind of an examination you made, you can at least give an intelligent reply. An employe may claim damages for loss of hearing, claiming it to be from a blow on the ear, when upon examination it is found to be due to impacted cerumen. I was asked to examine a case in which a large amount of money was demanded for loss of hearing, but after I removed a lot of impacted cerumen and two dead bedbugs from his ear, his hearing distance was normal and he never said a word about damages after that. The same precautionary measures, qualifications, exami-

nations, records of cases, etc. apply equally as well to diseases of the eye and ear, as they do to accidental injuries, which may come under our care in general practice or as specialists, and we should never undertake a case without consultation, unless we fully understand the nature of the disease we are about to treat, or having previously seen similar cases treated or operated upon by someone skilled in his profession, for by so doing we avoid suits for malpractice and share the responsibility. This duty we owe to ourselves as well as to our patients. An intelligent community demands this of us, and if we heed not the warning we must suffer the consequences. When on the witness stand, answer only such questions as you are obliged to answer, and do it in plain language and in as few words as possible. If you can better illustrate what you mean by models, etc., to a jury, do so. A juryman once said to me: "In medical cases we want the witness to use plain language and well illustrated if possible." In conclusion, allow me to summarize the following points of interest from the foregoing remarks.

1. In all accidental injuries, operative cases as well as in general diseases of the eye and ear, make a thorough examination of the parts involved. Keep a record describing in detail all the parts injured and your opinion as to any previous pathologic conditions that are present now and may have existed prior to the present injuries sustained, and the relation they bear to each other as regards the impairment of vision or hearing for the present or future.

2. If you are not capable of using skillfully the ophthalmoscope or the ear speculum with reflected light, have a consultation with someone who is expert in their use: and do it immediately after you are first called to see the case.

3. It is necessary to be well versed in the anatomy and physiology of the eye and ear. Study it in health and disease, so you are able to distinguish between normal and pathologic conditions, and especially try to have plenty of experience with cases, for if you lack in this particular you had better not approach a witness stand.

4. Consider well the interests of the plaintiff as well as the defendant. State nothing but facts, and in as few words as possible.

5. Always get the consent of the proper authorities before performing any operations, and never promise your patient any definite results, or how soon they will or will not recover from any injury or operation. I am speaking from experience, which after all is the best teacher.

EXPERIENCE OF AN AMERICAN PHYSICIAN IN MEXICO.

OPERATING FOR SUPPURATIVE LYMPHANGITIS UNDER DIFFICULTY.—TAKING HIS OWN MEDICINE.—STRYCHNIA POISONING.

BY D. H. GALLOWAY, M.D.
CHICAGO, ILL.

A peon came into my office and said that a man was "very sick in his leg." He also said that the man "belonged" to the railroad, so I sent him for a hospital permit while I went to the house. I found a man, 23 years old, lying on the floor in the front part of a little store. There was a space of three or four feet between the front wall and the little counter, and in this space the man lay upon a piece of straw matting, spread on the earth floor. The sick leg was uncovered and I proceeded to examine it. This was no easy task, as it was so dirty I could see nothing and so tender that he would not let me touch it with my fingers. On comparison I could not see any difference between the two legs, so I gave him a placebo and ordered a bath. In the evening they brought the message that he was very sick and was keeping the whole neighborhood awake with his cries. I went with the messenger and found things no better than reported. The bath they had not given him; because no Mexican is willing to take a bath when he is sick; and also because the poor fellow's leg was too painful to admit of such rough handling as would be necessary to get it clean. This time I found a small abscess over the edge of the tibia and concluded that there were more of them farther up the leg. I told the family that I would come back in the morning, put the patient to sleep with chloroform and operate on his leg. They seemed satisfied with this. I gave the patient a dose of morphin to ease the pain and allow him to sleep and then went home. Before leaving I told them to have ready for use five gallons of boiling water.

In the morning I got instruments and dressings ready before leaving home. Dr. Doty, a dentist, accompanied me to give the anesthetic, and a boy 14 years old, to assist me.

A description of the room in which we were to operate will be necessary to an understanding of what followed. This room was about eight feet wide, eleven or twelve long and ten feet high. There was a door in the middle of the front wall opening directly on to the street. This door was two or two and one-half feet wide, and so low that I had to stoop in entering to prevent my hat striking the top, and I am considerably less than six feet tall. At the back of the room there was a similar door opening into the other part of the house. No light came into the room except by the front door. At the back of the room there were some shelves against the wall, then a space of about two feet, then a counter, eighteen inches wide and extending from the wall at one end to within eighteen inches or two feet of the wall at the other end. This left a space of about four feet between the counter and the front door.

We put the patient on the counter and Dr. Doty, standing in the space between the end of the counter and the wall, anesthetized him. I took my stand behind the counter, facing the light, and the boy in front of it. They had prepared an abundance of hot water, in two earthenware vessels. One of these was kept boiling over a charcoal fire and the other on the counter at the patient's feet, for my convenience. A girl attended to keeping the fire going and changing the vessels as one became cold or empty. I filled a fountain syringe with hot water and suspended it from a rafter in the ceiling. As soon as the patient was asleep, I took a stiff brush in one hand, a cake of laundry soap in the other, let the water run from the irrigator and began to vigorously scrub the leg. I had hardly begun when the mother behind me set up a cry and shouted that we were killing her boy. In a moment the half dozen spectators increased to half a hundred. They crowded into the room and filled up the door, but could not get behind the counter. This shut off the light so completely as to stop all work. I requested them to go out, but they did not move. I had a stout cane with me, and with that I

reached over the counter and drove most of them out of the shop. They still filled up the door so that I could not see to work. I filled a cup with hot water and made a pretense of throwing it on the feet of those standing in the door, but they only looked stolidly at me. This was too much for my temper, and filling the cup again with hot water I threw the contents at the door, striking those who were blocking up the opening on the arms and chest. The water was nearly boiling and was effectual in opening a passage for the light. I threw more water as far as I could through the door, and the crowd fell back until it left a vacant space where the water showed on the dry ground. This space I kept clear during the entire operation by the same means. Every now and then a new-comer would elbow his way through, cross the open space and appear in the door, but before his eyes could become accustomed to the dim light within, about half a pint of hot water would strike him amidship and he would disappear with much more celerity than he had appeared. Every few minutes this would be repeated, no one outside seeming to think it his business to warn the unsuspecting victim, though there was no mirth; not so much as a smile did I see on the face of any one. Even we three reserved our smiles for a later time.

As soon as we had succeeded in clearing a way for the light, the scrubbing was resumed, and when that was finished we found a row of bright-red spots extending from just above the ankle, up along the tibia. Passing the knee, it crossed more to the inside of the thigh and stopped below Poupart's ligament. The largest of these spots was three inches or more in diameter, and they nearly coalesced into a broad red band. There was little or no swelling. With a scalpel I made a small opening in the one highest up the leg. Pus gushed out; I put my knife in again and enlarged the opening to two inches. Instantly there was another cry and a fellow, whom I had not seen before, "lit" on my back from behind. I struck at him with my scalpel and, in his haste to get out of the way, he tripped and fell to the ground on his back. I stood over him and, in the most forcible Spanish at my command, threatened to cut out his heart, liver, and various other thoracic and abdominal organs, if he so much as raised a finger at me again. After this interruption, I resumed the operation, only stopping occasionally to douse some fresh victim with hot water. The abscesses all seemed to communicate, so I made an incision two or three inches long, broke up all the little pockets with my fingers, then left about an inch and made another incision, and so on the whole length of the leg.

During all this time the crowd outside was making remarks, none of them complimentary and some of them threats. "He is dead! he is dead! the English butchers have killed him!" "Kill the butchers!" and many other remarks not conducive to our ease or comfort. When the man attacked me, Dr. Doty advised that we abandon the operation until we could come with a guard of soldiers. But I did not see exactly how we were to get away. The people already thought the man was dead, and would be sure of it if we by any means tried to leave while he was in that condition.

Several times as we neared the completion of the operation an old man came in, felt of the patient's pulse, looked at his eyes, then went out again and announced to the crowd that the man was not yet dead, but he soon would be. The investigator was a different man each time and always an old one, seeming to think he was less likely to get scalded. By the time I was done operating, the street was full of people, probably two or three hundred of them; they were noisy and restless, and we were pretty well alarmed for our own safety. We discussed the situation and decided that we could not leave until the patient had entirely recovered from the anesthetic. Not wanting them to think that we were afraid to go, I proposed to occupy the entire time necessary for his recovery in putting on the dressings. The Doctor stopped the chloroform as soon as I was done cleaning out the abscess cavities, I packed them all with iodoform gauze, wrapped the leg in sterilized gauze, put on absorbent cotton and then, beginning at the toes, covered the whole leg with a broad bandage. This I wound on with more care than is taken in doing a laparotomy, winding a few turns at a time, unwinding and rewinding, until the patient had recovered sufficiently to talk. Then we laid him down in his place on the floor and allowed his friends to come in one or two at a time and talk to him. When they found that he was alive and his pain all gone, a reaction set in, the crowd became quiet and we prepared to go. First I called in his mother and gave directions for his care, and asked that some one be sent to my office in the evening to inform me of the patient's condition. Then we gathered up our things and walked through the crowd as unconcernedly as possible. They separated without a word and allowed us to go through. That evening a messenger came to say that the patient was doing finely and wanted his supper, which was proof to them that he would get well. I directed the messenger to come again in the morning, and when he brought the same message, I ventured to go. I called every day, and each day for a week had difficulty in entering the house, so many stopped me to apologize for their rudeness on the day of the operation. I took out the packing and thereafter irrigated and repacked every day until it was healed. At the end of a week the wounds were rapidly closing up. About this time the man who jumped on my back the day of the operation, watched the dressing and then told me that he once had one small abscess on his leg, that the doctor made a very small opening in it and it required six weeks to heal; in this case the openings had been made very large, but were nearly healed in six days. He said he was a brother of the patient and thought I was cutting more than necessary and that was why he attacked me, but he was sorry for it now.

The point where the infection gained entrance, I failed to find, but as they seldom bathe their feet they often have abscesses under or about the nails and very frequently the heels are fissured. In this case the infection probably entered some small injury to the toe, the original wound healing before any trouble was experienced. The greatest unkindness you can do a Peon is to give him a pair of American shoes. The probabilities are that he will put them on and wear them day and night, without removal, till they are worn out. They are in the habit of wearing only sandals, but I have had men come to me wearing American shoes and complaining of sore feet. On removing a shoe, I have found the entire foot macerated like a wash woman's fingers and an odor that is best left unimagined. In such cases I would direct soaking in hot soap and water for half an hour at a time

three times a day. This treatment and a return to sandals was effective.

It will hardly do to call a country uncivilized because a surgeon is molested in the discharge of his duties. The same things, or worse have happened here in Chicago and less than a quarter of a century ago. One of Chicago's old surgeons has told me of a time when a doctor was accompanied by a squad of police when he went to a factory or tenement to do vaccinations. This same surgeon was once called into a house, from the street, to see a man who was "dying." The doctor wore a high hat and carried a large operating case and was thus recognized as a physician by some one who ran out of the house looking for one of that profession. It was a thickly populated tenement house and neighborhood. He found an invalid on a bed and apparently dying of asphyxia. The man's dinner stood on a table by the bed and this led the doctor to think he was choking from a morsel of food. A hasty examination proved this to be the case but as he was unable to remove the food quickly, he took a scalpel out of his case and did a tracheotomy. The patient began to breathe and in a short time was out of immediate danger. Meantime the friends and neighbors, who had crowded into the room, saw with horror the stranger plunge his knife into the patient's throat. They instantly scattered leaving their friend in the hands of the doctor, and spread the report that a doctor had cut the sick man's throat and killed him. A cry for vengeance went up and by the time the doctor had removed the obstruction from the throat of he patient he found himself beset by an angry crowd bent on his destruction. He threw off his coat and taking a large amputating knife in each hand he offered with much energy and some profanity to disembowel all comers. The more aggressive who had gotten into the room were now only too eager to get out and a scramble through the door resulted, again leaving doctor and patient sole occupants of the room. The former kicked out a window and shouted lustily for the police. Fortunately an officer heard his shouts and hurried to his relief, but could not make his way into the house. While he went for help the doctor kept the mob at bay with his knives and a judicious use of his extensive vocabulary of profanity. It required the combined efforts of a dozen policemen to raise the seige and rescue him from his perilous position. But for the fortunate circumstance of his having his operating case with him, he would probably have been killed.

There are now districts in every large city in this country where a man would not be safe under similar circumstances. It has been but a short time since a man was shot and killed in Kentucky because it was thought that he might carry smallpox through a "shotgun" quarantine. I will guarantee that before twenty-three store "holdups" could be committed in the city of Mexico as has happened in Chicago the robbers would be shot and the epidemic stopped. Superstition and a fear of anything new or unusual or not understood is a thing of which no clime, country, or people can claim a monopoly. We can not afford to throw stones very vigorously yet awhile. . . . .

When the average man arrives in a foreign land with the intention of making it his home, he is very prone to find many things which need reforming and he may be sufficiently enthusiastic and guileless to embark in the undertaking.

Soon after my arrival in Mexico I noted one custom which needed reforming. As it related to the taking of medicine and as I was both a druggist and a doctor and dispensed my own medicine, I thought that no other could do it quite so well—indeed I, like the preacher, felt "called" to the work.

Medicines are prescribed and taken in doses ranging from a tablespoonful to half a cupful. Infusions and decoctions are much used and consequently popular. This was the custom which I set myself the task of reforming. In pursuance of this plan of reform I provided myself with a silver teaspoon which I purposed showing to my patients when giving directions so that there could be no mistake regarding the size of the spoonful directed.

The "reform" went along swimmingly till one day a man came in who was suffering from a distressing cough. I made up for him a two ounce mixture, each drachm of which contained—5 grains of muriate of ammonia; 1-16 of a grain of tartar emetic; 20 minims syrup of ipecac; 10 minims of tincture of squills and syrup sufficient to make up the teaspoonful. I directed him to take a teaspoonful every two or three hours till expectoration was free.

The next day I got on the train to go to a neighboring city. In the baggage and mail car there was a small room containing a desk and a cot for the use of the conductor. After the train started I went from the first class coach, through the second and third class coaches to the baggage car, into this room and lay down on the cot. I was just falling into a doze when the door opened and some one stepped in. I supposed it was the conductor and at first paid no attention to him. But as he stood still and did not speak, I presently looked up over my shoulder and there stood my patient of the previous evening. For a moment neither of us spoke, nor did he move, not so much as a cough escaped him. Then he shot out a hand toward me and in it was the bottle of medicine I had given him the night before, half an ounce, or less, of the medicine still remaining. Accompanying the gesture, he said, "see that?" I replied, "yes, that looks like the medicine I gave you last night." He said, "Yes, it is, I take one dose and now damn you, you take some," at the same time drawing from his clothes a "six shooter" and holding the muzzle two inches above my nose. I measured the "gun" carefully with my eye; it was about two or three feet long and had a bore about the size of my coat sleeve! I could look directly into the barrel and see that it was loaded to the muzzel with coupling pins and links and other railroad iron. Visions of coffins, graveyards and funeral processions passed dimly before my eyes, but whether the "gun" was loaded with them too, I did not know. Remembering that I belonged to an arbitration society, I was inclined to be conciliatory, so I said: "Certainly, I'll take all of it, if you like." Suiting the action to the word, I turned up the bottle, drank about a teaspoonful, smacked my lips and said: "That's all right; now if you take it according to directions it will cure you."

He took the bottle from my hand, put it in one pocket, the revolver in another and went out, Then I thought: He took one dose; in that he got at least $\frac{3}{4}$ of a grain of tartar emetic, 60 grains of muriate of ammonia, 4 teaspoonfuls of syrup of ipecac and 2 teaspoonsfuls of tincture of squills. That dose he took last evening at about 7 o'clock and then he was coughing very vigorously, this morning at 10 o'clock I did not notice him cough at all.

When a man puts his hand to the plow and the plow strikes a stump, sometimes it is better to turn back. From that time on I believed in large doses. Thereafter when a patient brought me a quart bottle for medicine and I wanted to give him eight doses, I put in the proper quantity of medicine, then filled the bottle with water and directed—eight tablespoonfuls every hour. . . . . .

One day I received a telegram asking me to meet a train and take off a sick passenger. I went to the depot and when the train arrived, the conductor stepped off and told me that one of the passengers had been taken with a fit and the train crew would like to be relieved of the responsibility of his care. I took the patient off the train and he was able to walk, with the assistance of two men, to the hotel which was a block away. They were obliged to stop frequently as his arms and legs would jerk in a way which was alarming to his conductors and to himself. After I got him in bed, I asked whether he had been taking any medicine. At first he said no, but afterward, recollected that he had taken a dose a short time before the "fit" came on. The doctor who had given it told him to take a teaspoonful. Having no teaspoon, he drank out of the bottle that amount, as he supposed. I looked at the bottle and estimated that he had taken about five drachms. He had taken but one dose and the bottle was full when given to him. The label informed me that each teaspoonful contained, among other things, 8 minims of Squibb's fluid extract of nux vomica. On the slightest movement his muscles would jerk and twitch in a most distressing manner. He said he had what seemed an uncontrollable desire to kick and strike and jump about in every direction and it was only by the exercise of all the power of his will that he was able to refrain from doing so.

I told him that his recovery depended on his ability to lie perfectly still. I gave him a sedative and he remained quiet but wide awake for six hours when he slept, and next morning was well.

REPORT OF A CASE OF COMPOSITE MONSTER—MONOMPHALIC ISCHIOPAGUS.

Read before the Chicago Pathological Society, June 8, 1896.

BY ELIZA H. ROOT, M.D.

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M. J., Swede, blonde, age 26; domestic; primipara; entered the Chicago Hospital for Women and Children, March 18, 1893. Last menstrual period July 7, 1892. Patient was delivered May 4, 1893, 301 days from the beginning of last menstruation.

On entering the clinic the patient was pale and passing albuminous urine with low specific gravity, in excess of the normal quantity in the twenty-four hours. Under treatment the albumin disappeared, to again return for two weeks preceding labor. The patient complained of the weight of the tumor and of pain along the line of Poupart's ligaments.

Examination. — Inspection found the abdominal tumor very large and prominent, abdominal muscles tense and the skin greatly stretched; size of pelvis normal.

Palpation discovered two heads in fundal zone of the uterus and to right of median line. The head of the posterior fetus lay deeply in relation to the anterior uterine wall. Back of anterior fetus easily followed to breech into the iliac fossa (left). Fetal heart sounds were heard above umbilicus, a little to left of median line. Second heart sounds not heard. Although polyhydramnios was present, the uterine contents were not freely movable, except the head of the anterior fetus and at no time could the extremities be determined. Internal examination found anterior vaginal fornix empty.

Diagnosis.—Twins; first, breech sacro-anterior; and second, breech sacro-posterior; both oblique (the vertical axis of the uterus in median line), with a provisional diagnosis of "something unusual, perhaps a double-headed baby." This last was made only half in earnest, for the idea of a composite monster had not taken serious hold upon my mind. On April 18, albumin reappeared in the urine; urine excessive in quantity, frequently amounting to 90 or more ounces in the twenty-four hours. The patient complained of feeling dull and weary. The tumor was very large and hanging well forward. The bowels were kept free with small daily doses of Epsom salts. Blaud's iron pill was given for the anemia. April 29, patient



FIG. 1.—Anterior view, with foot of posterior fetus in front.

restless and does not sleep well; excessive amounts of albuminous urine continues to pass. May 3, patient began to have slight uterine contraction-pains. During the night labor was established. As there was no progress made of the presenting parts, the pains being strong, the house physician called me to the hospital on the morning of May 4. I found the os well dilated, the membranes ruptured, and a presenting mass only partly engaged in the inlet. The examining finger found no feet, no namable part and slipped into a rather large orifice guarded by a border of loose folds. It was very evident my provisional diagnosis was more than true, and that I was confronted with a difficult and dangerous labor. Dr. John Bartlett kindly responded to my call for assistance. The patient was put to sleep with chloroform and the pelvis explored. which confirmed the diagnosis of double breech presenting. Pains continued strong and we proceeded to deliver. The obstetrics of the case is of considerable interest. Given a square mass present-

ing, the feet not being found, it was fair to assume that the legs were extended, giving in each a breech presentation of the incomplete variety. The application of forceps proved useless, and further examination found the right limb of the second sacro-posterior fetus resting transversely upon the anterior ramus of the pubis (see photo. Fig. 1), the hip caught above the brim and preventing descent. All efforts to push the limb out of the way were fruitless as it had become firmly impacted between the fetus and pelvic brim.

The posterior limb of the first sacro-anterior fetus was seized and brought down giving some increase of space and a handle for traction. Descent was still unsatisfactory, and another limb, the posterior limb of the second sacro-posterior fetus was with difficulty brought down, but securing more space, partially breaking the wedge and giving an added means for traction. To and fro movements with strong traction upon the disengaged limbs brought the double breech well into the pelvic cavity.



FIG. 2.—Left lateral posterior view, approximating true position in utero. 1, first sacro-anterior; 2, foot of posterior fetus; 3, second sacro-posterior.

Advancement was now progressive though slow and difficult. The finger could now be hooked into the groin of the transversely lying limb of the second sacro-posterior fetus. This limb was now gradually pushed upward by the descent of the mass and became extended parallel to the trunk of fetus, which with the remaining anterior limb of the opposite fetus acted as a splint, making the crossing of the pelvis and advancement into the axis of the outlet extremely difficult.

At the expiration of two hours our combined efforts brought the double breech, partially rotated into the vaginal opening. The two unborn limbs were disengaged and the true nature of the deformity became evident.

As advancement of the two trunks together would further complicate labor by bringing the two heads face to face into the inlet the two bodies were separated at the pelves. The now second sacro-anterior fetus was brought down and passed the now first sacro-posterior fetus until the nape of the neck could be reached for decapitation. Delivery was soon completed without hemorrhage. Traumatism of cervix and vaginal walls was considerable; the perineum was ruptured and repaired with sutures of silkworm gut. The placenta came without difficulty and weighed 3½ pounds. Aseptic occlusion pad was applied to vulva and the patient put to rest greatly exhausted; pulse 150; temperature 100.6 F.

Morning of May 5, temperature 98.6, pulse 126. Evening of same day, temperature 99.6, pulse 90. Patient could not move her lower extremities and the urine escaped without the patient's knowlege. Albumin in the urine abundant.

Recovery was uneventful though slow, the temperature rising on May 7 to 100.4 with slight headache, pulse 100. May 23, urine normal in amount for the twenty-four hours with only a trace of albumin, patient anemic. June 24, the patient left the hospital in fair health. Traumatisms healed by granulations. The fetus, female, combined weight 11½ pounds, of nearly equal size and perfectly developed to the umbilicus. Celosomic; the liver of the second sacro-posterior fetus small and deformed, protruded into a sac formed of part of the transparent membrane enclosing and common to both abdomens.

Umbilical cord eighteen inches in length; "fat," was attached to the abdomen of the second sacro-posterior fetus at or near the outer angle of the abdominal junction, which formed a sharp groove similar to that formed in a dress shield, and on the margin of the incompleted abdominal wall. At the umbilical site of first sacro-anterior fetus was an anus-like opening guarded by a few scattering stiff and short hairs resembling the rictus bristles of a bird. This proved to be the opening of the urachus, developed and serving the purpose of a urethra, there being no urethral opening in the natural or normal situation, the bladder ending in a blind pouch, the bladder receiving two ureters in a normal manner, one from a kidney of each fetus. There was only a vaginal orifice unsphinctered and guarded by a loose fold of tissue bearing little or no resemblance to normal structures. Vaginal canal large and received the single cervix of a two-horned uterus; ovaries and tubes normal; kidneys two in number, right kidney normal in size and location, left lobulated and situated in the hollow of the sacrum; second sacro-posterior fetus possessed three kidneys, the left situated lower than normal, while a second rested upon the promontory of the sacrum to the right of its median line, its convex outer border looking to the left as if a left kidney had slipped down from its place. The third and right kidney was undeveloped, with a helix that received blood vessels but gave off no ureter. The bladder received two ureters, one from a kidney of each fetus as in the preceding case. The meatus urinarius opened normally into a fairly developed vestibule that is guarded by two folds. Nymphæ minoræ that hooded a well developed clitoris. The labia majora are loose rudimentary folds bearing some resemblance to the normal structures. The vaginal canal is large, and receives a double cervix of a two-horned uterus, but one cervical os. Ovaries and tubes are normal. In both cases the ovaries of each uterus rested, one in the pelvic cavity of one fetus; its fellow in pelvic cavity of the opposite fetus. Both uteri were two-horned. The bladders are located in front

of the uteri and the rectum descended between them in relation to the posterior surface of each.

Intestinal canal: Small intestines in two sets, one for each fetus. Until near the cecum they united forming a large intestine or colon; sigmoid flexure and rectum common to both.

The appearance of the external parts are peculiar. The coccyx of each protrudes, forming a process about the size of a filbert. In normal relation to each is an anal depression or pit, directly between which is located a perfect anus common to both children. To the right and left of the perfect anus are the rudimentary pudenda. The extremities, upper and lower, are well developed and the heads well shaped.

DISCUSSION.

Dr. JOSEPH B. DELEE—This is a very interesting and unusual monster, the termination being favorable to the patient. When we consider the immense amount of dystocia monsters like this can cause, and the difficulties attending diagnosis and treatment, we can not but congratulate the Doctor. It is a peculiar fact that double monsters are said to cause much less dystocia than single ones. Professor Hohl in 1850 collated the statistics on the subject and found that 55 per cent. of single monsters caused dystocia, while only 38 per cent. of double monsters caused it. One reason is that single monsters are so likely to have displacements, such as traneverse and other positions, and a large number of this class of monsters is due to hydrocephalus and enlargement of the abdomen or other cavities. Whereas double monsters will abort frequently, single monsters go to term. I remember in Berlin to have seen an abortion of three months in which there was a perfect miniature representation of the Siamese twins. The two fetuses were united together at the xyphoid appendix. In regard to the diagnosis of the double monster, there is hardly a case in which a diagnosis of it is positively made before labor. The majority of cases have gone to labor, and only when there has been obstruction has a diagnosis been made. Even then, a number of cases are difficult to diagnose, particularly where there are twins, one across another, or the two heads entering the pelvis at once or two breeches. In a single monster the diagnosis is easier. I have seen a diagnosis made of anencephalus through the abdomen by determining the breech in the fundus and no head over the inlet.

The Doctor has dealt with the division of monsters largely from a pathologic aspect. What has interested me in studying double monsters is the clinic aspect, because it is more important to the practitioner. G. Veit has written a monograph on the subject. He divides monsters into three forms. First, those where fission begins on top. The top of the monster is divided into two parts, either two heads or two faces stuck together, or the division proceeding further down, so that there are two complete heads with either one or two arms on each side. The second division is monsters united by fusion: Craniopagus, either front or back, vertex or face, ischiopagus. I think the Doctor's case was an ischiopagus in which there was dystocia of a double monster. Being united end to end, the children should have been delivered one after the other but for some reason they became doubled up like an U and thus offered almost insuperable obstruction to labor. The third division comprises monsters with a point of union near the middle of the trunk. The fission is both from below upward and above downward. Example, the Siamese twins.

In the treatment of this form of dystocia the plan works nicely also. First group, fission at either end, for example, a diprosopus (two faces). Here you would do a version or craniotomy, it being simply the size of the part causing a mechanical disturbance. In general, breech presentation is more favorable in labor with monsters, because there is something to pull on. The second division of the first class, where the fission is from below, the dipygus, there being two to four legs. In general, traction on one or two legs will not bring the others down; you must get all there are and make traction on them.

The second class of monsters, where the bodies are joined end to end, seldom give trouble, as they slip through as a long cylindrical mass. This was the case of the ischiopagus monster exhibited in the museums here about six years ago.

The third division, the thoracopagi, the xiphopagi, give the most trouble. Since the band of union is often very movable it is possible to deliver one child by version and extraction and then the other likewise. Or in certain cases, bring down all four extremities, now deliver the rear child, then the other. Generally, it is a bad plan to amputate the parts which are born; true you get more room, but it disturbs the relations of the parts and you lose a good handle on which to make traction.

PRIMARY SARCOMA OF THE TAIL OF THE PANCREAS.

Read before the Chicago Pathological Society, June 8, 1896.

BY FRED. J. E. EHRMANN, M.D.

LATE HOUSE PHYSICIAN COOK COUNTY HOSPITAL, CHICAGO.

Sarcoma has been found in almost all parts of the human body where mesoblastic tissue occurs. The frequency of its place of origin, however, varies greatly so that sarcomata in some locations are common, in others almost unknown. Thus primary sarcomata of the bones, eye, kidney, glands, brain, etc., occur with relative frequency, but primary sarcoma of the pancreas, for instance, is very rare. This statement is substantiated by our best known writers, some of whom emphasize their rarity; others make no reference to primary pancreatic sarcomata at all. Thus Ziegler[1] writes that such growths are extraordinarily rare and Orth[2] says that primary sarcoma of the pancreas is almost unheard of.

To show the relative frequency of tumors of different varieties occuring in the pancreas, I may refer to Segrè's[3] table of 11,492 autopsies with 132 pancreatic tumors, of which 127 were carcinomata, 2 were cysts, 2 were sarcomata, and 1 a syphilitic growth. Segrè fails to state, however, whether the sarcomata were primary or secondary.

Some of the reports leave doubt as to the real nature of the tumor. Thus E. H. Bartley[4] reported a case in 1880 of a patient who had vomited after meals, complained of pain in the epigastrium and emaciated rapidly. The tumor was "a spindle-celled growth, probably a carcinoma of slow growth, a scirrhus cancer, or possibly a spindle-celled sarcoma." Bruen[5] in 1883 and C. Workman[6] in 1892 described tumors of the pancreas, leaving doubt as to their real pathologic nature.

In 1883 Chiari[7] reported a fair-sized sarcoma of the pancreas, but considered it secondary. The patient was 43 years old, and the tumor is described as "a globular tumor in the head of the pancreas, soft, fragile, brownish-black, within a 2 mm. thick capsule through which the tumor-mass protruded here and there. There was also a brownish tumor in the omentum, in the fossa iliaca sinistra, and in the left eye, which probably was the primary tumor." Microscop-

1 Ziegler: Lehrb. d. sp. Path. Anat. 1892, 619.
2 Orth: Lehrb. d. sp. Path. Anat. 1887. i, 904.
3 Segrè: Schmitts Jahrb., Nov. 15, 1889.
4 Bartley: Annals Anat. and Surg. Soc. 1880, ii, 495.
5 Bos. Med. and Surg. J., 1883. cviii, 110.
6 Glasgow M. J., 1892, xxxvii, 385.
7 Virchow: Hirsch Archiv, 83, ii, 211.

ically the tumor consisted of spindle cells with brown pigment.

Litten[8], however, is the first one to report a primary sarcoma of the pancreas. This occurred in a boy 4 years of age, who complained of tenderness over the abdomen and occasional diarrhea. On examination a tumor, which filled the entire abdomen, was visible through the abdominal wall. Nothing is said of the exact location in the pancreas of this tumor. Microscopically he found a small, round-celled sarcoma.

In the following year Briggs[9] reported a case where bloody vomit, fatty stools, emaciation, ascites and a fixed epigastric tumor existed. The ascitic fluid was alkalin, turbid dark brown, of 1012 sp. gr. The pancreas, which was removed by operation, was examined with the following result: "A sarcoma, although there is evidence of a preëxisting hydatid shown by the hooklets of the affection, with the cells of a spindle-celled sarcoma." In 1892 Garda y Mansilla[10] also reported a sarcoma of the pancreas.

Of these seven cases the diagnosis is exceedingly doubtful in three; in the remaining four sarcomata existed and of these two were primary, one possibly primary and one secondary.

It will have been noticed that where the location of tumors has been specified the head of the pancreas was their seat. The case of which I make a report is a round-celled sarcoma of the tail of the pancreas. The history is as follows:

A. G., a German widow, 56 years of age, a washerwoman, resident of the United States for thirty-two years; had had a sense of weight in her epigastrium, frequent attacks of anorexia and occasional dyspnea for two years. Weakness gradually progressed so that she had been almost completely incapacitated for work some months before her admission to the hospital, on Sept. 15, 1895. Three weeks before admission a dull, continuous pain began in the epigastrium accompanied by a slight cough with frothy expectoration, a dull pain over the anterior surface of the chest, aggravated on deep inspiration, constipation, pollakiuria and dysuria.

The family history was negative. She had had typhoid fever twice. She had given birth to three healthy children; never had a miscarriage nor any puerperal fever.

The examination made the day following the day of admission, showed the following: Mind clear; skin dry and subicteric; nourishment fair; eyes sunken, pupils equal and reacting to light and accommodation; tongue heavily coated with somewhat dry margins.

Heart: Apex beat plainly visible in the fourth interspace, somewhat to the right of the left mammary line; the beat fairly strong on palpation. The right border of the heart was at the middle of the sternum, the upper border in the second interspace, the left border at the mammary line. The sounds were muffled, but no murmur could be heard.

Lungs were resonant and the breath sounds audible all over, except below the ninth rib posteriorly on the right side. There were few crepitant râles in the axillary region of the left lower lobe. The epigastrium was more prominent than normal and quite tender.

Liver extended from fifth rib to a point four finger breadths below the costal arch in the right mammary line, and reached beyond the left mammary line to the left. Palpation revealed a hard, nodular border near the right iliac crest, whence it could be followed to a point about an inch above the umbilicus, where a large notch was present. From this point the border descended to the left to a level with the umbilicus and continued on this level beyond the left mammary line. The entire margin moved with inspiration. Beneath this edge to the left of the umbilicus there was a distinct, firm, tender mass, about the size of a chicken's egg, which did not descend on inspiration and could not be displaced upward.

The bones of the body were negative. The glands of the lymphatic system were not enlarged and no edema existed.

On admission the temperature was 100.6 degrees F. and four hours later reached the highest point recorded, 102.8 degrees. The respirations varied from 30 to 36 and the pulse from 96 to 120. Preceding her death, which took place on Sept. 25, 1895, the temperature became subnormal. No sugar was found in the urine and the feces were never examined.

The postmortem examination was made sixteen hours after death. The body was fairly well nourished; skin subicteric; there was the usual posterior lividity in moderate degree.

The heart was larger than its owner's fist and flabby; subepicardial fat was abundant on the anterior surface and along the course of the vessels petechiæ were to be seen. The mitral orifice admitted three finger tips, the tricuspid four. Both semilunar valves were found competent to the water test. The free margins of the aortic valves were thickened. The left ventricle was 7 cm. deep and its wall measured 1.5 cm. in thickness on the average. The right ventricle was 8 cm. deep and its wall averaged a thickness of 3 mm. The myocardium was pale. The aorta was slightly dilated, the intima thickened in areas.

The pleural cavities were free from adhesions. The right contained about 6 ounces of clear, straw-colored fluid. On the visceral pleuræ of both lungs there were quite firm, whitish areas of about 2 mm. diameter. The lungs had pale, translucent margins and contained a quantity of frothy fluid. The right lung was adherent to the pericardium.

The peritoneal cavity contained a considerable quantity of straw-colored fluid. The peritoneum was smooth and shiny.

The liver reached almost to the right iliac crest and almost to the umbilicus in the midian line. It weighed 5590 gms. It measured 35 cm. from right to left; the right lobe measured 32 cm. from above downward, while the left measured 22 cm. The liver was 13½ cm. thick. A deep and wide furrow extending transversely over the anterior surface of the right lobe permitted of great mobility of the lower one-half on the upper. The surface of the liver was grayish and was studded with slightly raised, firm areas, varying from the size of a pea to that of a walnut. Similar areas were found throughout the parenchyma of the liver; some were pale and hard, others had a dark periphery and a softened, pale center and all could readily be peeled out.

The stomach was completely covered by the liver. At the cardiac end it was adherent to a tumor-mass behind and below it. Its wall was not infiltrated as far as could be seen with the naked eye, and its mucous membrane was normal. The intestines were normal.

The tail of the pancreas merged into a tumor-mass situated in the region of the left suprarenal capsule. After the organs of this region were taken out *en masse* it was found that the kidney, suprarenal and spleen could be readily and completely removed. The tumor was nodular, measured 7 x 7 cm. and was quite firm. The cut surface showed a pale lower half which was distinctly continuous with the pancreas; the upper one-half was of a pinkish color. The spleen was negative.

Both kidneys were of about normal size; the capsules were adherent; the cut surfaces were pale and the cortical markings were indistinct. The renal pelves, ureters, bladder and suprarenal capsules were normal.

The uterus had a pedunculated, pea-sized body protruding from the os, which was connected with the cervix. The ovaries were hard and almost cartilaginous. The nervous system was not examined. Enlarged glands were found at the celiac axis.

The anatomic diagnosis was: Pulmonary emphysema and edema; fatty heart; atheroma of the aorta; adhesive pleuritis; chronic nephritis; uterine polypus; atrophic ovaries; primary tumor of the tail of the pancreas; secondary tumors of the liver and pleuræ; secondarily enlarged celiac lymphatic glands.

The microscopic examination showed the tumor in the tail of the pancreas to consist of small round cells without any definite arrangement, imbedded in a stroma which in places was very finely fibrillated, in others more coarse and fibrous. There were large vascular channels and areas of hemorrhage throughout the tumor. The nodules in the liver and the pleuræ showed the same structure.

Conclusion: In the foregoing has been described a small round-celled sarcoma of the tail of the pancreas with secondary tumors in the liver. It is believed that the primary tumor originated in the substance of the pancreas, because of the intimate connection between the pancreatic tissue and the tumor, which appears to be continuous with and to replace the structure of the pancreas. The tumors in the liver and pleuræ were manifestly metastatic and

[8] Deutsche Medizin. Zeit. Oct. 22, 1889.
[9] St. Louis M. and S. J., 1890, lviii, 154.
[10] Garda y Mansilla: Progresso med. e farm., Madrid, 1892, i, 77.

the logical conclusion would be that in the absence of any other primary tumor-focus this case will have to be interpreted as one of primary sarcoma of the pancreas.

On account of this very unusual location of the sarcoma, it was concluded that the case merited the forgoing brief report.

LIPOMA DEVELOPED IN THE UPPER END OF THE SEMITENDINOSUS MUSCLE.

Read before the Chicago Pathological Society, June 8, 1896.

BY GEORGE H. WEAVER, M.D.

Professor of Pathology Northwestern University Woman's Medical School; Instructor in Bacteriology Rush Medical College, Chicago.

CHICAGO, ILL.

This specimen is presented, not because of its being a lipoma, but since it is interesting from its location and considerable size. There is no clinic history of the case and the tumor was discovered accidentally in a subject in the dissecting room of Rush Medical College during the winter of 1893. A student called my attention to a swelling in the upper and posterior part of the thigh of a male subject, which he had not noticed until after the removal of the integument. As it appeared with the covering of fasciæ an abscess was suspected. There was a sensation on palpation suggesting fluctuation, which was felt transversely through the tumor, but not in the vertical direction. On dissecting down to the tumor it was found to be located in the semitendinous muscle at its upper end, extending from the insertion of the tendon to the tuberosity of the ischium downward. The muscle separated easily and naturally from the surrounding structures. The tumor was oblong, five inches long and three inches in diameter transversely at the center. Its surface was smooth and even, and covered everywhere by the fibers of the tendon and muscle, which had been uniformly spread out over the surface. On section it was found to be a lobulated lipoma. A small calcareous nodule was located in the upper part at some distance from the bone. Ziegler (Lehrbuch der Speciellen Pathologischen Anatomie, Jena, 1890) places lipoma of muscles among the uncommon tumors. Sutton (Tumors, Innocent and Malignant, 1893, Philadelphia) says that many examples of fatty tumors occurring in the midst of muscles have been reported and are of interest from the trouble they cause in diagnosis. He says they have been found in the deltoid, biceps, humerus, complexus and rectus abdominalis, in the muscular tissue of the heart and in the middle of a submucous myoma of the uterus. Senn (The Pathology and Surgical Treatment of Tumors, 1895, Philadelphia) says that lipoma inside the tendon sheath springs from the adipose tissue of the mesotendon, and that it usually develops as a multiple tumor which presents an arborescent appearance and is easily mistaken for tuberculosis of the tendon sheath and for flexiform neuroma. The present instance does not correspond to the variety described by Senn, and does not differ in its appearance from a lobulated lipoma in the subcutaneous tissues. From its deep location and the sensation of fluctuation imparted to the fingers on palpation, it might readily have been mistaken during life for an abscess.

Chair of Massage.—The *Progrès Méd.* mentions as a fact unique in Europe that the University of Berlin has created a professorship of massage and orthopedia.

THE DEGENERATE JAWS AND TEETH.

Read in the Section on Neurology and Medical Jurisprudence, at the Forty-seventh Annual Meeting of American Medical Association, held at Atlanta, Ga., May 5–8, 1896.

BY EUGENE S. TALBOT, M.D., D.D.S.

FELLOW OF CHICAGO ACADEMY OF MEDICINE.

(*Concluded from page 1202.*)

Modification of the V-shaped arch results from modification of the above named conditions. A difference in the time of eruption of the cuspids, everything else being equal, effects a difference in the space left for their accommodation and thus partial V-shaped arches (Fig. 55) are found. The keystone, the cuspid, is not entirely outside or inside of the arch in the partial V-shaped form, but may appear partially crowded out of place. Hence, the arch is neither a normal curve nor wholly angular, but unites the characteristics of both. Its lateral diameter is less than that of the normal arch, giving a contracted



Figure 55.

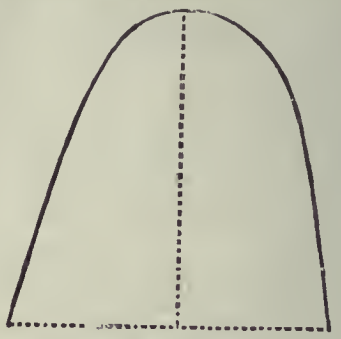


Figure 55.

appearance. Thus a number of varieties of the fundamental forms of the V-shaped arch are formed differing in degrees of anterior contraction. All of these result from the comparative thinness of the anterior portion of the process offering but little resistance, an abnormal pressure from behind, and the greater strength of the cuspids which cause them to seek room irrespective of the space left for them. When one side of the process near the symphysis is the stronger, thus affording greater resistance, or the pressure from the cuspid is less, that side may maintain its normal relations, while the other may give way to conditions resulting in a V-shaped contraction. The curve will then be broken not at the apex of the triangle, but near it, the incisors will overlap, and when pressure from the cuspid acts on the weaker column it must give way. This results in the semi-V-shaped form (Fig. 56). When the permanent bicuspids erupt under a favorable condition, so that their greatest diameter is in a line with the greatest

diameter of both cuspids and first molar they will be held firmly in place since the greatest pressure is on this very line. On the other hand, when the bicuspids are erupted after their proper time while the cuspids progress duly, the cuspids, meeting with no resistance, fall into their proper places, but the bicuspids adapt themselves as best they can to the space left for them, and if the arch of the maxilla does not coincide with that of the crowns they must fall within or without the arch. Now if the first molar has moved forward, diminishing the space, the bicuspids must erupt either within or without the arch.

To understand why they are generally found within the arch the shapes of the molar and cuspids must be kept in mind. A transverse section of their crowns shows their proximal walls not to be parallel but wedge-shaped, their diameter being greater on the buccal than on the palatal side. When the crowded bicuspid falls within the greatest diameter



Figure 56.

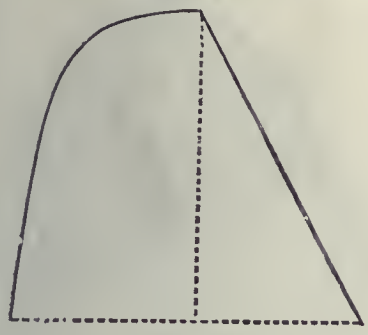


Figure 56.

of these teeth, finding more room within the arch, they naturally slip in the direction of least resistance, *i. e.*, toward the palate. A local cause for the same condition is found in the fact that the crowns of the bicuspids before their eruption are held between the roots of the temporary molars, and as these form an arch of a smaller circle than that of the permanent teeth, the bicuspids will be found generally inside the arch. From both causes we have an inward curvature which we term the saddle-shaped arch (Fig. 57). It should be noted here that while the V-shaped irregularity is found anterior to the cuspid, the upper incisors are always projecting beyond the lower, the saddle-shaped irregularity is invariably posterior to the cuspid and the bicuspid form an inward curve. The incisers never project. Both forms contract the arch, the V-shaped anteriorly, the saddle-shaped posteriorly. In both forms the forward movement of the first molar is the local cause. When the unfavorable conditions that result in the saddle-shaped arch are not so pronounced we have the partial saddle-shaped arch (Fig. 58). Thus because of the greater uniformity of the maxilla and of the arch of the crowns there may be more space and the bicuspids may be forced but little out of place, or the molar may move forward but slightly, interfering less with the bicuspids. Sometimes it happens that in trying to adjust themselves to the limited space one bicuspid may be crowded outward and another inward. Sometimes the first bicuspid is in, more frequently the second. As has been stated before, this ought not to take place if the greatest diameter of cuspids, bicuspids and molars were in the same line, but the diameter of one of the bicuspids may be in a line with that of the adjoining tooth while that of the other is not, and then one is pressed along the line of the least resistance. As in the case of the V-shaped arch one side of the mouth may be normal because of the absence of any local condition interfering with the space.



Figure 57.



Figure 57.

One temporary molar may have been extracted, allowing the permanent one to move forward while the other remains in place. The result which follows is an asymmetry of lateral halves termed semi-saddle-shaped irregularity (Fig. 59). How the V-shaped and saddle-shaped arch on one side only may be produced has already been described. How they may be combined on one side remains to be explained. Given thinness of process in the interior part of the mouth, premature or tardy extraction of the cuspid and there will be a forward movement of the incisors. The development of the cuspid will press the alveolar process inward, thereby contracting the arch and the tardily erupted bicuspids will adjust themselves to the limited curve, as before stated. In this way the features of the two forms are combined, that is, a contracted or angular anterior arch and a posterior arch that is more or less concave. The opposite side may be V-shaped, saddle-shaped or normal (Figs. 60 and 61). Deformities of the dental arch are due first to

arrest of development of the jaw and, second, in the nature of the deformity to the order of eruption of teeth which rarely erupt (twice alike) is always local or mechanical. From an evolution standpoint these deformities are atavistic. The V-shaped reverts

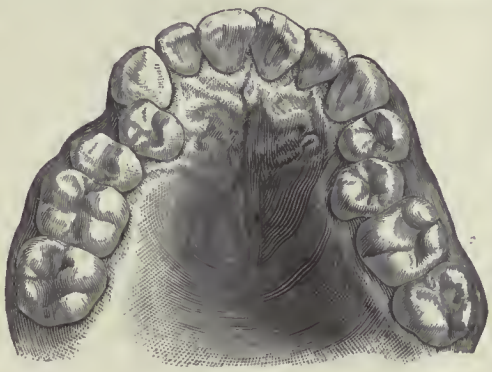


Figure 58.



Figure 58.



Figure 59.

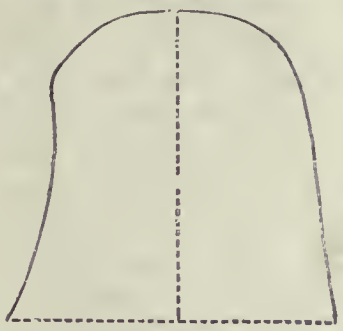


Figure 59.

to the reptilian type. The saddle-shaped to the mammalian. Dr. W. C. Barrett of Buffalo has frequently called attention to the shape of the anthropoid arch. In the gorilla, the nearest to man in dentition, there is a very distinct approach to the saddle shape. In the chimpanzee it remains. The orang-outang exhibits a less tendency. The arch of some of the cebidæ very nearly approaches man. It all depends upon the extent of prognathism. When that is reduced the arch appears, and rectangular arrangement of the



Figure 60.

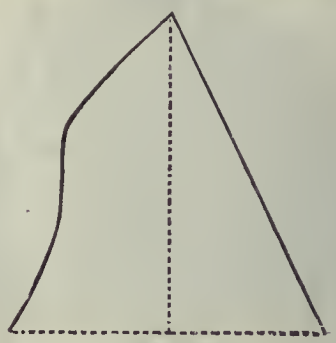


Figure 60.

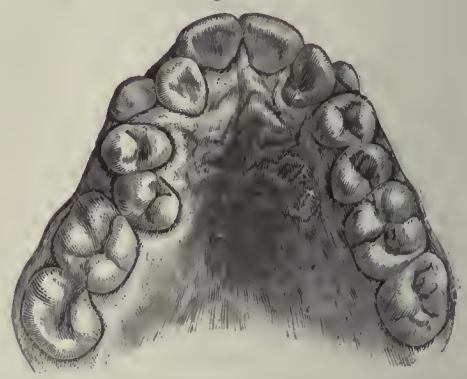


Figure 61.

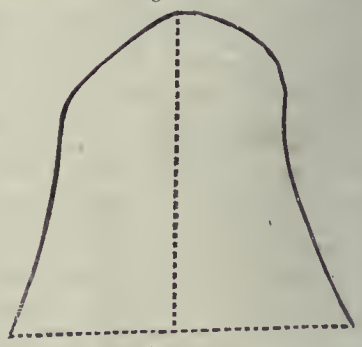


Figure 61.

teeth is lost. Most carnivora exhibit a distinct approach to the saddle shape. Some felines have a shortening of the jaw partially obliterating the tendency, but in most canidæ it is quite marked. From the standpoint of comparative anatomy, Dr. Barrett

is of opinion that the tendency toward the saddle-shaped arch is a reversion to earlier form.

These are facts which can not be overlooked, since from the very nature of development and eruption of the teeth they can not take any other form. The arrangement of the crowns of the cuspid (canine) in the jaw before eruption is such that no matter what the local condition of the jaws or teeth may be, the V or saddle-shaped dental arch must be produced.

In no symptom is degeneracy as evident as in the stigmata resultant on hypertrophy of the alveolar process. This occurs at all ages, but more particularly at the period of development of the permanent set of



Figure 62.

teeth. The entire alveolar process may become involved (Fig. 62), or only a portion (Fig. 63).

Hypertrophy of the alveolar process is the result of irritation incident upon eruption and the shedding of



Figure 63.

the temporary teeth, and eruption of the permanent teeth.

Laryngologists, rhinologists and neurologists claim that certain vaults are deformities, when in reality the alveolar process had hypertrophied.

The jaws, as a whole, owing to an unstable and unbalanced nervous system, are liable to become excessively developed as well as arrested in development. Excessive development of the superior maxilla is evinced by a fullness of the upper lip. In these cases the upper maxilla is too large for the lower and stands out beyond it. The lower may be quite normal. When there is simply a want of proportion between the two jaws it is due to the diminutive or excessive size of one while the other is normal. The criterion in these cases must be the facial angle. The upper jaw is usually in harmony with the skeleton, while the lower jaw depends for its size largely upon function, its size being the result of accident rather than design.

When the upper jaw is normal or smaller than the lower, the extent of its posterior portion is determined by the occlusion of the first permanent molar, which keeps the alveolar process in permanent relation to each other at this point and allows freedom of development in front. If the occlusion is not normal, the upper jaw and alveolar process will develop laterally as well as anteriorly.



Figure 64.



Figure 65

The teeth of the anterior columns may either stand vertically or they may be turned in toward the lower incisors. The latter defection is produced by the action of the lips. When the cuspids are in their normal position, the upper incisors form a larger arch than the lower, and this permits of their being turned inward, but when the cuspids have moved so far forward that they are not normally interlocked with the lower teeth, the incisors are too crowded to permit this. While the jaws are growing smaller the teeth tend to cause reversion to the original form.

Arrest of development of the superior maxilla is always associated with marked depression at the alæ of the nose producing the appearance of having been

hollowed out from a point at the floor of the orbit to the grinding surface of the lower teeth (Fig. 64). This is the most common type of degeneracy among criminals, and has frequently caused the error of assuming excessive development of the lower jaw, which is normal. And the seeming excess is due to arrest of development of the upper jaw. The lower jaw has in the scale of light gradually grown smaller. Even in some apes it is still large. The changes which have resulted in the negro jaw strikingly illustrate this alteration in size. The lower jaw of the early negro in the South was unusually large. The intermixture of white blood has decreased the size of the jaw until, where there is but a slight admixture of negro blood, the jaw is as delicate-shaped as that of the whites. Prognathism of both jaws of the negro arises from the fact that as the lower jaw is much larger in proportion than the upper, the force exerted by the lower against the upper carries the alveolar process and teeth in their formative process forward. This gives prominence to both upper and lower jaws, and its existence is easily demonstrated by examination of our large collection of negro skulls. In the evolution of the race the lower jaw becomes smaller and harmony results in form and size.

Arrest of the lower jaw (Fig. 65) is common among degenerates. This consists of a shortening of the body. Sometimes it is arrested to such an extent that there is apparently no chin. About 50 per cent. of criminals at Elmira, N. Y., had this deformity.

The following table shows the number of deformities of the jaws and teeth among some of the degenerate classes:

	Jaws.										Teeth.			
	Number examined.	V-shaped.	Partial V.	Semi V.	Saddle.	Partial Saddle.	Semi-saddle.	Normal.	Arrested development.	Excessive development.	Irregular.	Tubercles of teeth. Present.	Tubercles of teeth. Absent.	Regular.
Criminals at Pontiac, Ill.	465	75	71	3	66	63	16	171	. .	. .	123	13	452	342
Criminals at Elmira, N.Y.	1041	381	49	1	157	26	. .	422	. .	. .	220	26	1015	821
Criminals at Joliet, Ill. . .	468	13	79	19	59	92	24	163	. .	. .	. .	. .	. .	. .
Prostitutes at Chicago Bridewell. . .	30	10	17	7	27	10	10	. .	1	. .	. .	. .	. .	. .
Insane at Dunning, Ill.	700	26	47	. .	12		. .	486	. .	. .	. .	. .	. .	. .
Insane at Kankakee, Ill. . .	613	69	107	29	89	105	61	153	. .	. .	. .	. .	. .	. .
Idiots, Imbeciles	1977	129	236	. .	207	. .	. .	1095	. .	. .	. .	. .	. .	. .
Deaf and dumb.	1935	169	192	. .	208	. .	. .	901	. .	. .	. .	. .	. .	. .
Blind.	207	7	9	. .	11	. .	. .	105	. .	. .	. .	. .	. .	. .
Inebriates[11] . .	514	1.5	24.4	0.3	9.3	13.2	7.7	25.4	. .	. .	. .	. .	. .	. .

[11] Per cent.

In conclusion, it may be mildly stated that if all structures are so affected as to cause harmony in all the parts, advance in evolution is going on, but if such conditions exist as noted above, degeneracy is resulting.[12]

[12] The illustrations for this article are taken from the following works: The International Dental Journal; The Dental Cosmos; Diseases and Injuries of the Teeth (Morton and Smale); The Osseous Deformities of the Head, Face, Jaws and Teeth (Talbot), with a number of original cuts.

Iridectomy in Russia.—Out of the 27,966 patients treated at the Kasan Eye Clinic during the last ten years, there were 769 cases of glaucoma. Iridectomy was performed in 189 cases. The sight remained unchanged by it in 56 per cent., was improved in 25.4 per cent., and grew worse in 18.6 per cent.

SELECTIONS.

Hemiplegia Following Typhoid Fever.—Dr. W. H. Haynes of Brooklyn, contributes to the *Bulletin* of the Johns Hopkins Hospital a case of this rare complication: F. L., aged 30, single, and a railroad switchman by occupation. His family history is unimportant and he had no illness, except a gonorrhea, till October, 1895, when he had an attack of typhoid fever, lasting twenty-one days, during the course of which his temperature rose as high as 105 degrees F., attended by delirium. On the fourteenth day his mother, who was nursing him, noticed that he did not move his left arm and leg as much or as well as the other, and that they felt dead and cold. When he began to get up he could not stand on account of the weakness (he termed it) of his left leg. Both upper and lower extremities felt numb. Face and speech not at all affected. No loss of sensation. Nearly entire loss of motion of upper extremity, but not so profound of lower. He remained in this condition for a couple of months, when improvement began, first noticeable in the leg, which became strong enough finally for him to stand upon and then to walk. He is a man of short stature, weighing 133 pounds. Face and speech show no lesion. Left upper extremity shows marked atrophy, with half the power and motility of the right; can use it to help dress himself, but not to carry anything. When he tries to raise up the elbow, suffers pain running down the outside of the arm from the shoulder and the elbow. No loss of sensation or of heat or cold. No dragging of left lower extremity, which is only slightly atrophied, with no loss of motion or sensation; only he says it gives out quicker than the other. Tendon reflex at knee more marked than on right limb. General health is good. Heart and urine normal. Electric contractility of upper extremity diminished. This case differs from the others reported as occurring in the left side instead of the right (he is a right-handed man), and there were no convulsions, aphasia or facial paralysis, but agrees with their subsequent history of slow repair.

Congenital Absence of Thymus; Autopsy.—Dr. A. Clark, in London *Lancet*, October 17, reports a case of absence of the thymus gland in a male infant eight months old. The child was apparently well at birth and did not begin to sicken until about the sixth month of its age, when coldness and swelling of the extremeties and a tallowy complexion made their appearance. The swelling gradually increased and spread in spite of diuretic and tonic treatment until the eyes were almost closed and hands, arms, feet and legs were so distended with fluid as to feel like a firmly stuffed cushion. Two symmetrical ecchymoses, one of the inner side of each supra-clavicular fossa and about the size of a florin, appeared. The temperature remained normal and the pulse and respiration grew weaker as death approached, but were in no way remarkable.

Necropsy.—At the necropsy, made twelve hours later, I found the right kidney healthy. The left was about twice the size of the right, and its pelvis and ureter were dilated, the latter to the size of the little finger and the former to contain about two fluid drams. There was no communication with the bladder on the left side, although the ureter was pervious as far as that organ. The thymus gland was completely absent, the upper part of the anterior mediastinum being empty and the pleuræ in apposition. There was no fibrous tissue to mark the position of the absent organ.

Remarks.—So far as I know, this condition of things is quite unique as regards the absence of the thymus gland, and is interesting as proving that it is compatible with fair health and normal development, at all events, for the first six months of life. The symmetrical ecchymoses arising without apparent cause harmonize with the recorded connection between this gland and hemophilia. I think that the renal abnormality only

contributed in a subsidiary degree to the fatal result, as the hydronephrosis was slight and the right kidney quite healthy and apparently adequate for the necessities of the body, for no uremic symptoms were present, and the urine passed was not deficient. There were no symptoms of acromegaly. The digestive functions improved under treatment and the appetite remained good to the last.

Renipuncture in the Treatment of Albuminuria.—Mr. Reginald Harrison in the London *Lancet*, October 17, is reported as having addressed the London Medical Society on the above subject. He said that certain cases of albuminuria had come under his notice in which he had performed an operation for the relief of some morbid condition which was supposed to exist, but was not found when the kidney was exposed; the symptoms, however, were relieved and the condition of the urine improved. This had led him to think that in certain cases of albuminuria good might result from puncture of the kidney.

He related three cases in which he had so exposed the kidney: 1, a boy aged 18 years was suspected of having suppuration around the kidney following scarlet fever. There was lumbar pain, and the urine was albuminous and contained casts. A small lumbar-incision was made and the kidney found to be tense and engorged. An incision was made through the capsule, and there was a full discharge of blood and urine; the wound healed the tenth day. The urine now became abundant, the albumin lessened, and then disappeared altogether, the boy making a good recovery. 2, that of a man aged 50 years who worked underground. He had presented symptoms of renal calculus for some time. Three months after being first seen his urine was constantly albuminous, and he had pain in the right lumbar region. The kidney was exposed, but no stone was found. The condition of the patient improved, the urine became normal, and the patient remained in good health. 3, that of a woman aged 44 years, who had had hematuria for one year and pain on pressure over the left kidney with albuminous urine at times. There was some history of her having passed a calculus at one time. A lumbar incision was made and the kidney was found to be swollen and tense. This was incised and free drainage of urine and blood ensued. The woman recovered, the urine becoming normal. The first of these cases he considered to be scarlatinal nephritis, the second to be due to cold, and the third a subacute attack following influenza. He then referred to two cases of movable kidney (published by Dr. Newman of Glasgow in the *Medical Week*, Jan. 6, 1896, p. 29) in which the albumin and casts which were present before the operation disappeared entirely after the kidney was fixed, and also to another case under the care of Dr. Hoeber of Hamburg, in which relief had followed incision into the right kidney. Having referred to the views of Sir Thomas Grainger Stewart and Sir Thomas Watson on the consequence of hyperemia in the initial stage of nephritis, he pointed out the disastrous effects which increase of tension produced in the eye and other organs, and the relief which resulted from operative interference. The editorial comment on Mr. Harrison's address will be especially interesting to those wide-awake surgeons who allow even a surprise to serve as an experience.

The editor says of the subject that it is a happy instance of the benefit which may be obtained from the careful consideration of unexpected results. Many times have surgeons cut down on the kidney in a patient with severe lumbar pain, albuminuria and other renal symptoms, in the expectation of finding a renal calculus or some other gross lesion, and have been disappointed, and yet when the wound has healed the symptoms of which the patient has complained have completely disappeared. The explanation that was usually given was that some constricting band had been divided or that the result was due to the effect of the operation on the mind of the patient; but there is much to be said in favor of the view put forward by Mr. Harrison that the result in some cases at least is due to the relief of tension. That increased pressure in the renal veins will lead to albuminuria and to a diminished secretion of urine has long been known. The explanation is less certain, though numerous theories are not wanting; but whatever theory we may adopt to explain the presence of the albumin, or even if we consider none of those advanced to be satisfactory, yet we can not doubt that the venous congestion does give rise somehow to the albuminuria, and in active hyperemia of the kidney albuminuria is no less certain. In other parts of the body more accessible than the kidney we can diminish congestion, whether arterial or venous in origin, by local blood-letting, so we have good *a priori* reasons for thinking that it is possible to relieve a congestion of the kidneys by punctures or incisions, and if this were done it can not be doubted that at least in some cases the albumin in the urine would disappear and the amount of urine excreted would increase. So many conditions that used to be considered wholly within the province of the physician have now come under surgical treatment that we can hardly be surprised at a further advance in the same direction, but no one anticipated that the aid of the surgeon would ever be invoked in acute nephritis and other allied pathologic conditions. The matter is of course, not yet one on which a decided opinion can be expressed, for the cases are too few, but the unsatisfactory results of the treatment ordinarily pursued in albuminuria and in suppression of urine from nephritis are amply sufficient to justify a method of procedure which promises so much.

PRACTICAL NOTES.

Improving the Shape of the Ears.—Joseph recently altered a boy's large outstanding ears by cutting out a wedge-shaped segment, fifteen degrees, of the upper ear muscle, making the circumference 1.5 cm. smaller.—*Therap. Woch.*, November 1.

Removal of Right Scapula and Caput Humeri.—On account of a spindle-celled sarcoma, Israel performed this operation on a clerk, who still retains the use of his arm to such an extent that he can write well and perform all his clerical duties.—*Therap. Woch.*, November 1.

Remedy for Spasmodic Uterine Contractions Occurring During Labor.—Tincture of iodin 2 grams, alcohol 4 grams. Take 5 drops of this mixture in half a glass of warm water every half hour. The uterine spasm will pass away after the second or third dose in the majority of cases, but possibly a fourth or even a fifth may be required. The sooner it is administered the greater its efficacy.—Müller, *Semaine Médicale*, October 24.

Case of Hypnotic Anesthesia.—Starck of Heidelberg reports several cases of severe operations performed without pain in hypnosis, among them the infraction of a deformed femur on a patient who had been long confined to his bed. He recovered consciousness during the operation and screamed, but was speedily put to sleep again. His talipes equinus, which was exceedingly painful to the slightest touch, was also corrected by massage in hypnosis, and after the infraction had healed the patient was able to walk with ease.—*Cbl. f. Chir.* October 17.

Traumatic Tetanus Cured by Phenic Acid.—Cervellini reports a patient of 68 years, brought to him the eighth day after the development of tetanus, completely cured in three weeks by subcutaneous injections of 2 per cent. phenic acid every two hours, with a full bath at 40 degrees C. lasting two to three hours morning and evening. He thinks that the disease imparts a tolerance of phenic acid so that large doses can be administered without fear.—*Semaine Méd.* October 14.

Gastro-enterostomy.—The Souligoux method described in the JOURNAL August 22, page 450, is reported "marvelous" by

Chaput, who has tried it. Souligoux has had six absolute recoveries with it in ten cases of cancer of the stomach. Picqué reports four successes with it in five cases, the one failure really due to another cause. Doyen, on the other hand, says that although buttons are defective, this method must be absolutely bad, adding however that he has had no personal experience with it. Several cases of cicatricial stenosis of the pylorus or esophagus consecutive to acid burns, have been reported recently abroad, entirely cured by anterior gastro-enterostomy.

Treatment of Umbilical Hernia in Infants.—Lobas's method of treating umbilical hernia does away with the necessity of bandages, which are so apt to slip out of place, while it does not interfere with bathing the child. He draws up a couple of cutaneous folds around the navel and closes them over it with a soft pad of absorbent cotton between, holding them in place with strips of diachylon, from one and a half to two centimeters wide and long enough to reach from side to side of the abdomen, reënforcing this support with a couple of vertical strips of sparadrap. He renews the dressing once or twice a week.—*Semaine Méd.*, October 14.

Keratolytic Effect of Sodium Chlorid.—Simonelli has been investigating the effect of sodium chlorid on ulcers and finds that it has a most surprisingly beneficial action in producing healthy granulation, but that it fails to cause any growth of skin which must be secured by supplementary treatment. Several cases of torpid varicose swelling of several years' standing, were sprinkled with fine salt, when an abundant granulation ensued, proving it a highly efficient dermoplastic remedy. It causes smarting and burning at first, almost unbearable in some cases, but this is avoided by adding menthol to it in the proportion of 25 to 5, or 50 to 25.—*Gaz. degli Osp. e delle Clin.*, September 20.

Cardiac Disease in Children.—Dr. Pott in the "Fortschritte der Medicin," after a thorough sifting of some ninety-five cases, strongly corroborates the view that acquired heart disease is never primary, but always secondary to some acute infectious disease, particularly scarlet fever, acute rheumatism and occasionally pneumonia. In early childhood the rarity of scarlet fever diminishes its importance in the causation of heart disease, while rheumatic fever is the commonest cause in such early years; of seventy-eight cases of acute rheumatism with joint, twenty-one were under the age of 2 years. But a frequent cause of this ailment in children is the so-called masked rheumatism, a vague febrile condition associated with naso-pharnygeal catarrh, enlarged cervical glands, enlarged spleen and pains in the limbs, sometimes called herpetic fever.

Treatment of Pneumonia.—On the authority of Dr. George Hayem it appears that any nitrite in large doses is much less dangerous in this case than is commonly supposed. He finds that it transforms hemoglobin in the globule itself into methemoglobin without destroying the anatomic elements, without giving rise to globular anemia of alteration of the blood by globular debris. At a single treatment an adult can inhale from a compress held at half an inch from the nose 60, 80 or even 100 drops, in many cases a single inhalation being sufficient, in others two daily, morning and evening. This treatment is harmless and can be continued during the course of the disease and for two or three days after defervescence. It changes neither the duration of the disease nor the temperature range but relieves the dyspnea, liquefies the expectoration and diminishes the auscultatory signs.

Oligemia as a Cause of Death in Pneumonia.—Dr. Bollinger of Germany holds that croupous pneumonia is a typical local infectious disease, pursuing in the main a regular course, and that it is not essentially dangerous on account of the duration or the intensity of the fever. The impairment of the function of the lung he maintains is likewise insufficient to explain death, nor is the frequent edema in the spared parts of the lung the result of a passively increasing collateral hyperemia, but of cardiac embarrassment. He declares that the collapse symptoms are dependent upon oligemia, which leads to impaired nutrition of the cardiac muscle, already weakened by the fever and the extra demands upon it. Anemia of the brain, too, by causing disturbance of cardiac innervation, may be an additional factor. The exudate into the lung tissue may be likened to a venesection by the pneumococcus, which in a few days deprives the blood of a large quantity of important constituents. The reason, he says, why death takes place so early, and usually in the same stage of the disease, *i. e.*, from the sixth to the eighth day, is probably because the exudate must attain a certain acme before life is imperiled. By applying these facts to therapeusis it follows that beside the usual treatment every effort should be made to counteract the oligemia.

Filmogen in Dermato-therapeutics.—Collodium and traumaticin irritate the skin and fail to resist external influences, while they do not take up all medicaments. A solution of acetin and a preparation of collasin are used in the Paris clinics as a vehicle for cutaneous medication. Filmogen is a solution of nitrocellulose in acetone, with the addition of a little oil to prevent irritation. It forms a whitish or yellowish coat which does not irritate nor prevent the movement of the parts and is not dissolved by water, but is easily washed off with alcohol or ether. It prevents staining from the medicines used, while they produce the same effect as when used in the form of salve. It is especially adapted for use on dry dermatoses, as the acetone causes smarting on moist surfaces. A large number of medicaments are soluble in filmogen and the rest mix with it sufficiently for the purpose. As a smaller quantity is required than of collodium, the actual expense is no greater.—*Therap. Woch.*, November 1.

Section of the Cervical Sympathetic in Exophthalmic Goitre.—As mentioned in the JOURNAL, September 5, Jaboulay has successfully performed this operation, and Abadie remarked at the recent French Congress of Surgery, that all the symptoms of the disease seemed to indicate that it was due to a permanent excitation of the vaso-dilating fibers of the cervical sympathetic or to their nuclei. The turgescence of the thyroid arteries leads inevitably to hypertrophy of the gland, which is thus secondary and not primary. The dilatation of the retro-bulbar vessels produces exophthalmus, while tachycardia, we all know, can be and is caused by excitation of the sympathetic. Consequently section of the sympathetic should theoretically cure the disease, and experience has shown that it does conquer the exophthalmus, but how are we to get at the special nerves that are reponsible for the hypertrophy of the thyroid gland and the tachycardia? He suggested that possibly the cures obtained by ablation of the gland were really due after all to the mere fact that the proper nerve was divided. Jonnesco stated that he has several times cut the cervical sympathetic and believes that the operation has a future. Kocher has also secured several permanent successes with it.

Treatment of Hemoptysis.—The *Journal de M. de Paris*, of October 25, describes Capitan's method of managing hemoptysis as follows: Immobilise the patient, with his head elevated. Apply sinapisms to the lower members. Give him pieces of ice to suck, and if possible make him swallow a spoonful of ether in a little sweetened water. Then inject immediately a Pravaz syringe of the following solution: Yvon ergotin 5 grams; morphin hydrochlor. 0.04 gram; antipyrin 1.50 grams; spartein sulphate 0.20 gram; atropin sulphate .002 gram; aqua dest. q.s. for a total vol. of 10 c.c. F. s. a. solution. The injection should be made deep and preferably in a muscle. It can be repeated from half hour to half hour, or

every fifteen minutes, if the danger is urgent, but not more than four or five syringes full in all. If the patient can swallow, give every half hour a tablespoon of the potion: Bongean ergotin 3 grams; gallic acid 0.50 gram; syrup of turpentine 120 grs. F. s. a. potion. Cupping is also useful if it can be managed, applied in several places, and also bags of hot water or bags of ice applied locally or at a distance.

Potassium Nitrate in the Treatment of Burns.—The *Lancet* has an annotation stating that Dr. Poggi has found that the addition of a few teaspoonfuls of potassium nitrate to a bath, into which the burnt part is plunged, will quickly cause cessation of the pain. After a time the water becomes heated and the pain returns, but again subsides on the addition of another quantity of salt. Professor Vergely has obtained good results by covering the burnt parts with a paste prepared by mixing calcined magnesia with a certain quantity of water and allowing it to dry on the skin, renewing it as soon as it becomes detached. Under this treatment it is said that the wounds heal well and pain is prevented.

Organic Alterations in Chloroform Narcosis.—The discussion of chloroform *versus* ether, has entered upon a new phase of late, with the histologic study of the subject. Ajello of Palermo adds an important contribution by an article published in the *Gazetta d. Osp. e d. Clin.* of October 25, describing the results of his clinical observations and investigations, as well as of an extensive series of experiments. Chloroform determines acute parenchymatous alterations of varying intensity and degree, of an inflammatory and degenerative nature. The parts most affected are the kidneys, the liver, the heart, the striated muscles, the spleen, the blood and the vascular system. These alterations are not characteristic of chloroform alone, but are also produced by any intoxication of the system, generally as a consequence of some infective disease. The degree and intensity of the alterations depend directly upon the amount of chloroform administered, and the length of the narcosis. They usually terminate by *restitutio ad integrum* of the organs affected, but they are capable of producing death, principally by uremic intoxication. Occasionally they continue a course of involution, and become chronic.

Significance of Suppurations of the Ear.—The growing importance ascribed to suppurations of the middle ear at the recent surgical congresses, especially the Paris congress, recalls the career of appendicitis. The danger of serious cerebral complications is now so generally recognized that the hitherto insignificant otorrhea is now receiving an unprecedented amount of attention. Surgeons no longer allow pus to remain in the mastoid cells, and we know that there is always pus in the mastoid when it is *en evidence* in the middle ear, with only a thin bony plate separating it from the meninges, the brain, etc., any more than they allow it to remain in a tibia or humerus. The only question now is early diagnosis of the possible cerebral complications, and the best methods of procedure. Broca trephines the apophysis and tympanum, opening the temporal fossa above the roof of the aditus ad antrum, to drain a cerebral abscess. He finds that all the complications vanish simultaneously with this treatment, which is an urgent argument in favor of the mastoid route. Schwartz recently sutured the lateral sinus in a traumatic case, but this would scarcely be prudent in an infective mastoiditis.—*Prov. Méd.*, October 31.

Substitution of Eucain for Cocain.—Legueu has found that six centigrams of cocain will kill a guinea pig in three-quarters of an hour, while eight centigrams of eucain require twice this length of time to produce death in another animal of the same size, showing the less toxic properties of the latter. It is fully equal if not superior to cocain in producing anesthesia, and for these reasons he has adopted it for local anesthesia in preference to cocain, especially for the urinary apparatus. He uses a hundredth solution and never injects into the urethra or under the skin more than five to six centigrams, following in all respects Reclus's advice for the administration of cocain (see the JOURNAL, Nov. 7, page 1012). In cystoscopy he uses a five-hundredth solution, of which he injects 160 to 200 grams into the bladder. He adds that eucain has a strongly congestive effect, which contra-indicates its use in cases where there is much bleeding.—*Bulletin Médical*, November 18.

Parenchymatous Injections of Carbolic Acid in Affections of the Tonsils.—Kramer reports most favorably on the results of treating the chronic relapses of tonsillary affections, which render life comparatively a burden to the patients with their frequency and the gravity of the accompanying disturbances, with four to six injections of about ½ c.cm. of 2 to 3 per cent. carbolic solution, in the course of two or three weeks. The injections were made with a Pravaz syringe at different points in the pillars of the fauces, after cocainization. Fifteen patients have now been freed of their tonsillary troubles for two and one-half years, and numerous others for a shorter period. There were no inconveniences from its use and the unfailing success of the treatment in preventing relapses in so many cases can not be a mere coincidence.—*Cbl. f. Chir.*, November 21.

Analgen in Infantile Therapeutics.—Moncorvo of Rio Janeiro has been testing the effects of analgen (ortho-ethoxy-anamonobenzoylamidoquinolin), in fifty-nine cases of infantile diseases, among them thirty-three cases of malaria. No inconveniences followed its use in any case, even in doses much higher than those heretofore attempted (25 centigrams to 3 grams in twenty-four hours), and improvement occurred in all, merely varying in its promptness. The fever subsided in the malarial cases, especially, with all the nervous symptoms. Its insipid taste renders it easy to administer, and in cases where for any reason it is impossible to give quinin, analgen promises to take its place very effectively. The soothing and antipyretic effect in acute and subacute tuberculosis was also marked, and the same favorable results were attained in acute lymphangitis and arthro-synovitis, while a case of Sydenham's chorea was promptly cured, and epilepsy much relieved. It also relieved the pain more or less in the neuralgia of Pott's disease, coxo-tuberculosis, etc. Full details of the treatment and cases are given in the *Bulletin* of the Paris Academy of Medicine of November 10.

Surgical Intervention in Peritonitis accompanying Typhoid Fever.—Dieulafoy presented an important paper on this subject at the meeting of the Paris Acad. de Méd., October 27, in which he stated that the current of modern progress is sweeping into the domain of surgery what used to be considered exclusively the patrimony of medicine. Especially is this true of peritonitis, even to the peritoneal complications of typhoid fever. He described the peritonitis from perforation which appears during the course or relapses of typhoid fever. The perforation may be in the ileum, the cecum, the appendix or the colon. It is not restricted to severe forms of the disease, but appears as often, perhaps, in the mild cases. The one unmistakable and most important symptom is the abrupt fall of temperature, descending to hypothermia. This striking drop of the temperature occurs also with sudden intestinal hemorrhage, but in this case it rises again as high or higher than before, while in case of perforation in remains low, but without chills. The prognosis of peritonitis from perforation is extremely grave, but cases are known in which it was controlled by the prompt formation of adherences, which closed the perforation in time. There is also the para-typhoid appendicitis, which usually appears during the latter period or convalescence of typhoid fever. It is generally accompanied by a rise of temperature, which distinguishes it from the perforation peritonitis and proceeds in its evolution like an ordinary appendicitis. The

infective process may be limited to a singular appendicular attack, without any peritonitis, or it may, with or without secondary perforation of the appendix lead to all the complications of appendicitis: Encysted peritonitis, generalized peritonitis, abscesses in the liver or elsewhere, etc. He adds that what used to be called peritonitis by propagation (passage of the bacilli through the walls of the intestine without perforation), does not exist. Not until a closed cavity is formed by an ileus, volvulus or closing of the appendix by a calculus or something of the kind, do the bacilli acquire sufficient virulence to penetrate the intestinal walls. (Dieulafoy is the advocate of the closed cavity theory of appendicitis.) The medical treatment of these two forms of peritonitis is to attempt to keep the intestines perfectly quiet, so as to modify or prevent the passage of septic matters into the peritoneum, and facilitate the formation of adherences. No food is allowed, nor drink; the patient is not permitted even to swallow the water that dissolves from the few pieces of ice given him to hold in his mouth. Two centigrams of opium extract are administered every hour, with injections of morphin if necessary, and bags of ice are applied to the abdomen, suspended so as to relieve him of their weight, or else the abdomen is covered with refrigerating compresses congealed by evaporation of methyl chlorid. But these medical measures are often impotent, and the question of surgical intervention then arises. The patient is in such a poor condition to undergo an operation, the intestines are in such a bad state, that intervention seems audacious to say the least. In the para-typhoid appendicitis the conditions are more favorable, as the operator has no ulcerous intestine to suture, only the appendix. In perforated peritonitis however the diagnosis is difficult, but an operation offers some chances of saving the patient if the proper moment for intervention can be determined. He described a case of the kind in which his laparotomy had been followed by death in a short while, but the necropsy showed successful cicatrization of the suture of the perforation, and that the fatal result was due to a second and third later perforation. He concludes therefore that in spite of the ulcerated condition of the intestines the suture heals and surgical intervention is thus justified.

Lutaud's Treatment of Obesity in Women.—Women require a different kind of treatment, on account of possible peri-uterine adherences, from what is indicated for men. Lutaud's course is fourfold: Medical, dietetic, local and hygienic; all applied simultaneously, and it has proved very successful. He finds that scammony is the purgative best adapted to these cases. It causes a rapid decrease in the size of the stomach and abdomen and is very active, taking effect in four or five hours, so the patient should be notified. His formula is: Scammony one gram; oil of anise one drop; to be made into a powder and taken at night, toward midnight. Repeat the dose every two or three days, or less frequently as may be indicated. In the morning immediately before eating, he orders a wineglass of some purgative water, such as Carabana or Janos, or a teaspoon of the following powder in a little water: Powd. senna leaves, cream of tartar and sublimed sulphur, āā 3 grams; powd. illicium 2 grams; sugar 40 grams. The nights when the scammony is omitted he orders a tablespoon of the following: Potassium iodid 10 grams; extract of fucus vesiculosus 5 grams; syrup of orange peel 190 grams. In some cases he substitutes 20 centigrams of opium extract for the fucus, as the effect of the opium on the system allows the patient to do with less food without inconvenience. He adds that the trials of Baumann's thyroiodin enable us to recommend it in cases of obesity. The dose varies from 1 to 4 grams a day, according to the tolerance of the patient. The tablets are the easiest administered. He has adapted the dietetic part of his treatment to conform to feminine tastes and habits, simplifying it as much as possible, and only insisting that women should eat often, four or even five times a day; avoid heavy meals and give up altogether the use of butter and effervescing beverages. For breakfast, 7 to 9, he advises about 50 grams of meat, toast or rolls at discretion, and a cup of coffee without milk; no butter. For lunch, between 11 and 1, meat at discretion, an egg, cheese, 50 grams of toast or rolls, and a cup of tea with or without milk. At 5 o'clock, tea or a glass of wine, with a cracker. Dinner between 7 and 8; no soup, but fish and meat at discretion, salad, 50 grams of vegetables, cheese, 50 grams of toast or rolls, a fruit and a glass of pure Bordeaux or Burgundy. Supper between 11 to 1 A.M.; a glass of Madeira, a slice of cold meat and a cracker; this meal is optional. The local part of the treatment is very important when there are uterine or peri-uterine complications. It consists of scientific massage of the abdominal and lumbar regions, and especially of the uterus and adnexa, when they are adherent to neighboring organs. It can not be applied if there is inflammation, until it has partially or entirely subsided. It should be kept up perseveringly for a long while, especially in the case of women who are unable or unwilling to walk or take physical exercise. Unfortunately, exercise, the most valuable part of the treatment, is the most difficult to enforce. He has a gymnastic apparatus (Swedish) installed in the apartment, or better still, sends the patient to a special establishment, where she is directed and stimulated. He orders the bicycle whenever practicable, and has seen great benefit derived when women have been enticed from their oriental torpor by its use. The course is completed by the Turkish bath, followed by the douche and massage, which he always finds acceptable to the patient, unless there are special contra-indications. He adds that a stay at a sanitarium or "cure" is excellent, as it removes the patient from her usual environment, and favors the application of the entire course of treatment. He advises the alkaline sulphate waters.—*Jour. de Méd. de Paris*, November 1.

SOCIETY PROCEEDINGS.

Chicago Pathological Society.

Annual Meeting, May 11, 1896.

The President, Dr. WELLER VAN HOOK in the Chair.

THE SURGICAL TREATMENT OF TUBAL PREGNANCY WITH REPORT OF A CASE.

A paper with the above title was read by Dr. LOUIS J. PRITZKER. The case was that of a woman aged 28, married, who gave birth to a child two years before coming under the author's observation. Her previous history was otherwise unimportant. She menstruated last, July 10, 1895. About six weeks later she began feeling pain in the left iliac region; on August 23 she suddenly went into collapse. Dr. T. A. Davis made a diagnosis of ruptured tubal pregnancy and sent her to the Cook County Hospital, where the author operated on August 24, at 5 P.M. There was found an interperitoneal hemorrhage which seemed to come from the left tube and which was controlled by ligation of the tube close to the uterus. The left adnexa were removed, the right were healthy and were not disturbed. The rent in the tube was situated in superior wall at the middle third, and here there was a small placental mass. No corpus luteum was found in the ovary. There was a small ovum found in the tube, appearing from four to six weeks in age. An uninterrupted recovery occurred.

Dr. JAS. DORLAND presented a specimen of extra-uterine pregnancy which he had removed from a woman 20 years old, by laparotomy. Six weeks after her last menstruation she began to flow very much, and a small swelling the size of an orange was found on the right side of the uterus. The uterus was curetted and an expectant treatment was pursued and the swelling grew smaller, but suddenly she collapsed, the swelling became boggy and increased in size. Laparotomy was made, intraperitoneal hemorrhage found, and a sac containing a fetus removed. The patient is progressing nicely six days after the operation.

Dr. BYRON ROBINSON—The thing of interest to me is that I have never seen nor heard of a case of extra-uterine pregnancy in the lower animals. I notice that Bland Sutton mentions the same fact.

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INFORMATION WANTED.

It would greatly facilitate the prompt delivery of the JOURNAL to those members of the ASSOCIATION living in large cities, if they would kindly furnish this office with their street address in those cases where it is omitted from the wrapper of their JOURNAL, as we have been notified by the postmasters of the larger cities that second-class mail matter not having street address, would be placed in the general delivery to await call.

SATURDAY, DECEMBER 12, 1896.

THE PHILADELPHIA MEETING OF THE AMERICAN MEDICAL ASSOCIATION.

The fact that the AMERICAN MEDICAL ASSOCIATION will hold its next annual meeting in Philadelphia, thereby celebrating the semicentennial of its existence, is of interest not only to those members of the profession who already belong to the ASSOCIATION, but to those, and we believe there are many, who are desirous of entering its ranks and thereby aid in maintaining the professional standard which has so long and so successfully waved over the medical profession of this country. Fifty years ago next spring under the presidency of Dr. JONATHAN KNIGHT of Connecticut, the first great medical convention of the United States met in Philadelphia and appointed as its secretary, Dr. ALFRED STILLÉ of that city. It also appointed as chairman of the committee on scientific papers Dr. OLIVER WENDELL HOLMES, and under the guidance of these men, well known in medicine and literature, the ASSOCIATION gained a vitality which it has never lost. It is interesting to note that at the Philadelphia meeting both Dr. NATHAN SMITH DAVIS, the organizer, and Dr. ALFRED STILLÉ, the secretary, of fifty years ago, will probably be present, as both gentlemen, notwithstanding their advanced years, are both in unusually good health. Aside, therefore, from the interest which centers around the semicentennial gathering, the members who attend this meeting will have an opportunity of meeting these standard-bearers and of linking together the past and the present in American medicine. This interest is increased when it is remembered that during the sixty years in which Dr. ALFRED STILLÉ has been a Doctor of Medicine he has seen more wonderful changes take place in the character of medical science than has ever been seen in a corresponding period of sixty years before our time. It seems curious that sixty years ago, at the time when he graduated in medicine, no true distinction had yet been made between typhus and typhoid fever and that the pathology of this disease, which is unfortunately so prevalent, remained an almost unknown quantity for the medical mind. Again, we remember that STILLÉ was a student in Paris about, or very shortly after, the time when LOUIS was putting his imprint upon his students the American investigators, who afterward aided him so materially in separating these two diseases, and that in the wards of large hospitals in Philadelphia STILLÉ carried out investigations and wrote papers in connection with this and other infectious diseases which have long since become classics in the literature of medicine.

Again, the fact that Philadelphia was for so many years the medical center of the United States in more senses than one, surrounds this meeting with unusual importance. Throughout the entire century not only have her medical schools turned out men of extraordinary success and ability, but her graduates have placed American medicine in the very front rank. It was from this city that the first medical diploma was granted in America by what is now the Medical Department of the Univesity of Pennsylvania, and it was from the Jefferson College that MARION SIMS, THOMAS ADDIS EMMET, BATTEY and GOODELL graduated and then put their stamp for all time upon gynecology. Jefferson also graduated SAMUEL D. GROSS, than whom no American has been more highly honored by foreign bodies of learning.

Not far from the place of meeting stands the Pennsylvania Hospital, the oldest institution of its kind in the United States, which possesses not only a quaint interest from its history but much scientific interest from the manner in which it has kept abreast of all that pertains to advanced medicine and surgery, and in the Philadelphia Hospital, with its 1,500 beds, may be found almost every type of disease which is met with in the temperate zone. In addition to these hospitals there are many other large hospitals within easy reach of the place of meeting, in all of which the visitors to the ASSOCIATION meeting will find members of the staff constantly on duty for the purpose of entertaining them and exhibiting the interesting and valuable cases, which can only be found gathered together in a great metropolis.

Finally, it seems to us that the occasion of this semicentennial meeting is one which should be embraced by each and every member of the ASSOCIATION to do missionary work among his fellow-practitioners, with the object of having them add their

names to the membership roll, a roll which is a highly honorable one and which must through the very nature of things materially preserve the honor and standing not only of the profession as a whole, but of each individual practitioner. We append a statement from the permanent Secretary showing the places of meeting from the beginning.

The places of meeting are as follow:

Convention met in New York, May 5, 1846; in Philadelphia, May, 1847, and resolved itself into the AMERICAN MEDICAL ASSOCIATION. The ASSOCIATION met May, 1848, in Baltimore; in Boston, May, 1849; Cincinnati, May, 1850; Charleston, in May, 1851; Richmond, Va., May, 1852; New York, May, 1853; St. Louis, Mo., May, 1854; Philadelphia, May, 1855; Detroit, Mich., May, 1856; Nashville, May, 1857; Washington, May, 1858; Louisville, Ky., May, 1859; New Haven, Conn., June, 1860; Chicago, June, 1863; New York, June, 1864; Boston, June, 1865; Baltimore, May, 1866; Cincinnati, May, 1867; Washington, May, 1868; New Orleans, May, 1869; Washington, May, 1870; San Francisco, May, 1871; Philadelphia, May, 1872; St. Louis, May, 1873; Detroit, June, 1874; Louisville, May, 1875; Philadelphia, June, 1876; Chicago, June, 1877; Buffalo, June, 1878; Atlanta, May, 1879; New York, June, 1880; Richmond, Va., May, 1881; St. Paul, Minn., June, 1882; Cleveland, June, 1883; Washington, May, 1884; New Orleans, April, 1885; St. Louis, May, 1886; Chicago, June, 1887; Cincinnati, May, 1888; Newport, R. I., June, 1889; Nashville, May, 1890; Washington, May, 1891; Detroit, June, 1892; Milwaukee, June, 1893; San Francisco, June, 1894; Baltimore, May, 1895; Atlanta, May, 1896. W. B. ATKINSON, Secretary.

THE DEATH OF FALSTAFF.

The editorial remarks in the *Chicago Sunday Tribune*, December 6, and the *Chicago Chronicle* of the same date, concerning the Shakespearean account of the death of FALSTAFF, and the various suggestions for emendations of the text therein quoted prompt us to remark that the description of the death scene is clearly taken from HIPPOCRATES' "Prognostics," and that the "facies Hippocratica" is well described. ADAMS' translation of the passage is: "A sharp nose, hollow eyes, collapsed temples; the ears cold, contracted and their lobes turned out; the skin about the forehead being rough, distended and parched;" (Prognostics, ¶ 2), and again: "When . . . . the hands are waved before the face, hunting through empty space as if gathering bits of straw, picking the nap from the coverlet, or tearing the chaff from the wall, all such symptoms are bad and deadly," *ibid.*, ¶ 4. "It is a bad symptom when the head, hands and feet are cold," *ibid.*, ¶ 9. And again in "Epidemics," Book 1, ¶ 2: "Most persons delirious when near death."

The babbling of FALSTAFF was simply an evidence of that delirium, which when taken in connection with the other symptoms betokened approaching death. The Shakespearean description is therefore correct, whether viewed from a realistic standpoint or from that of classic writings.

Celsus on Medicine, Book II, ¶ VI, says:

"Ad ultima vero jam ventum esse testantur, nares acutæ collapsa tempora, oculi concavi, frigidæ languidæque aures et imis partibus leniter versæ; cutis circa frontem dura et intenta, color aut niger aut perpallidus; multoque magis, si ita hæc sunt, ut neque vigilia præcesserit, nec ventris resolutio, neque inedia. Ex quibus causis interdum hæc species oritur, sed uno die finitur; itaque diutius durans, mortis index est."

(To witness that the extreme has come these attest: sharp nose, sunken temples, hollow eyes, ears cold, languid and gently turned in the lowest parts; the skin about the forehead hard and stretched, the color either black or very pale; much more so if these signs have come without preceding wakefulness, purging or fasting. From which causes these appearances sometimes arise—but they vanish in one day, so that if it continue longer it is an index of death.)

Lucretius (Book VI) "*De Rerum Natura*," gives the same signs, as follow:

"A pedibusque minutatim succedere frigus
Non dubitabat: item ad supremum denique tempus
Compressæ nares, nasi primoris acumen
Tenue, cavati oculi, cava tempora, frigida pellis,
Duraque: inhorrebat rictum, frons tenta meabat,
Nec nimio rigida post strati morte jacebant."
Etc., etc.

(The cold glides insensibly from the feet to the other parts of the body; but when the patient makes his last effort, the nostrils are compressed, the *nose becomes pointed*, the eyes sunken, the temples hollow, the skin cold and hard, the grinning mouth begins to quiver, the forehead stretches and is at last penetrated by the cold of death.)

SHAKESPEARE'S description is as follows:

"'A parted e'en at the turning 'o the tide; for after I saw him fumble with the sheet, and play with flowers, and smile upon his fingers' ends, I knew there was but one way; for his nose was as sharp as a pen, and 'a babbled of green fields. How now, Sir JOHN! quoth I; what, man, be of good cheer. So 'a cried out—GOD, GOD, GOD! three or four times; now I, to comfort him, bid 'a should not think of GOD; I hoped there was no need to trouble himself with any such thoughts yet. So 'a bade me lay more clothes upon his feet; I put my hand into the bed, and felt them, and they were as cold as any stone; then I felt to his knees, and so upward and upward, and all was as cold as any stone."

SHAKESPEARE, with that perfect acquaintance with classic models that characterizes his technical work, simply described a death scene, and when FALSTAFF is spoken of as babbling, he gave a sign of delirium. It was quite immaterial whether the babbling were intelligible or not, the wild and ever changing fancies that come with the deepening delirium of death, need no articulate language, and indeed whatever be said at such times, the language finally passes into incoherent and meaningless sound. "The fumbling with

the sheets," and playing with imaginary flowers, is another sign of delirium mentioned, as already quoted, by HIPPOCRATES. "When the hands are waved before the face," etc., then such sign is "bad and deadly." In the face of such facts, the contentions of Mr. THEOBALD and Mr. LOCKE RICHARDSON whether the text should properly read "green fells," "green fields" or "green baize" are calculated to raise a smile.

AIR-EMBOLISM IN CONNECTION WITH PLACENTA PRÆVIA.

Death may occur in labor or shortly afterward from a variety of causes, such as heart failure, pulmonary embolism, air-embolism, uterine or other hemorrhage, rupture of the uterus, of the heart, of other important viscus or of an aneurysm or of an abscess, etc. The entrance of air into the uterine veins during or following labor may take place spontaneously, though often it has followed injections into the uterus and other manipulations about the birth canal. In a small number of cases a similar event may follow the formation of gas in the uterine cavity as a result of decomposition. The accident is almost invariably fatal, so that every precaution should be observed, so far as possible, against its taking place.

The occurrence of air-embolism in connection with placenta prævia has not hitherto been frequently observed, although a small number of cases have been recorded within recent years. KRAMER (*Zeitschrift für Geburtshülfe und Gynäkologie*, B. xiv, H. 2) reported two cases in 1875, KRUKENBERG (*Centralblatt für Gynäkologie*, 1892, p. 169) one in 1892, and HEUCK (*Zeitschrift für Geburtshülfe und Gynäkologie*, 1894, p. 140) one in 1894. To this number LESSE (*Zeitschrift für Geburtshülfe und Gynäkologie*, B. xxxv, H. 2, p. 184) adds a fourth, which occurred in a quartipara, of whose previous labors the first had terminated spontaneously, the second with the aid of forceps and the third in version. Repeated uterine hemorrhage in the ninth month of pregnancy led to the discovery of placenta prævia, with the fetus occupying a partially transverse position. The hemorrhage was controlled by means of tampons and in a short while feeble labor-pains set in and these were followed by renewed bleeding.

As the labor progressed slowly, in order to prevent a repetition of the hemorrhage and likewise to expedite parturition version was undertaken. To overcome muscular resistance gentle chloroform-narcosis was induced. The membranes were ruptured, two fingers introduced into the uterus and a foot brought down into the cervix. The pulse at once disappeared and respiration halted for a moment, while the patient became cyanotic, but did not lose consciousness. Ether was injected subcutaneously, infusion of saline solution practised and artificial respiration instituted, but despite most active efforts continued for five hours the fetal heart sounds were lost and the patient finally succumbed. Upon opening the right auricle under water after death a considerable number of large and small bubbles escaped and section of the lungs permitted the escape of bloody foam, while blood and bubbles could be expressed from a number of small pulmonary arteries. Anemia and chloroform-intoxication were excluded as causes of death and post-mortem decomposition as the factor responsible for the presence of gas in the heart and pulmonary vessels; and the conclusion was reached from a careful weighing of the evidence that death had resulted from the entrance into a uterine vein, at the site where the placenta had become prematurely detached, of air admitted into the uterus through the intermediation of the manipulations required to perform version.

THE DIAGNOSIS OF TWIN PREGNANCY.

While the recognition of multiple pregnancy is at times comparatively easy it is at other times extremely difficult, if at all possible with certainty. It will be appreciated that in a given case the diagnosis may be of the utmost importance, as upon its correctness will depend the outcome of the pregnancy, the safe delivery of the product of conception and perhaps also the life of the mother. In a failure to distinguish a duplication of the fetal members the diagnosis may remain undeterminable until labor has begun or even progressed to quite an advanced stage. PAJOT contended that the obstetrician could be certain of the existence of twins only when after the birth of one fetus another was found yet in the uterus.

The existence of twin pregnancy is rendered probable by unusual and irregular enlargement of the abdomen, by the occurrence of fetal movements in different parts of the abdomen and with increased activity and by an exaggeration of the usual concomitants and disturbances of pregnancy. The diagnosis is assured if pulsation of the fetal heart can be heard with maximum intensity in two different situations and without synchronism, as was first pointed out by KERGARADEC. In the determination care must be exercised to exclude the mother's hearts sounds as well as those of the observer. To further eliminate the possibility of error AHLFELD has proposed simultaneous auscultation of the abdomen by two different observers, and in a recent communication (*Zeitschrift für Geburtshülfe und Gynäkologie*, B. xxv, H. 2, p. 180) he details experiences in which the employment of this diagnostic adjunct proved of the utmost service.

A woman 35 years old, with a contracted pelvis, who had previously been delivered unsuccessfully on four occasions, came under observation at the end of the eighth month of her fifth pregnancy, for the purpose of having premature labor induced to secure delivery of a living child. On examination the pelvis

was found to be flattened, probably as a result of rachitis, with a diagonal conjugate of 9.2 cm. and a true conjugate of 7.5 cm. The appearances altogether suggested a twin pregnancy and the exigencies of the case made it essential that a positive diagnosis be made in good time; for in the existence of that condition premature labor was not called for, while in its absence the induction of labor prematurely was necessary to effect the delivery of a living child, as well as for the safety of the mother. Simultaneous auscultation of both sides of the abdomen by two persons on several occasions showed differences of from one to fifteen beats per minute. In accordance with this determination pregnancy was permitted to continue, labor setting in spontaneously two weeks earlier than had been expected and terminating in the successful delivery of a boy and a girl weighing 2210 and 2010 grams respectively.

It is necessary in thus employing auscultation in the diagnosis of twin pregnancy that the heart-count be made simultaneously and for at least a whole minute at a time. In private practice, when it is not convenient for two persons to make comparative observations, the physician may practise auscultation of the two sides of the abdomen in rapid succession. Under these circumstances it is important for the patient to make no change in her position during the examination, as any such movement may have a pronounced effect upon the heart-beat of the fetus and give rise to apparent differences that may occasion deception. The result of such observations may be accepted as conclusive only if the differences in the beats of the two sides are positive and pronounced; otherwise it will be necessary to resort to comparative simultaneous observations by different persons.

THE LOCAL ACTION OF THE X RAYS.

Ever since the discovery and the first practical application of the Roentgen rays there have been, as it was anticipated there would be, numerous claims of special effects on organisms and on various forms of life. Some of these have already been disproven or discredited, such for example as their alleged action on bacterial life. Whatever there may be in this, it has not as yet won any strong support in scientific quarters, and their value as a therapeutic agent, anticipated by some, is practically *nil* thus far. From various quarters, however, there have appeared and are constantly appearing reports of certain special inconvenient symptoms following exposure to these rays. Some of these, such as the subjective sensations experienced by some patients, may be practically accounted for by the existing nervous and mental condition of the patient in some cases. At least this is a possible way of explaining some of these symptoms; whether it will be fully satisfactory in all may perhaps be questioned. Other phenomena, however, like the dermatitis that has been observed, require another explanation and their essential connection with the X rays is a matter that is yet debatable. The fact that they fail in many who from long exposure might be expected to show them, proves nothing positively; the question of idiosyncracy has to be taken into account. There are many who resist other better known disturbing agencies and there may well be some who are immune to the deleterious influences of these rays. Perhaps we may even assume that this special kind of vulnerability is the misfortune of the few, and that most persons are immune. That there is a reality in these phenomena is proven by many observations, one of the most notable of which is reported by Dr. E. E. KING in the *Canadian Practitioner* for November. The patient in this case was an operator and exhibitor of the X rays and was more or less exposed to them for many hours a day for a number of weeks. The effects in this particular case were dermatitis and other alterations of the skin, destruction of hair and nails, and conjunctivitis. In this case, as in the case reported by Dr. G. C. SKINNER in the JOURNAL November 14, many of the symptoms corresponded with those of a severe sunburn, but others are rather peculiar, and it is a little remarkable, considering the penetrative powers of the rays, that the history gives no account of any involvement of the other portions of the integument and its appendages.

It is beyond question, apparently, that exposure to the X rays, if sufficiently prolonged, is sometimes accompanied with the production of lesions of the skin and the dermal growths. That ordinary or moderate exposure has no such effects in the average individual, is needless to argue, it is a self-evident fact. Whether these effects are due to some electric action, to ozone as suggested by TESLA, or to the direct action of these rays themselves, however, is another question and one that is yet to be solved. There is certainly an open field here for investigation.

THE RUSH MONUMENT.

Argument and entreaty, eloquence and rhetoric have been employed by the Chairman of the Rush Monument Committee of the ASSOCIATION, in his appeals to the profession and reports to the ASSOCIATION, on the subject of the Rush Monument, a memorial stone as yet *in futuro*. The sum so far raised is still entirely inadequate to build anything at all worthy of the ASSOCIATION. In the meantime the monument to SAMUEL HAHNEMANN is nearly finished as we learn from the following paragraph which appeared in the *Chicago Tribune* of Sunday, December 6:

A large bronze memorial statue of SAMUEL HAHNEMANN, founder of homeopathy, which with its pedestal is to cost $75,000, will soon be erected in Washington by the homeopathic physicians of the United States. CHARLES N. NIEHAUS of New York is the architect.

Surely there is patriotism, public spirit and generosity enough in the American medical profession to build this monument! But the results are too slow.

The Treasurer of the Committee is Dr. GEORGE H. ROHÉ of Sykesville, Md., and he is very prompt to acknowledge a remittance.

There is an old story told of a traveling salesman who was selling engravings of WASHINGTON. On approaching a rich banker he solicited his subscription without result. The magnate said: "You wish to sell to me, an ardent lover of my country, a picture of GEORGE WASHINGTON? Why, sir," and at this point he placed his hand over his heart, "I have him always in my heart." "If that is really the case," said the commercial traveler, "all I have to say is, that you have WASHINGTON in a mighty tight place."

Have the medical profession such an esteem for the virtues of BENJAMIN RUSH that they have him so perpetually in mind that he needs no other memorial? Let the world know what the profession can accomplish when it really tries.

Let the Rush Monument be built.

CORRESPONDENCE.

"The Poisoning of a People."

LAGRANGE, TEXAS, November 1896.

To the Editor:— In your editorial "The Poisoning of a People," I find sentiments expressed which, although one comes across similar expressions of late in the secular press, are nevertheless in my humble judgment not quite up to the high standard of the JOURNAL; besides do such expressed sentiments remind me of the gloomiest days in my recollection; of the days of my boyhood, when the native born citizen looked with the utmost contempt on his foreign born neighbor and when in his desire to curtail the rights and privileges of these foreign born people, he would resort to the most stringent and desperate measures and would even arm himself and fight battles in the streets of our cities—*e.g.*, St. Louis, Mo., to defend his so-called prerogative rights against imaginary encroachments of the despised foreigner.

The views expressed in the JOURNAL and the sentiment of times gone by, only differ in the remedies recommended with which to combat the evil, and the difference in the nationality of the offensive intruders; they having been "ignorant Germans" during the "fiftieth" while at present they are filthy Italians, Slavs or Huns.

At the time of the revolution, the American people consisted of but a few millions of people. In the course of a little over a century we have become a nation of eighty millions and we boast of being one of the, if not *the* most civilized and enlightened people on the face of the globe.

What then were the influences brought to bear to make us in such short space of time of such huge proportions in every respect? The answer inevitably must be, that beside our free institutions and immense resources the main factor has been: The extended, wide open arms of this young nation, ready to receive and to greet the poor, the oppressed and the down trodden people of other countries and especially those of the old world, of worn-out monarchical Europe. Are we not ourselves, everyone of us, the descendants of such foreigners, so popularly called the "scum of nations," who have been drawn hither in advance of us, by the invitation of a free, self-sacrificing people and the allurements of our productive virgin soil which was, and is still but awaiting the till and toil of the breadwinners of the world?

The so-called Anglo-Saxon race, as represented in the United States, has manifested such an enormous power of assimilation as was never before shown by any other people. The Christian, the Jew, the Buddhist and Mohammedan, the Caucasian, Mongolian and even the Æthiopian have commingled. Europe has since the establishment of this government, and previous to this, dumped the inmates of its poorhouses, asylums and even its prisons onto our soil; but few of us are able to date back our ancestry to the cream of this "influx." According to your expressed views, instead of the American nation rivaling with other nations in culture and civilization we, the descendants of the emigrated "scum of the world" should be a nation of degenerates, a mongrel race having no power of resistance whatever, and whom but the slightest upheaval would sweep from the face of the earth; while we were fortified by a strife among ourselves, huge in proportions, ideal in inception and humane in its consequences, showing this nation to consist of an "admixture" of people who, although not as yet fully matured and fixed, but which must have most excellent quallities and which ultimately promises to become the equal, if not the superior of any people that live or ever lived. Respectfully, F. A. SCHMITT, M.D.

Administration of Antitoxin.

FAIRFIELD, IOWA, Dec. 5, 1896.

To the Editor:—In view of the occasional fatal effects of diphtheria antitoxin and the rapidity with which death occurs in these cases, I would suggest the advisability of dividing the administration of the desired dose into several stages at intervals of several minutes between the stages, giving but a fraction of the entire dose at each stage.

Tentatively I propose one-fourth, or less, of the intended dose at each stage of the injection, letting an interval of five or preferably ten minutes elapse between the stages of the injection. I do not conceive it would be desirable to withdraw the syringe and re-introduce it when interstages are not longer than ten minutes, but the needle can remain introduced until the injection of the entire dose is effected.

In case dying from the antitoxin, fatal collapse has usually resulted within five minutes from the time of completing the injection. As most operators occupy five minutes in making an injection of 10 c.c. of standard serum it would appear that ten minutes are required to allow the full depressing effect of the injection to be manifested, I would conclude that ten minutes is most reasonably the length of time which should be allowed to elapse between the stages of the injection of a full dose.

It is not probable that the antitoxin given in this manner would be any less effectual in enabling the cells to resist the toxins of diphtheria than when the entire dose is administered at a single stage. The plan certainly enables the operator to avoid giving an overdose in patients who are peculiarly susceptible to its toxication, because he can prolong the intervals between the stages of its administration or suspend it altogether upon the occurrence of alarming symptoms.

While only one death results from many thousand injections it is desirable to avoid even that one death and to avoid arousing local prejudices against a most valuable remedy.

J. V. BEAN, M.D.

Harvey Medical College.

CHICAGO, Dec. 7, 1896.

To the Editor:—In the last issue of the JOURNAL but one, there is published a defense by Byron Robinson of the Harvey Medical College, which has been designated by a writer, "A Diploma Mill." According to his showing the college requires

four courses, all of which are given in the evening between seven and ten, that is, not more than three hours out of the twenty-four. In the reputable medical colleges students usually spend from eight to nine hours at the college daily, besides three or four hours in close study in their rooms; therefore, according to Dr. Robinson's showing this institution only requires about one-quarter, certainly not more than one-third the amount of work demanded by the reputable colleges, and it still appears to us that he has not established his case against those who call the institution, "A Diploma Mill." It is not probable that a man who has given his whole day to his trade will be able to put in three solid hours work in the evening in study; or if it be conceded that he can do this it is evident that this is very much less time than ought to be required. It is beyond our comprehension how reputable medical men can lend themselves to such an enterprise. If they wish to establish a night school in good faith they should lengthen their course to twelve years, which would give their students about the same amount of time now required in reputable colleges.

INQUIRER.

"Aphasia of the Hand."

CORTLAND, N. Y., Dec. 1, 1896.

To the Editor:—In reference to your very interesting editorial in the last number of the JOURNAL on "Aphasia of the Hand" will you allow me to call your attention to the opinion of Max Knies, as to the location of the lesion. You will find it at the bottom of page 92 of the German edition of "Die Beziehungen des Sehorgans und seiner Erkrankungen zu den übrigen Krankheiten des Körpers und seiner Organe."

It is, as you will notice, that for writing, the important special center for the right hand lies about in the middle of the posterior central convolution.

Yours sincerely, F. W. HIGGINS, M.D.

"God and the Doctor we Alike Adore."

PHILADELPHIA, Dec. 2, 1896.

To the Editor:—In the JOURNAL of November 28, a correspondent who signs himself R. M. W., inquires as to the authorship of the following lines:

"God and the doctor we alike adore,
But only when in trouble, not before.
The trouble o'er, both are alike requited:
God is forgotten, and the doctor slighted."

I have been familiar with a similar stanza for several years and am inclined to think that the lines are incorrectly quoted by R. M. W.

In a "Code of Medical Ethics" by Jukes de Styrap, M. K. Q. C. P., etc., London, 1886, he will find the following:

"God and the doctor we alike adore
When on the brink of danger not before;
The danger past, both are alike requited;
God is forgotten and the doctor slighted!"

This does not answer your correspondent's question but it may perhaps give him a clew to its solution.

Yours truly, FREDERICK P. HENRY, M.D.

NORTH EAST, PA., Dec. 6, 1896.

To the Editor:—The Alma Mater of Dr. Burnside Foster of St. Paul, ought to take him across her maternal knee for translating the beautiful Latin of (??) Euricius Cordus as an answer to the query of R. M. W., of Brooklyn *in re* the authorship of the lines "God and the doctor" et sequens. The proper although liberal translation of this quotation from E. Cordus is I think as follows:

"Three faces wears the doctor;
When first sought an angel's;
And a God's, the cure half wrought.
But when the cure complete,
He seeks his fee,
The devil is less terrible than he."

The next time B. F. essays a translation I trust he will honor his Alma Mater better than he has with this "his maiden effort."

By the way I have often wished some enterprising firm would embellish this translation from E. Cordus as a motto for the doctor's office. Yours truly,

B. H. PUTNAM, M.D.

CHICAGO, Dec. 5, 1896.

To the Editor:—Regarding the quotation you inquire about I think that you have slightly misquoted. At the time this appeared in print, something like seven to ten years ago, I copied these lines, which were accredited to *Texas Journal*. They read as follows:

"God and the doctor we alike adore
Just on the brink of danger, not before;
The danger passed, both are alike requited,
God is forgotten, and the doctor slighted."

N. H. CHURCH, M.D.

5 Blue Island Ave.

NEW INSTRUMENTS.

A NEW TROCAR AND CANULA WITH SAFETY GUARD.

BY JOHN S MARSHALL, M.D.
CHICAGO.

This instrument was devised with a view to prevent accidents in the opening of the cavities of the antrum, the chest and cysts, hydroceles and large abscesses.

There is always danger when puncturing the antrum of Highmore, the thorax and other cavities which are filled with fluid abnormal in character and which must be evacuated of the trocar under the force sometimes necessary to puncture the tissues forming the walls of these cavities, injuring the organs contained within them, or of passing through the opposite wall and causing injuries to structures beyond.



To render such accidents impossible this instrument has been fitted with a safety guard entering the handle of the instrument by means of a screw thread which makes it possible for the operator to set the guard so that the trocar and canula will enter at any depth that he may judge will be the thickness of the walls of the cavity to be punctured, without fear of injury to the important structures within or beyond. The handle also contains a device, operated by the thumb, which throws the canula forward, covering the tip of the trocar and allows the trocar to be withdrawn, leaving the canula in position. Its construction is such that the parts are easily separated and rendered aseptic by boiling.

Charles Truax, Greene & Co. are the makers of the instrument, to whom I am indebted for the mechanical perfection of the idea.

36 Washington St.

IMPROVED ATOMIZER.

To throw larger quantities of the medicinal fluid on the surfaces of the lesions in nose and throat affections, Müller of Carlsbad has added to the Körting apparatus a metal spiral inside the tube. The fluid is forced through the very small bore of this spiral at a pressure of 3 to 6 atmospheres, and with an opening of ½ mm. in diameter, a liter will be expelled in three minutes, and yet the pressure of the spray as it emerges is not strong. An olive tip excludes the air when the nose is sprayed and a bell-shaped piece answers the same purpose for the mouth. Müller has derived great benefit from

Carlsbad spring water applied in this way, especially in ozena, although the spray produced a slight transient hemorrhage at first in these cases. He adds that any salt solution would probably prove equally effective.—*Wien. klin. Rundschau*, November 15.

A NEW RUBBER FOOT.

An improvement has been made recently in artificial feet by A. A. Marks.

The new invention consists of the insertion of a mattress of canvas in which is imbedded side by side a layer of narrow, flat steel springs. The canvas holds them in the pocket, in which they slide freely, and the ends are capped with metal to prevent their perforating the rubber and leaving their proper bed.



The rubber which rests above this mattress is spongy, containing, therefore, a large percentage of air, increasing the lightness and also the flexibility of the foot. Further, just above the posterior end of the mattress in the heel there is a large air chamber so arranged that it can not burst, and thus preventing the heel from matting or failing in elasticity.

The operation of this steel spring mattress is to throw the toe back as it is bent in walking and thus to materially assist in locomotion.

IMPROVED POCKET CUSPIDOR.

The neat little nickeled case scarcely takes up any more room in the pocket than a package of cigarettes and is eminently adapted to its purpose. The inner receptacle is easily removed to be cleaned and boiled, while it closes moisture proof, with an inside cover of amianthus. It is the invention of Dr. Petit of Paris.—*Bull. de l'Acad. de Méd.*, November 10.

PUBLIC HEALTH.

Tuberculosis in Animals.—Cadiot has been making a study of the pulmonary diseases of dogs, etc., which he finds are very often tuberculous and complicated by external lesions. The frequency of tuberculosis among dogs, cats and parrots he considers a menace to human beings.—*Bulletin de l'Académie de Méd.*, November 17.

Preventive Inoculation of Typhoid Fever.—The unexpectedly favorable results obtained in India under Haffkine's direction with preventive inoculation of cholera (more than 100,000 persons inoculated) have led to numerous experiments in similar inoculation of typhoid fever. Iwanow describes in the *Bolnitschnaja gaseta Botkina*, No. 20, successful immunizing of monkeys, and Pfeiffer in the *Deutsche med. Woch.*, No. 46, relates his favorable experience with inoculation of healthy persons and describes his methods, adding that preventive inoculation promises to render great services in epidemics of typhoid fever, and in military camps threatened with it.

Sanitary Regulations in Brazil.—The regulations in Bahia as recorded in the *Gaceta Médica*, in regard to the sale of meats, seem strange to northern readers. The shops must be built according to certain requirements as to size, situation and ventilation, not less than four meters in each direction, and are never to be used as a habitation nor for any other purpose than a market, with white marble slabs for cutting the meats and marble or tiled floors sloping down to the street. No meat must be allowed to touch the walls, nor be exposed to the sun, and it is strictly forbidden to sell meat that has been killed over twenty-four hours. All meat over twenty-four hours old must be thrown into the sea. The butchers are licensed and required to wear white aprons and caps when at work, with their number exposed, and fines are to be enforced for neglect to comply with any of these regulations.

Can Not Regulate Noise of City by Injunction.—A bill was filed, in the case of Wende v. The Socialer Turn Verein, asking for a perpetual injunction to restrain the defendant from permitting any one to play upon its bowling alley and from permitting loud and boisterous noises to be made by persons there. At the close of the complainant's evidence the judge said: "I can not regulate the noise of the city by injunction and I am not going to try it. If these people have made any noise there, that injured this property, the property of the complainant here, she has her remedy at law; she can go before a jury, and if she can satisfy a jury that her property has been damaged by their acts, or by their improper use of their premises, then she can get a verdict." This, the appellate court of Illinois, first district, says, in an affirmatory decision handed down Nov. 19, 1896, is a terse expression of its views. Choosing to live in a great city, it adds that the complainant must take such use of adjoining property as the inevitable concomitant of city amusements.

Salary in Lieu of Fees.—The New Jersey statute relative to morgues and morgue keepers provides that the fees and expenses of morgue keepers for the recovery and care of the bodies of unknown dead shall be fixed by the board of freeholders and paid by the county collector, and it also provides that they shall be entitled to a burial fee not exceeding $10 in each case. Under color of the foregoing, the board of freeholders of Camden County passed a resolution in 1887 that "the morgue keeper shall perform such duties as are provided for by law, and shall receive a salary of $500 per annum, payable quarterly by the county collector." The morgue keeper from that time until 1893 received the salary, and then, after the expiration of his term of office, applied for a writ of mandamus to compel the board of freeholders to fix his fees and expenses as morgue keeper. But the supreme court of New Jersey says, Powell v. Board of Chosen Freeholders, June 24, 1896, that the only ground that the payment and acceptance of the salary could be accounted for on, was that it was in satisfaction of the fees and expenses allowed for the performance of the duties imposed by law, and that with seven years' salary in his pocket the claimant could not get the "fees and expenses" also.

Power of Iowa Boards of Health to Employ Physicians.—In an action brought by a physician to recover from a county for services rendered and supplies furnished a pauper, the supreme court of Iowa holds, Tweedy v. Fremont County, Oct. 29, 1896, that it must not only be shown that the patient was a pauper, but that his parents or other relatives liable therefor are unable to pay the claim. Conceding that his inability to pay is made to appear, the fact that he is a pauper and a county charge does not show that there is no relative who is liable and able to pay it. It frequently happens, continues the court, that the needs of a poor person are so urgent that relief must be furnished him at the expense of the county, for lack of time to compel relatives who are liable for his support to relieve him. In such a case the person relieved is a county charge, although the county may be able to recover from his relatives the sum which it has paid on his account. Section 14 of chap-

ter 151 of the Acts of the 18th General Assembly provides that "every local board of health shall appoint a competent physician to the board, who shall be the health officer within its jurisdiction, and shall hold his office during the pleasure of the board." Also that "the local boards shall also regulate all fees and charges of persons employed by them in the execution of the health laws and of their own regulations." As that is the latest enactment on this subject, the court holds that it must prevail so far as it conflicts therewith, over section 1366 of the Code which provides that "all claims and bills for the care and support of the poor shall be certified to be correct by the proper trustees and presented to the board of supervisors, and if they are satisfied that they are reasonable and proper, they are to be paid out of the county treasury." In this case allowance by the board of health of $6 per visit for thirty-four visits and $1 for fruit furnished the patient is considered, under the evidence, reasonable and just, though the board of supervisors had objected to allowing same.

Removal of Garbage Controlled by Board of Health.—Where power is conferred upon the common council of a city to regulate by ordinance the collection and removal of garbage and offal, the supreme court of errors of Connecticut holds, in the case of State v. Orr, decided June 15, 1896, that it has authority to pass an ordinance which provides that no person shall collect and transport such refuse matter as accumulates in the preparation of food for the table without first having obtained a permit from the board of health. But "refuse matter," as the term is thus employed, the court says can embrace nothing which has not been refused or rejected as unsuitable for table use. It may be thus rejected because it has little or no value for human food, or because it is decayed or unwholesome. It must in its nature be perishable, and can include little which is not liable to become decomposed or offensive if left where it falls. In fact, the term as here used, can only extend to matter which is in effect noisome or which has been rejected by the owner as worthless. Meat trimmings, potato parings, specked apples and many other things of a like character might be thrown away in preparing table dishes, and yet properly utilized afterward for other purposes. Under such an ordinance as the one in question, whatever is not abandoned as worthless, remains property, which so long as it does not constitute a nuisance, may be sold or otherwise disposed of at the will of the owner. By the board of health contracting with a single person to collect and remove garbage from the entire city or with several persons to collect and remove it from as many different portions of the city, or contracting with respect to a part of the city or to certain buildings, leaving the removal of garbage from other places open to those who obtain from its clerk a proper permit, the court further holds will no monopoly be created by which the rights of citizenship will be infringed upon. Over any such occupation a strict watch must be kept, and the general police powers vested in the city justify the implication of a right to limit the number of those who pursue it. In a prosecution for the violation of an ordinance like the above, evidence is properly excluded that the defendant had been for many years engaged in collecting and removing garbage in the city in carts so constructed as to satisfy the requirements of the ordinance, and applied for a license to continue, but met with a refusal, the board of health having a right to limit the number engaged in this particular occupation and he having no absolute title to a license. Even if the number of licenses issued was unreasonably small his only remedy, if any, would be to apply for a mandamus to compel the board to grant him one. He could not pursue the business because wrongfully refused a license. Nor could he justify himself by showing that the garbage he collected came from certain restaurants, with the proprietors of which he had contracts for its removal, such evidence being inadmissible. If the evidence had shown both that the contents of the defendant's cart, while they had been rejected for table use, were not offensive and were in his possession as the agent or purchaser of the original owner, then, the court says, in line with what has been suggested, he would have required no license.

A Home-made Filter for Domestic Purposes.—In the *Brooklyn Medical Journal*, September, Prof. Peter T. Austen of the Brooklyn Polytechnic Institute has devised a simple method that takes advantage of the property of alum, in minute quantity, to form a gelatinous precipitate with bicarbonate of lime in solution, and nearly all drinking waters contain more or less of that substance. This precipitate serves to entangle suspended matters so that waters containing clay and mud may be filtered perfectly clear, even through a coarse filter. The alum itself is not carried through the filter, but forms a part of the precipitate, and is removed by filtration. This should be well understood, although if a minute amount of alum were left in the water its effects would not be noticeable, and even if present in larger amounts, it would not be at all dangerous. "The method of filtration is simple in the extreme. An oil bottle, or any long, narrow-necked bottle, serves for the filter. Tie around it a string soaked in kerosene, about half an inch from the bottom, set the string on fire and hold the bottle bottom up. When the string is burned out the bottom of the bottle is thrust into cold water. If properly done, this causes the bottom of the bottle to split off evenly. The rim of the glass should now be burred off a little with a round file to remove any sharp edges that may be left. The bottle is then thoroughly cleaned and placed neck downward in a convenient support as, for instance, through a hole bored in a shelf, or it may be allowed to stand in a wide-mouthed bottle, resting by its shoulders on the rim of the mouth. A small handful of cotton wool is now thoroughly wetted by squeezing it in water, and shreds of it are dropped into the bottle until a layer about two inches deep has been made. The shreds should be dropped in carefully, so as to distribute them evenly, and not to let them pile up in the middle or at the sides. When enough cotton has been dropped in, a cup or two of water is poured in and the bottle gently tapped. This consolidates the mass and finishes the making of the filter-bed. The amount of alum needed to coagulate the water sufficiently for filtering need not, as a rule, exceed two grains to the gallon, and in many instances may be less, but in certain cases of very dirty waters, such as that of the Mississippi River, the amount of alum may be increased to four or even six grains per gallon. The alum is best kept in a solution of such a strength that a tablspoonful of it will contain a grain. To save trouble, the following prescription will enable one to get enough of the solution put up at any apothecary's to last for a considerable time:

℞ Alum . . . . . 128 gr.
Aquæ dist . . . . . 16 oz.
Misce, ft. solutio.

"I may add that the expense of this prescription, including the bottle, should not exceed fifteen cents. The treatment and filtration of the water is best done as follows: A gallon of water is placed in a clean tin pail and two teaspoonfuls of the alum solution are added. It will save time to make, once for all, scratches on the inside of the pail, showing the height of one, two or more gallons of water. It is then well stirred and mixed with a clean tin dipper. It is best to keep this pail and dipper for this use alone. They should be kept scrupulously clean, and frequently well scoured with sapolio or a similar kind of soap. After mixing, the water is allowed to stand five or ten minutes, and then poured, by means of the dipper, into the filter. It will run through rapidly if the filter-bed has been properly made, and will be as clear as crystal, and not seldom will form an astonishing contrast with the original water. The first half pint of the water passing through should be rejected. The filtered water may be caught

in a pitcher or in any other convenient receptacle. A filter-bed will last a day, but it is not advisable to use it longer. Each day the used filter-bed should be thrown away and a fresh one prepared. The method may, of course, be applied to any of the many filters in use by simply adding to the water to be filtered one or two grains of alum to the gallon. It will be a poor filter, indeed, that will not filter clear after this addition."

The Ministry of Health.—The London letter of the *American Practitioner and News*, October 17, quotes an important address by the late Sir B. W. Richardson, in favor of a national bureau of health for the British Empire, with a president, a chief officer and a competent body of officials under them. The construction and duties of the Ministry of Health would lead to several divisions of labor. In addition to the registration of births, deaths and marriages, a complete system of registration would be established and the returns supplied would include not only the diseases affecting human kind, but diseases affecting animals and plants. The reports of meteorologic conditions would be duly sent to the ministry and the relations of meteorologic states and the prevailing health would be effectively and systematically traced out. The returns of coroners' courts would likewise be sent, and to the Ministry of Health would be referred all the work now carried out by the medical department now under the control of the Local Government Board. The working of the act dealing with adulteration and the carrying out of public analysis would of necessity be brought under its direction. Officers appointed under the new regulations would especially report to the Ministry of Health on sanitation of the factories in the whole of the kingdom. The work hitherto done by the veterinary department of the Privy Council would be transferred to the same ministry. Prison and police supervision and the supervision of public works would also become functions of the Ministry of Health. Sir Benjamin Richardson suggested that there be six departments, the registration department, the local government department, factory and industrial department, analytic and chemic department, veterinary department and public works and prisons department.

BOOK NOTICES.

Manual for the Medical Department, U. S. Army, 1896.

The Army Regulations issued in 1881 was an exceedingly bulky octavo, which was supposed to contain instructions for every one in the military service on all points connected with his duties, privileges, etc. The edition of 1895 was on the contrary a rather thin volume, as it contained only general regulations or such as affected every officer and man of the army irrespective of corps. This issue had to be supplemented by special manuals giving in detail the regulations affecting each individual as a member of his particular corps. There has, therefore, just been published by authority of the Secretary of War for the use of the Army of the United States a small octavo volume of 120 pages, compiled under the direction of the Surgeon-General and entitled a "Manual for the Medical Department, 1896." This volume does not in any way alter the current methods of the department. It merely separates the departmental regulations from the general army regulations, with which they were formerly embodied and presents them revised to date for the use of army medical officers. It has been compiled with the utmost care and contains the gist of all orders, circulars and decisions published since the issue of the Army Regulations of 1881. It gives, however, no instruction as to the manner in which various reports and record books should be kept. It is understood that all such instructions will hereafter be printed as notes on the blank forms to which they relate, and that these notes having been approved by the Secretary of War, will have the force of army regulations. This system places the requirements and methods of his department very concisely before the army medical officer; but it will be difficult for an outsider, a member of the National Guard, for instance, to get information covering all points unless he is possessed not only of a copy of the manual but of a series of the blank forms and record books or of the notes or directions that are printed on them.

Handbook of Subsistence Stores, U. S. Army, 1896.

Under this title the War Department has just published a volume of 200 pages compiled under the direction of the Commissary General from monographs written by officers of the Subsistence Department. This volume is intended to be to the Subsistence officers what the dispensatories are to medical men and pharmacists. It gives them a concise and accurate description of the various articles borne on the list of subsistence stores of the army, with the source or preparation, physical appearances and properties, tests of purity and methods of preservation of each of the articles.

For facilitating references the monographs or their abstracts are arranged alphabetically, beginning with that on "apples," and ending with "vinegar." Under the heading "flour" are described the grades and methods of milling, the quality of the gluten, the quality of the starch, the best flour for making bread; winter wheat and spring wheat flours; sweating of wheat and flour; strength of flour; sprouted wheat flour; earthy smelling flour; souring of flour; good keeping flour; variation in the chemic composition; mode of packing; storage; brands of flour; uniformity of quality in mill brands; effects of age on wheat and flour; and lastly methods of testing including that by the extraction of the gluten. Under the title "baking powders," are given tests for tartaric acid, potassium, lime, alum, ammonium salts, phosphates and sulphates, with methods for determining the quantity of carbon dioxid liberated and of the starch present as filling. An appendix contains notes on canned goods and on the various insects that are destructive to articles of subsistence, such as the dermestes lardarius or bacon bug, the musca vomitoria or meat fly and sundry species of calandra or weevils. As the articles are essentially practical the handbook will be of great assistance to subsistence officers by giving them a thorough knowledge of their stores.

NECROLOGY.

Eugen Baumann, M.D., of Freiburg. The medical world had scarcely realized the importance of the discovery of iodin in the thyroid gland, and the far reaching benefits to be derived from this knowledge, and the application of thyreoiodin, when the sad newe comes that an unsuspected heart disease has ended the career of the gifted discoverer before he was 50. His early scientific training was that of a pharmacist, and his tastes lay in that direction to the end, although he attained such renown as a chemist and physiologist. His studies of sulphone resulted in the discovery of those wonderful hypnotics, sulphonal and trional, and from his laboratory came also the great analgesic, phenacetin.

Professor Hañot of Paris. The sensational suicide of this successful and talented physician and instructor in his 53d year can only be explained by overwork and domestic troubles. He was found dead in his room with a vial of potassium cyanid in his hand. The specialty he had made his own and to which he made most valuable contributions, was the pathologic liver. His monographs on this subject from every point of view were gems that evidenced infinite research and brilliant mental qualities. The list of his published articles fills a column in the *Progrès Médical* of October 31.

GEORG RICHARD LEWIN, M.D., in Berlin, age 76; one of the foremost leaders in medical science of the latter half of the century, a famous physician and conscientious instructor. Hypodermic injections of sublimate had been tentatively attempted before him, but his great work on the treatment of syphilis with mercurial hypodermic injections of mercury (1868) established the methods, the dosage, and all other details with such accuracy and skill, that even to this day they are accepted as the standard, and have been applied to thousands upon thousands of patients, and in every land, without serious injury to a single patient, as he stated recently with pride. Other important works were on syphilis of the larynx, interstitial myositis, leucodermia (founded on over 6,000 observations), atrophy of the face, etc., amounting in all to 55 large works. The monographs published in the *Annals* of the Charité, form alone a total of almost 1,100 pages. All kinds of honors had been bestowed upon him at home and abroad, and death surprised him in the midst of a most beneficent and varied activity. One of his latest addresses, for which he had prepared with great care, was delivered at a public health meeting, on the diseases caused by the inhalation of dust.

PINCKNEY WEBSTER ELLSWORTH, M.D., (College Physicians and Surgeons, N. Y., 1839) a grandson of Oliver Ellsworth once a Chief Justice of the U. S. Supreme Court, and a son of ex-Governor Wm. W. Ellsworth; born in Hartford, Conn., Dec. 5, 1814, died in the city of his birth, November 29. His commission as a surgeon U. S. V. was dated August 3, 1861, and his reputation soon extended much beyond the boundaries of his State.

GUSTAVUS B. TYLER, M.D., at Owensboro, Ky., December 1, aged 76. He was at one time a West Point cadet and he graduated from Jefferson Medical College, Philadelphia in 1845. He was one of the best known general practitioners in the State.

SOCIETY NEWS.

The Anderson County Medical Society has been organized at Lawrenceburg, Ky., with Dr. Frank B. Powers, president, and Dr. G. Lillurd, secretary.

The Ohio Dental Society held its annual meeting at Columbus December 2. The election of officers and directors resulted as follows: President, Dr. L. E. Custer, Dayton; first vice-president, Dr. Grant Molyneaux, Cincinnati; second vice-president, Dr. L. L. Barber, Toledo; secretary, Dr. L. P. Bethel, Kent; assistant secretary, Dr. H. T. Harvey, Cleveland; treasurer, Dr. C. I. Keely, Hamilton; directors, three-year terms, Drs. J. R. Callahan, C. M. Wright, O. N. Helse, W. D. Snyder; two-year terms, Drs. W. H. Hirsch, E. G. Barnett, A. E. McConkey and C. R. Buter; one year, Drs. C. H. Harroun, J. A. Lupton, W.H. Hague and J. Taft.

MISCELLANY.

Professor E. Fraenkel of Breslau has been restored to his former scientific and professional activity by a recent successful operation for progressive myopia.

New Clinic in Moscow.—Madame Basanow has built and presented to the University of Moscow a hospital and clinic for diseases of the throat, ear and nose, with ample endowment for twenty-five beds and the salaries of those in charge.

Koch's Missions.—Prof. Robert Koch has just returned from the eastern provinces of Germany, where he was sent to investigate the numerous alleged cases of leprosy, which he found to be a mistaken diagnosis. He has now started for South Africa at the request of the Cape Government, to make a study of the rinderpest.

Progress in Surgery of the Joints.—The tendency seems to be to avoid anchylosis in the cure of tuberculous affections of the articulations, and Calot even states that no lameness should remain after a coxalgia is cured. Of course this means an early and prolonged course of treatment with careful supervision.

Experiments on Thyroidectomized Dogs.—Gottlieb states as the results of his experiments on five dogs, that thyroiodin alone is not able to keep dogs alive whose thyroid glands have been removed, but that this has been accomplished by the thyroid extracts (thyroden), and he therefore concludes that there must be in the thyroid gland something more than the merely physiologically effective substance.—*Deutsche Med. Woch.* No. 15.

Insurance Lost by Use of Intoxicants.—In the case of Rainger v. Boston Mutual Life Association, the supreme judicial court of Massachusetts said, Oct. 26, 1896, that inasmuch as it could have no doubt that the habits the insured had of using intoxicating liquors to excess, increased the risk, his answer, when he made application for insurance, that he used a "glass of beer once in a day or two," must be held, as matter of law, to have voided the policy.

The New York Summer Rest Society.—One of the noticeable summer philanthropies is the opening of a house of rest for self-supporting gentlewomen who can secure board in a beautiful New Jersey town for $3.50 per week. The society aims to provide generous board and home privileges, while there shall also be complete change and relaxation after the winter's work. The society has purchased a house and twenty acres of woodland near Woodcliff (once Pascack), N. J., and will open the Summer Rest from June 1 to October 1.

Ovarian Therapeutics.—Touvenaint reports fifteen cases treated and benefited by the administration of ovaries from a young cow, dried to a powder at a constant temperature of 25 degrees C. His conclusions are favorable and confirm those already announced by others. The dose should not average over 0.24 to 0.40 centigrams a day, but it is safe to prescribe and can be kept up for weeks or even months. It seems particularly indicated in amenorrhea and chloro-anemia, and proves useful in the troubles due to the natural or artificial menopause.—*Journal de M. de Paris*, October 25.

International Privileges to Physicians in South America.—In contrast to the restrictive measures recently adopted in Europe, the various countries of South America have entered into an agreement to recognize impartially the graduates of each other's medical and pharmaceutical colleges, and accord them the same privileges as natives. This means in the Argentine Republic and some others, the payment of a fee of $150 to $300 (300 to 600 pesos), when the applicant's diploma is examined and accepted by the university faculty. Brazil and Chile are the only countries which have not yet signed the agreement.

Exclamations Admissible in Evidence.—Exclamations or complaints made by a person undergoing physical examination by a physician, with a view to ascertaining the extent of his alleged injuries, and apparently made in response to manipulations of the person's body or members by the physician, the supreme court of Georgia holds, in Broyles v. Prisock, decided Jan. 13, 1896, are admissible in evidence, though such person was not under the treatment of this particular physician and the examination was being made solely for the purpose indicated. Whether or not the exclamations were involuntary, or the complaints were *bona fide*, is for determination by the jury, under all the evidence submitted.

Ovarian "Pockets."—The *Wien. klin. Rundschau*, November 15, contains a contribution to our knowledge of the ovaries and tubes by an extensive study of the same organs in the lower animals. It seems that they are much more complicated in them than in the human species, with, in some cases, an

actual pocket to contain the organs, varying in size with the species. The ovaries and tubes are in none of them in actual contact and the transmission of the ovum is accomplished by the fluids, etc., as in man. Those of amphibious animals and reptiles resemble the human organs more than the rest, and it is curious to note the similarity that prevails in the most dissimilar species as, for instance, in certain rodents, beasts of prey, hoofed animals and edentates.

Honors to Army Surgeons.—The *Revista de Sanidad Militar*, a semimonthly Spanish journal, contains in its columns many articles which indicate that the Spanish people recognize that a war is in progress in the Island of Cuba. It publishes the special orders of the War Department or such of them as possess an interest for medico-military readers. In its issue for the two weeks ending Sept. 15, 1896, we find that the services of army medical officers meet with appropriate recognition, for no less than eight special orders were issued during the period August 27 to September 9 granting the Red Cross of the First Class of Military Merit to medical officers for their gallant conduct in certain specified engagements with the Cuban insurgents.

Contradictory Results of Castration for Hypertrophy of the Prostate.—The *Gaz. Méd. de Paris*, of November 14, quotes an article by Socin urging the necessity of more exact indications for castration and section of the vas deferens, as the success in some cases is offset by the failure in so many others. The single case benefited in his own nine operations, was a man whose prostate gland had been partially resected two years before. He states that Kroenlein reports two absolute failures, Kraske the same, and Czerny has had three patients whose troubles seemed to be much aggravated by the operation. On the other hand, Bruns has cured two cases by castration and Gelpke has resected the vas deferens in two cases, one of which was a failure but the other was a great success. We trust, however, that the day has passed when removal of any normal organs for any purpose will be countenanced for a single moment.

Kola Preparations.—The *American Therapist* has the following warning under this subject: "Kola preparations in endless array have been introduced during the past year, and the public has been educated through newspaper puffs to look for marvelous strengthening power from any proprietary form of kola, while the legitimate use of kola medicinally has rather decreased, and it has been more or less discredited in the minds of the medical profession. The opinion is logical that the principal therapeutic value of kola lies in its caffein; if there is special potency in the combination of principles in the crude fruit, it is also true that this has been observed only when the fruit is taken fresh, and not dried, transported and stored for months, and finally incorporated into palatable and elegant wines, elixirs, tablets, etc. In France kola preparations have long been popular, but there is no pretense there to deny that caffein is used and kola gives the name.

Intraprofessional Ethics.—Dr. H. C. Wood has issued in pamphlet form his address before the last graduating class of the medical department of the University of Pennsylvania. His closing paragraphs dealt with the question of the ethical deportment of young practitioners toward their professional brethren—the question of intraprofessional ethics. His thoughts on this subject are drawn up in the form of a heptalogue of aphorisms, that may be read with interest and profit by others than those for whose counsel they were intended. "The soul of professional ethics," says Dr. Wood, "is the recognition of the universal brotherhood of medicine, and the application of the Golden Rule: To do unto others as you would have them to do unto you. Based upon these principles, I venture to offer you certain aphoristic rules: 1. To consider the doctor as a member of your own family, having an inherent right to your medical services; but to remember yourself not to abuse this right. 2. To consider any discovery or any invention you may make as belonging not to yourselves but to the general profession. 3. Never in any way to laud your own medical skill or to attempt to supplant in public or private estimation one of the medical household. 4. To join yourself as soon as may be to the incorporated companies of your fellows for scientific and social intercourse, and for the cultivation of that professional conscience which often binds men more closely than their personal sense of right and wrong. 5. Through good and ill report to stand by members of your own profession, unless they be guilty of moral evil."

Discovery of a New Ferment in the Blood.—We are all familiar with the transformation of amyloid substances into fatty matters, urea and glycogen, and the fate of the two latter. But our knowledge of the fate of the fatty matters has always been vague, and an important advance has been made by Hanriot's discovery of a saponifying ferment in the blood, to which is due their transformation into fatty acids. These in turn form stearates of soda in combination with soda, and are then transformed successively into butyrates, acetates and finally carbonates of soda, which pass again into the blood. His experiments with monobutyrin of glycerin which led to this discovery, are described in the *Bulletin de l'Académie de Médecine*, of November 10.

Object of Commission de Lunatico Inquirendo.—The main purpose of a commission de lunatico inquirendo, the supreme court of Pennsylvania says, *in re* Misselwitz, Oct. 5, 1896, is to determine in the first place, whether the subject of the inquiry is a lunatic or not, and if he is found to be a lunatic, then to provide for the safeguarding of both his person and his property. Pending the inquiry it sometimes becomes necessary to make temporary provision for the custody and safekeeping of one or both. The appointment of a temporary custodian or receiver pending the litigation to prevent mismanagement or waste of the alleged lunatic's property, etc., rests in the sound discretion of the court in which the inquiry is pending; and it requires a clear case of abuse of that discretion to justify the interposition of an appellate court.

A Contention Over the Site of a Consumptives' Home.—The *Boston Medical and Surgical Journal*, July 23, refers briefly to the difficulties attendant upon the locating of the new Free Home for Consumptives, in that city. About one week ago, the mayor of Boston gave a hearing in the aldermen's room to the remonstrants who have petitioned the mayor not to approve a measure passed by the city government allowing the erection of a new building upon the Quincy Street grounds of the Free Home for Consumptives. The said building is to be four stories high and some sixty by over one hundred feet long, and is to be built without the brick dividing wall required by the building ordinances of the city. The petitioners claim that the risk to the patients and the neighbors by fire should forbid the erection of a hospital building without every precaution being taken for its safety. They claim damage to surrounding residential property and an unnecessary exposure of the citizens to infection. They claim that such a hospital can be as easily and usefully maintained at a greater distance from the dwelling parts of the city. Several petitioners were heard, and the hearing was continued to a later day.

Angina Pectoris in Neurasthenia.—In the *British Medical Journal*, Dr. Rendu is quoted, from his contribution to the *Journal de Médecine*, July 10, as having recognized the following case as one of neurasthenic angina pectoris: A man aged 40, of robust appearance, notwithstanding he had suffered from typhoid, malaria and yellow fever, but whose health for the last five years had been good, was attacked by influenza. After this he began to suffer from peculiar attacks consisting in a kind of crisis arising in the little finger, extending up the arm,

and finally becoming more marked, accompanied by feeling of oppression and agony, with, on some occasions, syncope. After a short period in hospital these attacks became somewhat better, but returned to recur daily. There was no physical signs of either heart or lung disease. Rendu considers the diagnosis in this case one for reflection as to whether it were a case of true angina pectoris or not. In the case in question, as there were no signs of cardiac affection, as angina is uncommon up to the age of 40, and as the pain began peripherally, the author was rather inclined to deny its being true angina pectoris. The previous history of influenza would also, he considers, be in favor of the less grave condition; and as the patient also suffered from headache, sleeplessness and dyspepsia, the conclusion come to was that the case was simply neurasthenic. On these grounds the man was treated, with the result that the attack rapidly subsided and the general health was restored.

Cures of Insanity after Many Years.—Ventra warns against legislation to allow insanity as a cause of divorce, as improved methods of caring for the insane are resulting in cures, even after all hope has been abandoned. He has forty cures of this kind to report in his experience with the 3,531 insane patients received at Nocera, during the last thirteen years. Fourteen were cured during the fourth or fifth year after their insanity had developed; 6 during the sixth to seventh; 6 during the eighth or ninth; 8 between the tenth and eleventh; 3 between the fourteenth and fifteenth, and 3 in the twentieth year. Of these 21 were female, and 19 were male patients, and the ages varied from 20 to 54. In 19 the disease was hereditary, but in none were there traces of congenital degeneracy. The cure was spontaneous in 13; favored by work in 16; by injections of morphin in 5; by follicular dysentery in 1; by typhoid ileus or erysipelas in 1; by chronic intestinal catarrh in 2; by an operation for cataract in one and the extract of cannabis indica in another. The forms of insanity cured where chronic sensorial delirium in 18; primary paranoia in 8; lypemania in 7; mania in 6 and hysteric frenzy in 1 case.—*Gaz. degli Osp. e d. Clin.*, October 25.

Suppression of the Crystalline Lens.—Since Fukala suggested this method of treatment for progressive myopia seven years ago over 402 operations of the kind have been published, as stated in an article in the *Annales Méd.-Chir. de Liège* for October: Fukala, 37; Hippel, 60; Thier, 50; Sattler, 86; Valude, 2; Abadie, 3, etc. Some perform discission alone, and others follow it by extraction. Some also make a very small incision, and others a large one. The general procedure seems to be to test the power of absorption of the lens in regard to the vitreous humor, and proceed accordingly. When there is a congenital cataract, for instance, the lens is attacked very slightly. If it does not swell or absorb much, the operation is recommenced a week later. If the case is carefully watched, there is no fear of hypertonicity; if the finger reveals that the pressure is increased, and if the field of vision is narrowed all that is necessary is to make a simple linear extraction, with or without suction of the lens. The general opinion seems to be that discission is to be preferred under 25 years of age; above this, some extract, others still prefer discission. All state that by far the best results are attained on young patients. The degree of myopia that justifies intervention is above 10 D. in children; 14 to 15 D. in adults, according to Fukala, Pflueger and Schweigger; or 16 to 18, according to Abadie. Whether to operate one or both eyes is still disputed; some asserting that it is best to operate one eye, and reserve that eye for near work, while the other, with glasses, serves for all ordinary purposes. Thier seems to be the only operator who does not hesitate to perform the operation when there are choroid lesions, which the rest consider a counter indication. The exact state of the eye should be determined with atropin before attempting any intervention. Valude had one patient become totally blind from displacement of the retina, and Lang reports two cases of displacement in his five subjects. The visual acuity is often increased, sometimes doubled or even quadrupled. Hippel has noted an improvement of 1-10 to 2-10 and even 7-10. Sattler has seen slight improvement in twenty-eight of his eighty-six cases, but in eighteen there was no perceptible improvement. The general conclusions are that it may prove of great benefit to young persons with such myopia or feeble sight that any kind of work is impossible; but that interference with older persons who are able to pursue their usual occupations is unadvisable. Discission is by far the least dangerous method of procedure. It lengthens the treatment slightly, but the traumatism is much less than from extraction, the danger of infection is less, and also of displacement of the retina.

Dedicatory Exercises of the Chicago College of Dental Surgery.—The dedicatory exercises of the new buildings of this College took place on Friday evening, December 4, when speeches were made by Dr. Truman W. Brophy, W. M. Lawrence, D.D., Judge Richard S. Tuthill, Dr. John B. Hamilton, Professor M. P. Thomas of Lake Forest University, and Dr. C. N. Johnson.

The exercises were opened by the Dean, Dr. Brophy, who delivered a brief address in which he spoke of the growth of the college and of the history of dental education in the city of Chicago. He said the Chicago College of Dental Surgery was the first institution of its kind in this country to introduce and use for the benefit of its students a complete apparatus for the cultivation of bacteria, thus demonstrating the active agents that cause caries of the teeth and methods for effecting their destruction. The institution was the first to organize freshmen students into classes for practical work in dental technology, both operative and prothetic. In addition to these innovations in teaching, clinics were organized in the college and conducted for the benefit of the senior students by the most skillful and successful practitioners. The clinical instruction is still carried on and to an extent unequaled in former years. Realizing the necessity of securing a permanent location for the college, the lot was purchased upon which the building now stands in 1888, situated on the corner of Wood and Harrison Streets. The first section of the structure was erected in 1893, and the first course of instruction began in it November 1 of that year. Beginning with the present year plans were perfected and the building of 1893 has been doubled in capacity, so that the college now consists of a six-story structure, having a frontage of 85 by 120 feet. Each floor contains an area of 10,080 square feet, divided in accordance with suggestions and plans made, after having carefully examined the best regulated dental schools in the United States, thus enabling the faculty to incorporate the most modern features in its construction. Dr. Brophy then traced the growth of the college from the summer of 1883 up to and including 1895 96. The faculty of 1883 consisted of three, matriculates 18, and no graduates. In the session of 1895-96 the college has 87 teachers, and 503 matriculates.

Dr. W. M. LAWRENCE then followed with an address in which he said that he knew of no similar history along educational lines anywhere. He had the honor to be somewhat connected with the Chicago University and its growth had been phenomenal, yet, at the same time, he could say pretty accurately that the figures given by the dean proportionately exceeded any statistics which we might have the pleasure of presenting for the contemplation of the citizens of Chicago. He congratulated the faculty on having erected such a fine structure. He congratulated the cause of sound learning in having another illustration of faith in the genius of man, the power of the human heart and the capacity of the human mind.

Judge TUTHILL said that when he was a boy people never had their teeth attended to and that every old man and old woman

must have been toothless; that they went out of the world in about the same condition as to teeth that they came into it. At that time everyone seemed to think it was the normal arrangement and that people when they got old had no business with teeth. He believed that nothing had been done in medicine or surgery that had so added to the happiness of mankind as the work that had been done by men skilled in the art of dentistry.

Professor THOMAS followed Judge Tuthill. He was glad to see evidences, from the history which had been given by Dr. Brophy, that the College was not simply growing in extent, but becoming a genuinely progressive institution, an institution which is adding not simply to its numbers in its faculty and students, but to its curricula or courses of study, to its enlarged and advanced requirements, an institution which means a better educational product, men who are better able to do the special work to which they are called and to which they are devoting themselves by virtue of the broad, generous culture which the College was giving them. This, to his mind, told more for the glory of the Chicago College of Dental Surgery than anything else which he had heard.

The next speaker of the evening was to have been Dr. Nicholas Senn, but in his absence the vacancy was filled by Dr. John B. Hamilton, Professor of Principles and Clinical Surgery in Rush Medical College.

Dr. HAMILTON said that some thoughts had occurred to him while the preceding speakers were talking that might be of interest to the students, and one thought was that we were apt to think, in the clamor of a jubilee such as this, that everything was modern with which we had to do; that we forgot the filled teeth of the mummies and the Aztecs and the specialism which existed in the old Alexandrian school. Coming down to modern times we could congratulate ourselves that after a long period of darkness the revival of dentistry was due to America. In 1887, when he was executive officer of the first International Medical Congress held in this country, the question of the representation of dentistry as a distinct section came up and after due consideration it was decided to give full accord to the dental profession in that congress the same as to any other branch of medical science. It was greatly to the credit of this country that this was done, as America had reaped the benefit of it. The French Government sent a representative over here to inspect and investigate our dental colleges and to report to his government as to their condition and what he thought of our method of teaching; and this report, by Dr. Kuhn of Paris, on the dental art in the United States was, in the opinion of Dr. Hamilton, one of the most comprehensive reports ever published on the subject. At the same time, the report was most flattering, in that the author stated that European dental colleges could in no way compare with those in the United States. Dr. Kuhn spoke particularly of the Chicago College of Dental Surgery, but which at that time was under different auspices from those at present. The Philadelphia Dental College was particularly mentioned. After citing the different conditions that prevailed in dentistry in foreign countries and comparing them with the dental colleges in the United States, he (Kuhn) framed a bill, to be presented by the Minister of the Interior to the French Chamber of Deputies, with a view to procuring a charter for a dental college in Paris that would compare favorably with American dental colleges. No higher praise could be accorded American dental colleges than the compliment paid to them in this report. As to Dr. Evans, Dr. Hamilton said he was more than an ordinary practitioner of dentistry; he was foremost in the sanitary work of the Franco-Prussian war. The so-called American ambulance was the creation of Dr. Evans. Dr. Evans left his patients, went to the front, organized an ambulance service, and while French surgeons were busy caring for the wounded, Evans was busy with the ambulance corps in organizing general hospitals in the rear; and the story of the services of that noble, illustrious man in the Franco-Prussian war was enough of itself to elevate the profession to which he belonged to a high plane among the sciences and the educated men of the world.

Dr. C. N. JOHNSON said the first dental college was established in this country in 1839, but it was difficult to get at the curriculum of that college at that time. The number of teachers and students at the first or opening session was four. Dr. Johnson then dwelt upon the importance of educating the public to a proper appreciation of the practice of dentistry. The laity should be taught that the highest aim of dentistry was to add to the comfort, the longevity, the physical beauty and happiness of the human race.

At the conclusion of Dr. Johnson's speech the students, faculty and invited guests repaired to one of the spacious operating rooms, where refreshments were served and short speeches made by Drs. W. C. Barrett, A. W. Harlan, Thos. L. Gilmer, W. L. Copeland and Mr. C. G. Morrell and Dr. L. L. Skelton. Excellent stories were told by Mr. W. Woodruff, the Arkansas humorist; Opie Read, the well-known author; Mr. Richmond, the well-known journalist and Mr. W. B. Lockwood. Dr. C. N. Johnson recited a poem entitled "Our Quarrel." After singing Auld Lang Syne, the audience quietly dispersed.

Cincinnati.

THE MORTALITY REPORT for the week shows: Zymotic diseases 18; phthisis 10; other constitutional 4; local 58; developmental 6; violence 5; under 5 years 29; total 101; annual rate per 1,000, 15; preceding week 100; corresponding week 1895, 110; 1894, 137; 1893, 193.

THE FOURTH ANNUAL REPORT of the Massillon State Hospital shows $194.50 on hand. Appropriated up to beginning of fiscal year $160,000. Appropriation for 1896, $100,000, and for 1897, $150,000 with the authority to enter into contract for $300,000 and to purchase land not to exceed $14,000. When completed 400 patients can be cared for.

THE JURY in the Ewing v. Goode $25,000 damage case failed to agree on a verdict and were discharged. This is the case of a woman who sued a physician for malpractice for the loss of an eye from secondary glaucoma alleged to be due to an iridectomy.

A CASE of yellow fever was reported to Cincinnati recently by a Texan who had come from the Cuban army. The man has recovered.

AN OUTBREAK of diphtheria at North Bend, Ind., has been traced by the health officer to milk tickets that were used by customers of a milk man who had the disease in his home.

THE HEALTH DEPARTMENT of Kenton, Ohio, have decided to compel the school children to provide individual drinking cups as a sanitary precaution.

Dr. C. H. METZ of Madisonville has made a valuable contribution to the Academy of Medicine library in the way of rare German medical works.

THE STATE BOARD of Live Stock Commissioners have rendered their report in which they state that animal tuberculosis is on the increase to an alarming extent and they urge legislation empowering them to isolate and treat the diseased cattle.

THE SUPREME COURT has decided that the presentation of a copy of the U. S. Pharmacopeia of 1890 is not competent evidence in a prosecution of a case by the Dairy and Food Commission for violation of the pure drug laws for the reason that the statutes take as a standard the Pharmacopeia that was in use at the time of the enactment of the law, which would be the 1880 edition; the commissioner claims that the department is rendered to all intents and purposes powerless to enforce the law by this decision as the defendants would claim that the 1880 edition could not be used for the reason that it has become obsolete.

Dr. OLIVER P. HOLT was elected to fill the vacancy in the

City Hospital caused by the resignation of Dr. Frederick Kebler, Dr. Henry Bettman was elected pathologist and Dr. H. Kennon Dunham, curator. The salary of Dr. Shields, receiving physician is raised from $60 to $75 per month.

A COLORED minister of Bellefontaine, Ohio, died last week from inhaling the fumes from a lot of potato bugs he was burning in a pan on the stove.

THE QUESTION of establishing a city laboratory for the diagnosis of diphtheria as being discussed by the profession, and it is expected that some arrangement will shortly be made whereby this work can be done under the management and expense of the city. The plan of the New York City Board of Health will doubtless be followed. At the meeting of the Academy of Medicine the importance of this movement was emphasized by the presentation of the statistics of the treatment of antitoxin and the importance of the early diagnosis. The consensus of opinion was that the first day of the disease was the time *par excellence* for the administration of the serum. The statistics showed that the percentage of mortality had been reduced from 56 and 75 per cent. to 2 per cent. when the injection was made on the first day and to 5 per cent. of all cases reported. The experience of a Berlin Hospital was given as follows: The mortality in past years has been 56 per cent., but was reduced by antitoxin to 4 per cent.; the former high mortality was immediately reached when the serum gave out only to be again brought down after a new supply had been secured.

Louisville.

REMOVAL.—Dr. H. H. Grant announces his removal from 415 West Chestnut Street to Suite 321, Third Floor of the Equitable Building, Fourth Avenue and Jefferson Street. Dr. T. H. Baker will have an office in the same suite.

BURIAL PERMITS.—A new ordinance has just been recommended by the health officer concerning the return of burial permits to the health office, which should become a law at once. Under the old law it was possible for a burial to take place and the return be handed in to the health office three or four days afterward. The new ordinance is very explicit as to this, as no body can be moved until a death certificate has been handed in, and that within twenty-four hours after the death. This must be properly signed by the attending physician, and no burial can be permitted in any cemetery or burying ground unless a permit from the health office is presented. This permit is to be filed away and subject to the health officer's inspection at any time. A monthly report is to be made by the keepers of the cemeteries as to the date of burials and the name of the deceased and undertaker, in order that it may be checked with a corresponding record kept in the health office. A penalty is provided for a violation of this ordinance by physicians, undertakers or sextons.

THE WESTERN INSANE ASYLUM.—The forty-second annual report of this institution, covering a period of twelve months, has just been issued from the office of the public printer. During the twelve months 133 new patients, seventy males and sixty-three females, were admitted; making a total number of patients under treatment during the year 774. Deducting the number discharged, died and transferred, there were 623 patients remaining in the institution Sept. 30, 1896. The death rate was only 5.68 per cent. of the number of patients treated. During the year fifty-one patients were restored and discharged, thirty male and twenty-one female. The cost per capita for the maintenance of the patients was only $148, but it would have been more had not a great deal of the farm products been raised on the farm of the institution, which is worked by the inmates, all harmless patients who are desirous of doing some work. Of the 133 patients admitted during the year, 109 were born in Kentucky, fourteen in Tennessee, and the rest scattered through several States. Seventy were married, thirteen widowed, and one man was divorced. The ages ranged as follows: Thirty-four between 30 and 40 years; thirty-three between 20 and 30; twenty-two between 40 and 50; fifteen between 50 and 60; nine between 60 and 70, and six between 70 and 80. Eighty-one of them were either farmers or members of farmers' families; two were day laborers; eleven were farm laborers or members of their families; six domestics, and three were ministers' daughters. In their tendencies nineteen were suicidal, thirty-one homicidal, and twenty were both suicidal and homicidal. The preponderance of the number of cases drawn from the farmer class is surprising, though this has been noted by observers before. At a recent meeting of trustees of the Lakeland Asylum (near this city), Dr. Satterwhite, a member, advocated the employment of the inmates of the institution at some occupation that had been theirs before their admission if that could be ascertained, and if not to put them at something light, as shoe or broom making, farming in good weather, and other like employments. This is the policy in vogue at the Western Asylum. The remarks of Dr. Satterwhite were well received, and a committee appointed to take action at once on the recommendations.

GRAY STREET INFIRMARY.—This institution, which is the hospital of the Hospital College of Medicine, will be ready for occupancy on December 20, with a full quota of nurses and fully equipped in every respect. The building is a commodious though unpretentious one on the exterior, and will be a great addition to the Hospital College, giving the students in attendance an excellent opportunity of seeing practical instruction in the operating room and at the bedside.

DR. THOMAS HUNT STUCKY, President of the Mississippi Valley Medical Association, is in poor health and has been ordered away by his physicians. He will probably go to New York for a much needed rest.

Elimination of Mercury.—Further observations made confirm Mironowitsch's announcement that considerable amounts of mercury are eliminated through the skin, which deprives the analysis of the urine of some of its importance in this respect. Kudisch also announces that the mercury is eliminated through the urine much more rapidly and in much larger quantities when the injections are intravenous than when they are subcutaneous.—*St. P. Med. Woch.*, November 7, from *Wratsch*.

THE PUBLIC SERVICE.

Army Changes. Official List of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from Nov. 28 to Dec. 4, 1896.

First Lieut. William H. Wilson, Asst. Surgeon U. S. A., is granted thirty days' leave of absence, to take effect about Dec. 20, 1896.

Change of Address.

Breakey, J. F., from Pontiac to Ann Arbor, Mich.
Dunne, A. J., from Pittsfield to Springfield, Mass.
Eichberg, L. R., from Chicago to 332 W. 85th St., New York, N. Y.
Gilbert, James L., from Bunker Hill to 301 W. Broadway, Logansport Ind.
Miller, R. E., from 3255 State St. to 291 31st St., Chicago.

LETTERS RECEIVED.

Alta Pharmacal Co., St. Louis, Mo.; Anderson, Jos. W., Ardmore, Pa.
Baker, E. F., Jacksonville, Ill.; Bittman, Chas. W., St. Louis, Mo.; Bock, Charles, Fort Wayne, Ind.; Battle & Co., St. Louis, Mo.
Carter, Howard, St. Louis, Mo.; Chenoweth, J. S., Louisville, Ky.; Cooley, J. S., Glen Cove, N. Y.; Center, Chas. Dewey, Quincy, Ill.; Cullen, G. I., Cincinnati, Ohio; Catlin, Samuel, Tecumseh, Mich.
Daniel, J. B., Atlanta, Ga.
Fassett, Chas. Wood, St. Louis, Mo.
Hannold, Fred C., Chicago; Hare, H. A., Philadelphia, Pa.; Hubbard, G. W., Nashville, Tenn.; Hummel, A. L., Adv. Agency, New York, N. Y.; Horlick's Food Co., Racine, Wis.; Haldenstein, J., New York, N. Y.
Ingals, E Fletcher, Chicago.
Little, J., Bloomington, Ill.; Love, I. N., St. Louis, Mo.; Long, F. A., Madison, Neb
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Paquin, Paul, St. Louis, Mo.; Philips, Ferdinand, Philadelphia, Pa.; Pleak, S. M., Keokuk, Iowa.
Reed, R. Harvey, Columbus, Ohio.
Saunders, W. B., Philadelphia, Pa.; Stein, O. J., Chicago; Smith, Frank Trester, Chattanooga, Tenn.; Schering & Glatz, New York, N. Y.; Sattler, Robert, Cincinnati, Ohio.

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ADDRESSES.

MEDICAL EDUCATION IN AMERICA; ITS PAST, PRESENT AND FUTURE.

Opening Address delivered at the Northwestern University Medical School, Chicago, Oct. 6, 1896.

BY WINFIELD S. HALL, PH.D., M.D.

PROFESSOR OF PHYSIOLOGY.

One can not give much of the history of medical education in America in a brief paper. At most one can show the effects of certain forces which have been in operation, and indicate some of the landmarks along the line of development.

All manifestations of life, whether the life of a single cell, of a person, or of a nation, are modified by the environment. So strong is this modification and so faithfully do living things follow the changes of the environment, that they may justly be said to be its product.

The educational institutions of a nation are manifestations of its life. The facilities and equipments of these institutions are organs of the State, which perform the function of developing citizens. From these premises it follows that educational institutions are modified by, in fact, are a product of, the environment.

Another law of life is: Community of environment leads to harmony of structure and function, and so we find that the institutions of a nation must be in harmony with the spirit of the nation, because developed under the influence of the same modifying causes.

If we admit that, in common with other manifestations of life, educational institutions are the product of evolution, then will we expect to find that these institutions present, in each country, certain peculiarities and that they are in harmony with the spirit of the nation with which they developed; further, we will find that the present condition of these institutions must be the result of factors active in the past, and the future condition will be the result of the factors at work in the present.

In the light of these general principles, let us briefly glance at the past[1] and present of medical education in America with a view to forecasting its probable future.

The first American medical college was not established until over one hundred and fifty years of English colonial life had passed into history. During the whole period—longer by twenty years than all our subsequent history—there had been in the colonies only 3,000 or 4,000 practitioners of medicine, and of these only a little more than one in ten had received the degree of Doctor of Medicine from some European institution. Of the remaining 90 per cent. some held certificates of apprenticeship to one of the educated physicians, while the vast majority dispensed their nostrums among their neighbors with no legal recognition and no justification for their activities save the mere toleration of the community. The first almost abortive attempt to regulate medical practice by law was made by New York in 1760, followed by New Jersey in 1772.

In Philadelphia in 1752 was established the first permanent hospital in America, with Dr. Bond as superintendent and several of his colleagues as associates. The private students of Dr. Bond received in the wards of this hospital the first clinic instruction given in this country.

The Medical Department of the College of Philadelphia was organized in 1765, with Dr. Wm. Shippen as professor of anatomy and surgery and Dr. John Morgan as professor of medicine. This faculty of two was soon increased by the addition of Dr. Adam Kuhn as professor of botany and materia medica and Dr. Benjamin Rush as professor of chemistry. Three years later New York City witnessed the organization of the Medical Department of King's College, now Columbia University, with a medical faculty numbering six: A professor of anatomy, of chemistry and materia medica, of physiology and pathology, of midwifery, of surgery and of the theory and practice of medicine.

Note the very important difference which existed in the organization of these two schools of medicine. From the first surgery and midwifery were recognized in the New York college as of sufficient importance to be made full and independent departments, while thirty-seven years elapsed before surgery was separated from anatomy in Philadelphia; and, in the University of Edinburgh, after which our early medical schools were modeled, it was not until 1831, or sixty-three years after the organization of the New York school, that surgery was made an independent department. Midwifery was still later in gaining recognition. From the early decades of this century, however, the progress of specialization has been ever more and more rapid, until now the number of specialties represented in the average medical faculty shows a high degree of differentiation.

But a more interesting phase of the history of medical education in this country is that which presents the varying requirements for graduation. During the first thirty years of our national history seven medical schools were organized. All of these schools pursued a similar plan, which is well stated in the following rules, in regard to the conferring of medical degrees adopted by the trustees of the College of Philadelphia July 1767:

For a bachelor's degree in medicine.—1. It is required that such students as have not taken a degree in any college shall, before admission to a degree in medicine, satisfy the trustees and professors of the

[1] For facts regarding the early development of medical institutions in America, I wish to acknowledge my indebtedness to various publications on that subject by Nathan S. Davis, M.D.

college concerning their knowledge in the Latin tongue and in such branches of mathematics and natural and experimental philosophy as shall be judged requisite to a medical education. 2. Each student shall attend at least one course of lectures in anatomy, materia medica, chemistry, the theory and practice of medicine and one course of clinic lectures, and shall attend the practice of the Pennsylvania Hospital for one year, and may then be admitted to a public examination for a bachelor's degree. 3. It is further required that each student, previous to the bachelor's degree, shall have served a sufficient apprenticeship to some reputable practitioner of medicine, and show that he has a general knowledge in pharmacy.

For a doctor's degree in medicine.—It is required for this degree that at least three years intervene from the time of taking the bachelor's degree, and that the candidate be fully 24 years of age, and that he shall write and defend a thesis publicly in college, which thesis shall be printed and published at his own expense. This scheme of a medical education is proposed to be on as extensive and liberal a plan as in the most respectable European seminaries; and the utmost provision is made for rendering a degree a real mark of honor, the reward only of distinguished learning and abilities.

The full significance of the term *apprenticeship* may be more fully understood from the following paragraph from Dr. Davis' address before the International Medical Congress in Philadelphia, in 1876:

It must be remembered that during the colonial period of our history, and for thirty or forty years subsequent to the achievement of our national independence, it was the universal custom for young men who entered upon the study of medicine to become regularly apprenticed to some practitioner for a term of three or four years, during which time the preceptor was entitled to the student's services in preparing and dispensing medicines, extracting teeth, bleeding and other minor surgical operations, and when more advanced in studies, in attending on the sick; as a return for this he was obliged to give the student detailed and thorough instructions in all branches of medicine. Many of the more eminent practitioners frequently had several students in their offices at one time, constituting a small class, who were drilled as regularly in their studies as they would be in college. In some instances the term of apprenticeship was extended to six or seven years, and was made to commence at the early age of 15 or 16 years. All these customs were brought by the immigrants from the parent country, and their perpetuation here was rendered more necessary by the sparseness of the population and the difficulty of access to medical schools. In the midst of such customs, and at a period in the world's history when railroads, steamboats and other means of speedy transit were unknown, it was entirely reasonable that the first idea of a medical college should be to furnish means for a rapid review of the several branches of medical science, aided by such experiments and appliances for illustration as could be commanded, and the whole concentrated into as small a part of the year as possible. The idea of the founders of medical schools, both in Great Britain and in this country, was to make them *supplement*, but not *supersede* the work of preceptor and the medical apprentice. By combining several preceptors, each eminently qualified in some one department, in a college faculty, with access to anatomic rooms, chemic laboratory and hospital, all the branches of medicine then recognized could be very well reviewed in the form of didactic instruction, in five or six months of the year.

From these quotations and from the history of the early development of these institutions, it is evident that the fathers of medical education in America planned more broadly than their successors were able to execute. It was expected that a youth of 16 to 18 years would enter upon an apprenticeship of three to five years; would take one course of lectures at a college, receive the degree of Bachelor of Medicine, and return to practice under the guidance of his preceptor, where he could continue his studies at the bedside while assuming greater responsibilities than were possible as an apprentice. After three years he could return to the college for a second hearing of the courses of lectures, for the preparation of his thesis and for his final examinations, after which he would be rewarded with the degree of Doctor of Medicine.

The plan of conferring a degree of Bachelor of Medicine followed by the degree of Doctor of Medicine only after the candidate has reached greater maturity and has demonstrated his ability both in practice and the composition and defense of a creditable thesis, is still followed by the medical schools of some of the European states, and with the most salutary effect upon the standing of the medical profession. The conditions which existed in America during the early part of our national history made this excellent plan impracticable. The few schools could not prepare a sufficient number of Doctors of Medicine to supply the demand of a rapidly increasing population. Once the responsibilities of medical practice were assumed by the Bachelor of Medicine, these responsibilities were with difficulty and, therefore, infrequently laid aside for the second course of study leading to the second degree. And so it transpired that the plan was abandoned in America and the Bachelor's degree was abolished.

The revised regulations adopted by the trustees of the College of Philadelphia, Nov. 17, 1789, were in substance as follows:

1. No person shall be received as a candidate for the degree of Doctor of Medicine until he has arrived at the age of 21 years and has applied himself to the study of medicine in the college for at least two years. Those candidates who reside in the city of Philadelphia or within five miles thereof, must have been the pupils of some respectable practitioner for the space of three years, and those who may come from the country and from any greater distance than five miles, must have studied with reputable physicians there for at least two years.

2. Every candidate shall have regularly attended the lectures of the following professors, viz., of anatomy and surgery, of chemistry and the institutes of medicine, of materia medica and pharmacy, of the theory and practice of medicine, the botanical lectures of the professor of natural history and botany, and a course of lectures on natural and experimental philosophy.

3. Each candidate who, by virtue of a preliminary test, shall receive the approval of the medical faculty, shall then be admitted to a public examination before the trustees, provost, vice provost, professors and students of the college; after which he shall offer to the inspection of each of the medical professors a thesis written in the Latin or English language (at his own option) on a medical subject. This thesis, approved of, is to be printed at the expense of the candidate and defended from such objections as may be made to it by the medical professors at a commencement to be held for the purpose of conferring degrees on the first Wednesday of June each year.

BENJAMIN FRANKLIN,
President of Board of Trustees.
WILLIAM SMITH,
Provost of the College and Secretary of Board of Trustees.

This action, inaugurated by the oldest and most influential of the American medical colleges, was rapidly followed by the others, so that medical education instead of covering a minimum period of seven years, was reduced to a minimum of four years, which consisted of two years of apprenticeship followed by two years of lectures and clinics, the second year being a mere repetition of the first. This action participated in by one of America's greatest and wisest men reduced to one-half the requirements for the doctor's degree; however, it resulted in the production of better prepared young medical men, because it produced Doctors of Medicine fitted for their work by

two or three years of apprenticeship and two years of college and hospital work in the place of Bachelors of Medicine, who had only received one year of college and hospital work. Subsequent history has shown that this change of plan was rather a stroke of diplomacy than act of statesmanship; for we are still suffering from the effects of this precedent. But we can not complain, for this was a simple adaptation to the environment. From that day medical education in America has been a peculiarly American institution, following every indication of the environment.

With the rapid opening up of new territory, the influx of immigrants and the founding of new cities came increased demands for practitioners of medicine. The new centers of population west of the Alleghenies were not content to patronize the well-established schools in the East, but, prompted by local pride, established new schools of medicine in every promising city of the Northwest territory. The result was, that though there were only five medical schools in operation in 1810, the thirty years next following that date witnessed the organization of twenty-six new schools—a greater number than the whole German Empire now possesses. Though some of these new schools were in the Eastern States, most of them were in the West and South. From 1840 to the celebration of the centenni al of our national independence, a period of thirty-six years, forty-seven more schools were organized. Some had for various reasons been discontinued, so that there were only sixty-three in active operation in 1876.

But during these sixty-six years of rapid increase in the number of medical schools, certain factors were at work to further debase standards of medical education. The course of study as first planned provided instruction in botany, zoölogy, physics and chemistry, and presupposed a thorough knowledge of the Latin language.

It will be remembered that Philadelphia College abandoned the requirement of a Latin thesis when they abandoned the preliminary degree of Bachelor of Medicine in 1789. The medical department of the University of Pennsylvania followed its example three years later. The University of Pennsylvania made botany and zoölogy optional. The colleges generally were ready in their response to this relaxation, and we find that during the first half of the century the candidate for entrance upon medical study was acceptable if he could read and write his own language, and that during the medical course no time was devoted to botany, comparative anatomy, physics or any subjects that make any part of a liberal education. The college term was shortened to twelve or sixteen weeks, but still worse than this the term of preliminary study in the office of a physician had become merely nominal. It was possible for a young man from the shop or farm, whose education represented what he had gleaned in a few winter terms of school and a few months as a busy practitioner's office boy and coachman—with the privilege of reading in the doctor's books at odd hours—it was possible for a young man, with such a preliminary training, to attend two winter terms of twelve to sixteen weeks each, hearing the same lectures and attending the same clinics the second year as the first, to receive the degree of *Doctor of Medicine*, which carried with it the license to practice anywhere in the country. This pitiable condition represents the lowest ebb tide of medical education in America. The weakest features of the condition have been pictured.

A redeeming feature is that even during this period there were many hundreds of members of the medical profession who were men of the highest natural endowments and who had spared neither time nor money in thoroughly equipping themselves for the most efficient work in their chosen profession. Their contributions to medical literature were notable, they usually occupied prominent positions upon medical faculties. The white-haired veterans upon the medical faculties all over the country represent this class. They have labored from the first for higher standards of education. Through colleges, through medical societies and through their pens—in the journals and in their text-books—they have given the best energies of their lives to the work of keeping the medical profession in harmony with the spirit of advancing standards.

We have traced briefly the history of medical education in America until about the middle of this century. We must not make the mistake of supposing that this was the only field of education that had suffered a lowering of standard during this period of our national history. The equipment of members of the other professions was no better than that of the medical profession. Colleges, universities, schools of law, medicine and theology had sprung up all over the newly opened territory of our country. They were, in a vast majority of cases, beautiful exemplifications of Paul's definition of faith: "The substance of things hoped for and the evidence of things not seen." But the faith of the new nation has been justified. The things hoped for have begun to materialize and the things which were at that time not seen have begun to come into evidence. A reaching up after higher standards may be seen in the plans of all the educational institutions of the country.

If we look for the factors at work during these two distinct periods of the development of our educational institutions, we will find them in the environment—in society. As a child takes especial pride in the mere number of dolls, marbles, or other playthings, so a young society counts its numbers, and sums up its quantities of everything. Young cities vie with each other in the number of inhabitants, number of factories, number of schools. Young schools vie with each other in the number of pupils, the number of instructors, the number of books in their libraries. The question of the quality of these several possessions or appliances is one which is propounded later in the development of the individual or of the state.

So while we in our buoyant youth were adding millions annually to our population, while we were organizing States, founding cities, building thoroughfares for traffic, we were establishing institutions of learning, and these nascent institutions possessed all of the quantity-loving attributes of youth.

During the last half of this century the spirit of progressive evolution has actuated our educational institutions. But progressive evolution is possible only in an environment which puts a premium on excellence of quality. The greater this premium is the more sharp the competition will be and the more severe the struggle for existence. The fittest will survive; the less fit will become secondary, then subordinate, then extinct.

One of the first marks of stability in our forming society was the premium which it placed upon real merit in members of the learned professions. The

best equipped lawyers and the best equipped doctors of medicine received national recognition; the ambitious youth, hoping for a position of honor in his profession, knowing that in the struggle for recognition the fittest would win, sought the best preparation at his command. This was the paramount factor in the evolution—the natural selection of the fittest by society. But there were several secondary factors. Most important among these was the effort which leading members of the profession had made to raise the standard of education. Before society passed beyond the quantity-loving phase of its development these efforts of the veterans of medicine were fruitless. Now the gates to advancement were open. Two factors have been most potent in this improvement. First, the influence of *medical societies*. One of the most influential of these is the AMERICAN MEDICAL ASSOCIATION organized in Philadelphia, in May, 1847. Our Dean, Dr. N. S. Davis, was one of a committee of seven appointed at the National Medical Convention in New York May, 1846. The report of that committee, presented and adopted the following year begins as follows:

WHEREAS, The medical convention held in the city of New York in May, 1846, has declared it expedient for the medical profession of the United States to institute a national medical association, and, inasmuch as an institution so conducted as to give frequent, united and emphatic expression to the views and aims of the medical profession in this country, must have a beneficial influence and supply more efficient means than have hitherto been available here, for cultivating and advancing medical knowledge, for elevating the standard of medical education and for promoting the usefulness, honor, and interests of the medical profession; therefore, be it

Resolved, That the members of the medical convention held in Philadelphia in May, 1847, constitute a national medical association to be known and distinguished by the title of the "AMERICAN MEDICAL ASSOCIATION." [Medical Education, Davis, p. 142.]

This ASSOCIATION has always been a friend of advancing standards. The more recently founded American Academy of Medicine is also exerting a stimulating influence.

The two factors of progress already discussed paved the way for the third and made its success possible. This third factor was the founding of schools adequately equipped to furnish young men with a thorough training in scientific medicine. This entailed an extension of the faculty-roll, the furnishing of expensive laboratories, and of increased facilities for clinical instruction. It involved the extension of the period of study and the arrangement of the studies in a graded course. The Chicago Medical College, founded in 1859, was the first school oganized upon this basis.

Its success from the first demonstrated the fact that the times were ripe for advance. Other schools fell into line. Standards rapidly advanced. Ten years ago the best schools required three years of eight months each. Today the best schools require four years of eight or nine months each. The work in these schools is strictly graded and consists largely of laboratory work in the first two years and of clinical work in the last two years. The actual time spent in college is now four or five times as long as the time spent by our grandfathers and the grading of the course and the introduction of laboratory and clinical work makes it probably eight or ten times as effective.

The youth can not now leave the field or the shop and go at once to the medical school. He must have had a year of Latin, and so much of mathematics, and of natural science as would represent at least two years of work.

But these are the minimum requirements; students are urged to complete in a college or in a university courses covering three or four years in the modern languages and mathematics and the physical and biologic sciences. Every year shows an increasing proportion of students in the professional schools, who have had at least two or three years of a college course. Johns Hopkins University alone requires, for matriculation in the medical school, a baccalaureate degree from a recognized institution.

Ten years ago the most optimistic friend of advancing standards would scarcely have anticipated that in 1896 all the reputable schools of medicine would require of candidates for the Doctor's degree, four years of medical study after a fair preparation and would be making laudable efforts to provide respectable laboratory and clinical courses. But such is the condition of medical education at present.

The spirit of progress is dominant. Society and the state want better equipped men in the learned professions. The recognized men in all of these professions are using their influence to raise the standards of professional education. A young man who aspires to a position of repute in one of these professions is ready to comply with the increased requirements in time and hard work, in order to give himself the best possible equipment.

Recognizing the presence and force of these factors of progress, the writer should not be adjudged too optimistic if he prophesies that in 1906 A.D. all reputable and recognized medical schools in America will require of a matriculate that he present a baccalaureate degree from a college or university, or credentials covering at least four years of language, four years of mathematics, one year each of chemistry and physics, and two years of the biologic sciences. A student so prepared would require four years for his medical course and should be given the baccalaureate degree at the end of his first year in medicine.

But several of the larger universities offer thorough courses in the comparative morphology of vertebrates, comparative mammalian osteology, special and comparative embryology, histology, general and comparative physiology and the special physiology of nutrition. A student with a preparation covering this field will usually have received the baccalaureate degree. Such a candidate should require but three years for his college studies in medicine.

What change will be made in the medical course?

There will be no increase of the quantity of work required of the student, but there will be a very great improvement in the *quality* of work done. Certain courses will be required of all students; certain courses will be elective. The advanced work will be done in the elective courses. Each of these courses will have a special equipment. If the classes are not too large, they will meet periodically in the seminar rooms for the reading of prepared papers or the discussion of new literature. Each professor will take pride in securing for the library a good representation of the books and journals in his special field. Journal clubs in medicine, surgery, pathology, etc., will be organized by the students. Each of the more influential institutions will need a journal for the publication of the products of its own research. With such a preparation for medical study and with such opportunities, may we not hope that in the near future the degree of

Doctor of Medicine will signify all that was planned for it by our forefathers in Philadelphia nearly 140 years ago, viz.: "This scheme of a medical education is proposed to be on as extensive and liberal a plan as in the most respectable European institutions; and the utmost provision is made for rendering a degree a real mark of honor, the reward only of distinguished learning and abilities."

THE PREVENTION OF PELVIC DISEASE.

Annual Address on Gynecology and Abdominal Surgery, Michigan State Medical Society, June 4, 1896.

BY REUBEN PETERSON, M.D.

Fellow American Association of Obstetricians and Gynecologists; Member of the Chicago Gynecological Society.

GRAND RAPIDS, MICH.

For some years past the greater portion of the time of those who have given their attention to the diseases of women has been devoted to the development of more strictly surgical problems. That the greatest good has resulted from these investigations no unprejudiced mind will deny. As Americans we can be justly proud of the surgical discoveries and achievements of our gynecologists, by means of which lives of thousands of women have been saved or have been rescued from invalidism. Nor is it to be wondered at that surgical abuses should have crept in with the discovery that by attention paid to the laws of asepsis the peritoneal cavity could be invaded with impunity. The performance of unnecessary operations, the removal of organs which might have been saved are but incidents in the mighty advance which has been made. The evils resulting from the surgical attempts of those whose preliminary training was insufficient have been more than counterbalanced by the good resulting from the knowledge placed at the disposal of every practitioner. It is extremely popular to sneer at gynecology and, making much of its errors, to forget the debt the profession owe the tireless workers in this department. Modern pelvic pathology has been placed upon a firm basis only by the multiplicity of the abdominal sections, so deplored by some. The mistakes made by the pioneer surgeons have been recognized and profited by and we are entering upon a new era of gynecology and abdominal surgery. Pelvic pathology and surgery go hand in hand and true conservatism is the order of the day.

It is but a step to the higher realm of preventive medicine as applied to diseases of women. In the midst of scores of papers upon surgical technique one has appeared now and then which mildly urged that diseases curable only by surgical interference could have been prevented had suitable means been instituted at the proper time, but these efforts have for the most part been unheeded.

The cause and prevention of pelvic disease is a subject of interest both to the gynecologist and the general practitioner. The former from the abundance of material at his command is in the best position to study cause and effect in their relation to diseases coming under his specialty. It is to him we look for the application of the discoveries of modern physiology, hygiene and bacteriology in the prevention of pelvic troubles. But the carrying out of these preventive measures will necessarily fall to the lot of the general practitioner. To his care is intrusted the physical well-being of the growing girl, the wife, the mother and the woman past the menopause. To him do they look for counsel. His responsibility is great for upon his advice does the future welfare of the nation largely depend. It is time for the profession and the laity to understand that diseases of the female generative organs in a majority of cases are preventable. The popular opinion that women are born to suffer may be denounced as false. With scarcely an exception the origin of pelvic troubles can be traced to some transgression of nature's laws committed wilfully or through ignorance. If it be due to the latter the family physician must in a great measure be held responsible. His part as adviser should be active, not passive, if pelvic disease is to be controlled by wise prophylactic measures. The causes of pelvic diseases to which I would invite your attention are:

1. Imperfect development of the sexual organs.—At no period of life will prophylactic measures against pelvic disease prove of so much avail as during the few years prior to puberty. Yet at no time are they so much neglected. The girl is allowed to approach womanhood with no thought bestowed upon the needs of her developing generative apparatus. Unless perchance menstruation be developed beyond the expected time, when the physician is consulted, perhaps too late to entirely rectify the conditions resulting from neglect. Pelvic disease due to imperfect development of the sexual organs is very common. How often do we meet with infantile uterus, small convoluted tubes, anti-flexed and elongated cervix. Uterine and ovarian dysmenorrhea and the various reflex neuroses are common accompaniments and doom the sufferer to a life of invalidism unless relief can be obtained.

Oftentimes we may look for the causes of the conditions enumerated in faulty methods of education. The growing girl who should spend most of the time in the open air with never a care in the world, is closely confined for hours in a school-room, the air of which is so vitiated as hardly to be capable of supporting life. Here she may be found, ambitious to excel in her studies, poring over her books with back bowed and chest contracted. If the remainder of her time were spent in recreation the evil effects of crowded school-rooms might be counteracted, but such, as a rule, is not the case. The parents are ambitious that their daughter shall take high rank in her studies and that accomplishments such as music and painting be acquired at an early age. Hence the girl is urged to still greater mental efforts. Thus the nervous force so needful at puberty for the establishment of the menstrual function, is wasted in the acquisition of what may be considered trifles, compared with perfect health. It is here that the family physician's advice will be of inestimable value. He can urge apon the parents the necessity of healthy nervous and muscular systems for the proper development of the sexual organs. He should demand that the school duties be lightened and the hours of recreation in the open air be lengthened. By carefully instructing the mothers on questions of diet, he will be able to prevent the evils resulting from malnutrition so common in girls from 10 to 15. He will find the parents only too anxious to coöperate with him. They err only through ignorance of what is best for their children.

The false modesty about all matters relative to the generative organs which prevents the mother from explaining to the girl what she may expect at puberty is to be deprecated. The members of the medical profession have a great educational task before them if they are to instruct the growing generation of girls

through the mothers. Many false notions must be swept away if we are to arrive at a state of things when modesty, not prudery, shall reign supreme. It is inconceivable why a fundamental law of nature, whereby the species are perpetuated should be treated as such a mysterious, nay, almost sinful matter. When the time comes that the young girl can have the functions of her generative organs explained to her without danger of having a hysteric convulsion, we shall have accomplished a great deal. When she knows as much about her uterus and ovaries as she is taught about the stomach and liver, then she will be in a position to put into practice those prophylactic measures necessary to the maintenance of perfect health.

2. Gonorrhea.—It is exceedingly difficult to estimate what proportion of the inflammatory affections of the uterus, tubes and ovaries are due to gonorrhea. But that the percentage is high is apparent even to the most superficial observer, and the more the disease is studied in women and the greater the improvements in bacteriology, the higher is to be found this percentage. The question before us is not, however, a pathologic or bacteriologic one, for the lesions produced by gonorrhea in the female are well known. One reason for the prevalence of gonorrheal disease is that its gravity has never been correctly estimated by the laity or the profession. And this in spite of the teachings of Noegerrath, who, over twenty years ago, demonstrated that many so-called cures in the male are fallacies. This accurate observer proved conclusively that in many instances a latent gonorrhea existed, which could under certain circumstances be communicated years after the acute infection. It has required over twenty years of discussion for the profession to acknowledge the truth of Noegerrath's statements, and even now the popular opinion in regard to the disease shows that the profession have failed to impress the importance of these conclusions upon their patients. Is it not a common experience to find the young man who consults us for an acute gonorrhea, treating it as a most trivial affair? He thinks he has been unfortunate, that it is all. If it were explained to these young men that gonorrhea is something more than a "cold," that the disease, no matter in how light a form it exists, may produce the most serious results in the male genito-urinary organs, they would perhaps think twice before exposing themselves to the risk of infection. If it were generally known that gonorrheal disease was the cause of sterility and a long train of symptoms entailing the utmost misery upon the innocent wife, would the disease be looked upon as such a trivial affair by the laity? Let the profession do its duty and we shall soon see a change of opinion in the community. The world has suffered enough from the prevailing idea that a young man must sow his wild oats. If our boys were properly instructed in regard to the evils resulting from venereal disease, we should see fewer wild oats of that description. Let the parents be enlightened on what may befall their daughters if married to men suffering from latent gonorrhea. Let the father demand from the prospective son-in-law not a full pocket-book, but a clean bill of health, and there will be fewer unhappy homes. It is only by work in these directions that any headway can be made in the effort to eradicate gonorrheal disease. Closing the houses of prostitution will not do it, for the inmates are simply driven elsewhere. Licensing the houses has proved a failure as far as decreasing gonorrheal disease is concerned. The only hope lies in the thorough dissemination of knowledge of the evils resulting from the gonorrheal poison and in a direct appeal to the justice and honor of our young men.

3. Lacerations due to childbirth.—Thanks to the teachings of some of our American gynecologists, the profession is alive to the importance of lacerations of the cervix and pelvic floor as factors in the causation of displacement and disease of the pelvic organs. The attention of physicians should now be directed toward the improvements in their methods of repairing these lacerations. The gynecologist not infrequently obtains the history of a primary repair of a ruptured perineum which shows no trace of the obstetrician's work. Usually the failure of the operation has been the result either of want of knowledge how the stitches should be placed or a lack of asepsis either during or after the suturing. When more than one or two stitches are required it is best that the patient should be under the influence of an anesthetic. It is almost impossible to obtain proper coaptation of the torn edges of the perineal muscles when the patient is in pain and struggling. Perineal tears, as a rule, involve the muscles at the sides of the vagina. Unless the sutures be placed accordingly a "skin perineum" with a resulting prolapse will be the result. Silk or silkworm gut sutures thoroughly sterilized should be used. Catgut should not be employed because of the danger of subsequent infection. The patient should be examined within a month after delivery for the purpose of detecting any lacerations of the cervix demanding repair. Any such should be attended to not only for the immediate effect upon the uterus by the promoting involution, but also for the purpose of avoiding subsequent eversions, erosions and possible malignant disease.

4. Sepsis following childbirth and abortions.—The dissemination of knowledge among the laity as to the etiology of this disease and the responsibility laid at the door of the physician when a death occurs, has obliged every practitioner to introduce into his obstetric practice some sort of antiseptic technique. While simple habits of cleanliness on the part of the accoucheur has greatly decreased the mortality from puerperal sepsis, there is still a vast amount of pelvic disease which has its origin in septic infection contracted during or after chidbirth or abortion. This milder infection gives rise to septic endometritis, metritis, tubo-ovarian inflammations and pelvic peritonitis. One not infrequently hears a practitioner remark that since the application of the principles of antisepsis to his obstetric practice he has not lost a case from septicemia. This is commendatory, but one can not help wondering how many cases of mild sepsis he has had, with slow convalescence and subsequent suffering from pelvic disease. It has been demonstrated that the uterus and vagina becomes infected in the same way that any wound does. The former, however, is more susceptible to septic influences because of the favorable soil it offers for the development of pathogenic microörganisms.

Yet ordinarily the accoucheur does not take the same care in the sterilization of whatever is to come in contact with the parturient tract as he does before an amputation of the breast or leg. There is the greatest need for reform in the ordinary obstetric technique. The hands and arms are not rendered aseptic by one washing with soap and hot water or by scrub-

bing with a brush which from constant use and non-sterilization is reeking with germs. The immersion of the hands for a few seconds or minutes in an antiseptic solution renders them far from sterile. The family jar of vaselin commonly offered the physician as an unguent is as septic a material as could possibly be used upon the examining finger, but it is often employed by the physician without the slightest conception that by its use he is endangering his patient. The external genitals of the lying-in woman are not aseptic until so rendered, yet in how many cases are examinations made without these precautions being taken. These are but samples of the faulty technique, which is the cause of sepsis in varying degrees of intensity.

The minute attention to details of surgical cleanliness, which is so essential to the proper healing of wounds, should be used in the normal case of confinement if we are to avoid the milder forms of sepsis which may cause subsequent suffering. The physician must not refrain from taking these precautions from the idea that childbirth is a normal physiologic process and should not be interfered with. Childbirth is a normal process, but nature did not anticipate or provide against the introduction of septic material by the physician. It is time that members of the profession awake to the fact that they and they alone are in most instances responsible for the mild sepsis which prolongs the convalescence of the lying-in woman.

What has been said in regard to sepsis after childbirth may be applied even to a greater extent when the uterus is emptied prematurely. It will be found in many instances that the origin of pelvic trouble can be traced directly to a former miscarriage. It is unnecessary to enumerate the reasons for this. It would be much more profitable to discuss the question of what measures should be adopted to stop the practice of criminal abortion which is alarmingly frequent. The abortionist is to be found in every community and he plies his trade in the most bare-faced manner, even making use of the daily papers to advertise his business. It is doubtful whether much can be done toward the extermination of this class of human reptiles, who with their dirty fingers and instruments do more harm in a community than does smallpox. As a rule the law only reaches them when a death has resulted at their hands, and then conviction is exceedingly difficult. They are usually doctors debased by drink or drug habits and really belong to the defective criminal class.

Unfortunately, physicians are acquainted with another class of abortionists made up of so-called respectable members of the profession. We have been called to attend and have saved the lives of their victims from the effects of flooding or sepsis only by the greatest exertion. It is our fault if we know of these crimes and refrain from action. By his own acts the abortionist for the sake of money has abdicated his position among the honorable members of his profession. Let us scourge him from our societies and by so doing show our disapproval of his unprofessional conduct. Until this is done he will continue to disgrace us and cast shame upon an honorable calling.

Above all things let us be honest and truthful with ourselves and our patients when they apply to us for the relief of certain conditions. Let us not juggle with our consciences and prescribe something with the assurance that it will cause menstruation to appear, if pregnancy has not supervened. When they come to us with the old, old story and request that we help them out of their difficulties, explain to them the enormity of the crime they ask us to commit and not refer them to some one who will give them the desired relief. Let us show them that our refusal is not based upon fear of detection, but upon high moral grounds which are a part of our much abused code of ethics. It is proof enough that the profession has been negligent in its instruction in this matter of criminal abortion, else patients would not unblushingly insult us so frequently by this request.

It also devolves upon us to describe the evil results which may accrue from a miscarriage, even if death does not result from a septic instrument. The chances of resulting sterility must not be forgotten. The physician is called upon to enlighten the patient as well as to refuse to accede to her request. When this is done conscientiously, with no fear of losing the subsequent patronage of the patient, then will come a time when the commmunity will regard this question of induced abortion is its true light and these sins against nature with all the attending suffering will become less frequent.

Who can predict the mighty advances in gynecology and abdominal surgery which the one hundredth anniversary of the AMERICAN MEDICAL ASSOCIATION will reveal? During the past half century these two branches of our science have been revolutionized, chiefly, I am proud to say, through the genius and industry of American physicians. It is not beyond the realms of possibility that these same qualities directed toward the solution of the problems of preventive medicine will again revolutionize these departments during the course of the next fifty years.

Pythian Temple.

ORIGINAL ARTICLES.

THE NECESSITY OF GRANTING PRIVILEGED COMMUNICATIONS TO THE MEDICAL PROFESSION IN THE STATE OF ILLINOIS.

Read before the Medico-Legal Society of Chicago, Dec. 5, 1896.

BY DANIEL R. BROWER, M.D.

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CHICAGO, ILL.

Hippocrates, the sagé of Cos, 460 years B.C., demanded, as you well know, of the students in his asclepia an oath in which, among other things, they swore that "whatever in connection with professional practice, or not in connection with it, I see or hear, in the life of men which ought not to be spoken abroad I will not divulge, as reckoning that all such should be kept secret." From the time of this great Grecian physician until today the great principle embodied in this portion of his oath has been the principle actuating all good physicians in their daily life and conduct. He knew, as every physician of today knows, that so close, so intimate, so privileged are the communications between patient and doctor that they should be kept as inviolable secrets. He knew, as we know, that there is in almost every household a closet and a skeleton, hid carefully from the eyes of ordinary men, but easily accessible to the physician, and this must

not be disclosed. He knew, as we know, that in the daily inspection of our patients we see stigmata, in the boldest figures as plain as the writing on the walls of Belshazzar's banquet hall, consequences of the violation of nature's laws, that must not be proclaimed from the housetops. He knew, as we know, that when a woman comes to us for relief from some discomfort and our microscope reveals the fact that she has not been leading the life that her position in society demands; that she is, indeed, no better than a prostitute, although the daughter of a highly esteemed family, that this information thus obtained is privileged, and that no advantage can possibly come from its publication. It is our duty to lead her from the errors and dangers of her life, but not to disgrace her and her family by the publication under any circumstances of this information thus obtained. And he knew, as we know today, that there are hundreds of ways in which information comes to physicians, wrung out of their patients by their conscience-stricken condition, wrung out of patients by the fear of death, obtained by simple, careful scientific inspection, placing us vastly closer to the innermost recesses of the people than either the clergy or the lawyers can ever hope to attain. These communications are not in all communities privileged, either as to the clergy or the doctors; because, I presume, that the laws are made, not by the doctors, not by the clergy, but by the lawyers. For, in common law, communications between client and legal advisers are privileged, but not similar communications between clergymen, physicians and clients. They tell us that these communications must not be privileged because, if so, crime will be much more difficult of detection. This argument may have been a very adequate one in olden times, but certainly today it is altogether insufficient.

In England, priests and physicians have no privileged communications. In France they have, and I can assert, I think, without fear of contradiction, that the detection and punishment of crime is as prompt and sure in France as in England.

In the United States, twenty-one States and Territories regard these professional confidences precisely as they are regarded in France, as privileged communications, and these States and Territories are: Arizona, Arkansas, Colorado, California, Indiana, Idaho, Iowa, Kansas, Montana, Michigan, Minnesota, Missouri, Nevada, Nebraska, New York, Ohio, Oregon, Utah, Washington, Wisconsin and Wyoming. I think I may safely say that the machinery for the conviction and punishment of crime operates just as well and as promptly in these States and Territories as in their less fortunate sisters.

It might be interesting to consider the subject matter of some of these laws in other States.

In California the law reads: "A licensed physician can not without consent of patients be examined in a civil action as to information acquired in attending patients which was necessary to enable him to prescribe or act for the patient." In Colorado, it is similar to that of California.

In Indiana the law reads: "Physicians are incompetent witnesses as to the matters communicated to them as such by patients in their professional relations." The law in Iowa is much the same as in Indiana. In Kansas the law is much the same as in California.

In Michigan the law reads: "No person duly authorized to practice physic or surgery shall be allowed to disclose any information which he may have acquired in attending any patient in his professional character, which information was necessary for him to prescribe for such patients as a physician or do any act for him as a surgeon."

In Minnesota the law reads: "A regular physician or surgeon can not, without the consent of his patient, be examined in a civil action as to any information acquired by attending the patient which was necessary to enable him to prescribe or act for the patient." The Missouri law is similar to that of Michigan.

The Nebraska law reads: "No practicing attorney, counsellor, physician or surgeon, minister of the gospel, or priest of any denomination shall be allowed in giving testimony to disclose any confidential communications properly entrusted to him, to enable him to discharge the functions of his office according t the usual course of practice or discipline."

In New York the law reads: "A person duly authorized to practice physic or surgery shall not be allowed to disclose any information which he acquired in attending a patient in a professional capacity, but gives the right of waiver to the patient or person confessing."

In Ohio it is enacted that, "A physician shall not testify concerning a communication made to him by a patient in his relation as adviser to his patient; but the physician may testify by the expressed consent of his patients, and if the patients voluntarily testify the physician may be compelled to testify on the same subject."

In Wisconsin the enactment is that, "No person duly authorized to practice physic or surgery shall be compelled to disclose any information which may be acquired in attending any patient in a professional character, and which information was necessary to enable him to prescribe for such patient as his physician or to do any act for him as a surgeon."

It is very surprising that the great State of Illinois, with its medical colleges and hospitals in the very first rank of such institutions in the world, with so many practitioners of international reputation, and with laws regulating public health, and great medical charities that are not surpassed, should be in the rear-guard of States in this important matter; and it is also surprising that there are so many well informed physicians who are not aware of the position the State occupies.

In France the Penal Code, Art. 378, directs that if physicians, surgeons, officers of health, as also apothecaries, midwives and all other persons depositaries of secrets, either through their condition or profession shall reveal these secrets (except in cases where the law obliges them) they shall be punished with fine and imprisonment; and in another place it is clearly indicated that the exception has reference to crimes that put the safety of the state at hazard. The adjudications under this law have been various, seemingly dependent upon the judicial officer. A Dr. St. Pare, surgeon in the French navy, in the case of a duel in which he acted as surgeon, for refusing to answer the question, "Are you in attendance on M. Giraud, wounded some days since in a duel? Where is the wound situated and for how many days will he be incapacitated from pursuing his ordinary avocation?" was fined 150 francs.

Some points have been raised in these several States that are of interest in this connection. One

was as to whether physicians shall testify after death of the patient, as in cases of testamentary capacity, insurance cases, etc. If it had been always strictly interpreted it might cause some inconvenience and the court of appeals of New York has admitted that it might cause mischief.

In Indiana in a similar case the court held that the legal representative of a patient might waive the privilege.

In the people *versus* Kennuder, 119, New York, 585, it was held that the privilege does not extend the information as to the patient's condition, either mental or physical, gained by the doctor who is sent to make an examination of the prisoner's mental or physical condition in jail, provided the testimony does not include conversations with the prisoner or transactions in jail. If the doctor simply testifies as to his opinion of a person's mental or physical condition as he saw him in his cell or court room the evidence is unobjectionable.

In Michigan several cases have been argued upon the question whether if the patient states a certain physician attended him the physician can be put on the witness stand to contradict the patient as to this fact.

In Brown *versus* Metropolitan Life Insurance Company, 65 Michigan, 306, this was not allowed.

In New York, it has been further decided that if a party claims to exclude evidence as coming under this prohibition he must show the relations of a physician to the patient to have existed, and that the rule does not apply to criminal cases. Moreover, the courts have seemed to rule that it is not needed to definitely prove the information to have been necessary to enable the physician to act as such, this being inferred by the relation of physician and patient. Furthermore, the rule of evidence which excludes communications between physicians and patients must be invoked by an objection at the time the evidence of the witness was given.

The penalty of the disclosure of confidential communications appears to be regulated by the general law. Bishop on Rights and Torts, 1889, Sec. 295 and 301 gives the spirit of the law as follows:

"The doctrine that one who follows a command or permission of the law, is not liable to another, casually injured thereby, furnishes a wide protection to defendants in libel and slander. But this principle covers in general only honest and careful utterances. . . . Sec. 295.

"We may add as the doctrine here to be considered, that whenever the law or any social duty which the law recognizes, permits or requires an utterance not thus privileged absolutely, it is conditionally so, that is, if cautiously and circumspectly made so as not to inflict needless injury, in other words, if it is honest and without malice—otherwise it is not protected."

As illustrations are given: A letter written by a man to his wife's mother, cautioning her against one she contemplated marrying, was in an English jury case, ruled by Alderson B. to be privileged (Todd *versus* Hawkins 8, Car and P. 88). But in a Massachusetts case (Joannes *versus* Bennett, 5, Allen 169) a like letter from a pastor to a girl was ruled otherwise as he was not related to her. See also in N. Y. Byam *versus* Collins, 39 Hun. 204.

It is not likely that any court would rule a communication or consultation for criminal purposes to be privileged. In New York this has been specially ruled against. Hewitt *versus* Prime, 21 Wend. 79. Hageman on Privileged Communications.

I am very glad the Medico-Legal Society of Chicago, composed as it is of representative members of the medical as well as of the legal profession, has taken up the consideration of this important question, and I believe they fully agree with me that the State of Illinois should as speedily as possible be placed in the role of States that makes the communications of physicians, lawyers and clergymen privileged communications, and we sincerely trust, at least, that there is no medical man in this association who would not prefer to sacrifice his personal liberty rather than violate the secrecy or implicate the character of his patients and under no circumstances permit professional secrets to be dragged into publicity in a law court.

A RAPID AND SUCCESSFUL TREATMENT OF HERPES ZOSTER.

Read in the Section on Dermatology and Syphilography, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5-8, 1896.

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Although herpes zoster is one of the effections of the skin which is of comparatively frequent occurrence and has been known ever since cutaneous eruptions were observed, there is no manner of doubt that many points connected with its etiology and pathology are still veiled in more or less obscurity. It was not until quite recently that a consensus was arrived at in regard to its being a relapsing disease. And, for this knowledge we must give the general practitioner due credit. Without any pretenses to a special knowledge of cutaneous medicine, the country doctor has frequently had occasion to observe "shingles" occur a number of times in the same individual. Such instances have been reported so often that the idea no longer prevails that one attack of herpes zoster confers immunity against subsequent attacks in the same individual. Nevertheless, this was the opinion formerly held by the best observers and a reference to works on dermatology will show that it was generally accepted. The cause of this no doubt lay in the fact that the patient either did not apply for relief when another attack came on or sought the services of some one else in the hope that this latter would be able to prevent a recurrence.

Another idea which has prevailed is that the disease has a self-limited course, lasting from three to four weeks, when spontaneous recovery takes place. I have seen cases in which successive crops of vesicles have appeared for two or three months with breaking down of the lesions and ulceration. Not only this but the ulceration would become phlegmonous and during all this time the neuralgic pains were of an intense character, to such a degree that opium and other sedatives soon became impotent. Such a self-limitation is certainly one not to be desired and therapeutic interference is not only indicated but imperatively demanded by the exigencies of every case.

It has been asserted by some good authority that no treatment will cut short the course of herpes zoster and that the best which can be expected from medication is to diminish the neuralgic pain. This is far

from being either satisfactory or encouraging; and it would certainly be postively discouraging to those who have occasion to treat that dread condition—zoster ophthalmicus. For it has been too often the case that an inability to arrest the process has resulted in perforation of the cornea and, not infrequently, destruction of the globe. When the conjunctival surface is not attacked we are told that herpes zoster of the fifth nerve invariably leaves scars to mark the former location of the lesions, a dictum, which, to my mind, is a *non-sequitur*. It is based on the fact that active interference has not even been attempted under the fallacious idea that the disease must be left to run its course. I have always been in the habit of treating these cases rather energetically and my efforts have been awarded by excellent results. Whether it has been merely a coincidence that such a short period of treatment was followed by recovery, or a peculiar circumstance that all were cases that would have recovered spontaneously in a few days I shall not stop to discuss. The fact remains that a similar treatment in a number of cases was eminently satisfactory and I shall continue to use it until a sufficient number of failures declare themselves to demonstrate its inefficiency. In principle, the method has nothing new to recommend it; in its application, however, it is characterized by some details, which will recommend it for simplicity and ease of administration. The following are a few cases which occurred in my private and hospital practice, and which will serve to illustrate the points I wish to make.

Case 1.—Charles W., photographer by occupation, aged 32, is of robust physique and is a prominent and active member of a gymnasium. He exercises daily but is inclined to take on adipose tissue. Some few days before I saw him he conceived a notion that his liver, bowels and other internal organs were not "working right." In order to remedy what he conceived to be his generally bad condition he made a concoction according to the formula furnished by some kind friend. An examination of the receipt showed it to contain a very large amount of colchicum. As a result of the ingestion of this mess the patient was violently purged and a repetition of the dose made him very feeble indeed. The third day after taking the mixture an eruption of herpes zoster declared itself. As soon as the vesicles appeared a slight itching and a marked neuralgia were manifest. The next morning I saw the patient and the distribution of the eruption was about as follows: Anteriorly, a patch of pin head sized vesicles about 1½ by 2 inches in size was located over the third intercostal nerve at a point corresponding to about the center of the clavicle. Posteriorly, the eruption followed the course of the same nerve extending from about five inches to the right of the spinous processes of the vertebræ to the margin of the trunk and with an almost uniform width of 2 inches.

The treatment ordered was to take thrice daily, after meals, the following pill:

℞. Acidi arseniosi.	gr. 1-20	003
Pulv. piperis nigris	gr. ij ss	15
Ext. gentian	q. s.	
M. Ft. pil. No. 1.		

These were ordered to be taken for ten days.

Externally: campho phenique powder liberally sprinkled upon absorbent cotton and applied to the eruption. This dressing was to be repeated twice daily. In three days crusts had formed and, on the fourth, the case was at an end, the neuralgia having completely disappeared.

Case 2.—James C., a druggist, 36 years of age, presented himself for treatment of an intercostal neuralgia of the right side. He complained of a marked neuralgic pain which had preceded the eruption some five days. It was not the intensity of the pain that the patient complained of but the fact that the eruption was spreading. At the time I saw him the outbreak consisted of a number of patches of the size of a silver quarter dollar distributed over the area supplied by the sixth intercostal nerve. It extended from a point about six inches to the right of the median line posteriorly and about four inches from the median line anteriorly. The vesicles were well-formed and, in many places, two or three had coalesced.

This patient was placed on the same treatment as Case 1, and in five days the cure was complete. He was ordered to continue the pills for two weeks longer in order to avoid the possibility of a recurrence of the trouble. Up to the present no reappearance of the trouble has manifested itself.

Case 3.—Winston W., aged 17, a buggy-boy in a livery stable appeared at my clinic with the statement that the eruption showed itself a week previously. There was no neuralgia experienced before the eruption appeared; but when it did manifest itself neuralgic pains were felt. The eruption appeared over the tract of the fifth intercostal nerve. Five patches were present to the left and below the left nipple, three below the left scapula, one being very small. The patient is of a highly nervous temperament, a slight tickling almost throwing him into convulsions, making him jump about in a grotesque manner and grasp anything or any one within reach and strike the object or person with his fists. At the stable where he worked he was constantly subjected to this nervous excitement and this may have acted as a causative factor.

The following treatment was ordered:

℞. Acidi arseniosi.	gr. 1-30	002
Pulv. piperis nigris	gr. j	06
Ext. gentian	q.s.	
M. Ft. pil. No. 30.		
Sig. One pill after each meal.		

Externally:

℞. Pulv. camphoræ.	℥ij	8
Bismuthi subnitrat	℥iv	16
Cretæ preparat	℥j.	32
M. Sig. Apply twice a day.		

This powder was ordered spread on cotton as in the other cases and six days after the inception of the treatment the patient was cured. No new vesicles formed subsequently, the pain had disappeared and no new attack has manifested itself since.

Case 4.—Lydia C., a school-girl 9 years of age, has had recurrent attacks of herpes zoster every year. She is a blonde, but appears well nourished. She has recently suffered from imitative chorea but is now well of that trouble. Her nervous system, however, is very susceptible to shocks of all kinds. The present attack is the most severe she ever experienced. It appeared some four days before she came to the clinic. A large patch of closely aggregated vesicles was located on the left and posterior side of the neck. Other patches occurred on the left shoulder, upper part of the left arm over the area supplied by the musculo-spiral nerve. The neuralgia was intense, being worse at night. The child showed plainly the intensity of the neuralgic affection. There was no zosterian fever present nor any history of such. It would hardly exist in view of the fact that a marked neuralgia was present.

The treatment in this case was the following:

℞. Liq. kali arsenitis	℥ss	2
Vini ferri		
Syr. limonis	āā ℥jss.	48
M. Sig. Teaspoonful in water after each meal.		

Externally: The same powder was used as in Case 3. On the sixth day the pain had all disappeared as well as the eruption and there existed but a very slight superficial desquamation. The patient was subsequently seen and the favorable condition continued.

Case 5.—Oscar M., a laborer 64 years of age, applied at my clinic two days after the eruption had declared itself. No antecedent trouble or present discomfort could be elicited beyond constipation. No neuralgic pain was present nor had any been felt and no medicines had been taken. In fact, no neurotic basis could be discovered as a possible cause of the eruption. This latter consisted of a vesicular eruption, such as is characteristic of herpes zoster, extending along the level of the right twelfth rib from a distance of about two inches from the posterior median line, over the abdomen, up to the umbilicus. The vesicles were well marked, rather large, but with no tendency to coalesce. The only subjective symptom complained of was an intense burning sensation at the site of the eruption. The treatment ordered consisted of the following:

℞. Liq. kali arsenitis	℥vj	24
Vini ferri		
Syr. limonis	āā ℥iij	96
M. Sig. A teaspoonful in water after each meal.		

Externally: Campho-phenique powder was liberally dusted on coton and applied to the eruption twice daily. Five days after the treatment was begun the eruption was all dried up and three days later no vestige of it remained. The patient was ordered to continue the internal medicine until it was all

taken and strictly enjoined to present himself should any new symptoms show itself. He never reappeared.

Case 6.—Daniel F., an engineer 36 years old, appeared four days after the eruption had occurred. About two weeks previously he was treated for diarrhea. He had been drinking alcoholic liquors freely. His diarrhea subsided in two days and he was constipated. The eruption consisted of isolated patches of vesicles over the tenth and twelfth ribs on the right side of the back. He complained of some itching and of a neuralgic pain on the anterior portion of the trunk. As the patient expressed it, "the pain stops at the middle line." The eruption had an irritated appearance.

The treatment ordered was the same as in Case 5. Three days later some of the lesions were well, no new ones having appeared. Five days later the pain was much less the lesions disappearing. Ten days after presenting himself the patient was practically cured.

Such is a brief outline of cases of herpes zoster seen by me in July, 1895. I have purposely chosen these, as the time which has elapsed since then has been sufficient to arrive at a positive conclusion as to whether the attack was definitely cured in each case. It will be interesting to note whether recurrences take place or not. So far I have noted none and I have been careful to keep them under observation. What concerns us more directly is in reference to the treatment and I desire to incorporate in these views some experiences noted before and after the treatment of the cases which have been outlined above, more especially as regards some of the generally followed practices. The cases which have been recited certainly sufficiently demonstrate that the opinion that herpes zoster can not be cut short in its course is a fallacious one and will not be referred to at any length.

Some few points which will be noted in connection with the cases outlined are that, in the first case, arsenious acid seemed to act better than Fowler's solution. I have found that the Asiatic pill is, on the whole, the best method of administering arsenic and its use may be prolonged for a much longer period of time than the Fowler's solution. Furthermore, I have never seen any untoward symptoms follow the administration of arsenious acid, whereas the solution has produced arsenical dermatitis in a number of cases, notably factitious zona pectoralis. A point which I have always observed has been to give a sufficient dose and I am certain that it is owing to this fact that attacks of zona were aborted in such a short time. An examination of the histories of all the cases given will demonstrate the short time required to relieve each one and furthermore that this period was shortest in those who took the Asiatic pill. Certainly, the time was very short and the neuralgia ceased when the eruption disappeared.

The local treatment which I have employed is one which has always acted favorably with me. Protection is afforded by a cotton dressing and a rapid disappearance of the eruption by means of a drying, analgesic powder. I have essayed lotions, collodion, plasters, and similar methods but never found any one equal to the old and time-tried powder. Another fact which I have observed is that the vesicles do not break down, no ulceration occurs and consequent scars do not result from an attack.

While the treatment I have outlined is both rapid and successful, it possesses another advantage which, in my opinion, is not the least valuable. I allude to its simplicity. It may be carried out by any practitioner of medicine; it requires no special, rare, or costly preparations, and can be easily understood by any one. It might be said that its very simplicity is its greatest objection in the eyes of those who look upon dermatology as a mysterious science instead of what it really is—cutaneous medicine.

Before closing these remarks I desire to call attention to the fact that the most difficult thing to determine is the cause of herpes zoster. While in some of the cases given, a neurotic base apparently existed, in others no such history could be elicited. So far as parasitism is concerned I never could satisfactorily establish it nor do I remember that any one has succeeded in doing so positively. That a neurotic element exists, however, is beyond doubt, in view of the constant presence of a neuralgia or some very marked pain which disappears simultaneously with the eruption.

CASE OF ACUTE CIRCUMSCRIBED EDEMA OF GOUTY ORIGIN.

Read in the Section on Dermatology and Syphilography, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

BY BERNARD WOLFF, M.D.

ATLANTA, GA.

This paper is presented with a view to call attention to an etiologic factor which has apparently escaped the notice of writers on the subject of angio-neurotic edema.

Quincke, in his original and classic article (in the *Monatshefte für practische Dermatologie*, i, No. 5, 1882) cautions against confusing acute circumscribed edema with that of menstrual, malarial and arthritic origin. It has sufficient points of difference in gross appearance from these types, but as regards causation it can not be discriminated from the edema occasioned by these three causes. Matas has reported a case of malarial origin in which the periodicity of the attacks was marked. Osler asserts that the disease may be hereditary through many generations and mentions a family in which five generations were affected, including twenty-two members. Milroy of Omaha described cases of hereditary edema, in which there were twenty-two individuals in six generations. The cases could scarcely be appropriately called acute, as the edema was solid, affecting one or both legs and existed from birth.

Alcoholic excesses, gastro-intestinal disturbances (Elliot, Quincke), mental excesses, fatigue, grief, traumatism, ingestion of certain articles of food, as fish, apples, etc., have been cited as causative factors. In the latter instances the disease shows a close affinity to urticaria. The disease is regarded as a vasomotor neurosis, by which the permeability of the vessel walls is greatly increased. The latter, which is the view taken by Quincke, does not agree with the theory advanced by Unna of spasm of the muscular coats of the veins in explanation of urticaria, the giant form of which greatly resembles angio-neurotic edema. So long as the nature of gout remains unknown, the connection of it with the case in point may be alone explained by hypothesis. The theory held by Cullen is expressed by Duckworth as: "There is a diathetic habit which is expressed in, 1, a neurosis of the nerve centers, which may be inherited or acquired; 2, a peculiar incapacity for normal elaboration within the body, not merely in the liver, in one or two organs, of food whereby uric acid is formed at times in excess or incapable of being transformed into more soluble or less noxious products." This would bear upon the point of the neurotic origin of angio-neurotic edema. If, further,

gout be regarded as a toxemia, why could not such a condition so lower the vitality of the vessel walls, reflexly, as to diminish their power of resistance to the passage through them of the elements of the circulating fluid? Or, again, might not the toxic principle having itself passed into the tissues, have attracted chemotactic to it a special exudate? Many of the general causes which evoke an attack of gout have been enumerated, as those also of angio-neurotic edema. This is expressive of dependence upon a common causation. The case in point is that of a lady, now 56 years of age, of unusually robust physique; the family history is excellent; the personal equally good, with the exception that the patient prior to the menopause suffered from frequent attacks of migraine and that she has for fifteen years been the subject of gout; the last joints of the fingers are distorted and misshapen by gouty deposits; the digestive organs act normaly. Six years ago while sitting by an open window in a railway coach, the patient suddenly noticed a stiffness and rigidity of the left half of the upper lip, accompanied by tingling and numbness; the lip swelled rapidly, but the swelling continued limited to the left half of the lip. At the same time the affected joints of the fingers became red and painful. This attack, which greatly alarmed the patient, lasted for several hours and then disappeared. The attacks recurred at intervals of four or five months. About two years ago I saw the patient during one of the attacks. The edema was limited to one half of the lip, which was smoothly enlarged; the mucous lining was smooth, shining, everted; the edema was board-like in hardness; the tongue was unaffected; the gouty fingers, particularly the index fingers, were very painful, red; flexion of the distal phalanges exaggerated; the skin over the tophi was tense and seemed about to break over the rough angles of the deposit. The subjective sensations were not marked, there was the same feeling of rigidity and immobility of the lip, with tingling and numbness; no itching; the bowels were regular; there was history of dietary irregularity. The attacks have become less and less frequent, the last one occurring about a year ago. The occurrence of the attacks, synchronous with acute explosions of gout and the similarity of cause in both affections, constitutes presumptive evidence of their relationship in this case.

GRANULAR LIDS.

Read to the Wabash County Medical Society of Indiana, Oct. 15, 1896, and by unanimous vote requested to be published in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

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The term "granular lids" means so much to the laity, and so little to the pathologist, that one may well feel surprised at the almost universal use of the term.

In his "Synopsis of Diseases of the Eye and their Treatment," Mr. Benjamin Travers, London, 1824, at page 277 says: "The granular state of the tarsal conjunctiva is a very common result of the mild suppurative ophthalmia."

Desmarres, in his "Treatise on Diseases of the Eye," Paris, 1847, page 185, says: "The palpebral conjunctiva, in advanced stages of puro-mucous conjunctivitis presents the appearance of a multitude of villosites. These small granules occupy the whole surface of the lid, and resemble somewhat the small papillæ of the tongue" (La conjonctive palpébrale, surtout dans sa portion tarséenne, offre une multitude de villosités, de petites granulations d'une extrême ténuité, et assez semblables, quant à l'aspect, aux papilles de la langue). He accounts for their presence by the distention of the mucous follicles, making pressure on the blood vessels at the base of the papillary membrane, interrupting the return of the blood from the papules, leading finally to such a state of engorgement as to develop a considerable degree of hypertrophy. It would be difficult to find a better definition of that form of so-called granular lids. which we now recognize as hypertrophied papillæ.

In the fourth edition, 1854, of Mackenzie's "Treatise on Diseases of the Eye," page 436, in describing the various stages of puro-mucous conjunctivitis, he says: "It is characterized chiefly by the papillary structure of the palpebral conjunctiva remaining hypertrophied, and presenting a granular or sarcomatous appearance, while the lids, in this state, rubbing on the cornea, render this part of the eye vascular and nebulous." At page 454 of the same work, the author says: "The granular prominences in question are nothing more than the papillæ of the palpabral conjunctiva, hypertrophied by inflammation." At page 643 begins a chapter entitled "Granular Conjunctiva." In the section on symptoms, page 644, the author says: "In the angle of reflection between the lower eyelid and the eyeball, we not infrequently observe a row of bodies of a rounded form and somewhat vesicular appearance. These are different from enlarged papillæ, and consist, I presume, in the muciparous glands described by Krause, enlarged by chronic inflammation."

Stellwag, 1867, page 327, divides granular conjunctivitis, which he describes as synonymous with trachoma, into two principal classes; the papillary, confined to the papillary region of the conjunctiva, and the pure granular, both varieties being sometimes observed at the same time in the same membrane. That which he classes as the pure granular type, he describes as being "abundantly strewn with bodies resembling the spawn of frogs, which are somewhat swelled, and traversed by a coarse, vascular network." The mixed type, he says, "is made up from the symptoms of granular and papillary trachoma." The so-called frog-spawn appearance in trachoma of the conjunctiva is a condition by no means rare in the mucous membranes of other situations, and I have rarely seen cases of these spawn-like affections of the conjunctiva, in which corresponding changes were not to be found either in the Schneiderian membrane, or in the pharynx.

I have traced the descriptive language of the two forms of so-called granular lids with the intention of indicating the chronologic order in which these morbid conditions were first described, as indicating necessary modifications of treatment.

Mr. Soelberg Wells of London, "Treatise on Diseases of the Eye," third edition, 1873, tries to follow Graefe's attempt at a clinical distinction between papillary hypertrophy, and that "peculiar vesicular condition of the conjunctiva, which is frequently premonitory of that affection," and which he maintains was first accurately described by Stromeyer, 1861, and subsequently by Dr. Frank of the British army, and

in the learned reports of Sir Geoffrey Marston, 1862. Krause and Schmidt, after a painstaking series of microscopic examinations of the trachomatous bodies came to the conclusion that they are "closed lymphatic follicles situated directly beneath the epithelium." These two eminent gentlemen, last named, were of the opinion that the vesicular bodies are merely anomalous states of physiologic organs; while Stromeyer, whose observations were chiefly limited to military barracks and hospitals, regarded them as a manifestation of a mysterious pathologic state, in some manner connected with defective hygiene. Dr. Marston, whose opportunities were perhaps greater than any observer of that time, found "vesicular granulations very prevalent amongst the poorer classes in Gozo." In discussing the probable atmospheric origin of this constitutional dyscrasia, he says, "the prevalence of vesicular disease of the lids is due to defective sanitary arrangements, and I conceive the palpebral conjunctiva offers a delicate test of the hygienic conditions of a regiment." These observations were begun by the military surgeons, and the first of them were published as early as 1848, yet it was as late as 1868 that Graefe first pointed out the true distinction in the clinical aspects of hypertrophied papillæ in the conjunctiva, and the true trachoma, characterized by an appearance resembling sago grains, or frog-spawn, in the conjunctiva, sometimes totally independent of, and without any manifestation of inflammatory changes in the membrane.

That form of granular lids described as an acute primary disease, may now be easily accounted for upon the hypothesis that the preëxisting state of trachoma, having escaped observation until the acute puro-mucous or so-called catarrhal conjunctivitis sets in. I have known persons with apparently normal eyes, in whom the palpebral and retrotarsal portions of the conjunctiva were literally studded with ovoid semi-translucent bodies presenting an appearance closely resembling frog-spawn. I can call to mind at this moment, a number of persons in whom this condition exists, and, but for an occasional attack of intermittent fever, there are no manifestations of ill health. It is only when the conjunctiva has been disturbed by the presence of some ferment or by some traumatic influence, that the trachomatous bodies become a serious complication.

From what I have already said, you would naturally infer that I make a broad clinical distinction in the conditions commonly called granular lids, and I think I have pointed out sufficiently the widely varying pathologic conditions upon which a clinical distinction may readily be founded.

With the understanding that papillary hypertrophy is always preceded by some form of inflammation sufficiently severe to penetrate the parenchymatous structure, we shall have to consider: 1, whether this inflammation was of traumatic origin, attended by some infectious disease; or, 2, whether the infection was of that mild and mixed type, the puro-mucous; or of the purulent character incited by the staphylococcus aureus; or the gonococcus of Neisser, the latter being the most virulent type of purulent infection.

The advanced stages of these varying types of infection can not be successfully combatted without reference to the character of the infecting material present. It is, therefore, easy to understand why some writers have gone to such pains in describing the form of granular conjunctivitis peculiarly prevalent among soldiers and seamen as, military ophthalmia, of a dangerously contagious type; because, the infection which originally incited the inflammatory changes in the conjunctiva, leading finally to hypertrophy of the papillary membrane being still present, preserves its own proliferating power, and kindles an inflammation in any mucous surface to which it may find access, of identical virulent character.

Piringer concluded, from a series of experimental observations, that the activity of the contagium is precisely commensurate with the stage of inflammatory action present in the infected mucous membrane at the time the matter was taken for inoculation; and he found likewise, that in some instances, pus taken from the membrane in the declining stages of gonorrheal inflammation required from twelve to seventy-two hours, according to the activity of the process at the time of taking the matter for experiment.

In my own opinion, Piringer's observations are defective, because of the uncertain and irregular manner of introducing the infection. Six hours is sufficient time in which to develop, in a previously sound mucous membrane, a decided increase of vascularity and hyper-secretion of mucus, in the conjunctiva, and there is with these symptoms always present profuse lachrymation, and morbid sensibility of the eye to light. In twelve hours pus is nearly always abundant; and the disease may be fairly said to have reached its acme by the end of twenty-four hours from the period of inoculation. With the inoculation of the staphylococcus aureus, more time is required. Forty-eight hours from the period of inoculation rarely finds the disease so well established as to determine its character. In the puro-mucous types of disease, where the infecting material is the well known staphylococcus albus, it is not rare to observe that seventy-two hours elapse from the period of inoculation before the definite nature of the resulting inflammation may be determined.

With these facts before us, it is not difficult to understand how Piringer was led into error in supposing that all pus from inflamed mucous membranes was of the same nature, excepting that it varied in degrees of intensity of action, in accordance with the stage of the inflammatory process in the membrane from which it was taken.

Recognizing trachoma as a local manifestation of a constitutional infection of such mild type as, in some instances, to produce no constitutional symptoms of sufficient severity to attract attention, being characterized in the main by the local occurrence of neoplastic cells in the mucous membranes, even continuing for a long period of time without creating local discomfort, we shall be well prepared to understand the more grave feature of the trachomatous membrane after an acute inflammatory affection of the conjunctiva has run its course. And it is this complicated condition that is so well described by Stellwag as the mixed type of inflammation, partaking partly of the character described as papillary hypertrophy and partly of what he calls the pure granular condition of the conjunctiva, due to the presence of neoplasms resembling frog spawn.

If we are to be rational in our practice, we must never overlook the conditions which have brought about the morbid state we seek to relieve. In the treatment, therefore, of the so-called granular lids, it is of the utmost importance whether we have to deal with the uncomplicated state of hypertrophy of the

papillary membrane following, 1, puro-mucous; 2, the golden-colored purulent inflammation; or 3, the purely gonorrheal type of local inflammation; and, whether in either of these conditions there was preëxisting trachoma in the membrane.

Uncomplicated trachoma may, in persons having an error of refraction which necessitates great strain of the eyes in reading or writing, thereby provoking continued hyperemia of the ocular structures, become a source of local discomfort by giving rise to abnormal pressure of the thickened conjunctiva upon the eyeball; otherwise it may fairly be stated that uncomplicated trachoma so rarely calls for relief, as to escape, in a vast majority of cases, the attention of the ordinary medical attendant.

The treatment to be pursued in the ordinary forms must, of necessity, be generally stimulating and antiseptic, and in the main purely local. While the treatment of trachoma, whether complicated or not, so far as the trachomatous bodies are concerned, is essentially surgical; and to insure against return of the neoplasms, constitutional medication is, in all cases, urgently demanded.

I am thoroughly satisfied from my observation, that trachoma is *per se* the local manifestation of a constitutional infection, just as urgently demanding mercury and quinin as though it were some other form of that miasmatic infection which begets intermittent and continued fevers.

If there is any virtue in the old methods of treating papillary hypertrophy by either caustics or astringents, it has entirely escaped my observation, and I am thoroughly convinced that the mildest forms of stimulating agents, such, for example, as the yellow oxid of mercury ointment well rubbed in, and the occasional use of active stimulants of the non-astringent type, as the solution of bichlorid of mercury, $\frac{1}{4}$ grain to the ounce of distilled water, in combination with 10 grains of chlorid of sodium, or, in the pale, flabby appearance of chronic cases, the crayon of muriate of ammonium, applied by gentle pressure to the surface of the everted lid. Not one of these forms of treatment may be found sufficient to complete the cure in any single case. Sometimes the necessity being apparent for the ammonium, at other times the milder applications being indicated by the high state of vascularity of the projecting papillæ. In nearly all cases of well-characterized papillary hypertrophy, some modification of Pagenstecher's canthotomy must be done to prevent friction of the roughened surface of the lid against the cornea. It is remarkable how rapidly persons subjected to this operation may subsequently be observed to recover, under wisely ordered local medicinal treatment. It is never wise to give to such a patient a prescription for a collyrium, or salve, to be applied at home. No nurse, however skilled or well trained, can possibly possess the discriminating judgment which would be necessary to determine the application necessary from time to time, and there is no plan by which speedy recovery may be accomplished, even by heroic agencies in the wisest and most experienced hands.

Trachomatous bodies in the conjunctiva may be removed by the process of crushing and expression with Knapp's roller forceps, which represent the two cogwheels, between which the membrane is to be caught and crushed; or Noyes' forceps, which represent two smooth rollers between which the membrane is pinched up and compressed; or, by a modification, which I have found most useful. I had Sharp & Smith of Chicago make the crushing forceps with the cogwheel in one side and the smooth roller in the other side. I press the cogwheel high up in the retro-tarsal portion of the conjunctiva, and resting the smooth roller on the palpebral surface, I carefully compress and draw forward the imprisoned membrane in such a way as to squeeze out the gelatinous contents of the trachomatous bodies.

My forceps are made of the combined qualities of those of both Knapp and Noyes. The advantages of one smooth roller and one cogwheel, or grooved roller, require no elaborate explanation. The subsequent treatment after crushing and expression of the trachomatous bodies, should consist in the use of a mild saline collyrium. A favorite formula for after-treatment is this: Borate of sodium, 15 grains; chlorid of sodium, 5 grains; mint water and camphor water, each 1 ounce; to be dissolved and filtered. This may be instilled into the eye every hour, or more or less frequently, according to the accumulating mucus, and the general sense of discomfort in the eye; the patient in the meanwhile taking small doses of quinin and bichlorid of mercury; and after ten days of this kind of treatment, in most young people, the solution of citrate of iron and quinin after meals. Under this general plan most cases rapidly recover; of course, each individual case requires some modification of treatment suited to the peculiar conditions. Whatever plan of local treatment may be determined upon, there are two great principles of science, though commonly neglected, an exact observance of which is absolutely essential to a successful final result.

Surgical cleanliness is a term which implies something apparently beyond the possible comprehension of the average layman, and I fear there are some members of the medical profession who, though well acquainted with the conditions necessary to establish asepsis, neglectfully proceed in violation of these important rules of scientific detail.

No one but a skilled and well trained nurse may safely be entrusted to carry out the treatment of any local inflammation of the conjunctiva, whether acute or chronic, and it is practically impossible for the surgeon himself to administer the necessary treatment. These difficulties are sufficient to account for a vast number of failures in the treatment of the varying forms of the so-called granular lids. Having the patient under perfect control and constantly subject to rigid rules of personal hygiene, with a nurse whose hands are always washed immediately before instilling the collyrium or using the irrigator, never permitting the patient's hands to touch the eyes, the surgeon himself observing the most rigid discipline of his own person both before and after handling the patient, the chances of reinoculation or the fresh inoculation of some new infection is reduced to a minimum. Beside all this, the patient under personal observation as to his daily habits, can be kept in a most favorable state of general nutrition for the rapid recovery of the local inflammation. It is not saying too much, I think, to declare that nine-tenths of the cases of chronic inflammation of the conjunctiva, of whatever kind, receive frequent backsets or relapses from reïnoculation of the preëxisting infectious material, or the introduction of some new infection incident to the lack of those hygienic regulations which an institution, under the authoritative control of an experienced surgeon alone supplies.

THE COMMON USE OF GLASSES.

BY F. C. HEATH, A.M., M.D.

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The wearing of glasses is so much more common than formerly that we are often asked to give an explanation. Frequently parents express their astonishment that so many school children wear glasses, a thing almost unheard of when they were young. A recent article on "Superfluous Spectacles" seeks to explain a part of this increase by the unnecessary prescribing of weak lenses "which have only a mythical value."

Are there any good reasons for this increase, or is specialism in this direction running mad like the wild rage for extirpating ovaries, stretching rectums, removing turbinates and snipping the muscles of the eye? There are reasons for the increase in the use of glasses and there is also something to be said as to unnecessary prescribing.

Obviously the first reason for the more common use of glasses is that we have learned to recognize these eye affections and their multifarious effects as we could not in former times. The intelligent and conscientious physician is no longer satisfied with giving anodynes to little or no purpose in protracted or recurring headaches, knowing that their most frequent cause is eye strain, easily remedied by glasses correcting refractive errors or lightening the burdens of weak muscles. Neurologists have learned that nervousness, dizziness, insomnia, some forms of chorea and possibly graver affections are due to eye strain—at least that this will act as an exciting cause where there is any predisposition to such disorders. The subject of reflexes has been overdrawn but oculists have certainly erred less than workers in many other lines. Doubtless many of the symptoms of eye strain commonly called reflex are really part of a general neurasthenia, produced by the great amount of nervous energy consumed in overworking the intraocular and extraocular muscles, but in some cases due to other causes. The favorable results from the accurate adjustment of glasses in those cases in which the eye is either the sole or partial cause of the symptoms are now a part of our every day experience. Before Donder's time such cases went unrelieved, and often, from their sufferings or from imperfect vision, were not only incapacitated for work but also tortured by fears that they were becoming blind. As an explanation of much of the increase in the use of glasses, then, we have the fact that we relieve thousands of sufferers who formerly went unrelieved and give useful sight to countless numbers, otherwise crippled by imperfect vision.

But the question may be asked: "Is not the more common use of glasses due also in part to an actual increase in the frequency of eye troubles?" This is undoubtedly true. Advancing civilization has its disadvantages, among which are overwork of the eyes under unfavorable conditions. With some the desire for wealth and with others the exertion necessary to secure a living in the midst of so much competition, lead to overwork in adults and the children suffer from the crowding methods pursued in the schools. Special trades, like that of the lithographer, requiring continuous attention upon fine work, are particularly injurious. The eye strain from such causes with its suffering and dangers to the eye, sometimes producing such serious lesions as choroiditis, retinitis, glaucoma and cataract, is practically an affection of these bustling times, unknown to former generations. Its remedial and preventive treatment by glasses is highly successful. Much has been written on the production or increase of myopia, or nearsight, from prolonged use of the eyes on near objects, especially under unfavorable conditions. High schools show the worst results—the myopia, in those of Germany ranging from 20 per cent. in the lower to 60 per cent. in the higher grades. Of 1,133 school children examined in New York, less than 4 per cent. were found myopic at 7 years of age but nearly 27 per cent. at 20 years. Von Hippel claims that the removal of unfavorable conditions as far as possible, as a result of these investigations, has reduced myopia in Germany at least 6 per cent. The unfavorable conditions are all things tending to strain or congest the eyes, such as bad air, excessive heat, low desks requiring pupils to bend over their work, light either so bright as to irritate the eyes or so dim as to require straining to see, or light shining directly in the eyes, small or indistinct print, Greek and German text, too long hours of study with intermissions too short and too infrequent, and finally too much written work. Written examinations should not be too frequent—while of value to promote exactness they are very trying to the eyes. Cohn found of 10,000 school children in Germany 1.4 per cent. of pupils in village schools near sighted, and 11.4 per cent. in city schools, attributing the difference in proportion to the fact that the city schools were darkened by the height of surrounding buildings, while the village schools stood alone and received abundant light from all sides. Possibly difference in the hours, terms and methods were also factors in favor of the village schools. Here then is a field where we might lessen the amount of myopia calling for glasses by the same attention to these matters as has been shown in Germany.

Enough certainly has been said to show that increased use of glasses is due in part to actual increase in eye affections.

It remains only to consider the question of "unnecessary prescribing." Here we must make a distinction between the oculist and the optician, or any other persons assuming to prescribe glasses. It is astonishing that any one will intrust a thing of such priceless value as the eyesight to opticians, jewelers, druggists or peddlers, the most skilled of whom know nothing of the diseases or needs of the eye. Yet physicians have often sent patients to these incompetents! An optician may sometimes give a glass that is satisfactory, just as the druggist may do for a sick man, but such work is dangerous and unscientific. These people who make free examinations, so-called, are certain to prescribe unnecessary glasses because they have to sell their goods. The oculist has no such selfish motive, receiving the same fee for examination whether glasses are ordered or not. Besides he stands on the same high plane of professional honor, feeling for humanity and devotion to scientific truth as the great majority of the scientific profession. He may occasionally err in judgment, attributing too much to the refractive error found; he may fail to recognize that such errors do not call for correction unless they produce symptoms of discomfort or imperfect vision; but his work is usually conscientious and thorough.

The claim has been made that oculists too fre-

quently prescribe weak lenses, "having nothing but a mythical value." Upon this subject Dr. Starkey of Chicago made inquiry of many leading oculists, most of whom stated that they used them commonly and were convinced of their value. Dr. J. L. Thompson said: "The evidence of patients is such in hundreds of cases that I am as fully convinced of the remedial power of these lenses as I am that the earth revolves upon its axis." Many confirmatory cases were cited. My own experience is in accord with this view. Doubtless many refractive errors of moderate degree produce symptoms only when the eye is overtaxed or the system below par. These cases could often do without glasses by resting and building up their general strength, and the writer has had excellent results when this course was pursued. In others the temporary use of glasses proved of advantage. Where patients will not give up work relief can not be obtained without glasses, and in the cases of greater refractive error these are practically an indispensable means of treatment.

Finally, as a counterbalance to the unnecessary use of glasses in some cases, may be mentioned the fact that thousands who do not use them would be better off if they did, receiving the benefits of greater convenience in increase of vision, greater comfort in the relief of eye strain, greater safety to the eye, preserving it from those possible and disastrous effects of strain, retinitis, choroiditis, glaucoma and cataract, and enabling little children, handicapped by imperfect vision and unjustly condemned as backward or inattentive, to compete successfully with their companions.

Therefore, while we hope eye affections may be lessened by greater attention to conditions of work and hygiene in the future, we expect that glasses honestly and intelligently adjusted will be worn quite commonly, and will be considered not as an annoyance or an evil but as a great means of relieving sufferers and increasing their usefulness in the world.

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SOME SUGGESTIONS ON THE MANAGEMENT OF DIABETES.

BY CHARLES W. PURDY, M.D.
CHICAGO.

The writer's views upon the systematic treatment of diabetes have undergone but little essential alterations since last published[1] and therefore an extended or minute review of the subject is not here intended. The object of this paper is rather to call attention to some of the more common errors in the management of those abnormal conditions of the system of which glycosuria is the index. Our present resources for controlling or modifying glycosuria consist in the main of two measures, diet and medication, of which the former so vastly outranks the latter in efficiency that diet may be justly said to constitute our chief reliance. Just one hundred years ago John Rollo first emphasized the important fact that limitation of the carbohydrate foods constitute the chief, if not indeed the only trustworthy, means of controlling or modifying the excretion of sugar in the urine in diabetic states. Although the profession has had a hundred years to refine and put into practice the principle laid down by Rollo, yet if one were to judge from the average diet list now in use, one would almost be justified in the conclusion that the dieting of diabetic patients today has become a lost art. It is true there have appeared within the last twenty-five years a few good monographs upon the subject of diabetes, but unfortunately these do not reach the profession at large. The rank and file of the profession are obliged to look to works on general practice for guidance upon the present subject, as upon most others. Now it does seem to the writer that without exception the sections devoted to the management of diabetes in modern systematic works on practice, so far at least as relates to dieting, are far from reaching the usual standard of excellence otherwise attained in such volumes. While the general principles of management are usually most clearly laid down, too much latitude is generally permitted in matters of detail.

It may be stated that diabetes mellitus is a more or less grave condition, depending upon several circumstances, the most prominent of which is the age of the patient. As a rule, the disease as it appears in the young, that is to say, in patients under 30 years of age, is usually a progressive one and that toward a fatal issue. The duration varies from a few weeks or months to four or five years, depending very largely upon its treatment. Careful and judicious management will often give from one to two or even three years comparative comfort, even in those cases over which the shadow of death lingers; but greater hope than this is not as a rule justified in this class of cases. Fortunately there is another and brighter aspect to this picture. In patients beyond middle age the disease often appears in a much milder form, so mild indeed that it may be held absolutely under control by judicious management. Thus as a rule as the disease appears in patients over 50 years of age, and if there be a well preserved body weight, it is not too much to affirm that if they succumb to the disease it will either be due to faulty advice or to their own negligence. Even after 40 years of age the disease usually appears in a milder form, though exceptions to this rule occur chiefly in those of spare habit of body. It is instructive to note that all cases of this class with very few, if indeed any, exceptions if they be mismanaged, or if they be left to themselves without management, will assume more or less quickly the more serious type of the disease and will succumb to it in a comparatively brief period of time.

In the systematic management of diabetes, diet and medication should so far as possible be completely separated. It may be unhesitatingly stated that in these cases in general, drugs rarely do much good while assuredly they often do much harm. Moreover, when diet and medication are employed simultaneously in any given case from the start, the beneficial effects of dieting over the disease are very often unjustly attributed to the drugs employed, and thus it has happened that an almost endless list of drugs have been recommended as specifics for diabetes which are absolutely valueless, nay, worse, they are actually harmful in these cases, often preventing the full benefits otherwise obtainable from proper dieting. Who is not familiar with the stereotyped article on "A new remedy for diabetes" that every few months appears in the magazines and goes the rounds of the medical periodicals? In it the author tells us he has discovered that a certain dose of a well known drug in his experience has reduced the sugar in the urine from 5 down to 2 or 3 per cent. and it may be

[1] Treatise on Diabetes, 1890, F. A. Davis Co. Publishers, Philadelphia.

that two or three cases are cited as proofs, and thus straightway another new panacea for diabetes is launched upon the sea of medical literature. If, however, we peruse such articles closely we will usually note that the author tells us the patient "was put upon a careful diet," which limited to a greater or less extent the carbohydrate foods *at the same time* the new panacea was administered, and we at once have the key to the *reduction* of sugar in the urine. It is altogether safe to assume that had the panacea been omitted and the patient "put upon the careful diet," just the same if not better results would have been obtained.

The first error often made, therefore, in the management of diabetes is the employment of diet and medication simultaneously, The invariable rule in these cases should be to first obtain all the possible benefits derivable from dieting. and for this purpose from four to five or six weeks should be set aside for testing just how far dieting alone will control or modify the excretion of sugar.

As already inferred the main principle in dieting diabetic patients hinges upon the *limitation* of carbohydrate foods. *Limitation* then is the principle, not *elimination*, the latter word. often being erroneously employed, because it is not possible to eliminate from any diet list absolutely all carbohydrate elements of the food. We must, however, in many cases approach as nearly to complete elimination as it is possible to do, but in all cases this should be gradually brought about, rather than suddenly. Step by step the more objectionable articles should be withdrawn until a point is reached where further reduction of sugar seems impossible; then and only then should any specific medication be attempted.

By far the most serious and perhaps the most common error in dieting diabetic patients is in the matter of bread allowance. We read in most of our works on practice that these patients may not eat ordinary table bread, but some substitute may be employed, most commonly gluten bread, or some of the so-called "diabetic breads" of which the market is overstocked. If we follow this advice let us see what we shall furnish our patients in the way of a supposedly non-starchy food in their bread supply. Bearing in mind the fact that ordinary home-made bread contains about 45 per cent. of starch, let us see how this compares with the more common diabetic flours and breads upon our markets. The following figures are taken from the analyses made by Dr. Harrington of Boston. The graham wafer, made of graham flour, contains 58 per cent. of starch. The gluten flour of Farwell & Rhines, of Watertown, N. Y., contains 67 per cent. of starch; the special diabetic flour of this firm contains 68 per cent. of starch. The gluten flour of the New York Health Food Company contains 66 per cent. of starch. Dr. Johnson's "Educators," a biscuit claimed to be "absolutely free from starch," contains 71 per cent. of that article. The Boston Health Food Company's diabetic flour No. 1, sold as absolutely non-starchy, contains 62 per cent. of starch. Such are average examples of the many foods in the market which we are advised to allow diabetic patients, and it is almost superfluous to add, although without doubt literally true, that the practice of such advice has shortened the lives of thousands of diabetic patients.

It is not alone the enormous starch contents of these commercial diabetic foods that is so injurious to this class of patients. Gluten bread must of necessity be tough and indigestible in the highest degree, and thus it happens that the digestive mechanism, enfeebled and overtaxed as it usually is in these cases, prematurely fails when such food is submitted to it. The same objection applies to bread made from almond flour, which was first suggested by that very able authority Dr. Pavy of London. The almond contains by weight 50 per cent. of oil which no method yet devised has succeeded in materially reducing in the preparation of flour or meal therefrom. In the writer's experience the average stomach of the diabetic patient quickly tires of bread made from almond flour, and if it be long continued indigestion and collapse of assimilation ensues. A very considerable experience with so-called diabetic breads in our markets has convinced the writer that as yet there exists no substitute for bread worthy of that name, and moreover the advertised commercial articles ordinarily met with are the most pernicious humbugs.

We must encounter the fact that the total elimination of bread from the dietary of the diabetic patient would constitute the greatest deprivation these patients could be called upon to meet. After many patient and laborious trials with so-called substitutes for bread in these cases the writer some years since abandoned them as not only useless but highly injurious. Fully aware of the fact that many of these patients can without injury use a *limited amount* of table bread, while many others can not be made to assimilate the smallest possible amount thereof, the following method was adopted: During the first week or ten days of dieting, the diabetic patient is permitted to have two ounces of his usual table bread (accurately weighed in a letter scale) with his morning and evening meals. At the end of that time, if sugar still be present in his urine, the allowance of bread is further limited to one and a half ounces for his morning and evening meals (3 ounces daily) for another week. Thus each week the allowance of bread is gradually reduced until a point is reached where assimilation of the bread allowance is complete and no sugar appears in the urine, or where sugar still remains in the urine at a point where further reduction by limitation of bread seems impossible. If this method be carefully followed it will often be surprising how relatively large an amount of ordinary bread some of these patients can use without injury, the diet in other respects being properly regulated. It is no uncommon experience with the writer to find the very first limitation to 4 ounces daily of bread to result in complete disappearance of sugar from the urine; and in such cases it is sometimes even possible to increase the daily allowance to 6 ounces of bread, although it is not advisable to do so until after three or four weeks careful dieting, thus allowing the liver to thoroughly unload its store of surplus glycogen. The object in dividing the daily bread allowance into two equal portions, and giving one each with the morning and evening meal is because this insures the longest possible intervals between the ingestion of the carbohydrate food, thus offering better chances of its complete disposal by the enfeebled assimilating powers for this class of foods. It will of course be found that the widest difference exists in the assimilative capacities for bread in different cases. Some as first indicated will assimilate 6 ounces of bread daily without any excretion of sugar, some can not assimilate more than 3 or 4 ounces. Some cases supposedly of the more pronounced type,

as in young subjects, will often assimilate 2 ounces daily, at least for a long time until the natural progress of the disease approaches the point of the assimilative limit. On the other hand in some cases it will be found that a half, or even a quarter of an ounce with the morning and evening meal, will provoke the increase of sugar excretion by the urine. In such cases the use of bread must be totally abandoned by the patient, and the sooner this be done the better.

The advantages of the above method are as follows: The limitation of amylaceous food is systematic and definite, and we know precisely how much thereof the patient is getting in his bread supply. It enables us to determine with precision the degree to which the assimilative powers for starchy foods is crippled in each special case, and this is all important because that degree differs widely in different cases. Having found the capacity in each case, we are often able to supply a very material amount of carbohydrate food, still keeping within the patient's assimilative power for that class of food, and thus the carbohydrate food supplied goes to make up his body weight, enabling us often to maintain a fair balance of assimilation over waste as represented by body weight. Lastly, this method gives to the patient an article of bread that is digestible, a matter that no substitute has yet accomplished.

An error in dieting diabetic patients scarcely less common or harmful than that just considered is the somewhat general custom of permitting *ad libitum* the use of milk; indeed it is not uncommon to put these patients upon an exclusive milk diet. In 1871 Dr. Arthur Scott Donkin published a book in London the title of which was "The Skim Milk Treatment of Diabetes and Bright's Disease." The chemico-physiologic principles upon which this author founded his advocacy and practice of the use of milk in diabetes was speedily shown to be false by his own countrymen more eminent and expert than he; and moreover, Dr. Donkin himself as a careful scrutiny of his own published records will show never cured a case of diabetes by this method, nor obtained anything unexpected or remarkable by this practice, a fact that the profession at large seem not to have realized. A doctrine and practice so incomparably simple as the lofty practice of drinking whey, seems to have exercised the most astonishing fascination over both the lay and professional mind, since although the sage has assured us that "time cures all errors" yet twenty-five years has apparently made but little impression upon this false doctrine and its too many desciples, for have we not almost daily presented to our observation some wretched victim of this starvation practice?

Milk is by no means a safe article upon which to sustain adult life indefinitely, but with subjects who possess considerable surplus of fat, life may be prolonged upon it for some time provided the milk be of good quality. It was left to Dr. Donkin, however, to conceive the unique idea of first depriving the milk of its more highly nutrient qualities—the cream—before submitting it for use to diabetic patients, but he left them about one ounce of carbohydrates in each pint (lactine) possibly by way of sharpening the appetite for their allowance of whey. If we examine the simple chemic problem of the composition of ordinary cow's milk, we find that each pint contains on an average 369 grains of nitrogenous matter; 350 grains of fat; 468 grains of lactin, and 72 grains of salines. Now this 468 grains of lactin (about one ounce) is a milk sugar which resides chiefly in the whey, and as Dr. Pavy has long since shown this carbohydrate "comports itself in the intestinal tract precisely as does grape sugar." The "Skim Milk Cure" therefore aims at furnishing to diabetic patients from a quarter to half a pound of sugar daily in a watery vehicle, which practically contains nothing in addition save a little saline and nitrogenous matters, both of which are for for the most part waste materials. No adult person in health could survive indefinitely upon such an exclusive diet, because it would result in slow starvation, and in diabetic states death would be much more rapidly induced since the ingestion of such amounts of sugar would hasten inanition.

It has been contended, however, by some that as a matter of experience the "milk cure" has exercised a controlling influence over sugar excretion in some of these cases, and although it is not to be denied that in a few isolated examples in a certain type of cases soon to be considered such is apparently the case for a time. Yet the same and by far better results are always obtainable by systematic dieting on more liberal general lines which furnish to these patients all the elements essential for ample nutrition. The type of cases above referred to is of the mildest order, such as is seen in people over 50 years of age with very full habit of body. Careful observation will invariably reveal the fact that these subjects are heavy eaters, and furthermore, their histories will show that for the most part they have been large consumers of carbohydrate foods. Glycosuria in such cases merely represents the overflow of untransformed glycogen resulting from enormous overtaxation of the function of the liver. Such cases rarely possess the nervous elements of true diabetes in its more severe forms, nor yet that primary defect in the functional capacity of the liver, which is so prominent in intractable forms of the disease. In short such cases would be ranked by authors under the division of glycosuria. It is in such cases that sometimes the "milk cure" apparently succeeds, and in such cases only, because in such cases the "milk cure" constitutes a method of enforced fasting, and although considerable carbohydrates are furnished with the milk in the form of lactin, yet the enormous curtailment of carbohydrates in the general food supply in these patients of heavy appetites, reduces the balace to comparatively moderate proportions, and the liver relieved from its long overtaxation assumes a nearly normal glycogenic function, and thus sugar secretion may become largely dimished and in some cases even cease.

Bouchard has shown us the great importance of limiting the *quantity* as well as the *quality* of the food in many of these cases, by pointing out the highly instructive fact that during the siege of Paris a number of his patients lost their glycosuria, though previously, when their food supply was ample, he could not accomplish the same result by the most careful selection of the quality of their food. As already indicated, then, the benefits desirable from the use of milk even in this special and limited class of cases, can be far more desirably accomplished by a regulation of the diet which will offer a more varied and agreeable food supply, as well as one that offers a wider and more ample nutritive range. The great advantage of the latter is that it prevents the inevitable loss of weight necessarily incumbent upon a milk diet.

When we come to encounter diabetes in its more pronounced form, such as we usually find in the young,

and nearly all spare subjects regardless of age, the milk cure will be found to aggravate all the symptoms, and to hasten the progress of the disease towrard a fatal issue. A search through Dr. Donkin's records and those of his followers for exceptions to the above rule would prove practically a failure; and if the experience of the writer is entitled to any weight, it shows in upward of one thousand recorded cases of diabetes no exception to the above rule.

It may be gleaned from preceding considerations that another error not uncommon in the management of diabetes is the allowance of food in quantities *ad libitum*. The amount of food that many of these patients naturally consume is very large; added to this the intense hunger created by the disease and, if unrestrained, the amount of food consumed becomes indeed prodigious. Then too, the lay mind in general seems firmly wedded to the belief that the more food the average individual consumes the better it is for him. This may be justly characterized as one of the greatest errors in regard to man's physical welfare in general, and in diabetes the force of the objection becomes more than doubled, because the very main spring of the disease consists of the loss of balance of assimilation over waste. The careful regulation of the *quantity* of food of the diabetic patient should always, therefore, be ranked in importance as second only to the *quality* of the food itself, and here, as elsewhere, the strictest rules should be enforced.

Before quitting the subject of diet, it may be noted digressively that our own continent furnishes a few permissible articles which these patients consider among their luxuries, and which are not usually found in European lists. The most prominent and perhaps the most important in value of these is green corn on the cob. The average diabetic patient may include this justly considered American luxury in his diet list not only without injury but, with certain precautions, with great benefit. Indian corn stands almost at the head of the list of cereals in point of fat composition, while its sugar composition is very low (4 per cent.). Its percentage of starch is very high (67 per cent.), which would at first seem to debar it from use. Experiments have demonstrated the fact, however, that if green corn on the cob be used by diabetic patients before the kernel becomes hard and ripe (before the starch granule is formed), it is practically harmless to these patients and, as a glance at its composition will show, it is highly nourishing. By directing, therefore, that green corn be eaten while yet the kernel is soft and *slightly milky*, an excellent article may be added to the permissible list, and one that the average diabetic patient, especially if he be an American, will prize very highly.

With regard to the use of beverages by diabetic patients, observation would seem to show that altogether too much latitude is permitted in this direction, especially in regard to the use of alcoholics. With the exception of spirits, clarets, Rhine wine and American wines of the last named type, they nearly all contain large amounts of sugar. The writer's analyses of a large number of the alcoholics in our market give the following results: Beer contains from 4 to 6 grains of sugar per ounce; porter contains from 6 to 7½ grains per ounce; champagne contains from 12 to 48 grains per ounce; sauternes from 10 to 12 grains per ounce; the sweet wine class ranges from 10 or 12 for sherry all the way up to 140 grains per ounce for Malaga. It will therefore be readily observed that it would be an error of the first magnitude to permit diabetic patients the indiscriminate choice of alcoholic beverages, since they could scarcely escape hitting upon one that would furnish a large amount of sugar, and that in its most pernicious form. If the diabetic patient really needs alcoholics—and such cases are the exception, since as a general rule they are harmful—the choice should fall within the narrow limits of clarets or the Rhine wine type, or possibly a little spirits.

With regard to the treatment of diabetes by the use of drugs, we shall be called upon here to meet strong prejudices. It may, however, be confidently stated that when employed as specifics, their use can not be too strongly condemned, since without doubt they do more harm than good. Indeed, it may be laid down as a rule that unless medication be aimed purely at supporting some organ or function that the disease tends to impair, it is more likely to prove injurious than otherwise. The failing digestion may be aided by such agents as pepsin and pancreatin; the nervous elements of the disease may be in a measure favorably influenced by such agents as arsenic or strychnin, etc., but such measures will readily suggest themselves to the mind of any intelligent physician on general principles as occasion may require, and therefore they need not be dilated upon here. We have to do here with drugs capable of doing injury in these cases, of which we may take opium and its preparations as one of the prominent examples. Opium holds out no hope of cure to the diabetic patient, even in the mind of its most sanguine advocate, nor can it be successfully maintained that it does no harm to the organism in these cases. To those whose experience it has fallen to witness the absolutely withering effects of the habitual use of this drug, not only over the entire physical organism, but also over the higher—the intellectual and the moral faculties—to such we must indeed assign a courage "worthy of a better cause" if they can calmly consign the remnant of the lives of these patients to such a blighting destroyer of both body and soul. In the writer's experience opium, in any and all its forms, not only adds to the sufferings and discomforts of these patients, but it also hastens their progress to earlier graves. It may be conceded for argument's sake that heavy doses of the drug slightly retard sugar excretion in some cases, but in so doing it aims at the very mainspring of nutrition and assimilation. It increases the thirst, often causes the loss of sleep, aggravates the constipation and completely wrecks the already weakened nervous organization. Of the antipyrin and salicyl series of drugs which have been lauded as specifics for this disease, it may be said without exception that they often cause albuminuria, and always aggravate such conditions, when present, to such a serious extent as to provoke serious and often irreparable nephritis. Of the remaining long list of specific drugs which have been extolled for the treatment of diabetes it would be unprofitable to consider them in very minute detail; it is perhaps admissible that some of them are capable of doing less injury in these cases than opium and its preparations, but this is the most that can be said in their favor.

The importance of sharply separating the diet and medicinal treatment of diabetes has already been touched upon in the beginning of this article, but there is a phase of this matter that may prove profitable to glance at in conclusion. By beginning the

treatment of diabetes with drugs the mind of the patient, ever prone to believe in the occult influences of medicine, quickly learns to rely upon his tablet or drops, rather than upon the more potent influences of a carefully regulated diet, upon which in the main his physical well-being depends. Dieting requires of him so much in the way of resolution and effort; while the pellets or drops exact so little of him of either, that naturally he turns for relief to that which appears to him the easier course: and the latter he most assuredly will do unless his mind be strongly impressed with the importance of pursuing the more difficult but more promising course. These patients have a right to be fairly dealt with when appealing to a great and dignified profession for advice concerning questions which involve their existence, and therefore they should be taught from the start that their lives will depend largely upon their own individual efforts. They should be taught that the amplitude of their comfort, as well as the span of their years, will depend mostly upon a systematic method of dietng, and after having handed over to them this important key, they will have it in their power to open or to shut the door to their future, so far as this can be compassed by human power.

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THE MODERN PATHOLOGY AND TREATMENT OF ACUTE OTITIS MEDIA.

Read before the Chicago Academy of Medicine, November, 1896.

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CHICAGO.

It is not going too far to say that the treatment of acute middle ear disease largely in vogue today is, in many ways, nothing more nor less than an elaboration of that which was recommended for the same condition by our great medical genius Hippocrates more than 2,000 years ago. It would seem that ever since those ancient days, our medical fathers have striven to establish, in a more or less empirical way, their individuality upon the most remote minutiæ. For instance, on one side we have a large group of those who believed in cold, on another those who believed in hot applications. As a third class we may array those who strove to establish the proper indications for the employment of both heat and cold. And then on every hand our attention is arrested by the eternal "drop," from milk (preferably woman's milk), hyssopum, ox-gall, camomile tea, down to the sulphate of zinc solutions of these latter times, always more or less empirical and doubtless always more or less harmful.

Indeed, although DuVerney, in 1683, recommended camomile decotions for acute ear troubles, it has clung to the laity to this very day. It is largely used among the Polish and German people, so that I have grown to recognize those ears which have had this substance dropped into them, by the sediment of gum adhering to their tympanic membranes. I believe it wise in teaching to condemn drops broadly. In acute conditions they can only be used in the sense of a fetish or amulet. We are forced to this conclusion by considering the conditions as they here exist. First, in all except those rare cases in which violent necrosis of large areas of the tympanic membrane takes place, the perforations are at first very small, measuring in diameter from that of a hair to that of a pin-head. The surface tension of a drop of water alone or a column of water which the external auditory canal will accommodate, will prevent its penetration through such a small opening, let alone solutions with greater specific gravity. And even if such solutions did enter beyond the perforation, what can we hope to accomplish? Entrance can take place only by the solution diffusing more or less with the contents of the tympanic cavity, and when this occurs we have merely the formation of an insoluble precipitate of the secretory contents of the cavum in the case of anodynes and antiseptics. That this is bad treatment will appear later on.

Cataplasms, detergents, leeches, etc., have in turn been extolled by one and decried by another. The general treatment too has varied, from the purgatives and emetics of DuVerney to the opium and quinin of the present day. In the meantime the main issues have been lost sight of.

Mark you, I do not wish to hold up to ridicule the therapeutics of our forefathers. Far from that, I realize that the history of otology, like the history of all other things, is one of development. Step by step we have marched on to a larger comprehension of the various manifestations of acute infection of the structures within the ear. What I do wish to insist on is, that as regards the ear, therapeusis up to the very recent past has not kept pace with pathologic knowledge. And it seems to me a fit time to strike out into new paths as regards the treatment of acute middle ear disease; to endeavor to follow a more rational mode of action in the light of the advancement which has been made in bacteriology and pathology of acute otitis. In doing this we must entomb some pleasant fancies mayhap, but the discomfiture which this causes will be amply compensated for by the more satisfactory results of treatment.

Clinically we divide the inflammatory conditions of the middle ear into acute and chronic catarrh, acute and chronic suppuration, etc., and these again into mild and severe forms; but the lines which divide these types are not fixed, for it is a common experience to see one form passing into another. Especially is this so as regards acute catarrhal and suppurative otitis. Maggiora and Gradenigo after examining bacteriologically twenty-nine cases of middle ear inflammation came to the conclusion that the clinical division of otitis into suppurative and catarrhal forms is not justifiable from a bacteriologic standpoint. But it will be the endeavor of the writer to demonstrate that the clinical division has a well marked foundation pathologically if not bacteriologically.

Whatever the inflammatory type, catarrhal or suppurative, pathogenic organisms play the most important etiologic rôle. The germs most frequently present in the exudate are the dipplococcus pneumoniæ, streptococcus pyogenes; less frequently occur the staphylococcus pyogenes albus and aureus, the pneumo-bacillus of Friedländer, the bacillus pyocyaneus, staphylococcus cereus albus and micrococcus tetragenes. Lately Pes and Gradenigo have found the bacillus pyocyaneus as an unmixed infection. The studies of these authors as well as those of Gessard and Chasrin with this microörganism prove that it is capable of producing local as well as general infections (the so-called "*maladie pyocyanique*"). Microörganisms are seldom

found in pure culture. Kanthack out of thirty-one cases of acute otitis, examined before the perforation had occurred, found pure culture of diplococcus pneumoniæ only three times. The staphylococcus pyogenes is most frequently found as the mixed infection.

Route of infection.—The tympanic cavity may be infected by way of

1. An intact drumhead, as in erysipelas, furunculosis.

2. Through a perforation of the tympanic membrane, augmenting always an existing inflammation.

3. By way of the circulation. 1, in the congenital otitis media accompanying infectious diseases in utero, variola, recurrens, typhus, diphtheria (Moose), etc.; 2, in the same diseases occurring later in life; 3, in endocarditis (Trautmann).

4. Via the tuba Eustachii. 1, indirectly by way of the lymphatic interspaces of the connective tissue; 2, directly, by continuity of the mucous membrane, and this is the most common way; 3, through the lumen of the tube, as in forcing infection-laden mucous into the ear, in coughing, vomiting, douching, etc. It is said that infections may reach the middle ear by way of the fissura petrosquamosa, and Gradenigo in a case of cerebro-spinal meningitis has found the same microörganisms in the tympanum about the region of the canalis Fallopii as were present in the meninges.

Apart from the peculiar pathogenic character of the various microörganisms, there are other factors which determine the type of an otitis. In other words, the same organism may, under different conditions, give various types of inflammation. This is dependent on the intensity of virulence, the number of organisms, the resistence of the tissues, the rapidity of invasion. On these data Moose has divided the resulting inflammation into three catagories:

1. Those cases in which a relatively small number of organisms gain an entrance to the tympanum through the lumen of the tube and produce there, by a mucoid metamorphosis of the cell protoplasm, the secretory form of middle ear catarrh, which, without treatment, may exist for months or years without suppuration occurring. Suppuration supervenes only when the organisms increase in number on account of a change occurring in the nutrient media of the mucous membrane from taking cold, injury, or when additional organisms are forced into the middle ear.

2. Those cases of hermatogenous invasion which cause infiltration of numberless polymorphous wandering cells in the mucous membrane as, for example, in measles, scarlet fever, diphtheria, etc. Each focus is inclosed in a fibrinous network causing the mucosa to become hyperplastic. In this form there is no tendency to suppuration. Instead, the microbian product of metabolism may be exerted to produce changes in bones, necrosis of the blood vessels, etc., but metamorphosis occurs in the end without the formation of pus. The most probable cause of this is a relatively small number of microbes of attenuated virulence.

3. Cases in which suppuration occurs, the same being divided into: 1, those in which suppuration is slight without perforation; 2, those in which suppuration is profuse with perforation; 3, those in which the onset is rapid, the suppuration enormous, with destruction of large areas of the tympanic membrane and exfoliation of the ossicles.

I will not consume your time with well known macroscopic and microscopic appearances of an acutely inflamed mucosa. There is little difference between that lining the ear and that found elsewhere in the body with, perhaps, these differences: The glandular element is scant in the otitic mucosa, and the membrane here serves the double function of periosteum and mucous membrane. The mucous of the cavum is largely elaborated by the pavement epithelium; the latter peculiarity explains the proneness with which otitic inflammations result in necrosis.

Now, all experience proves that the purely catarrhal as well as the form of otitis media may be caused by the same microörganisms, and I believe that still another factor always enters into the determination of the type of otitis than those enumerated by Moose, and that is the route of invasion. It is my opinion that the difference is altogether due in a large majority of cases to the mode of invasion. That is to say, when the invasion is hermatogenous we have suppuration. When the invasion is from the surface, *i. e.*, via the lumen of the Eustachian tube and remains superficial, we have a catarrhal inflammation. That a purely catarrhal otitis may become purulent there can be no doubt, and when this does occur it is likely that the substrata of the mucosa are invaded either through the circulation, as a general infection, which is relatively rare; from the pharynx, through the lymph spaces of the tuba Eustachii, which is less rare, or from the surface of the mucosa, the superficial protecting epithelial cells having been destroyed, though this is not a *conditio sine qua non*. I believe that when we have a purulent type of discharge we may be sure that the infection is affecting the substrata of the mucosa.

In approaching the treatment of acute otitis media, let us consider the factors which confer immunity in regard to the invasion of the structures and study, if possible, the measures which nature adopts in arresting such invasion. The question arises at once: "Can we regard the normal tympanum as an aseptic cavity?" Though there have been attempts made to prove that it is aseptic, I hesitate to so believe. When we consider the close relationship which exists between the naso-pharynx and the ear our doubts are excusable. That it possesses rather strong aseptic powers is proven by those cases of known asepticity which recover in a few days. The truly aseptic cavities, such as the joints, plura, etc., do not so react. Indeed, in order to retain the power of resisting microbian invasion it would appear to be necessary that that power be continually exercized. That such a power is possessed by the nasal mucosa would seem to have been proven by the researches of Thompson and Hewlett, and that the same attribute is possessed by the mucosa of the tympanum is highly probable. In what does this bacteriocidal power reside? From observations which I have made on two cases of hydrops ex vacuo of the tympanic cavity, I am led to believe that it largely exists in the secretion itself. The external auditory canals of these cases were carefully sterilized with sublimate packings for two days and after paracentesis the clear, somewhat tenacious mucus was collected in sterilized capillary pipettes. A drop of this transferred to a coverglass and placed in a cell will remain sterile until it quite dries up. A drop inoculated with an attenuated culture of staphylococcus pyogenes aureus and kept at a brood temperature in a moist atmosphere was found sterile after ten hours. This germicidal power is, however, easily

destroyed. For instance, if, after the first four hours, additional staphylococci be added, or if we may mix with it at the beginning about one-fifth by volume of egg albumin the bacteriocidal powers fail. A fraction of a drop of 1 per cent. solution of zinc sulphate will produce the same destructive results.

The treatment which I will here outline has been followed during the past two years in my service at the Michael Reese Hospital, at the Post-Graduate School and in my private practice. It is based on principles first advanced by Schwartz and later Pes and Gradenigo.

Local bleeding has been carefully eschewed. I regard cataplasms as not only of doubtful service but actually harmful. They denude the skin of its protective coverings, and thus open up new portals for the entrance of infection. And if a mastoid operation should become necessary the dangers of sepsis are increased by the raw suppurating surface left by the blister in the very field of operating. Further, I am far from being convinced that they have any marked influence on the pain or course of the inflammation.

I regard the employment of cold as of distinct worth in many cases. This is employed by means of a Leiter's coil or a common ice bag. The ordinary condum is a very good form of bag, being light and flexible, and on account of its peculiar shape especially adapted for coiling around the mastoid region. Heat may be employed, if deemed necessary, by applying hot antiseptic fomentations or the sand bag.

Anodynes and all other drops have been abandoned for reasons already mentioned at the beginning of this paper. That anodynes are absorbed at all when dropped into the ear is doubtful. That they are infectious is certain. Therefore, as our whole endeavor is toward asepsis they have been abandoned. Narcotics for the relief of pain are best employed internally or hypodermically. Syringing has also been proscribed for reasons already mentioned in speaking of drops. Before perforation occurs irrigation can do no good as a means of cleansing and antisepsis in the middle ear, because the intact tympanic membrane closes off the cavity from the external auditory canal. The external auditory canal may be rendered aseptic much more readily by a moist dressing. It is my experience that irrigation, as a means of applying heat or cold for their antiphlogistic or quieting effects, is not well borne, that is, in a number of cases it has added to the pain and increased the congestion. Beside, an apparatus which will enable us to use continuous irrigation in the external auditory canal is very cumbersome. The wetting of the bed and the patient is almost unavoidable, especially when the patient is young. *Intermittent* hot irrigation has proven harmful in my hands. Occasional syringing with sterilized saline solution has been allowed to clear the external auditory canal when the secretions take on a cheesy character which accumulates about the walls and membrane. In this connection I would like to exhibit a syringe which I have had made for me by McElroy. It is of glass, which may be rendered aseptic by boiling. In addition it has a removable nozzle. By this device the nozzle, which is the only part in danger of infection, may be changed after each time it is used. Another point in its favor is its extreme cheapness.

Politzerization is never performed in acute otitis media, either before or after perforation. I regard the procedure in these cases as dangerous, as by it fresh organisms are probably driven into the ear or into the mastoid antrum each time it is performed.

To my thinking, the blowing of the contents of the Eustachian tube into tympanic cavity is not only unreasonable, but in a high degree dangerous. The mucous purulent contents of the tube may drain off into the pharynx; indeed, the ciliary movements of the epithelium lining the tube renders this quite easy. Why, then, force the more or less septic mucus into the middle ear, whence it can escape only with the greatest difficulty? If our modern observations are correct, and we accept the dictum that the violence and chronicity of otitis is largely due to the amount of secondary infection, are we justified in supplying this very infection-bearing material by our Politzerization, in order to accomplish a passing reëstablishment of ventilation of the middle ear? Surely not. I do not believe we are warranted in doing so even after perforation has occurred. With a perforation it has been said that by Politzerization we aid in emptying not only the Eustachian tube, but also the middle ear by driving the contents into the external auditory canal. The same objections are as valid here as they were in regard to Politzerization before perforation. We unnecessarily run the risk of forcing septic matter from the tube into the middle ear. As regards the discharge, that may be much more readily evacuated from the cavum by means of the capillarity of an aseptic, or better, an antiseptic gauze drain.

Politzerization is used, albeit with great care, after the discharge has ceased, the perforation closed and due attention paid the condition of the nose and nasopharynx. If an inflammation persists here after closure of a perforation, I substitute Delstanche's rarefacteur, inasmuch as it accomplishes almost as much as Politzerization in preventing adhesions and anchylosis. If there are indications of a tendency toward adhesions before closure occurs, I employ tubal injections of vasenogen with external massage by means of the rarefacteur or the latter procedure alone.

If fever is present the patient is kept in a recumbent position when possible, although I have had a number of ambulatory patients with temperatures of 99 or 100 degrees F. who made satisfactory, recoveries. Obstipation is most usually relieved by the mild chlorid, 5 to 10 grains, combined with an equal quantity of bicarbonate of soda. When we have seen the case soon enough we have never waited for spontaneous rupture of the drumhead.

Paracentesis has in our hands given the most satisfactory results. We regard as positive indications for its performance in acute troubles, pain with or without fever, and the demonstrable presence of fluid in the middle ear. As negative indications, 1, the presence of fluid in the middle ear without pain or fever; 2, pain, continuing for twenty-four hours with congestion, but without fever or the demonstrable presence of fluid.

The strictest antisepsis should always be observed. If possible the auditory canal is packed with an ordinary dressing for as long a time as possible before the operation. This moist dressing will be the means of conducting the heat or cold of applications applied externally to the deeper structures. If this is not advisable the canal is carefully swabbed out with sublimate, 1-1000, immediately before the operation. The point which I regard with the greatest favor for incising the membrane is along its inferior circumference, a fraction of a millimeter from its margin.

Incision.—This is the most dependent part of the cavity and gives the greatest chance for the escape of the fluid contents. In skilled hands there is no danger of injuring the fenestra rotunda. With adults anesthesia is unnecessary. When necessary in children ethyl bromid is used. After the paracentesis the discharge and blood is carefully swabbed away by means of sterilized cotton pledgets. These pledgets are kept constantly on hand and are prepared in the following manner: Common toothpicks are used as carriers and the ends of them wrapped with absorbent cotton. Test tubes are filled with these, and the tubes stopped with cotton as is done in preparing them for bacteriologic purposes. The whole is then sterilized by means of dry heat. In this way we have always at hand thoroughly sterilized swabs. The external auditory canal is then packed with a strip of sterilized gauze one-quarter to one-half inch broad, care being taken that it barely touches the membrane. As our view of the drum-head is shut off as soon as we introduce the end of the gauze into the auditory canal, I have devised a probe for packing the gauze. It is graduated in millimeters, and by taking the measure of the depth of the canal before introducing the gauze we can see at any time to what depth the gauze has been introduced. It is also roughened on the end so that it more readily catches the gauze. We have used iodoform, sublimate and boracic gauze. Iodoform gauze is irritating to individuals and objectional on account of its odor, but on the whole it has been found the most satisfactory. The naphtholated chinolin gauze of Haug would seem to be especially suitable for this purpose as pointed out by Fougeray. The gauze contains 5 per cent. chinolin and 2.5 per cent. naphthol. This combination forms a salt which is deodorant, is highly antiseptic and soluble in pathologic fluids.

After the gauze is in place the vestibule of the auditory canal and the conchæ are packed with sterilized cotton and the whole is held in place by collodion applied from the edges of the cotton to the skin. It is very remarkable what an enormous amount of fluid may be extruded in some cases after such a dressing. Frequently the dressing becomes saturated twice or thrice daily. In these cases it were better to put on a voluminous external dressing held in place by a bandage.

In fact, by paracentesis and the subsequent antiseptic dressings all the indications for the relief of acute otitis media are met. If there has existed a diminished atmospheric pressure paracentesis equalizes this as speedily as Politzerization. The congestion is reduced by the local hemorrhage necessarily accompanying the operation. Pain is more effectually relieved in this way in the majority of cases than in any other. The cavum is continuously emptied of its contents by the capillary attraction of the gauze drain, while additional germs are prevented from invading the cavity from the external auditory canal.

While I am unable to give comparative statistics of this and other methods of treatment, I can say that by our mode of treatment the course of all cases of acute otitis media is shortened and the number of cases which go on to chronicity is greatly diminished. Surely complications such as those necessitating operations on the mastoid are very much reduced. And there is a sense that those patients treated by this method are much less liable to recurrent attacks.

DISCUSSION.

Dr. Adolph Gehrmann To me, the interesting point about a subject of this kind, is the relation of bacteriologic infection to all of the mucous membranes, whether the mucous membrane of the ear, the throat, or of the stomach. It is practically impossible to have an infection with one particular kind of microorganism, because we have an open space which affords access to the ear and other surfaces where bacteria of all kinds are present at all periods. Infection through the blood, deep down under the mucous membrane, can take place, and can localize itself as an infection by one particular species of organism. The cultures, as a general thing, show mixed varieties, a number of species being present. That the infection should give such great differences clinically is a remarkable part of the whole pathology of mucous membrane infection. We will find sometimes that bacteriologically the organisms are the same, but the differences clinically are marked indeed, especially in the throat. This is true with some well-known organisms. The diphtheria organism can give the widest clinical differences in its action on the throat, and still under the microscope, bacteriologically and experimentally, the cultures obtained will be practically alike. Just why this takes place has not been fully explained, but it is due probably to the resisting powers of the cells or fluids of the blood serum which are transuded through the mucous membrane. Infection of the middle ear, showing a difference clinically, I should think would not depend entirely upon the character of the fluid which is excreted, but largely upon the particular species of organism which is localized and which is the infective agent. If we have those organisms which produce suppuration, the chances are suppuration will be the clinical symptom. If we have organisms in pure cultures, which do not produce suppuration, or in combinations among themselves, a serous inflammation or an inflammation without the formation of much pus, will be the clinical symptom. The causes of suppuration are due to toxins that are produced, which are so irritating to the white blood cells and fixed tissue cells as to be positively chemotactic and cause a collection of leucocytes and multiplication of the tissue cells. We may have infection with certain organisms with various forms of streptococcus, which would not lead to extensive suppuration, yet such fluids would be found to contain a good many pus cells in them, as well as a good many epithelial cells. When we have pus infection the prognosis is most serious, as the process is more extensive and causes greater pressure. If the bacillus coli communis is found in the middle ear infection suppuration would be the clinical symptom.

Dr. Frederic D. Owsley—I have listened to Dr. Pierce's paper with a great deal of interest and I congratulate him on the grace and ability with which he has presented his views. From a pathologic standpoint I have only the highest commendation for his paper, but the method of treatment recommended I can only partly indorse. With his belief in the efficacy of cold and the uselessness of medicating the tympanum by means of drops I heartily agree.

I wish to call attention to the fact that frequently good results are not obtained from the use of cold, because it is not used intelligently; it is either not applied long enough or vice versa. Experiments have shown that cold applied continuously will cause contraction of the muscular coats of the blood vessels for between five and seven hours; if continued without intermission over that length of time, it will produce paralysis of the muscular coats with dilatation. My plan is to apply cold continuously for not over four hours, an intermission of two hours, and then a reapplication of cold. I can not agree with Dr. Pierce in his recommendation of paracentesis in cases of acute otitis media. I do not believe it is warranted except in those cases where the local appearances are such as to lead us to believe that there is pus in the cavity. In all text-books on the subject there is a distinction made between acute otitis media and acute suppurative otitis media. In the first mentioned condition, I do not believe that paracentesis is justifiable, except in those exceptional cases where the pain is so intense that it can not be controlled by any other means.

In the suppurative form, which is indicated by local conditions of the tympanic membrane, of course paracentesis is indicated. I do not agree with Dr. Pierce in his condemnation of Politzerization in otitis media. In my hands it has been efficacious in the majority of cases, and together with proper antiphlogistic measures it has prevented suppuration and perforation. Where suppuration and perforation have taken place, I do not think it wise to dispense with Politzerization as a means of emptying the cavity of its purulent contents.

Dr. Wm. H. Wilder—I do not think one is justified in condemning the application of heat and then commending the application of cold in cases of acute otitis media. I am somewhat skeptical about the reduction of temperature or any

influence upon an acute inflammatory process in a part so deeply situated as the middle ear by the application of cold to the mastoid region, as I understand Dr. Pierce advocates. The application of heat, on the contrary, is usually made by the method of irrigation in these cases of acute otitis. By throwing a gentle stream of warm water into the external auditory meatus and allowing it to come in contact with the tympanic membrane, you bring the heat to bear directly upon the inflamed part, or as nearly so as possible; whereas it would be injudicious to apply cold in the same way, as it would probably increase the pain very materially. Unquestionably the application of heat to the tympanum by irrigation relieves many cases. It is an old remedy, recommended by the most eminent authorities on the subject, and by its early use the inflammatory process is frequently checked, the pain relieved and the necessity of an operation thus avoided.

I heartily endorse the Doctor's views in regard to paracentesis in certain cases. I think where the pain is not relieved by the application of heat, that paracentesis is indicated, particularly if there is any bulging of the membrane showing that there is considerable effusion into the tympanic cavity. In such cases the operation affords prompt relief from the pain. But even with that, in some cases permanent relief is not afforded unless we can empty the tympanic cavity, and one of the most efficient ways of doing this is by mild Politzerization, and I can not agree with the Doctor in his condemnation of this well tried method, and I do not see in it the dangers that have been referred to by others. It has been well said that the mucous membrane of the tympanic cavity has bactericidal power, and therefore the danger of further infecting a cavity already septic by sending air into it from the pharynx is far over-balanced by the good obtained by forcing out the exudate that is there. It does not escape so easily after simple paracentesis. I have had cases where nothing short of Politzerization would force the material out of the opening that was made in the membrane. Furthermore, the opening will often close soon after the operation, and the wound will be healed before the cavity has been emptied of the exudate. It has been my practice in these cases, especially where I find that the fluid in the tympanic cavity is sticky and will not easily escape, to resort to Politzerization immediately after paracentesis, and so far I have no reason to regret it.

Dr. WM. L. BALLENGER—Dr. Pierce is to be congratulated on the pathologic and bacteriologic portions of his thesis. Much is therein stated that places the treatment of acute ear cases upon a rational basis. As to paracentesis, as advocated by Dr. Pierce, I wish to take some exception. The cause of the pain in middle ear inflammations is due to the fact that the Eustachian tube itself is closed either by reason of swelling or because of the tenacious mucus which has plugged it. The logical treatment should endeavor to establish a patulous condition of the Eustachian tube. In treating cases of otitis media, we must not think of treating this condition *per se;* we must think of inflammation which probably involves more or less the nasal and naso pharyngeal spaces or cavities. The otitis is simply one point of the inflammation, the one which causes most of the pain because of the isolated position of the cavity. If we wish to promptly relieve these acute conditions we must relieve the general catarrhal inflammation which is in close proximity to this cavity. We will find this particularly in the vault of the pharynx—a post-nasal catarrh, or possibly there are adenoid vegetations obstructing the Eustachian tube. If these conditions are relieved, as they can be, more or less, by astringent and aromatic washes, we do a good deal toward the immediate relief of the middle ear catarrh. Mild Politzerization in the less severe cases of middle ear inflammation will be tolerated and followed in most cases by marked relief. As to the danger of introducing other germs into the cavity by this method, Dr. Pierce has possibly overdrawn it a little, because the Eustachian tube is there for the purpose of aerating the middle ear, and there can be no particular harm in resorting to Politzerization even while there is inflammation present.

Dr. EDWARD T. DICKERMAN—The preceding speakers have differed very materially with the essayist, and I rise to not only sanction everything he said, but to emphasize one or two points. With reference to heat and cold, I shall not discuss this phase of the subject. Both have their place. There are absolute indications for paracentesis, and when it is done, it should be done thoroughly, the puncture being made in the posterior inferior quadrant close to the bony insertion. This operative measure is done for two purposes. If there is a catarrhal condition with an exudate, it is done to relieve the pressure produced by the exudate. If a purulent condition exists, paracentesis is resorted to to drain the cavity, as we all know the indications for operating on any cavity in which there is pus, is to effect drainage, and this can only be accomplished by paracentesis. I congratulate the doctor on the forcible manner in which he has brought forward the aseptic and antiseptic treatment of this condition. There is no disease in the category of medicine that has been so much abused as that of otitis media, and the various drops to which the doctor referred deserve the strongest condemnation. Asepsis should be carried out as thoroughly as possible.

A word or two in regard to drainage. This is accomplished by capillary attraction, and I think in some respects wicking is superior to gauze. You can introduce the former right up to the opening in the membrane and by its capillary attraction you can thoroughly drain the cavity.

As to insufflation or Politzerization, I with the Doctor heartily condemn it. I do not consider it good practice. In the first place, we have a Eustacian tube which is filled with a tough or tenacious mucus, and by means of insufflation you blow this mucus into the ear, and it is exceedingly difficult to get it out again. It does not drain, and it is a culture medium for micro-örganisms. The best method to drain the middle ear is not by Politzerization, but by treating the Eustachian tube itself, and this can be accomplished by treating first the orifice by the introduction of astringents into the tube, in that way reducing the inflammatory changes that have taken place and establishing communication with the middle ear.

Dr. HENRY GRADLE—The speaker (Dr. Gehrmann) noted an interesting fact, namely, that the exudate in the purely catarrhal form, as well as in the suppurative variety, contains the same microbe, one or more varieties, and of these I may mention the pneumococcus, staphylococcus, streptococcus, and occasionally the pyocyaneus. Evidence on this subject is definite according to obvious German, Italian and some English observers. Yet these two forms are clinically separate and distinct. At the beginning, it is difficult to say which form we are going to have when pain first begins, but ultimately the course is entirely different according to whether it is catarrhal or the suppurating form. How rarely do we get the history from a patient with the purely catarrhal inflammation of the middle ear that he has ever had suppuration of the ear previously in his life, or vice versa. It is one of the great rarities to see suppurative disease of one ear and the progressive catarrhal form of the affection in the other. We may find the suppurative form in one ear and more or less deafness in the other, but this deafness is stationary and but very rarely progressive. Progressive deafness in one ear and the suppurative form in the other are almost unknown. While the microbes may be the same, the result depends upon the resisting power of the organism.

As to the therapeutics, I think Dr. Pierce represents the modern German school with all its dicta, and we can not cavil with him or dispute his statements.

In the first stage, when the diagnosis is still in doubt as to whether we are going to have the suppurative form or simple catarrhal otitis media, some measures are applicable which the Doctor did not include in his paper. I would principally mention carbolated glycerin (15 per cent). I have had definite experience in many instances in satisfying myself that it has a distinct effect on the pain. Whether it has an effect on the course of the disease it is difficult to say, and I am not quite settled in my opinion, but in those cases which look like incipient suppurative otitis the use of 10 per cent. or still better 15 per cent. solution of carbolic acid in glycerin will give often timely and permanent relief, although it fails in some instances. In the incipient stage I would not hesitate to use inflation, but prefer the catheter. Then we get distinct suppuration, inflation is perhaps not the best plan to pursue. But we can not always tell in the incipient stage, where the diagnosis is not yet definite, where we have a moderate injection of the membrane, no distinct bulging, no appearance of fluid in the cavity, but where the individual has pain, and more or less rise of temperature, whether the disease is going to lead to suppuration and perforation of the membrane or not. In such instances inflation by the catheter, followed by carbolated glycerin will occasionally arrest further symptoms. It will terminate that form which would not have proceeded to suppuration, but would have given the patient trouble for a few more days. When the membrane is thoroughly injected and bulging, and the persistence of the symptoms has left no doubt that suppuration is taking place, we can not improve upon the treatment that the essayist suggests. Here inflation of any kind affords only temporary relief, and I am inclined to agree with him on theoretic grounds, it is true, but on grounds that can not be utterly disputed, that inflation may increase the liability to mixed infection and thus prolong the disease. The essence of the entire treatment, after the diagnosis has been made, is absolute rest and drainage. Paracentesis has its well defined indications. Perhaps the brevity

of the paper did not permit the Doctor to give all of these indications. The opening once established, there is no particular benefit to be derived by forcing fluid out by pressure through the Politzer bag or catheter. The sticky fluid Dr. Wilder speaks of occurs rather in the chronic form than in the acute otitis. In the acute cases drainage with gauze is sufficient. I have always feared that the gauze such as we purchase in stores is not absolutely sterile. We have no guarantee against the entrance of putrefactive germs from the outside. I hence saturate the gauze with boric acid powder before using it, and I do not change the gauze any more than I can possibly help. I pack the cavity as densely as possible, allow the fluid to drain to the surface, where it partly evaporates, and keep the dressing in place as long as I can. Since following this method I have seen most of the cases run a milder and less protracted course than in my former experience.

Dr. Wm. L. Ballenger—For fear that I may have been misunderstood in one of my statements, I will say that I do not oppose paracentesis in these cases, but I should try other methods such as I first suggested. I understood Dr. Pierce to say that he almost always resorts to paracentesis as a primary treatment. It was his universal practice of doing this that I objected to.

Dr. Norval H. Pierce—Realizing that my paper was somewhat radical, I was prepared for a warm opposition. I do not think there is anything left for me to say except to assure the Fellows of the Academy that Dr. Dickerman and myself are not in collusion. He, together with Dr. Gradle, has said about everything that I could say. As regards Politzerization, I would like to ask what the gentlemen expect to bring about by it? What is their object in Politzerization?

Dr. Wm. H. Wilder—I do not know who is expected to answer Dr. Pierce's question as to what is the object of Politzerization. One great advantage in these cases is the reëstablishing of a connection between the middle ear and the pharynx that normally exists. If you can open the tube, sometimes the fluid will flow back into the pharynx, and the entire trouble will disappear at once. This is a point that Politzer himself advances. After paracentesis the exudate, which is sometimes quite thick, will not flow out so readily by ordinary drainage as it will if you force it out by means of a current of air forced into the Eustachian tube by inflation with a Politzer bag or better, by means of the introduction of the Eustachian catheter. I am inclined to think that more cases contain sticky mucus than Dr. Gradle supposes. Such cases are in one sense chronic, in which there has been an acute exacerbation of the disease; but we shall get rid of the exudate more promptly if we use insufflation than we should without it. I do not see why we should discard a remedy which has proven useful, simply on the hypothetic ground that we are going to introduce more germs from the throat into a cavity that has already shown itself to be septic.

Dr. Wm. L. Ballenger—I think there are two other indications for Politzerization. One is that you thereby introduce into the tympanic cavity oxygen, which is a very good therapeutic measure, and another is that you induce pressure. You increase pressure in the middle ear, which relieves the congestion. Some time ago Dr. Fütterer read a paper upon the subject of exudative pleurisy in which I believe his treatment was pneumonic pressure to prevent the exudation. We can prevent the rapid exudation or suppuration in acute otitis by, 1, increasing the air pressure; 2, by introducing oxygen; and 3, by cleaning out the cavity as Dr. Wilder has suggested. I consider these three good reasons for using Politzerization. As to paracentesis, there many be decided indications for it in acute otitis media. These indications are when you have reason to suspect the fluid in the cavity is purulent, when you can see the bulging of the membrana tympani. Cases of acute otitis media exist without a purulent condition being demonstrable. Our standard textbooks, such as Politzer, divides acute otitis media into suppurating and non-suppurating forms. In acute suppurative otitis media I should not hesitate to recommend paracentesis. In the simple form the tympanic cavity is not filled with pus, and I should condemn this procedure except as a last resort to relieve the intense pain which can not be relieved by any other means. Where one is pursuing a line of study as to what would constitute the best therapeutic measures he is apt to forget that the system has powers of recuperation independent of any extraneous therapeutic aid. If the membrana tympani is retracted the indications are to open the Eustachian tube. If it is bulging with pressure of pus from within, the indications are for paracentesis. There should never be any relaxation of effort to open the Eustachian tube in any case. As I have said before, this can best be done by giving attention to the general catarrhal condition of the naso-pharyngeal membrane and to other morbid process as post-nasal adenoids, etc.

Dr. Norval H. Pierce—As regards Politzerization, our establishment of the permeability of the Eustachian tube can not aid in drainage of the tympanic cavity to any large degree, because we know the tube empties at the top of the cavity; it goes in at the roof just below the attic, and the larger part of the space is below the orifice of the Eustachian tube. Politzerization is done for the purpose of reëstablishing atmospheric pressure in the middle ear. That is one reason for which Politzer devised this procedure when he introduced it to the medical profession. We know that when the Eustachian tube is closed for any length of time the atmospheric pressure in the tympanic cavity sinks. This is probably due to absorption by the capillaries of the mucous membrane of the oxygen from the air. A partial vacuum is produced in this way, which is exerted as suction upon the capillaries, producing dilatation of them. There is a sogginess of the mucous membrane from the fluid portions of the blood extruding from the vessel walls, and later a diapedesis of the cellular elements. This condition may not be connected with true inflammation. We believe that by paracentesis we reëstablish the atmospheric pressure just as quickly as by Politzerization. In other words, paracentesis accomplishes just what Politzerization does without the dangers. My results during the past two years in acute otitis media, whether it be more or less septic, and they all are, has warranted me in believing that this is the true and only mode of treatment. The majority of cases have been cured within the first fortnight, and this can hardly be said of any other mode of treatment, taken as a whole. There are many points touched upon in the discussion which we dealt with in the body of the paper, if I took up your time with these I would only repeat myself.

ETHER AND CHLOROFORM.

Read before the Mississippi Valley Medical Society at St. Paul, Minn., Sept. 18, 1896.

BY W. S. CALDWELL, M.D.

Fellow of the British Gynecological Society; Membre l'Association Francaise de Chirurgie; the American Medical Association; the Mississippi Valley Medical Society; the National Association of Railway Surgeons; the Illinois State Medical Society; Surgeon to St. Francis Hospital, etc.

FREEPORT, ILL.

I am just now entering upon my fifth decade as a practitioner of medicine, and though it is a humiliating reflection, yet it is a fact, that what I learned of therapeutics during one of these epochs, I had to unlearn in the next, and that with all my delving among the resources of the materia medica, I can now count upon the fingers of both hands, nearly all the remedial agents that have stood with me the test of forty years.

Among the few ideas, the few firm convictions that have become thoroughly implanted in my mind in the use of drugs, the superiority of ether as an anesthetic has become with me a confession of faith, firmly rooted and immovably fixed.

It is now over thirty years since I made my first professional tour of Europe, and since then I have repeated the journey four times, and among the changes I have noticed at each visit, especially in Great Britain, is the more general use of ether as an anesthetic.

Thirty years ago chloroform was in general use, while during my visit in 1893, I do not remember to have seen this drug used at all to produce general anesthesia in the adult, anywhere on the British Isles.

These observations excited my pride, exalted my patriotism, for I was proud of the fact that ether, as an anesthetic, was an American discovery, and that conservative Europe was gradually adopting this agent, and discontinuing the use of the more dangerous one that had had its birth on the other side of the Atlantic.

When men tell me that chloroform, if properly given, is a safe anesthetic, I recall with a shudder the deaths I have seen occur while patients were being

operated on by the great lights in surgery in Paris, Vienna and Berlin; on the other hand, I have never seen a single patient die on the table while ether was being administered as an anesthetic.

Imbued with, these convictions, sustained by an extended observation, you may imagine my surprise and consternation when last spring, at the meeting of the American Association of Railway Surgeons at St. Louis, while the subject of the merits of chloroform and ether were being discussed, a vote was taken as to the preferences of that body for these two drugs, and 105 of those present advocated the use of chloroform, while only 16 were on the side of ether.

Like many another fanatic, I in my enthusiasm imagined I had a mission, and that mission was to buckle on my armor and, like the old Crusader, preach and combat with all the earnestness I possess in favor of my pet anesthetic.

It is this conviction that has actuated me to read this paper before this Society to-day. I shall not bore you, however, with a history of anesthesia, nor recount to you all the agents that have been used for this purpose from the days of Hippocrates to the time when Morton of Boston and Simpson of Edinburgh discovered the use of these two agents that are now almost universally used as anesthetics, but shall proceed to discuss the merits of these two great champions, chloroform and ether.

Neither will I worry you with figures gathered from a vast variety of sources, and compiled by a large number of authorities, to prove to you that ether is a safer anesthetic than chloroform. Statistics, though often misleading, when they all point in one direction and all verify the same fact, are certainly worthy of some credence.

Now, though these figures vary somewhat, as compiled by different men, taking them on a general average, they prove chloroform five times as dangerous an agent for general anesthetic purposes as ether.

Another point I wish to make in favor of ether, is that our mortality reports showing the number of patients killed by chloroform and ether, are compiled from the statistics kept by large hospitals in the main, where anesthetics are most skilfully given.

Now, as nearly all of the advocates of chloroform admit that it requires more skill in its administration, I believe if all the figures could be gathered giving the true number of accidents that have occurred from chloroform, given by everybody, and under all circumstances, that the advantages of ether as an anesthetic would not only be a relation of 5 to 1 in favor of ether, but a relation of 10 to 1; in other words, chloroform being the more dangerous agent, requires more consummate skill in its administration, and as that skill is not possessed, in my opinion, by one physician in one hundred, they should use that anesthetic which, though bunglingly given, is not likely to result in the death of the patient.

I sent out last August over two hundred circulars, addressed to the surgeons of the United States north of Baltimore and St. Louis, and including those two cities, asking a reply to the following questions:

1. Do you generally use ether or chloroform in your practice as an anesthetic agent?

2. State briefly your reasons for preferring the one or the other.

3. How many deaths have you had in your practice from chloroform? From ether?

4. How many deaths do you know of that have occurred in the practice of other surgeons from chloroform? From ether?

I find my replies as sectional as politics; nearly every advocate of chloroform was west of Buffalo. Chicago was about equally divided between chloroform and ether; the further west I got my replies from, the more generally did the writers use chloroform. This was another blow to my pride, for I always had a conviction that the West was the most progressive portion of our progressive country. St. Louis is three-fourths chloroform. I only sent my circulars to the homeopaths connected with the large colleges and hospitals, and the replies I got were all in favor of ether. New York, Philadelphia and Boston use ether exclusively, according to the replies sent me, except in a few instances where the surgeon began the anesthesia with chloroform and then followed it with ether.

The wide-spread use of chloroform in the West will, I suppose, account for the vote in its favor at the St. Louis meeting of railroad surgeons, where, as I stated before, chloroform had 105 advocates and ether only 16. Of those who have answered my questions, 60 per cent. use ether, 25 per cent. use chloroform, and 15 per cent. use various mixtures of ether and chloroform, mostly the A. C. E. mixture.

My correspondents reported 127 deaths from anesthesia, that they had had in their own practice, or known in the practice of others. Of this number, 15 were from ether and 112 from chloroform.

Most of the chloroformists who answered me lay great stress upon the fact that the remedy must be given with *great care*. Their cautious language would seem to show that most of them were afraid of the remedy themselves. They exact *trained* and *skilled* men in its administration; an amount of skill, in fact, which few of us possess.

Prof. Roswell Park of Buffalo, the only advocate of chloroform in the East, when he answered my questions said, "I believe chloroform equally as safe as ether in *proper hands*, with *proper precautions*, and it is otherwise preferable." He says he has lost one patient on the table from chloroform, and knows of three or four others that have died in the practice of other surgeons, from chloroform. He says: "Ether does not kill as many on the table, but many more afterward, because of various complications, hence my preference for chloroform."

Dr. J. B. Murphy of Chicago says: "Chloroform is safer, though the operation requires *more care* and *skill* in its administration."

Dr. McArthur of Chicago, though an advocate of chloroform, ends his communication to me in these words: "There is no doubt that ether is a safer agent than chloroform; it is folly to deny this in the face of the enormous statistics," and yet he says, "in *careful hands* chloroform can be used with impunity where no contraindications exist."

One of the most distinguished surgeons of Kansas City and a warm advocate of chloroform says: "The agent is *safer* in *skilled hands*, but the trouble is, the chloroformer watches the pulse, and neglects the respiration, while the danger always approaches through the function of the lungs." He has never had a death in his practice. His teachings, however, according to the latest investigations on the subject, are fallacious, misleading and dangerous, for an analysis of 384 deaths from chlorotorm tabulated by the London *Lancet* Commission shows that in 227 of

these cases, the pulse failed entirely before the cessation of respiration. In 77 cases cardiac action and respiration ceased simultaneously, and in only 80 cases did the respiration stop before the heart. While the venerable Kansas City surgeon's rules hold good in the main, in the administration of ether, they are not applicable when applied to chloroform. In fact, anyone who gives an anesthetic, whether ether or chloroform, and does not watch both the heart and the respiration, is certainly an unfit person to act as an anesthetizer.

Bearing on this point, Alphonz Guerin read a paper before a French surgical association in 1894, showing the great danger of chloroform as an anesthetic, though he says the experiments of Claude Bernard and Paul Bert, as well as the Hyderabad Commission, demonstrate that death usually approaches by way of respiration. This eminent surgeon says that in a certain number of cases, chloroform inhaled, was followed by a paralysis of the heart's action, and that the patient was beyond all hope of recovery at the moment the first signs of danger were observed.

Dr. Montgomery of Chicago prefers chloroform on account of the time saved, and the less nausea following its use.

Dr. Bouffleur of Chicago, in his answer to my circular, says he gives chloroform twice as often as ether, because it is less voluminous, easier to administer and less disagreeable in its effects, and that in properly selected cases, and if *properly administered*, it is equally safe. The Doctor, however, in his article, "Anesthetics and Anesthesia" in the Supplement to Ashhurst's Surgery, says: "Ether should be preferred to chloroform unless the anesthetist is *skilled* in the use of the latter." Further on in his letter to me he says that, generally speaking, ether is four or five times safer than chloroform. This further demonstrates my position that, as a skilled anesthetizer is not generally obtainable, we should use that agent which, even in unskilled hands, is not likely to result in the death of our patient.

Dr. Keeler, chief assistant in Bardeleben's surgical service in the Charity Hospital in Berlin, stated to me that statistics showed that the fatal cases from the use of chloroform in that institution for the last twenty years, occurred generally in the hands of new men, who came on in their regular turn. The Doctor told me nearly every new man had to kill a case or two before he could get his hand in.

The English surgeon is, in my opinion, the most careful of the life of the patient he is operating on, of any man living, and in the large hospitals they employ a professional anesthetizer; he generally begins his anesthetic with the nitrous oxid gas, and follows that with ether. In conversation on this subject with a noted surgeon of Guy's Hospital, he told me that only in an emergency would he trust even himself to give an anesthetic.

It would make my paper far too long were I to quote all the reasons given by advocates of chloroform for their preferences for that drug; any one, however, who will carefully read over all the answers I have received, will come to the conclusion that surgeons generally give chloroform rather than ether, simply because it is more convenient and easier to give, and requires nothing in the way of an appliance for its administration. However, chloroformists base their preferences for this drug, in the main, upon the following grounds: 1, because it acts more quickly; 2, it is more pleasant to the patient; 3, it produces less nausea; 4, it is more safe to use where you have to have an artificial light; 5, because its after-effects are less injurious.

As to the first of these objections, that it is an agent that acts more quickly, the objection in my opinion is not well founded. Since I have had in view the writing of this paper, I have begun the anesthesia with my patients at St. Francis Hospital myself, and the time required for perfect anesthesia has been from two and one-half to seven minutes and the average time is four and one-half minutes. I use the appliance I show you, which I believe was first brought out some seven years ago by Dr. Kocher of Zurich, and which I first saw most satisfactorily used in the surgical service of one of the hospitals in Dresden. You will see by the construction of the mask that it fits over the face rather loosely, but to make it more air tight I throw a towel over the whole, and tell the patient to breathe fully and rapidly, and gain his confidence by telling him he will feel a choking sensation at first, but that it will soon pass away. I use only Squibb's ether in 100 drachm cans and I never depend upon the remainder of a can that has been once opened. I have used extensively the Clover and Ormsby inhalers and while the former is more economical as far as the quantity of ether used is concerned, it takes longer to anesthetize your patient and is not as satisfactory as the instrument I show you.

As to the second point urged in favor of chloroform, that it is more pleasant to the patient, I do not believe it should have the least weight, when its greater danger is considered.

As to the third objection, the assertion that ether causes more persistent vomiting, is absolutely untrue. Immediately on waking from ether anesthesia the patient is more likely to regurgitate a few spoonsful of mucus from his throat, a secretion which ether has a tendency to increase, but as far as the persistent vomiting that occurs in the next few hours after the anesthetic is concerned, such symptoms are much more likely to follow chloroform than ether. Hewitt in his work on anesthetics sustains me in this position. I carried a renal calculus for fifty years, up to a year ago, when it was removed, and during that time I took an anesthetic more than one hundred times, and when I took chloroform I vomited usually more or less for the next twenty-four hours, while in the case of ether nausea ceased in a short time.

The most flimsy excuse offered me for the use of chloroform is that it is safer to use with artificial light. Why not then restrict its use to cases operated on at night, and not jeopardize the lives of twenty patients operated on in daylight, because one operated on by night would be injured, and those in attendance, by the vapor from ether taking fire from a gas jet or a kerosene lamp.

The indictment against ether on account of the deleterious secondary effects upon the patients probably has slight foundation, but has been enormously magnified by that careless class of surgeons who use chloroform on account of its convenience and want an excuse for their, in my opinion, inexcusable practice. If the patient is suffering from bronchial irritation, ether may have a tendency to increase this morbid condition, at least temporarily. As to the secondary pneumonia that seems to be such a *bête noire* with the chloroformists, it is a condition that

may follow a suppurative process, whether an anesthetic be used or not, and any anesthetic, whether chloroform or ether, might be followed by this complication. Degenerative and inflammatory processes in any of the organs of the body are the result of lowered blood pressure produced by the drug given, and the consequent formation of thrombi in the substances of these organs, and I claim that organic changes, whether of the kidneys, lungs, or any other of the great vital organs are as likely to follow the use of chloroform as ether. To sustain me in this position, allow me to quote from the twenty-seventh volume of the *Archiv für klinische Chirurgie*, Dr. Konrad Budinger, of Billroth's Clinic, "Ueber Laehmungen nach Chloroform Narkosen." In this article Budinger says we may have paralyses following anesthesia, caused by thrombi in the nervous centers, that a partial arrest of the circulation in any and all of the organs may lead to later degenerative changes in the heart, kidneys, liver, etc.

However, most of my correspondents who object to ether base such objections on a general indictment, without specifying their charges.

My hearers are not to understand that I am taking the position that chloroform has no place as an anesthetic. I am in the habit myself of giving it to small children whose hearts are especially strong as compared to the adult, and women in childbed. It was formerly taught that there was no danger in this remedy in this latter class of patients, but later statistics have shown that at least a dozen women are on record as having died during accouchement from the effects of this drug. I am willing to admit that where there is any special irritation about the air passages, ether may have a tendency to increase this, while chloroform may have a tendency to allay it.

I operated on a case last month that will illustrate the superiority of chloroform in exceptional cases. It was a case of hip-joint trouble in a young man 20 years old. The night before I operated on him he had a slight hemorrhage of the lungs, was coughing some in the morning on which I operated. I tried ether, but had to resort to chloroform, as the former seemed to increase his disposition to cough, but as my patient was very weak, I only partially anesthetized him, so much was I in fear of the anesthetic I was using.

Several of my correspondents gave me specific rules as to how I should give chloroform, that it should be given drop by drop. On the other hand, Prof. St. Germain, of the Children's Hospital in Paris, who has probably anesthetized many more children than any man to whom I have written, says that it should be given rapidly and the patient brought under its influence within the fraction of a minute, for if you give it gradually, and any untoward symptoms develop themselves, the patient is so surcharged with the poison you will be unable to resuscitate it. But I only give this upon the authority of one of the most eminent surgeons of Europe, and do not personally endorse the views here expressed.

Coming now to a review of the answers I got from those who favor ether as an anesthetic:

Prof. Nicholas Sands says, "I always give ether except in cases of Bright's disease and in children."

The venerable Prof. T. Gaylord Thomas of New York, in his reply to me, says, "Ether, ether, ether; a practice of forty years has taught me that ether is safe and effectual and that chloroform is attended with great danger. I have had no deaths from chloroform, but have spent many a *mauvais quart d'heure* in resuscitating a patient at the point of death from chloroform."

Prof. Thomas K. Morton of Philadelphia says, "Ether is a great deal safer and I always give it."

Dr. O. P. Pfifer says, "I always use ether, never chloroform, beause it is ten times safer."

Dr. Edebohls of New York says, "I use ether, for one reason that the physicians in this country do not know how to give chloroform."

Dr. J. C. DaCosta of Philadelphia says, "I give ether because it is vastly safer, and I believe deaths from chloroform are twelve times as frequent as deaths from ether. In ether you have some warning of approaching danger, while chloroform is apt to kill without any previous notice."

Prof. C. B. Penrose of Philadelphia, writes me: "I always use ether for I believe the mortality of ether is very much less than that of chloroform. I believe, however, the danger from ether is under-estimated. It is usually administered before a prolonged operation by the most inexperienced physician present, and I think many more would survive prolonged operations if the anesthetic was administered by a man of experience. I would prefer the inexperienced man for an assistant and the most experienced man for the anesthetizer, if I was obliged to choose. I believe that deaths sometimes occur twenty-four or forty-eight hours after an operation, which have been induced by an improper administration of the anesthetic."

In my circular addressed to Prof. Wood of Philadelphia, beside the questions before mentioned, I added "I shall take the position in my paper that the after-effects of ether are no worse than chloroform, except perhaps where there is some irritation of the air passages. Will you sustain me in this view?" He says, "I have always used ether except in a few well defined classes of patients, for which the use of chloroform is indicated in spite of its increased danger." In stating his reasons for preferring ether, he says, "for the safety of the patient. Only those who are ignorant of the greater danger connected with the use of chloroform or who are indifferent to the safety of the patient, habitually use the stronger anesthetic, and it is only excusable on the battlefield, and the exceptions before named. He who has kept himself informed on the subject through the London *Lancet* or the *British Medical Journal*, can not fail to note the great difference between the safety of the two drugs. The claim that the after-effects of ether are worse than chloroform is a mere subterfuge to which careless surgeons resort, as a shelter for their indifference to life."

Dr. A. H. Cordier, says, "Because it is safer and has no drawbacks, not also found from the use of chloroform. Ether anesthesia can be induced in four minutes in skilled hands, and that without a struggle. They vomit less and have less shock after ether. I have not seen any of the bad results on the kidneys that some claim to follow ether, and I do not believe ether will produce these results."

Dr. B. F. Crummer of Omaha, says, "I use ether in surgical cases for adults. My opinion is that surgeons who constantly use chloroform do so because it is convenient, and because they have had the good fortune to not lose a case. A man may drink alcohol all his life and live to be 100 years old, but that does

not alter the well known fact that the use of alcohol is injurious and dangerous. I believe that men who are in favor of chloroform, reason about as does the man who drinks alcohol, hoping that lightning won't strike him."

Dr. Helmuth, an eminent homeopathic surgeon of New York says, "I use ether because the heart may be paralyzed by chloroform, but will not be by ether. Ether produces no alarming syncope; ether stimulates the heart, chloroform depresses and paralyzes it."

Dr. D. W. Graham of Chicago, says, "I always give ether unless there is some special reason for selecting chloroform. I have seen some three or four deaths following ether from pneumonia or bronchial pneumonia, that might be ascribed to the drug, but I have seen the same following the use of chloroform." "The majority of men when asked why they use chloroform instead of ether, simply reply 'they prefer it,' not claiming that it is safer for the patient. I have many times asked this question in recent years, and find the choice is often made as a matter of convenience, rather than the safety of the patient."

Prof. D. A. K. Steele of Chicago, says, "I use ether because it is safer than chloroform. I have had two deaths from chloroform and none from ether. I have known fifteen or twenty deaths in the practice of others from chloroform and not one from ether."

Prof. W. W. Keene of Philadelphia, says, "I use ether because of its greater safety to the patient, which in my opinion should outweigh all fancied or real objections to the drug."

I shall not discuss the use of the A. C. E. mixtures, of which as I before remarked, nearly 15 per cent. of my answers advocate the use. I have always looked upon these mixtures as unscientific, as you never know just what you are giving on account of the different volatility of the different agents of which it is composed, and as the rules for giving chloroform and those for giving ether are radically different, I can not conceive anything but confusion where they are compounded. In the language of Dr. A. C. Wood, "All these mixtures are in my opinion, more dangerous than the individual drugs of which they are composed, and their use should be positively eschewed."

It would give me great pleasure to quote to the society answers I have received from many other eminent surgeons, but as the length of my paper has already reached the limit which I am allowed, I must bring the same to a close, by thanking the Society for their kind attention and courtesy in demeanor toward me.

LACHRYMAL DISEASE.

BY J. H. McCASSY, M.A., M.D.
DAYTON, OHIO.

Under the inappropriate heading of "Diseases of the Lachrymal Glands," Dr. H. S. Bell of Kearney, Neb., contributes a very valuable article on lachrymal diseases in the JOURNAL, June 13, 1896.

Unfortunately, the Doctor at once deserts the title of his article, but paid his addresses to diseases of the lachrymal passages.

I quote the following from his article:

"It is refreshing to find such a unanimity of opinion as to the causation of these lachrymo-nasal affections. It is fully agreed that they have their starting place in sub-acute or chronic coryza. In fact, chronic rhinitis is said to be not only the cause of all the affections of the lachrymal ducts, but to be the prolific source of most all the inflammations of the ocular and palpebral conjunctiva. The consensus of opinion is overwhelming that lachrymal and ophthalmic diseases have their origin in catarrhal inflammations of the nasal turbinals."

The experience of the writer does not fully support such sweeping statements.

The mucous membrane of the nares and the turbinals have a place in the animal economy and have definite physiologic functions to perform. Nature constructed them in accordance with the requirements of their office. They are as perfect in their arrangements and in the fulfillment of their functions as any other part of the human anatomy. Would it not be more reasonable to attribute the prevalence of nasal, lachrymal and ophthalmic diseases to constitutional taints, such as scrofula or syphilis?

Cause.—From a careful investigation of the causation of stricture of the lachrymal passages I think that about 50 per cent. of these cases have their origin in hypertrophy of the nasal mucous membrane, especially that of the inferior turbinals, the exit of the tear duct being in the inferior meatus. Catarrhal, follicular or trachomatous disease of the conjunctiva comes second in the causation of this malady. Local periostitis at the nasal outlet of the canal is a frequent starting point for bony strictures.

Pathology.—Strictures of the lachrymal passages are of three varieties, viz., mucous, fibrous and bony. Mucous strictures are formed by the coming in close apposition of the two inflamed surfaces of the mucous membrane denuded of epithelial cells, firm union resulting. If the inflammation be continued long, and the outer fibrous layers of the duct be implicated, fibrous strictures are produced. If the inflammatory process be extended to the periosteum, bony strictures will result. The usual seat of these strictures will be found in the nasal end of the canal, especially just below the sac, or at the junction of the canaliculus with the sac, or in the canaliculus.

Treatment.—In order to cure the disease it is necessary to produce absorption of the stricture. It is only the very simple cases that a probe passed every few days and left *in situ* for ten minutes or so, will effect a cure. In the more difficult cases this treatment is inadequate to produce absorption of hypertrophied tissue or fibrous bands, and fails to cure.

The following method has been successful in my hands.

I slit up the canaliculus with a Weber's or Bowman's probe-pointed canaliculus knife and cut the stricture in two or three directions with Stilling's knife. Blood coming from the naris will be assurance that the stricture has been divided. A No. 6 to 8 Ayers' or Bowman's probe is then passed, the canal washed out, and a "C"[1] silver canulated style dropped in. The head of the canula will occupy the interior of the sac and remain invisible and quiescent for years. I usually take the precaution to have a thread cut in the upper end of the lumen of the canula to correspond with the thread cut on a probe of steel or silver wire, which may, when desired, be screwed into the canula as a means of extracting it. Before cutting the thread on the probe about three-eighths to one-half an inch of the end should be reduced to about one-half its regular diameter. This small end

[1] The style "C" referred to is shown in Max Wocher's catalogue, but is designated style "F" in Crocker's, Armstrong's and Aloes' catalogues.

of the probe will enter the canula more readily and facilitate the screwing of the latter into the former.

The canula may be left *in situ* indefinitely. A few granulations at the upper end of the canal are the complications observed, but these will usually disappear on being touched with a saturated solution of chromic acid on a cotton carrier.

In operating, the upper canaliculus is to be preferred, because it is more accessible, easier kept clean and less liable to irritation. At present I have eight patients wearing canulated styles. In two cases the styles have not been disturbed for six months, the patients experience no trouble and prefer to wear them rather than run the risk of removing them.

During the first few days most patients will be conscious of the presence of the style in the lachrymal canal, but they soon learn to disregard it.

The canula left *in situ* for two or three months will usually suffice to produce absorption of the stricture but should there be a return of the trouble, the canula may be replaced for a few weeks or months longer.

Yesterday I operated on a man 38 years of age, and today upon a gentleman 64 years of age for stricture of the nasal duct and inserted styles. The latter patient has had a complication of ectropion and symblepharon of the left eye for twenty years. I feel assured that recovery will take place.

The presence of a style does not prevent our injecting antiseptic or astringent solutions through the canal. The shape of the canulated style used by me conforms to the anatomy of the parts perfectly. I think that any bills or protuberances on the style would be a source of irritation. Judging from a description of the mechanism of Dr. Taylor's tubes, I am of the opinion that they would cause irritation.

Assuming that the short process (three-eighths of an inch) is designed to occupy the canaliculus, and the part below the angle to be in the lachrymal canal below the sac the former would necessarily be exposed in cases where the canaliculus had been slit up preparatory to cutting the stricture in the nasal duct. The most frequent seat of stricture in obstinate cases is below the sac. Our efforts to cure will be commensurate with our success in securing drainage through this region. Besides stricture below, the sac can not be cut until the canaliculus is slit up. In these cases the short process of Dr. Taylor's tubes would be exposed, and retard healing of the canaliculus around the upper and lower blades of the duck-bill snout of the style. Unless the upper end of the style is in sight or can be reached and grasped with a fine forceps it would be difficult to extract should occasion require it to be done.

32 West Fifth Street.

A CASE OF TETANUS TREATED WITH ANTITETANIC SERUM; RECOVERY.

BY G. E. MUNS, M.D.
MONTGOMERY CITY, MO.

The patient was a little girl, age 5; healthy, history good up to this attack. About ten days before I was called, patient had received an injury of the left thumb from stroke of hammer in cracking nuts. The nail was badly bruised; flesh at base of nail was lacerated to some extent and the nail separated from thumb at its base. The wound healed nicely under local treatment. About ten or twelve days after the injury the parents noticed a change in the child's disposition. She became irritable, would not play, slept badly, ate little and required constant attention. In a day or two these symptoms were followed by stiffness of the spinal muscles and of the muscles of the upper and lower extremities. The muscles of the face were so contracted as to give the child a peculiar expression. When I saw the patient for the first time the symptoms were very much aggravated. Tonic spasms of the muscles of the spine and of the upper and lower extremities were almost constant. The slightest effort to exercise, eat, drink or perform any muscular labor was accompanied with severe tetanic spasms. The risus sardonicus so common in such cases was a very marked and constant feature. The jaws could not be opened at any time more than half an inch.

Diagnosis was easily made and the case treated for a few days by the ordinary methods of the text-books; but there was no improvement. Obtaining through the Kansas City branch of Parke, Davis & Co. a sufficient quantity of their tetanus antitoxin, treatment was begun two weeks after the first manifestation of the characteristic symptoms. We gave the child five doses of two drachms each hypodermatically about every eight hours. No other treatment was used. We nourished the patient carefully. The symptoms abated visibly in twenty-four hours. The muscular spasms became less and less severe and frequent, until they disappeared.

In this case the remedy seemed to act promptly and favorably, and it may be fairly credited with the favorable result. In the treatment of the case, Dr. W. B. Adams of Montgomery City, was associated with me, and bears out my judgment of the remedy.

SOCIETY PROCEEDINGS.

Chicago Academy of Medicine.

Regular meeting Nov. 13, 1896.

Dr. WM. L. BAUM in the Chair.

DISEASES OF THE NASAL ACCESSORY CAVITIES.

Dr. HENRY GRADLE spoke on this subject. He said: The importance of diseases of the nasal accessory tract is perhaps not fully recognized by the profession at large. We have hitherto not fully understood how manifold may be the symptoms produced by these affections and how frequent is the involvement of these cavities in disease. I have concluded to present some recent observations not generally known, as well as personal experience, and will give you no formal paper.

As to the frequency of these troubles a most startling announcement was made by Fraenkel a year ago, namely, that in 146 unselected autopsies of cadavers as they came to the postmortem room at Hamburg, he found no less than 63 instances—that is to say about 40 per cent.—in which there was involvement of one or more of the accessory cavities of the nose. He found one cavity involved thirty-seven times, two cavities eighteen times, three six times, four one time, and all six cavities (two frontal, two sphenoidal, and two maxillary sinuses) one time. In no instance did he find disease of the ethmoid sinus. These were unselected autopsies. Some of the diseases predisposed to inflammatory involvement of the sinuses, especially pneumonia and cerebro-spinal meningitis, in which instances a very large percentage of sinus disease was present, more so than in the chronic forms of disease. In peritonitis also a large number of instances were met with, several of them apparently due to the presence of the colon bacillus.

In confirmation of these researches I may mention the work of Wolff, who found in twenty two cadavers of children, dead of diphtheria, maxillary sinus involvement in every instance and the sphenoidal sinus diseased in every instance in which it had been developed. In fifteen it was undeveloped on account of age, while in seven cases in which it existed it was diseased. The involvement was specified as catarrhal or diphtheritic, according to the character of the disease in the nasal cavity.

Similarly, Harke found in 30 children dead of infectious dis-

eases of the air passages, like croup, diphtheria, measles, whooping cough and scarlet fever, suppuration of one or more cavities in all instances; while 37 adults dead with acute infectious diseases there were 31 cases of sinus involvement. Dmochowski, who searched only for disease of the antrum, found it in 28 instances in 152 unselected cases on autopsy.

How does this information harmonize with our clinical knowledge? Fraenkel says his cadavers were all sent to the postmortem room without a clinical diagnosis of sinus involvement. Until within the last year or two scarcely anything had been known about the symptomatology of acute diseases of the sinuses, and no one until within the past two or three years had any idea whatever as to the enormous frequency of acute disease of these cavities. While some of the milder cases may perhaps be unrecognizable during life, on account of the very slight symptoms to which they give rise and on account of their transient nature, still a more serious involvement of the sinuses in the acute form can give rise to marked symptoms. It is characterized essentially by pain, which is tolerably constant in the cases of acute inflammation of the maxillary and frontal sinuses. In the cases of the former the pain had generally been diagnosed clinically a neuralgia of the fifth nerve. In the case of the frontal sinus it is typical, over the supraorbital region and one side of the median line of the forehead, the supraorbital neuralgia.

As to the pain produced by disease of the sphenoid and the ethmoid sinus in the acute form, we know practically nothing. In all probability, however, many of the headaches and neuralgic pains occurring during acute diseases are in reality due to involvement of one or the other sinus in acute inflammatory action.

Most of the acute troubles are transient and ultimately cease even without treatment. It is rather questionable whether we are called upon to treat them actively as the treatment would necessarily be of a surgical nature. Seeing that there is a spontaneous tendency of these acute affections toward recovery, we may possibly be able to assist this recovery by attention to the condition of the nose, particularly the removal of secretion by means of the nasal douche, with due regard for the dangers to the ear which the nasal douche may entail if carelessly used. It is only when these cases are protracted and pass beyond a period of two or three weeks that we can expect them confidently to last until relieved by treatment, or perhaps relieved by change of climate.

Of course, the bulk of clinical work pertains to chronic affections of the sinuses. A chronic affection is observable to the patient by the discharge of pus to which it gives rise. It is, however, a mistake to think that the discharge of pus must be so free as to call the patient's attention to it. It is true, in the case of the ethmoid and sphenoid sinuses, we depend entirely upon the discharge of pus and the visibility of its track from the orifice of the sinuses down into the nose; but in the case of the frontal and maxillary sinuses we often meet with instances where the purulent discharge is so slight as to be either ignored by the patient or denied, although when questioned closely we can generally ascertain that there has been some slight discharge present at times.

How are we to recognize the existence of a purulent inflammation in such cases where the discharge is minimal? I will speak principally of the maxillary sinus because my experience pertains to that more than any other, both because disease is more common in this sinus than in any other and because it is only recently that we have learned to recognize involvement of the other cavities.

In the case of the antrum of Highmore, some value may be placed upon the results of translumination. It is, however, not an infallible method of diagnosis. We may suspect empyema on account of relative opacity, when it is really not due to the existence of pus but to the rudimentary condition of the sinus and the abnormal thickness of the osseous walls—at least, abnormal when compared with the other side. Such a mistake has once occurred to me. I think others have likewise called attention to the possibility of this error. On the other hand, we can overlook empyema of the sinus if we place too much reliance upon the translumination test, for in some cases the fluid in the antrum is not pus but serum, and in other cases the discharge is not copious enough to fill the entire cavity, but consists of a small quantity of thick pus lying in one of the recesses of the cavity and not at the bottom of the sinus. I have several times seen instances where upon the evidence of the translumination alone I would not have dared to puncture did not other symptoms point to the existence of maxillary trouble and found my efforts rewarded with definite results. Absolute evidence can only be obtained by the puncture, which it is best to make through the alveolar process of the first molar tooth, or as close as possible to it.

According to Zuckerkandl, in about one-fourth of all skulls examined the sinus does not extend anterior to the first molar tooth, while in three-quarters of the instances it extends to the second bicuspid, if not anteriorly to it.

Ziem has suggested that in those cases in which we do not wish to sacrifice a sound tooth, we can enter through the palatial side of the alveolar process next to the first molar tooth. The operation is nearly as easy as going through the socket of the tooth. In one instance, however, I failed in reaching the sinus through this route. On puncturing we can not always obtain definite evidence by aspiration for the reason that in some instances the disease is limited to one of the recesses of the maxillary sinus. I have seen this happen twice, where the syringe would draw out no fluid, but where on irrigating I found a characteristic plug of decayed pus in the fluid as it flowed from the nostril. It is necessary to cleanse the nostril first so as to make no error on account of pus coming from some other locality in the nose.

What are the symptoms upon which we can rely? There are none that are absolutely characteristic, but there may be a great variety of them that are strongly suggestive. Again I will refer essentially to the maxillary sinus, on account of my limited experience with the others. The main symptoms most generally present are those of nasal irritation. As a rule, we have to deal with relatively narrow noses where the antrum is involved in chronic trouble. I say as a rule, but that is not always so, because the disease may be of dental origin, though this is not common. In the majority of cases where the disease is of a nasal origin, it would not have become chronic but for the reason that the nose is narrow. Now, in a narrow nose any irritative process leads to occlusion or stuffiness, and this stuffiness may in some cases be the only symptom of suppuration going on in the antrum of Highmore. Again, there is, as a rule, though not invariably, some diffuse catarrh of the nose, even of the pharynx, present, and this may extend into the bronchial tubes in the form of a temporary attack, or even a more or less persistent chronic bronchitis. In those persons who are predisposed to nervous reflexes, who are neurotic, we may also get reflexes, such as cough, sneezing attacks and asthma. I have personally seen an instance of asthma which occurred while under observation on evacuating the pus from the antrum.

Beside extension of nasal disease and nasal irritation downward, we may also have extension into the ears. Empyema of the maxillary sinus may lead to ear disease, just as much so as any other form of chronic nasal disease or anomaly, and as far as the ear lesions are recoverable, recovery will be favored in such cases by the prompt removal of the primary cause, that is, by the successful treatment of the antral disease.

Disease of the antrum is likewise liable to lead to involvement of the eye. Many cases complain simply of pains which may be interpreted as asthenopia, that is to say, more or less discomfort, like tingling, present most of the time, but exaggerated upon using the eyes. Apart from this purely functional disturbance, there may occasionally be serious organic lesions of the eye as a sequence of disease of the maxillary sinus. Ziem has called attention to this possibility. The cases he presents are by no means convincing. I have only seen two cases, which if not absolutely convincing, are at least suggestive of such a relationship. One was a case of exudative chorioretinitis which had increased steadily for two weeks. Upon examination the antrum of the same side was found filled with pus, presumably of recent (dental) origin. The eye symptoms began to recede at once after opening and irrigating the antrum. The other case was one of neuro-retinitis which had increased for three months and remained stationary under my observation under the use of large doses of iodid of potassium. I had no clear history of syphilis; I could get no definitive evidences of this disease, but I considered it the only thing to do, namely, to work on the basis that it was of syphilitic origin. I finally decided to puncture the antrum on account of one-sided nasal discharge. Translumination in this case was not decisive. On puncturing the antrum I found a plug of purulent mucus, and from that time on improvement began. These are the only two instances in which organic lesions of the eye seemed to have followed disease of the maxillary sinus within my observation.

Disease of the frontal sinus, too, may give rise to pain referred to the eye often, or to typical supra-orbital neuralgia. The pain may radiate, or it may be localized in the orbit by the patient.

Whenever suppuration of any sinus is copious we often encounter a general disorder of health, furred tongue, more or less digestive disturbance, sometimes a decided loss of strength and even weight, probably due to absorption of pus in loco, or after swallowing.

Finally, as to the dangers of these suppurative diseases. They seem to have been rather overrated. The number of instances where fatal complications occurred by extension into the brain, or by phlebitis or general septicemia, is really very small. There are probably not more than two dozen cases on record in all of fatal results traceable to diseases of the sinuses. Still even these two dozen cases, with perhaps a fair number of others, the origin of which was not recognized, make it imperative to keep in mind the possible serious nature of the disease which in many instances leads to abrasion of the bone and possibly a deeper involvement of the osseous structure. It is probable that disease of the ethmoid sinus is the most dangerous on account of the immediate proximity of the ethmoid bone to the dura mater and cavernous sinus.

As to treatment I have little to add. My experience coincides with that of others. The main object is to secure a permanent opening. I think, however, I can say a few words with reference to drainage of the maxillary sinus. Formerly, my results in disease of the maxillary sinus were anything but encouraging. The symptoms whatever they were, were indeed relieved at once by opening the sinus and irrigating, but the patient did not get well. I found the reason of my failures in the earlier cases was insufficient drainage; not because my opening was not sufficiently patent, but because I did not recognize the fact that the pus is so tenacious that it will not drain from the maxillary sinus. My results within the last year and a half have been much better by not attempting continuous drainage, but by limiting myself to a puncture of the antrum through the alveolar process about 5 to 7 millimeters in size and using frequent irrigation, which the patient carries out at home from two to three times a day. Since I have followed this plan and insisted upon the patient learning to irrigate himself, my results have been very much more satisfactory. There are indeed cases where there are such extensive changes in the lining of the maxillary sinus, either by cysts or granulation tissue, or less frequently, polypous formations that a small opening through any of the walls is absolutely insufficient, and in such cases nothing can be done except to make a more extensive resection of the anterior wall, which affords complete relief, but which requires many months, if not years, before an ultimate cure will take place after thorough curetting of the entire lining of the maxillary sinus. The majority however of those instances of empyema of the maxillary origin, which date back only some months, will heal in the course of six weeks to three months, if regular irrigation is practiced. Even in long standing disease this plan—the simplest of all procedures—deserves a first trial and will often be found sufficient.

Dr. W. X. SUDDUTH—I am not familiar with the statistics that have been presented by Dr. Gradle, but the first impression I get from them is that, from a practical standpoint, they are of little value. My experience in the pathologic laboratory and autopsy room has taught me that in cases coming to the autopsy table nearly every cavity in the body presents, more or less, some evidence of inflammation, and I am not at all surprised that 46 per cent. of the cases that go to autopsy, should present evidences of inflammation of the sinuses, because any disease that is fatal in its nature necessarily involves more or less the whole body.

A statement made by the speaker that the maxillary sinus in a large per cent. of the cases is not present anterior to the first molar tooth, is a surprise, for the antrum arises from the nasal cavity and must connect with it.

Dr. GRADLE—I said in about one-third of the cases. In two-thirds of them it is.

Dr. SUDDUTH—The difficulty in tapping the antrum, in all probability, lies in the fact that the trocar is not placed high enough, because any considerable difference in width of the alveolar process, would make it possible to miss the antrum. If the trocar is introduced high enough to avoid the roots of the teeth, it will almost invariably tap the antrum in the vicinity of the first bicuspid tooth.

Another point of which no mention was made was with reference to using a curved trocar in exploratory aspiration through the nasal membrane. I do not think we are justified in depending upon transillumination in our diagnosis, as the speaker has said. There are cases of an obscure nature where it is justifiable with a curved trocar to aspirate from the nasal side.

The next point is with reference to the necessity of obtaining drainage. Quite a number of years of experience in this line teaches me that the method of drainage advocated by the speaker in treating the antrum is the most unsuccessful of all, because the establishment of drainage in this way presents a source for constant infection by the saliva, and the majority of cases do not heal. A chronic condition is set up that lasts for years by that method of treatment. I have devised and used in my own practice a method of treating the antrum based upon that observation and after assuring myself of suppuration of the maxillary sinus, I use a circular trephine, going into the antrum as a rule above the first bicuspid tooth. The outer plate is thin, from a sixteenth to an eighth of an inch in thickness. The opening is very readily made, and then I make sure that the nasal orifice is patulous, introducing tepid soda solution and flooding out as much of the pus as I can into the nasal cavity, then introducing peroxid of hydrogen. After the first dressing is selected, a soft rubber catheter of the same caliber as the trocar is used, inserting it into the antrum about an inch and a quarter, then ligating it to one or more of the teeth, furnishing the patient with a glass syringe to use the different tepid solutions himself. The great trouble in making an opening into the mouth and allowing the patient to rinse it out himself is the inflammation that is kept up in the margins of the opening and the pain the patient has in using the syringe. I speak from experience because I have tried this method of treatment in my own case. I had infection of my right antrum from the nasal side, it was trephined in that way and I had to wash it out myself with syringe, and by allowing the opening in the mouth I got no healing but much pain from that method of treatment. I thought I was conscientious in washing it out two or three times a day. Then the plan now usually adopted was tried of introducing a tube, keeping the end of it plugged, simply using it as a means of allowing washing into the nasal cavity. The discharge came out readily without trouble and as soon as this method was adopted my antrum began to get better, it healed, the tube was taken out and the antrum is now as comfortable as it ever was and has been for some years. I have used this method in a number of cases in practice also.

My experience with drainage into the mouth in these cases is very unsatisfactory, and this method is accountable for a great many cases of failure to heal. Dr. Garretson, who had an extensive practice along this line, stated in his oral surgery, that the antrum once opened never heals. I was conversant with his method of practice, and it was a fact, according to his way of practicing, that the antrum seldom or never did heal. My own has healed nicely and, as I have said, I have a great many cases in practice that I have handled in the same way.

The close association between frontal, ethmoidal, sphenoidal and the antral sinuses is one the profession does not take sufficient cognizance of. Where one is chronically involved, especially if the disease begins with nasal catarrh and involves the ethmoidal or sphenoidal sinus, the antrum is apt to be implicated also, and a great many cases of failure to treat antral affection successfully is by reason of the intimate connection of the sinuses above that are involved and discharge into the antrum. By treating the other sinuses we succeed in curing the antral affection.

I can not speak from experience as to the extent of the involvement of the ear in these affections, but it stands to reason that it should be more or less involved in chronic cases.

Methods of differential diagnosis are also to be considered.

The use of the electric light in my hands has given little or no result. Dr. Gradle brought out the point several times, especially in acute affections, that the fluid in the antrum is simply serum and does not in any way interfere with the passage of the light. In a few cases the light is no good whatever. In chronic affections, where the pus is thick, the light is of very little value. Position has been one of the best means in my hands of making an absolute diagnosis, next to that of aspiration. I resort to it before I resort to the aspirator. Affections of the antrum are generally unilateral, seldom bilateral, and the location of the pain is one point to be depended upon, also by having the patient lie on the opposite side. If the right antrum is affected I have them lie on the left side, and if there is a free discharge in that way and there is no discharge lying on the right side, you have a good point of differential diagnosis. Then you can adopt the method of drainage into the nose, allowing the pus to discharge through the natural opening. This is the best way of effecting a cure.

As Dr. Gradle truly said, acute affections are best treated constitutionally rather than by surgical interference. We are not justified in opening into the antrum, especially in cases where the disease is self-limiting. A great many of these cases will get well if treated constitutionally, except those of specific or tubercular origin. These cases are hard to deal with, and can only be treated constitutionally.

The prognosis in the treatment of antral affections is good, provided the right means of treatment is adopted. Of course, for the ethmoidal, sphenoidal and frontal sinuses the treatment is much more difficult, and the results are not so satisfactory. I had a very interesting case some time ago involving the frontal, ethmoidal and antral sinuses, in which I opened into the

frontal sinus and inserted a tube for the introduction of medicine, and began to wash out the pus through the frontal sinus just as I would the antrum with soda solution, then with peroxid of hydrogen, and following that with listerin, leaving a certain portion in the cavity to drain out naturally. This was a chronic case and my success was marked in handling it. The main point after making the diagnosis is the method of treatment, and above all things, do not make a large opening in the mouth to serve as a channel for infection from saliva.

Dr. Frederic D. Owsley—The statistics of Fränkel, recited by Dr. Gradle, are very striking in demonstrating the frequency of diseases of these cavities. The fact has impressed itself upon all rhinologists of late that the frequency of these diseases is much greater than was supposed a few years back. For a number of years I, with many others, was inclined to scoff at the claims of Woakes in regard to the frequency of the occurrence of ethmoiditis, but in the past two years I have been surprised by the number of cases of diseases of these cells that have come under my observation. I have never been able to demonstrate to my satisfaction the existence of that form of ethmoiditis which Woakes describes as necrosing ethmoiditis.

I have found certain local conditions in diseases of the ethmoid and frontal sinuses of which I have noted no mention in the literature or discussions on the subject, and which I consider as pathognomonic of diseases of the accessory sinuses.

In both the catarrhal and suppurative forms of inflammation of the frontal and ethmoid cells, I have found almost constantly present a circumscribed tumefaction or intumescence of the septum, located just below and in contact with the middle turbinated, which hides that body from view. When this tumefaction is reduced by the application of cocain or pressed aside with a probe, you find in the simple catarrhal form an incrustation of the middle turbinated, and in the purulent form you see the pus oozing from under the end of the middle turbinated. I have observed this intumescence of the septum only in those cases where the upper cells were affected, although it seems that it might in reason be expected to occur in disease of any of the cavities which open into the infundibulum, as it is probably caused by the continued irritating discharge against the septum at that point.

In the treatment of diseases of the frontal sinus and ethmoidal cells, it has been my custom to establish free drainage by reducing the intumescence of the septum with the cautery, and by removing the anterior half of the middle turbinated, this procedure may, with proper cleansing, in time achieve a cure, but frequently it only gives relief from pain and distress caused by retention, a radical operation by way of the frontal sinus being the only way of effecting an absolute cure.

In regard to diagnosis of diseases of the antrum, I agree with the gentleman who preceded me, and place little confidence in translumination as a means of diagnosis. In several cases where translumination showed no characteristic differences, I have found pus in the cavity on aspirating. I use for this purpose the long curved aspirating needle of Krause, which I introduce into the antrum through the middle meatus at the point of Zuckerkandl's fontanelles, which, as you know, are only separated from the nasal by mucous membrane.

The locality of pain as a factor in diagnosis of diseases of the antrum I consider of deceptive and uncertain value. In some cases it is local and confined to the side affected, but frequently it is general or situated away from the point of the disease. In these cases I have frequently had the pain described as located back of the eyes or in the orbit.

In reference to the operative procedures mentioned, I believe with Dr. Sudduth that draining into the mouth is the least satisfactory way. In my experience, I have never obtained good results by mouth drainage. The operation I prefer for the purpose of establishing drainage in diseases of the antrum is that of suturing the cavity through the anterior part of the inferior meatus under the turbinated, by means of the drill or a large curved trocar, and into the opening insert a curved metal tube for the purpose of washing out the cavity and keeping the opening open. The treatment of these diseases by any of the tested methods have in my hands been exceedingly unsatisfactory, for the reason that it has always required months of treatment, and sometimes years, without effecting a cure. I believe that in quite a number of the acute cases immediate operative interference is imperative, the indications for which are severe pain, marked constitutional disturbances, fever and swelling of the face over the antrum. In the chronic cases that do not succumb to prolonged and faithful treatment, I favor the radical operation of a large opening through the anterior wall of the antrum with the chisel and a thorough curetting of the interior of the antrum, and packing with gauze.

Dr. Edward T. Dickerman—The subject under discussion is one in which I am extremely interested, and the remarks made by Dr. Gradle in regard to acute conditions of the antrum were of very great interest, showing how frequently in the acute exanthemata and also in pneumonia, the accessory sinuses are involved. Right here we have the seed sown which in after years may develop into purulent or catarrhal condition of these parts.

The essayist also referred in his remarks on the diagnosis of this condition to not being particularly in favor of translumination. My experience corroborates what the Doctor has said in regard to this point. In some cases where there is a catarrhal condition of the frontal sinus that has existed for a long time we will get decided symptoms; that is, on one side you will have the frontal sinus well illuminated, while on the other it is practically opaque. In these cases, as a rule, you may depend upon translumination, but in the antrum it is of no value practically. I had expected to hear more in regard to the appearances of the middle meatus in diseases of the various sinuses. If you recall your anatomy of the nose, the antrum of Highmore, the frontal sinus, and the anterior ethmoidal cells open into the middle meatus, the sphenoidal and posterior ethmoidal cells entering into the superior meatus. Anteriorly, you have the opening of the frontal sinus into the infundibulum, posterior to this you have an opening into the ethmoidal cells, and below and behind you have the opening into the antrum of Highmore. This is of extreme importance in the diagnosis of these conditions, as well as in the treatment. The mucous membrane of the middle turbinate covers over the infundibulum and the processus uncinatus, and when you have an acute condition with edema, or an exudate, the orifices of these three sinuses are thoroughly occluded. Then we begin to have symptoms of trouble in any one or all of these cavities. If the condition has existed for weeks or months we have a thickening of the mucous membrane; we have the formation of granulation tissue or may have polypi, and these conditions all tend toward the occlusion of the orifices, in that way establishing a catarrhal or purulent condition which extends by continuity and by stasis into these cavities. Another point that should be considered with reference to the diagnosis is that the processus uncinatus acts and constricts the trough, the trough being the infundibulum. If you have a catarrhal condition of the ethmoidal cells, or a necrosis of the ethmoid, or if you have an empyema of the frontal sinus, the processus uncinatus can guide the pus through the hiatus semilunaris and deposit it in the antrum of Highmore, and the latter acts as nothing more than a reservoir for pus produced in the other cavities.

In the diagnosis of these conditions the first thing to be considered in diagnosticating an inflammatory condition in the antrum is not only the use of translumination, but to go into the antrum through the natural orifice. This can be accomplished in over 10 per cent. of the cases. If you have hypertrophy of the mucous membrane, polypi, or granulation tissue along the processus uncinatus, remove it. It is not necessary to remove the anterior end of the middle turbinate. By removing the hypertrophied tissue contracting down the mucous membrane, you are able with Hartman's syringe point to get into the antrum, to wash it out and irrigate thoroughly. Very often you can make a diagnosis of the condition of the antrum in this way. If you find either a catarrhal condition, or a muco-purulent discharge from it, then operative procedures are to be considered. Pathologic conditions of the frontal sinus can often be diagnosed through the natural opening and we believe this can be done in 50 per cent. of the cases. If the opening in the frontal sinus enters into the infundibulum high up you can enter that with a probe, and watching the probe as you withdraw it you will be able to see pus trickle down. If that is not the case, you can enter the sinus with a curved syringe point and thoroughly wash out the cavity. If you find the fluid mixed with pus, you are pretty sure of your diagnosis.

(To be continued.)

Chicago Pathological Society.

Regular meeting October 12, 1896.

Dr. James B. Herrick, the President, in the Chair.

Dr. Geo. H. Weaver read a paper entitled "The Bacteriologic Contaminations and the Preservation of Vaccine Lymph; Glycerin as a Bactericide." (Will appear next week.)

Dr. Hugh T. Patrick made some remarks on

ARTEFACTS IN THE EXAMINATION OF THE NERVOUS SYSTEM,

with demonstrations.

I wish to call attention this evening to a few things that might lead us to false conclusions in making a microscopic examination of the nervous system, and which might allow us to accept the false conclusions of others as found in their writings. As my time is restricted, I shall limit the subject entirely to the examination of the spinal cord, and shall touch upon only a few of the principal artefacts found in such examinations. By an artefact I mean an accidental artificial product. Of course, the red carmin stain is strictly speaking, an artefact, but we understand what the red means, we cause it on purpose and do not class it as an artefact. Some of these accidental productions are, I think, not entirely understood by some men who do microscopic work, but do not do a great deal of work on the nervous system, and I think attention ought to be called to this. In justification of this assertion, I might mention a recent article which appears in what is perhaps, the best neurologic journal that we have, namely, the *Deutsche Zeitschrift für Nervenheilkunde*, in which the author describes the microscopic appearances of the cord in a case of pernicious anemia. From his findings the author attempts to overturn all pre-established pathology of the changes which take place in the cord in pernicious anemia. Judging from the description of the histologic changes, and from the one cut or illustration of the entire cord section, the lesions on which the author bases his difference of opinion from previous investigators are as palpable artefacts as can be produced. Anyone acquainted with the subject would recognize the greater part of the pathologic findings as artificial products having no connection with disease. There is a peculiarity in this unaccountable scientific blindness. The author even alludes to a fissure which runs into the cavity, which he describes as a pathologic product, and says that this fissure may be due to injury of the cord in removing it. He does not seem to think of the possibility that the entire pathologic finding in the gray matter might also be due to postmortem injury.

One of the first things in the examination of the cord is artificial heterotopia, which means the malplacing of the various histologic elements. A number of cases have been described as being due to congenital defect. Great credit must be given to an American pathologist, Van Gieson of New York, who was the man to show that nearly all, if not all, of these cases are due to postmortem injury. His conclusions and findings have never been disputed. In these cases there are a number of deformities, several varieties of which I have set up under the microscope. You will observe one section in which the posterior horn is missing; another section in which most of the anterior horn is missing, and two or three other cases in which there is marked deformity of the gray matter. I would say that these artefacts are apt to affect particularly the gray matter, because it is less resistant, whereas the white matter may not show any results of injury at all. While you may find marked microscopic changes, there may be nothing abnormal to be seen by the naked eye. How are we to tell that a certain deformity is an artefact, that is not due to disease or to congenital malformation? In the first place, evidences of acute disease, or of acute inflammation, of proliferation of cells, of nuclei, certain vascular infiltrations, are absent. In the second place, evidences of chronic disease, proliferation of neuroglia, the symmetrical disappearance of nerve fibers and a thickening of vessel walls are absent. Next as to positive evidence of postmortem injury of the white matter of the cord. When we make a cross section of the diseased or normal spinal cord we cut the fibers of the white matter transversely. We have for each fiber the axis cylinder surrounded by the mycline sheath, and a cross section of the white matter means a collection of these, close together in normal cords, separated by neuroglia in sclerosis. Of course, there are all sizes of fibers in the spinal cord. In the case of an artefact, instead of having a symmetrical, nicely cut cross section, the fibers may be strung out in strands, or they have a peculiar slanting appearance. Instead of being round they are oval, showing that they have been cut in a slanting way. In many instances a number of fibers loop around a vessel. It is evidence that in the postmortem violence to the cord the vessel has been drawn athwart the less resistant nerve fibers, which have looped about it, like seaweed about a taut fish-line. Within the loop and, so to speak, behind the vessel is an area in which there is very apt to be a homogeneous substance, the nature of which I do not know. It takes all stains poorly. I have seen it repeatedly described as an exudate, or as a transudate, the result of various changes which never existed.

Another thing is the so-called rarefaction of white tissue in the cord, which practically does not exist antemortem. There is scarcely such a thing as rarefaction due to disease. I have set up a couple of slides illustrating this. If you take a section in a case of postmortem deformity you are pretty sure to find so-called rarefaction, and it means, in the first place, that the fibers do not stain well when torn. Then the fibers instead of being close together are separated by large intervals which are not filled with neuroglia tissue or infiltrated cells. This can scarcely be anything but an artefact. These interspaces are irregular and the fibers themselves are irregular, but you can judge better what they are like by looking at the specimens.

Another thing that is frequent as an artefact, and which is easily understood, is pulling out of the posterior root fibers in the cord, which make an apparent degeneration of the zone of Lissauer. This zone has peculiar fibers, is important pathologically, and I have seen it described in various reports as degenerated, when there was no apparent reason for it. The posterior root has been given a pull, say in removing the cord, and as many of the root fibers enter close to and through Lissauer's zone, the fibers of the latter are disarranged and lacerated and consequently do not stain well.

Another thing that is frequently described as degenerated is the subpial layer around the cord, the periphery of the anterolateral tract. In the absence of meningitis, this is nearly always an artefact. If the cord be exposed for a long time before putting it into the hardening fluid, this outer layer will suffer. If the hardening fluid has not been good and the cord become partly decomposed, or if the sections are not properly handled, this area often changes; therefore it is called degenerated when the true evidences of degeneration do not exist.

Speaking of poor staining; the sections do not always stain uniformly. It may be impossible to say why. One section lies upon another in some cases, or the sections are folded over, and consequently stain irregularly. The resulting pale patches or streaks have been described as pathologic, when the only trouble was that the stain did not take well. This is especially true of the carmin stain which is perhaps most generally used. The Weigert stain, also much used, may give a black patch, which does not differentiate well, and may hence be called degenerated. When the material has not been hardened well it is apt to stain irregularly and poorly, and hence false conclusions may be drawn.

Again, rarefaction and vacuolation of nerve cells hardly ever exist. Groups of pigment in ganglion cells, which are quite normal, do not take stains well and are called vacuoles and granules and various other pathologic things. It takes a very successful stain of any kind to get the processes of ganglion cells well, and the disappearance of the processes is often attributed to some disease, when it is due to nothing but a poor stain. I have set up but one example of this. You will notice four or five cells in the field in which there is scarcely a process or a nucleus to be seen, and the cells also look granular. It is simply a poor carmin stain, the result of imperfect hardening or the age of the specimen.

In the article I have previously referred to there were cavities described in the anterior horns, as well as a peculiar condition of the gray substance. Cavities in the gray matter, as a result of postmortem staining, are not very rare. I have set up three slides showing this. One of them is from a rabbit the cord of which I took out myself. The cord shows all the marks of an artefact, a cavity in the gray matter, some twisted strands of fiber and artificial "rarefaction."

I have set up a section showing the loss of one of the posterior horns, and another similar Weigert stained section, showing the fibers occupying the position that the gray matter ought to occupy. Looking at this, you see that instead of being cut transversely as they should be, if the posterior horns were congenitally deficient, the fibers are all twisted into waving, irregular strands, which stamps the condition at once as an artefact.

DISCUSSION.

Dr. LUDVIG HEKTOEN—Dr. Patrick's remarks call our attention to the importance of fully understanding the artefacts of the nervous system. Although I think some of the statements are rather broad, yet we must acknowledge that these words of caution are timely and valuable. While artefacts of the nervous system are frequently mistaken for morbid changes, yet it may not be entirely amiss to say that care must be taken not to interpret obscure pathologic conditions as artefacts. One frequent method of producing very serious artefacts in the spinal cord occurs from the careless removal, either by reckless use of the chisel and hammer, which should be entirely avoided, or by twisting or bending, and it is particularly this class of artefacts and the resulting so-called heterotopia which Van Gieson has studied thoroughly.

In studying the spinal cord microscopically, it would always be well to so cut the cord as to have serial sections. This is the only way in which we can obtain an exact idea as regards the cells as well as a complete idea of the various cavities which may be encountered.

I have noticed the section upon which there is an absence of one horn. The question would be, What has become of the horn? It does not seem crowded into the other part of the gray matter, but it is completely absent from this section. Serial sections might throw some light on the subject.

Dr. Patrick makes the statement that the carmin stain is the one most generally used in doing microscopic work on the nervous system. I would take exception to that statement. The carmin stain is not used as frequently as some other stains, such as the Weigert stain, and I can see no good reason why it should be used as much as it is even at the present time.

Dr. E. R. LE COUNT—I would like Dr. Patrick to give us some directions concerning the removal of the cord so as to prevent the production of artefacts.

Dr. PATRICK—In answer to the last question the method is simply to remove the cord with extreme care, avoid using chisel and hammer and never pull on a nerve root before it is completely cut. Never hang the cord up with a string, never lay it down to harden on a hard surface; lay it on cotton and have cotton between it; never bend or twist it; never put anything on top of it. Be careful in cutting and opening the membranes: in other words, treat it with the greatest possible delicacy. These are simple general directions. One of the most important directions of all is not to trust the removal of the cord to an incompetent assistant, especially to some supernumerary about a hospital, who does not care whether he gets the cord out in one piece or two. As regards Dr. Hektoen's remark, not to take a true pathologic condition for an artefact, the caution goes without saying.

With reference to what I said concerning the carmin stain being the most frequently used, he may be entirely right about that, as I have no statistics on the subject. I think I corrected myself by saying that the Weigert stain was used, perhaps, as much as the carmin for all purposes. I think the carmin stain is most frequently used for nerve tissue, taking all examiners together. The best men do not rely upon it, and I suppose Dr. Hektoen does not. It is one of the oldest stains and if the doctor will think he will remember that in scarcely any report is the carmin stain omitted. Some other stain is left out, but the carmin is always used.

To the question as to where the missing posterior horn in the section went, I should answer from the work of Van Gieson that it went either up or down. It is not in this section.

The longitudinal fibers of the cord within the white substance run parallel up and down, and it is not a difficult matter, as Van Gieson showed by experiments, to compress the cord without destroying the white fibers and thus squeeze the putty-like gray matter up and down. The white fibers reassume their original arrangement with the gray matter missing at a certain point. Serial selections, if carefully made, ought to reveal a decided difference. The point I wish to make is, that where there is such a deformity in the gray matter the white matter will show it to a knowing examiner. In illustration I have set up another section with the fibers stained, showing the abnormal arrangement of the fibers in the space where the gray horn ought to be.

(To be continued.)

SELECTIONS.

Live Questions in Operative Gynecology.—Prof. Fränkel of Breslau has recently published a résumé of his gynecologic work during three years from 1893 to 1896. He calls his pamphlet, "Live Questions in Operative Gynecology," (*Tagesfragen in d. Operative Gynecologie*), because he considers in the light of experience and judges by their results various disputed modes of treatment and points of technique. The report is characterized by frankness and modesty, and the effect of it is to support the well-known conservatism of its author. He tabulates some 250 operations covering practically the entire field of gynecology, and also adds chapters on anesthesia, asepsis and after-treatment. His explanations are so detailed and so clear that one can derive almost as much profit from reading the book as he could from atttending the author's clinics. The following synopsis may be interesting to the readers of the JOURNAL.

1. *Anesthesia.*—Fränkel considers that the question as to the superiority of chloroform or ether is not yet definitely settled. He prefers chloroform, believing that ether merely postpones but does not diminish the danger of anesthesia. The after-effects of ether may be as serious as the immediate effects of chloroform. He always precedes the use of either anesthetic by a hypodermic injection of 1 c.c. of this solution: Morph. mur. 0.15; atropin. sulph. 0.015; chloral hydrat. 0.25; aquæ dest. 15.0. He states that as a consequence, much less of the anesthetic is required to produce and maintain full narcosis.

2. *Asepsis.*—His aseptic precautions are much the same as those of other surgeons, except that his patients receive a bath after all preliminary preparations and immediately before the operation. Wrapped in sterile sheets, they pass from the bath room to the operating table. For the hands, he uses rather coarse pumice-stone soap. For operations on the vagina and perineum as well as on the abdomen (before opening the peritoneum), dry gauze is used; but for the peritoneal cavity, moist gauze napkins wrung out directly from the boiler are employed. He imitates Miekulicz in having a glass bead attached by a thread to each napkin, the bead hanging outside the incision, so as to make sure that none will be forgotten or lost in the cavity. For ligating the pedicle, sewing the abdominal wound and for perineal and cervical operations, he prefers black iron silk of American manufacture. Catgut is used as seldom as possible.

3. *Ovariotomies.*—The diagnosis should be, if possible, clearly established before beginning the operation. Those surgeons are to be condemned who, relying on the security which asepsis gives, consider an exact diagnosis as superfluous and who first open the abdomen fully deciding on the exact measures to be adopted. Examination in narcosis is seldom necessary before celiotomy, since a diagnosis of ovarian tumor can be certainly made by palpation, percussion, and the combined recto-vagino-abdominal exploration. In contradiction to Olshausen's opinion that malignant ovarian tumors cause early amenorrhea, Fränkel finds them accompanied by copious menorrhagia and metrorrhagia. He notes that if hemorrhages occur in an elderly woman with an ovarian tumor, though the uterus is little if at all enlarged and though the microscope finds no signs of malignancy in the scrapings of the uterus, the operator should not forget the probability that the tumor is malignant, and he should take precautions not to rupture it nor to inoculate the other tissues. The coëxistence of pregnancy should be an additional strong reason for operating. Abdominal section is to be preferred unless the tumor is small and movable, when a vaginal ovariotomy may be made.

4. *Operations on the uterine adnexa.*—When tubal pregnancy is clearly diagnosed before rupture, it ought to be removed as soon as possible. Should rupture have occurred

with free hemorrhage into the abdominal cavity, Fränkel does not operate as a rule. He relies upon absolute rest, ice bag, opium and avoidance of stimulants to stop the hemorrhage. He has found this expectant treatment sufficient. The hematocele will gradually be absorbed; should it however, keep on increasing, he would make a celiotomy, or should it become infected he would open it through the vagina. He admits that his opinion in this matter is not modern, but his experience in numerous cases shows the superiority of the expectant treatment.

It is a matter of surprise that Professor Fränkel operated only eleven times for pus tubes and pus ovaries. He is no friend of hasty operation in these cases and claims that such tumors, even as large as one's fist, bilateral as well as unilateral, sometimes entirely disappear without treatment. In many cases puncture or incision through the vagina, followed by boric acid injections, produced permanent cure. This simple procedure is not dangerous and may be repeated as often as may be necessary. The major operations in the eleven cases were necessitated by failure of the simple method, by relapse, or by the size or inflammatory condition of the tumors. Operation should be postponed till the acute stage has passed, and in the meantime palliative treatment with ichthyol tampons, etc., should be followed. The advantage of this delay is that the pus loses its virulence, inflammatory products are absorbed, and the sac becomes, if not movable, at least distinguishable from the surrounding tissues. The time when pus loses its virulence is not known, but it can be said that at least twelve weeks should elapse after an acute septic or gonorrheal infection before operative measures are adopted. If, however, repeated relapses occur or if an exhausting fever continue, exception should be made. In these exceptional cases, the Péan-Segond method of total extirpation through the vagina is preferable to celiotomy.

5. *Myotomies.*—Fränkel does not agree with the wide-spread opinion that every myoma should be at once removed on account of the danger of malignant degeneration. He holds to the old conservative view that ovarian tumors must at once be removed, but uterine myomata only if they show rapid growth or cystic degeneration, if there is suspicion of beginning malignant degeneration, if they produce ascites or pressure symptoms, or if they cause hemorrhage that can not be stopped by palliative means. Especially if the patient is near the climacteric surgeons should wait, and if finally they operate castration should be preferred to myotomy. Quite the reverse of ovarian cysts, malignant degeneration occurs comparatively seldom in myomata. He has had several hundred cases of the latter under observation for considerable periods, and only in one did such degeneration occur. As to choice of methods, if the tumor were large, interstitial, subperitoneal, or intraligamentous, he made a supravaginal amputation. In two cases (both fatal), in order to shorten the operation he followed Traub's methods, *i. e.*, he allowed the rubber ligature (a Nélaton catheter) to remain *in situ*, thus saving the time required for stitching and dressing the stump. In two cases (one fatal) he used Martin's procedure of celiotomy, followed by enucleation of the tumor.

6. *After-treatment of celiotomy.*—During the first twenty-four hours the patient receives absolutely nothing to eat or drink; no ice pills, no soda water, no rinsing of the mouth, absolutely nothing. This best stops the nausea and tendency to vomiting. If pain is great, the mixture of morphin, atropin and chloral is given hypodermically. If collapse threatens, he uses subcutaneous injections of ether, camphor or saline solution, or rectal and intravenous injection of the latter solution. To avoid danger of cystitis, the catheter is not used after either operation or confinement. He trains his patients by requiring them for several days before the operation to urinate in a recumbent posture. Further, the privation of all fluids in the first twenty-four hours diminishes the need to urinate. As to the few patients who really seem unable to urinate when recumbent, he would prefer to allow them to sit up on the third or fourth day after operation or delivery rather than to catheterize them. On the second day patients receive tea in tablespoonful doses every half hour, and fluid diet is continued until the third or fourth day, when a dose of calomel or castor oil is given to produce the first bowel movement. If it fail a high injection is made. Stitches are removed on the eighth or ninth day; but in ventral fixation the two or three ligatures which transfix the uterus remain fourteen days. A pressure bandage is worn for at least four weeks. Separation of the edges of the wound and consequent ventral hernia occurred in two cases. The consensus of opinion among operators is that no method of stitching will prevent hernia. The best protection is given by careful stitching, rest in bed for a sufficient length of time and a firm pressure bandage. As to drainage, Fränkel considers it useless for removing pus or pathogenic germs. If the pus sac has ruptured and if the pus is virulent and has infected the peritoneal cavity, Mickulicz's drain can not help; if the pus is not virulent the drain is needless. He uses the Mickulicz tampon only to stop bleeding where direct ligation is not possible or to fill out a dead space.

7. *Total extirpation of uterus.*—The author would not operate for malignant growths unless there is a possibility of radical cure; if the parametria, vagina, etc., are involved he gives palliative treatment by curette and cautery. He has had cases under observation three years after this treatment without relapse. When the major operation is done, he prefers vaginal hysterectomy, taking also the ovaries, unless the tumor is too large. In two inoperable cases he tried serum injections without, however, any beneficial result.

8. *Ventral and vaginal fixation*—Twenty ventrifixations were performed for retroflexion, in eight of which on account of prolapse, a supplementary combined operation of anterior and posterior colporraphy and perineorraphy was added eight or ten days later. The results were excellent, and the combined operations took less time than amputation of the cervix. In fact, the elongated cervix shortens of itself, the tension of the vaginal walls at their cervical insertion being relieved by the ventrifixation. Fränkel has always been an advocate of orthopedic treatment of retro-deviation provided the uterus can be lifted up. His experience is that persistent use of suitable pessaries brings about a cure. Comparing the small number of his cases (sixteen) in which he deemed the operation of vaginal fixation necessary, with the large number (up to 235) of other operators during the same three years, he wonders what were the indications and fears that many a uterus was punished for an offence of which it was not guilty. He agrees with Olshausen in the opinion that there are many retroflexions, entirely free from symptoms and which need no treatment whatever. Furthermore, in women beyond the climacteric, the cause of their symptoms is usually not retroflexion but endometritis, and if this is cured, the retroflexion will produce no trouble. However, if prolapse is present either pessary or operation is required. There are so very many nervous hysteric women in whom retroflexion exists, though it does not cause their symptoms. Operation will not relieve them. The cases suitable for vaginal fixation are uteri held back by adhesions which do not yield to massage or forcible divulsion. Suitable cases also are movable uteri which relapse into their old retroflexions in spite of pessaries, etc., the cause here being that cicatrices from cervical tears draw the cervix forward or that the adnexa are dislocated and adherent to the posterior fold of the broad ligament. Martin and others hold that in fixed retroflexion, the cause of the symptoms is not so much the displacement as the adhesions and products of chronic perimetritis. Fränkel says that it is not merely sufficient to break the adhesions, but that the uterus ought to be attached and kept in position forward, if for no other reason, to prevent the torn surfaces from again

becoming adherent. As technique, he follows Leopold and Czerny in attaching the anterior surface of the fundus (in its intestinal zone) to the parietes, not higher than two finger-breadths above the symphysis. In all cases he opens the peritoneum and examines the condition of the organ.

In vaginal fixation, he has tried both Mallinckrodt's method, in which the peritoneal fold between bladder and uterus is not opened, and Dührssen's, in which it is opened. The former does not affect subsequent pregnancies injuriously; while in the latter, the incision into the anterior Douglas cul-de-sac causes a cicatricial ring which interferes in delivery with the dilatation of the os and the withdrawal of the lower uterine segment over the child's head. Furthermore, when the uterus is turned down through the incision, the fixation stitches are inserted in the fundus and produce a forced anteflexion; while in Mallinckrodt's method they are inserted not much higher than the inner os. Neither method excludes vaginal and perineal plastic work, which should always be done. In all these fixation operations, the stitches are allowed to remain from fourteen to twenty days. Twice he successfully performed Wertheim-Schauta's operation for retroflexion, namely, shortening the round ligaments through a vaginal incision.

9. *Submucous myomata and polypi.*—The introduction of asepsis worked a revolution in the treatment of these cases. Formerly, the enucleation had to be completed at one sitting; but now the morcellement may be divided into as many stages as may be necessary, because the use of iodoform gauze between the sittings both stops the hemorrhage and prevents sepsis. It is, however, desirable to complete the operation at one sitting if it can be done without endangering the uterine walls. Doyen's method of splitting the anterior wall of the uterus through the vagina, removing the myoma and stitching the uterus, meets approval. If inspection shows that many myoma kernels are present or that they penetrate close to the peritoneum, vaginal extirpation can be done. Even if suppuration of submucous myomata should occur, the prognosis is not so bad as formerly, because the radical measure of extirpation still remains. As to electricity, if the slightest doubt exist as to whether the myoma is interstitial, electricity should not be employed, because it not only will not stop the hemorrhage, but it will likely cause ulceration and infection.

10. *Perineorrhaphy and colporrhaphy.*—Operation is indicated in all lacerations of the perineum, even small ones, if attended by spreading of the vulva, and in all prolapses of the vaginal walls except senile prolapse. The alternative is the pessary. Fränkel is not fond of the pessary; he finds it to be the cause of colpitis and fetid leucorrhea, even where it holds up the prolapse. In the case of old women, no treatment has succeeded in preventing relapses, and for them he uses a pessary, preferably an egg-shaped ball of glass. In plastic surgery, the aim is to cut away as little as possible and simply to unite what has been separated. He disapproves of amputation of the cervix, which many combine with every colpo-perineorrhaphy. The abuse of Emmet's operation must also be classed as gynecologic meddlesomeness. He operates only when there is pronounced ectropion, or when cicatrices spring from the laceration along the vaginal wall and cause distinct symptoms, or finally when reflex neuroses are clearly due to the laceration; but he finds that the tears are again torn open in subsequent confinements.

In anterior colporrhaphy, Fränkel prefers Fehling's method of a bilateral incision, to which he adds removal of the hypertrophic tissue near the urethra, because this particular mass is apt to protrude and keep up the sensation of falling out, even after the perineum has been restored. He uses catgut so as to avoid the necessity of stretching the vagina and perineum for the removal of the stitches.

In posterior colporrhaphy and perineorrhaphy, the chief thing is to properly separate the flaps, *i. e.*, to keep in the true layer between the vagina and the rectum. If the tear extends into the bowel, he turns the freshened edges into the lumen of the bowel and unites them with fine non-penetrating catgut sutures. The dry method of operating is used exclusively. During the first eight days as little manipulation as possible is allowed. Not even the catheter is employed; normal urine does not interfere with healing, but it should be dried off with absorbent cotton. Bowel movement is procured on the fourth day. In all his cases union by first intention occurred, but in one he had the rare experience of an utero-vaginal fistula.

11. *Inverted uterus.*—In two cases of irreplaceable inverted uterus after confinement, he followed Kaltenbach's method of amputation. A rubber ligature was fastened around the cervix and stitched in place with catgut sutures; the corpus uteri was cut off about 2 cm. external to the ligature; and the edges of the peritoneum which lay in the opening were united. The ligature came off in sixteen days. Both patients recovered; there was no forced climacteric, and menstruation was normally resumed. Hence this method is much preferable to the total extirpation suggested by some authors.

12. *Curettage.*—This operation, slight but not free from danger, is overdone and abused. It is useful for diagnostic purposes though sometimes misleading. As a therapeutic measure it is used in septic endometritis, abortion and chronic endometritis. In the first it is harmful, opening as it does new doors to infection and breaking down organized thrombi; and on account of its unsatisfactory results it has been entirely discarded in Germany. In abortion, the curette is not advisable. There should be no interference with nature's process unless there is danger to the patient's life, as from severe hemorrhage, decomposition, etc. If the abortion is inevitable, the aim should be to extract the ovum in its entirety, and the curette will certainly defeat this aim. The insertion of iodoform gauze into the uterus and tamponing of the vagina with cotton will stimulate pains, stop hemorrhage and lead to the expulsion of the ovum. If it fail to do so after twenty-four hours one should extract with the finger. The curette should be used only when small adherent bits of decidua or placenta keep up hemorrhage and the os is but little dilated.

Fränkel is especially opposed to curetting in catarrhal endometritis whether gonorrheal or not, because it opens new wounds and favors the deeper inroad of the cocci. It should be used only when menorrhagia or metrorrhagia is present, and it should be followed by a series of ten or twelve intrauterine applications of tinct. iodin or solution of ferripyrin. The curette should never be introduced without a speculum (that is, under the guidance of the eye). The external genitals and vagina having been carefully disinfected, a bimanual examination is made to determine the direction of the uterus, which is then hooked down, sounded to determine its internal condition, washed out and finally curetted with a large instrument. Speaking of possible perforation, Fränkel says that if the operation is aseptic such an accident has usually no bad results. If one suspects that he has perforated, he should withdraw the instrument, avoid irrigation, place an iodoform gauze tampon before the os and keep the patient recumbent for a few days, using an ice bag and opium if necessary. After curetting, he irrigates again, and if bleeding continues, paints with ferripyrin solution; otherwise he merely lays an iodoform tampon before the os.

Old perimetritic adhesions are not a contraindication to aseptic curettage; but acute or subacute inflammations of the adnexa, and especially accumulations of pus or blood near the uterus are contraindications. After a brief rest, the patients are allowed to go home with the instruction to remain in bed for two days. Intrauterine applications are made at intervals after the fourth day.

The author concludes with the warning that long continued gynecologic and intrauterine treatment is injurious, especially to nervous patients. DAVID JESSUP DOHERTY, M.D.

The "Mirror" Reflects.—The versatile editor of the St. Louis *Medical Mirror* says in the November number: "Speaking of criticism brings to my mind some of our editorial fraternity who are constitutional kickers and ever on the lookout for the weak spots in the armor of their competitors, or I would rather say colleagues. They never see anything but blemishes or distorted pictures; they seem to be unable to praise anything; I doubt if they would be able to get their consent to praise God, from whom all blessings flow. But don't blame them, they are built that way; they have my sincere sympathy, and that leads me to say that I agree with Ras Wilson, the Philistine, when he says: 'Young man, write as you feel, but try and feel right. Feel good humored toward every one and every thing. Believe that other folks are just as good and just as smart as you, for they are. Give 'em your best and bear in mind that God has sent 'em in his wisdom all the trouble they need and it's for you to scatter gladness and decent, helpful things as you go. Don't be too particular about how the stuff will look in type, but let 'er go—some one will understand. This is better than to write so dosh bing high and so tarnashun deep that no one understands—let 'er go!' Permit me to say further that while I invite criticism and even enjoy it and try to profit by it, and love commendation, I propose to go on sawing wood, sawing it on my own wood pile, and running the *Medical Mirror* energetically and aggressively without waiting for the consent of other nations."

PRACTICAL NOTES.

Thyroid Therapeutics in Stunted Growth.—Schmidt of Frankfurt, describes in detail in the *Therap. Woch.* of November 15, his success in securing renewed growth in many cases of retarded development, with one thyroid tablet a day, continued for a year and a half to two years, omitting the tablets every fourth week. His practice was a tablet of 0.05 under 4 years; 0.1 from 4 to 7; 0.15 from 7 to 14, and 0.3 over 14. This prolonged medication produced no inconveniences, and the patients gained in weight as well as height, after the first week or so. Some grew 12 cm. in a year and a half, others from 6 to 11 cm.

Treatment of Prolapsus Uteri at the French Surgical Congress.—Bouilly's fine and practical address emphasized the advantages of massage and special gymnastics in the early stages, and advocated operating on the vagina and perineum, also the amputation of the cervix. He always completes hysterectomy by plastic operations, but reserves this for the severest cases and for elderly women. All the gynecologists seem to be growing to regard hysterectomy in young women with less and less favor. Is it the decadent birth rate which has raised up so many champions of the uterus in these latter days? asks the *Province Médicale*.

New Method of Rhinoplasty.—Israel is justly satisfied with an operation he performed recently on a young woman to restore the nose. He applied a flap from the ulnar side of the forearm, with a small piece of the ulna itself to make a bony frame for the new nose. The piece of bone was not cut entirely out of the ulna until it had been fitted into place in the nose, when it was sawed off slanting the exact shape required, and the cutaneous flap was then fitted over it. Six sittings were necessary to complete the operation, and the arm was immobilized in a cast, as usual when only the cutaneous flap is applied.—*Deutsche med. Woch.*, November 12.

Treatment of Talipes at the French Congress of Surgery.—Forgue's address was an appeal for early and protracted treatment and, according to the gravity of the case, manual reposition with anesthesia. He believes, but without enthusiasm, in the success of Vincent's tarsoclasis, and in purely orthopedic means, and is a warm advocate of the Phelps' modified by Kirmisson (opening of the medio-tarsal articulation). Operations on the bones should be reserved, he says, for the very gravest cases. In the discussion, Reboul, Calot and Martin proved strongly conservative; Boekel and Jalaguier are radical, while Doyen and Championniere are absolute anarchists, stating that the more of the bony structure is removed, the better the foot performs its functions.—*Prov. Méd.*, November 14.

Operative Treatment of Tuberculous Pneumothorax.—Some advocate puncturing as often as there is danger of suffocation, but Unverricht does not approve of this at all, and considers the only rational operation the making of a permanent fistula, keeping it protected by a wire basket over it, with a bandage just below to catch the secretions, without closing the mouth of the fistula. This applies to all cases in which there is a probability that the lung will in time expand normally, but if there is no hope of this, then the operation will do more harm than good. Even in advanced tuberculosis, the pneumothorax often heals completely. The incision is made in a space between the ribs, and he believes that many more patients will be saved when surgical intervention in pneumothorax is more generally adopted.—*Cbl. f. Chir.*, November 14.

Pneumotomy in the Treatment of Hydatic Cysts of the Lung.—Tuffier has collected the statistics of 58 pneumotomies on record for the relief of hydatic cysts of the lung, and 71 pleurotomies with 2 deaths, and 4 interventions in non-suppurated central cysts. He advises the oblique thoraco abdominal incision on the rear edge of the axillary line, on account of the extreme difficulty of differentiating a cyst in the lung from one in the liver, as the neoplasm pushes the lung so far out of its normal position. He concludes that pneumotomy is the operation to be preferred, as it has given over 90 per cent. of recoveries, while medical expectation has entailed a mortality of 64 per cent. He prefers chloroform in these cases to ether, and advises long tamponing to avoid danger of hemorrhage.—*Presse Méd.* October 24.

When to Operate in Appendicitis.—Gersuny does not believe in indiscriminate operating, but restricts it to three forms of appendicitis: 1, the patients that demand intervention themselves on account of persisting abdominal distress; 2, when the suppuration is of a progressive character, and threatens perforation, and 3, when the perforation has occurred and there is general peritonitis, which cases require operating at once. He has cured two patients four hours and twenty hours respectively after perforation. An operation is strictly contraindicated in cases of extreme heart weakness. In ordinary typical cases, rest, opium and deprivation of food, are enough treatment. In atypical cases all preparations must be made to proceed to an operation if it becomes necessary. Where there is hope of spontaneous recovery, it is allowable to interfere, but where the danger is imminent it becomes our duty to interfere.—*Therap. Woch.*, November 15.

Treatment of the Ulcera Corneae.—These ulcers are apt to heal with extensive leucoma, and the usual methods of treatment that prevent this require skilled assistance which it is not always possible to procure. Akerblom describes his method in the *Therap. Woch.* for November 8, which is never followed by leucoma, and is so simple that no assistance is required. It is a modification of Mellinger's linear cauterization of all affections accompanied by swelling of the conjunctiva. As it is difficult to keep a sharp point on the caustic, he heats a silver sound in a flame and melts a drop of the caustic on the tip. After two or three drops of a 5 per cent. cocain solution have been instilled, he takes the patient's head in his left arm, and opens the affected eye with the fore and middle fingers of the left hand, while the patient, seated on a low chair, turns the ball in the direction away from the ulcer. The caustic is then passed all around the edge of the cornea, over the conjunctiva bulbi about 1 mm. from the peripheral edge of the cornea. He then lays the sound aside, neutralizes with salt solution, and

applies a sublimate compress, 1 to 5000, which the patient renews as necessary. After the scab falls, the operation is repeated, but is never required more than three to four times. His success has been invariable with this method, even in severe cases of hypopyon and threatening perforation.

New Method of Circular Suture of the Intestines.—E. Ullmann recently presented at a meeting of the k. k. Ges. der Aerzte in Vienna, a patient cured of a tuberculous neoplasm in the cecum by resection of part of the ileum and cecum. One end of the intestine was then turned inside and the other end inserted in it, like an intussusception, thus bringing the surfaces of the serous membrane on each end into contact inside the intestine for quite a little distance. A piece of carrot shaped like a cylinder, with a hole through it and a deep groove around the center outside, had been placed inside the intussusception. A strong catgut ligature was then made around it, fitting into the groove and pressing the two serous surfaces together. Gas passed through the first day and feces in a week, followed by rapid recovery. This simple operation requires but a couple of minutes and after the abdominal wound is closed the union is very firm, as the intestines grow together at once, and the carrot forms a strong enough support, which even force will not dislodge, as Ullmann states. He has found by various tests that the catgut remains unaltered long enough to accomplish its purpose.—*Wien. klin. Rundschau*, November 15.

Surgical Treatment of Cancer of the Stomach.—Kocher of Berlin states that gastrectomy for cancer is now an absolutely certain surgical operation, and that physicians generally should be informed of this fact, so that they can have their patients operated upon at the earliest possible moment, with the guarantee of almost certain cure. Péan reports numerous operations for cancer, but only twelve gastrectomies, with four deaths. In four cases of chronic ulcer of the stomach, accompanied by such pain that it was impossible to refuse the patients the possibility of relief by an operation, all four were completely cured. He was also successful with several cases of non-cancerous stenosis of the pylorus. He advocates closing the stomach completely, and then making an anastomosis with some loop of the intestine near by (gastro-duodenostomy), in cases where it is necessary to remove a very large amount of substance on account of the extent of the cancerous growth. Intervention is always possible when the upper part of the duodenum alone is affected and a small, even very small, portion of the stomach near the cardia can be retained. He has performed fourteen gastro-enterostomies, and uses the Murphy button. Doyen reports a total of ninety-four operations on the stomach, including fifty-five for non-cancerous lesions, ulcers, dilatation or severe dyspepsia with advanced cachexia, cases abandoned by the physicians. He attributes his surprising success in these latter cases to the fact that the dyspepsia is caused by some constriction of the pylorus, and disappears when normal communication is reëstablished between the stomach and the intestines. He has never used an anastomotic button, which he considers a step backward in surgery. He requires only twenty-five minutes at the outside to complete the operation. Roux has twelve successes to report with one failure. He makes a Y-shaped incision (gastro-enterostomy), to avoid "elbows," which are liable to occur with a lateral operation. He prefers a button to a poor suture, but considers a well made suture far preferable to any button, as the patient can begin to take nourishment at once, a most important factor in rapid recovery.—*Bulletin Méd.*, October 25.

New Process of Vaginal Hysterectomy.—The broad ligaments when seized with the forceps offer an uneven surface, which sometimes allows parts of the ligaments to escape and necessitates annoying delay in the operation. To obviate this, Faure has devised a new process of vaginal hysterectomy which also permits a much firmer ligature than other methods, if desired. It is described in full and illustrated in the *Presse Médicale*. It is only applicable to those cases in which the uterus can be drawn down to the vulva after median section (Müller, Quenu), or after Doyen's anterior hemisection, which Faure much prefers. After the uterus is thus drawn down and out of the vulva, with its anterior wall split open to the top, the rear wall is then cut down vertically one-third to one half from the top, thus separating partially the organ into halves, which spread apart. One side of the upper part is then seized with another pair of forceps and cut transversely, parallel to the upper edge of the broad ligament and at right angles to the axis of the uterus, continuing the cut 2 to 4 centimeters up into the broad ligament, above its attachment to the uterus. This transverse section should extend beyond the insertion of the ovary and the operator has thus in his forceps the upper third of one half of the uterus with a third of the broad ligament as a pedicle. This pedicle being small, thin and movable in any direction, can be easily and firmly grasped with a pair of forceps. But it is just as easy and simple to make a permanent, firm ligature as to seize the pedicle with the forceps, and a piece of silk applied at once without the forceps (which may spread the tissues to be ligated) positively insures hemostasis. After the forceps or this ligature have been applied above the insertion of the ovary, the removal of this upper third of one-half of the uterus, with its ovary and the attachment of the broad ligament, becomes a very simple process, with no possibility of hemorrhage. The upper third of the opposite half is then separated by a similar transverse section extending up into the broad ligament in the same way, leaving a similar small pedicle which is also seized with the forceps or ligated in the same effective manner and removed. The upper third of the uterus on both sides is now gone and a similar procedure with the second third follows on each side, cutting with the scissors up into the broad ligament far enough to afford a convenient hold for the forceps or ligature, the posterior wall of the uterus being cut down on the median line as necessary. The lower third (the cervix) left on each side, is also treated in the same way and the entire uterus is thus removed in six pieces, leaving six projecting stumps of the broad ligament, each securely ligated or held with forceps. There is very little hemorrhage when the transverse incisions are made, as they are either just above or below the principal uterine and utero-ovarian branches.

The New Treatment for Sprained Ankles.—In the *International Journal of Surgery*, Dr. Lawrence Crook of Jackson, Tenn., gives an account of six cases of sprained ankle treated by what has been called "the Gibney method." It is now about three years since Dr. V. P. Gibney of the New York Hospital for Ruptured and Crippled advanced, in the *New York Medical Journal*, certain propositions as to this lesion that were in his estimation new, yet reasonable, practicable and worthy of general adoption. "The experience of numerous observers since then has verified his statements, and as one of those who have used his method I am before you today to advocate it and prove its efficacy. The treatment, according to Gibney, 'involves no loss of time, requires no crutches and is not attended with any impairment of functions.' The method is as follows: A number of strips of rubber adhesive plaster about nine to twelve inches in length and of appropriate width, are prepared. I then proceed thus, not following exactly the method of Gibney. Beginning at the outer border of the foot, near the little toe, the first strip partially encircles the joint and ends behind the foot. The second strip is begun on the inner side of the foot and is applied on the opposite side, nearly meeting the first strip behind. Other strips are applied in like manner, each one overlapping the last and crossing its fellow of the opposite side in front, so that the ankle is snugly and smoothly encased, care being taken not to completely encircle the joint with any

one strip. After having bound the foot firmly it is well to add one broad strip running around the foot from the internal side of the leg down the internal side of the foot across the plantar surface and up the outside of the leg, 'as much as possible to take the place of the middle fasciculus of the external lateral ligament, which is so often the one most injured.' It is a good plan to place a pad of absorbent cotton over the external malleolus and in the fossa below, to prevent undue pressure and chafing. Any one of the injured ligaments may receive a similar reinforcement from an extra strip. I then apply a roller smoothly over the entire surface, allowing it to remain until the plaster takes firm hold. The simplicity of the strapping treatment, the ease with which it is applied and the immediate and marvelous effect upon the patient can not fail to impress even the most skeptical. Though in direct opposition to the teaching of most of the authorities, it is none the less deserving of attention and application. To judge it by its effects and results, the only just basis from which to deduce a conclusion, we are forced to decide that it is a wonderful improvement over the old methods. The saving of time alone is of great importance in the case of men employed by corporations that pay their employes for time lost when injured; to accident insurance companies, to whom the saving of time means a saving of many hundreds of dollars in indemnities; and last and best of all, to the patient himself, who can soon resume his work, free from pain and without fear of unfortunate results in the future.

"*Case 1.*—A male, age 22, was brought in one evening on a litter, apparently suffering great pain and unable to walk. Dr. White, the superintendent, called me in and we diagnosed sprained ankle. Deciding to use the Gibney treatment, the foot was cleansed and the adhesive strips applied as explained previously, reinforced with a roller bandage. The patient was then told to take up his litter and walk, which, after some hesitation, he did, walking out of the hospital with only a slight limp.

"*Case 2.*—Some weeks ago I was called to attend an employe of the I. C. R. R. who had fallen from the top of a box car, severely spraining both ankles. The injured parts had been dressed for thirty-six hours in lead and laudanum lotion, but were, nevertheless, greatly swollen, discolored and painful. He had them elevated on a pillow when I arrived. I told him I would have him walk about the room in a few minutes, a statement which greatly amused his friends and himself. Shaving the parts and proceeding as usual, I ordered him to arise and walk, allowing him to use his cane. Slowly, cautiously, timidly and fearfully, at first, he placed his feet to the floor, exclaiming: 'Boys, that don't hurt, I *can* walk,' and he walked about the room several times. Three days later he was on the street telling his friends of the wonderful treatment.

"In conclusion, in the *Railway Surgeon* for Jan. 28, 1896, there is an article by Dr. A. B. Poore of Cedar Rapids, Iowa, which is highly commendatory of the Gibney treatment. He reports complete success in every case, and among other things says, after describing the treatment at length: 'Usually the patient at once makes two comments, that the pain is very much lessened as soon as the strapping is complete, and after he has tried it that he is surprised to know how well he can walk. The average time is so much shortened by this treatment, and the pain is so much less, that the ordinary sprained ankle is no longer a bugbear.' My experience coincides with that of Dr. Poore in every particular."

Paralysis of the Soft Palate.—Dr. Charles Beevor, in *Clinical Journal*, October 7, reports a case of this affection in a male patient, aged 54 years, occupation that of a rag dealer. "Eighteen months ago he had an attack of right hemiplegia, which came on quite suddenly, but he did not lose his senses. He was in bed four weeks with loss of power in the right arm, right leg and right side of the face, and his speech became affected and has remained so. I shall not now go into the cause of this, as I do not propose to deal with hemiplegia; but it is probable that his case is one of thrombosis, not hemorrhage. The second cardiac sound was accentuated, but no albumin in the urine. On examination the patient was found to have right hemiplegia and paralysis of the right side of his face was extreme. He can now whistle, close the eyes and show the teeth. A year ago he had some difficulty in putting the tongue into the right cheek, but he can do so fairly well now. I may here mention that in examining the tongue it is not sufficient to see whether it comes out straight; it should be ascertained whether the patient can move the tongue in all directions. The etiology of this form of paralysis is various. Taking the cortex first, the point where you get, by electric stimulation, movement of the soft palate on the opposite side only is at the foot of the ascending frontal convolution. Mr. Horsley and myself, working on the subject in the monkey, found that there were certain points at the foot of the ascending frontal convolution, stimulation of which gave elevation of the opposite half of the soft palate, *i. e.*, stimulation of the left cortex caused drawing up of the palate on the right side only. In each experiment a drawing of the cortex was made on paper ruled with lines which divided it up into squares of 2 mm. the side, and each of these squares was separately stimulated. The squares where the movements were obtained are marked in the diagram. The area for the soft palate is at the lower end of the ascending part of the frontal convolution and close to the points which, when stimulated, produced movements of the face and tongue. I believe it had not been shown before that the movement is unilateral. The question arises whether a lesion will produce this paralysis of one-half of the soft palate. It is probable that the soft palate fibers would go along with those of the tongue, the representation of which is close to that of the palate. The next question which arises is, where is this nucleus which sends fibers to the soft palate? It used to be thought that the soft palate was supplied by the facial nerves and it was utilized as a means of ascertaining whether the lesion was inside or outside the skull. Dr. Hughlings Jackson said, years ago, that he had never seen a case of paralysis of the soft palate in paralysis of the facial nerve and Mr. Horsley and myself did some experiments to test this. We removed one hemisphere and stimulated the peripheral ends of the cranial nerves and found we got no movement of the soft except from the accessory nerve to the vagus; no movement from the facial or pneumogastric or any other nerves. The next problem is the location of the lesion. First, taking the causes of paralysis of the soft palate from below upward, the simplest case is one of paralysis of the nerves, as after diphtheria. In this case there is the history of a sore throat or definite diphtheria, then gradual onset of paralysis, always bilateral. Reflex action and faradization are both lost and in many cases sensation is also lost. You will see why reflex action must be lost as well as faradization, namely, because the lesion is below the nucleus and the muscles are thus cut off from their trophic centers. If the motor or the sensory nerves be affected there is no reflex action, because the reflex arc is broken; and when the motor nerve is affected electric reaction of degeneration ensues. In a lesion of the nucleus of the accessory nerve to the vagus the onset is, as a rule, gradual, as in the man I showed you with amyotrophic lateral sclerosis. In a case like that the onset is gradual and is nearly always bilateral; that is, the nucleus on both sides is affected. There is another form met with in which the nucleus itself is affected and which begins with a sudden onset due to thrombosis and called acute bulbar paralysis; here the reflex action is lost and there is loss to faradism. To sum up, the prognosis in diphtheritic paralysis is favorable in progressive muscular atrophy, or in amyotrophic lateral sclerosis it is very unfavorable, as the disease will steadily progress and probably cause death in a year or two; while in acute bulbar paralysis and in acute lesions of the nucleus, or of the motor tract above this, or in the internal capsule or cortex the prognosis is better, as the patient may improve; and even if he does not the disease will not advance, except he have another attack to which he may succumb. Hence, excepting diphtheritic cases, all paralyses of the soft palate are very serious."

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SATURDAY, DECEMBER 19, 1896.

THE DAILY MEDICAL INSPECTION OF SCHOOLS.

It is reported that the New York City Board of Health is about to follow the lead of Boston, in the matter of school inspection for the repression of infectious disease. It is proposed to employ a staff of physicians, 150 in number, for a period of ten months in the year. The corps of physicians is to be superintended by a chief inspector, whose salary will be $2,500; the members of this staff will receive $30 per month, making the total cost of the bureau $47,500. Dr. GEORGE B. FOWLER, the Medical Commissioner of the Department, has stated that a preliminary investigation, covering a period of over two months, has left the profound impression that, while there may not be at the present time any special prevalence of contagious diseases among children of the school-age in that city, a material improvement in the death rate can be effected by a daily inspection of the pupils at the various public and parochial schools, having in view the earlier detection of cases of diphtheria and other preventable diseases. One branch of the duty of the inspectors will be the following up of the cases of absentee scholars whose absence is believed to be due to sickness, and in this way affording the Department timely information whether the cases of sickness are of an infectious nature or otherwise. It has been found, with regard to measles for example, that in hundreds of instances this disease has existed in families, the parents of which have been entirely ignorant as to the cause of their children's sickness, so that the customary school-detention has been practically impossible at the time when such detention would be especially important for the reduction of exposures; and that in many such cases the children have been without medical attendance during the period of absence from school. In other instances the family physicians, having been misled by the mildness of the initial symptoms in the sick children, have failed to make report of the cases as being contagious in character. In the JOURNAL, for October 24, we gave a sketch of the medical inspection scheme that had been on trial for a year at Boston, from which it will appear that the medical men are held responsible for the kind of quarantine that is maintained by the families, after the inspector has designated the room that shall be set apart for the contagious patient. If in the opinion of the Inspector, the quarantine can not or will not be kept, it becomes his duty to provide for the removal of the patient to the hospital for infectious diseases.

INTESTINAL PERFORATION COMPLICATING TYPHOID FEVER.

Surgical intervention in cases of peritonitis of whatever nature has been attended with such good results that what was considered at first as a bold operation has come to be looked upon as an accepted procedure. Success has attended timely and expeditious operation for peritonitis following perforation of a gastric or intestinal ulcer, as well as similar treatment of tuberculous peritonitis and that form due to pneumococci, and also appendicular peritonitis. In the past it has been customary to describe two varieties of peritonitis complicating typhoid fever, one the result of perforation and the other occurring through propagation. The first is a serious complication, usually widespread in distribution and resulting from perforation of an ulcerated Peyer's patch or solitary follicle; the second is said to be less serious, more limited in extent and resulting through propagation of the infectious process from the intestinal wall to the peritoneum.

Peritonitis due to perforation of an intestinal ulcer of typhoid origin does not always set in abruptly with violent symptoms, but on the contrary the onset may be insidious and the symptoms of but moderate intensity. The condition of the patient is not conducive to vigorous reaction, while the perforation is usually small and the escape of intestinal contents small. In a communication upon this subject presented at a recent meeting of the Académie de Médecine, DIEULAFOY (*Presse Médicale*, Oct. 28, 1896, p. 569) pointed out that hiccough is a very characteristic sign of intestinal perforation during the course of typhoid fever, but even more so he considers a sudden decline in the temperature below the normal.[1] The

[1] In criticising the latter portion of this statement Lereboullet (Gaz. Hebdom. de Méd. et de Chir., Nov. 8, 1896, p. 1069) issues the caution that the algidity of collapse should not be mistaken for hypothermia and that a reliable temperature-registration can not be secured in the axilla

latter differs from that which rarely marks the defervescence of typhoid fever in that this is attended with amelioration in the general symptoms, while the temperature does not fall below the normal. The hypothermia of perforation differs from that of hemorrhage in the gradual rise in the temperature that takes place in the former and the more rapid rise in the latter.

In the large majority of cases peritonitis due to typhoid perforation is fatal. There are, however, undoubted cases in which the process has remained circumscribed, while adhesions formed and recovery followed. DIEULAFOY is unwilling to admit the occurrence ordinarily of peritonitis by propagation, without perforation. In cases of this kind he believes that the appendix is really the seat of the disease, with secondary involvement of the peritoneum. He contends that typhoid bacilli, as well as other pathogenic microörganisms, migrate through the walls of the intestine only when their virulence is intensified by confinement in a closed cavity, as the appendix is wont to become when inflamed.

There may, then, be two forms of typhoid appendicitis complicating typhoid fever, either of which may lead to peritonitis. In one of these the lymphatic elements of the appendix become the seat of typhoid lesions, with ulcerative perforation and consequent peritonitis. The symptoms of this condition do not differ from those that attend perforation in other parts of the bowel as a result of typhoid ulceration. In the other form of appendicitis complicating typhoid fever the condition is a true appendicitis of the usual variety, with the classic symptoms of this disorder and the possibility of all of its complications. To distinguish the two the former may be designated typhoid appendicitis, the latter paratyphoid appendicitis. Paratyphoid appendicitis is to be distinguished from peritonitis due to typhoid perforation especially by elevation of temperature, while as has been stated, the temperature falls below the normal when intestinal perforation takes place as a complication of typhoid fever.

The medical treatment of peritonitis secondary to typhoid perforation consists in keeping the bowel at perfect rest, with total abstinence from food and drink, the administration of extract of opium, one-third grain every hour, injections of morphin beneath the skin and the application gently and cautiously of ice to the abdomen. These measures will, however, usually fail and surgical intervention will become necessary. In cases of paratyphoid appendicitis the indications for operation and the successive steps to be pursued are pretty much the same as in cases of ordinary appendicitis and appendicular peritonitis. In cases of perforation and peritonitis the success of operation will depend upon the promptness with which the condition is recognized and the expedition with which the necessary manipulations are carried out. When the site of perforation can be found this should be appropriately closed and drainage provided for. Often more than one perforation exists or a second one may be subsequently added to that already existing, so that under most circumstances it will be conservative surgery to pack the wound in the abdomen and leave it partially open. All in all, it would seem as if the danger of operation were smaller than the risk of uncertainty from non-interference when the condition is recognized or even seems probable.

or mouth, but must be sought in the rectum. He attaches far more importance to the frequency and character of the pulse, maintaining that intestinal hemorrhage or perforation is attended with increased frequency and irregularity of cardiac action.

BOOK ENTERPRISE.

"Of making many books there is no end," but the selling of books requires more talent every year. Teachers of medicine, specialists, general practitioners and medical men of every grade of culture, from the bold quack to the most learned physician, catch the infection to write a book as the highest attainment possible. Then comes the struggle to sell it. The wary publisher is always ready to print and issue the volumes if the author will pay the bills. This is very common in most works, and the publisher is simply the broker for the sale, receiving a large commission, or what he can get. Frequently the largest circulation is the review copies for the medical press, a few presentation works to friends and libraries, and the work is dead. The author has paid for this short lived fame, and dies with the delusion that the publisher or some cruel journal is responsible for this failure. Publishers who have ventured to print works on the promise of large profits, and find the returns very slow must devise every possible means to create a demand for the book. As the books increase, both those issued on commission and those which they have invested in, the effort to sell becomes more and more difficult. Recently some of the large eastern publishers have started a new plan for disposing of books. Finding cities where active medical societies meet often, they arrange with the secretary to send him packages of books for review. These works are distributed among the members, following their individual taste as far as possible. Thus giving works on surgery to persons who have a taste in that line, and so on with diseases of women, children, and other affections. The member is requested to read the work and give the society a review of it at some distant meeting. Anyone wishing the work can have this copy or others at a good discount. The amateur reviewer is flattered by the honor of testing the value of a new book, and showing his critical ability to his associates. Hence, he reads with great care and often becomes interested in and purchases the book; this from mixed motives to keep it from his rival, and to show his desire to be up with the times. Not unfre-

quently an adverse criticism will rouse up a rival to examine and purchase the book. At every meeting this department of new books furnishes a most interesting topic of discussion which always ends in the sale of the book.

The wise publisher pays the express charges both ways, leaves the works in the secretary's care four or five weeks, only stipulating that cash less the discount be sent for all works retained. In this way last winter over fifty volumes were sold in one small town. In many respects this is an admirable way of selling works, and rousing the critical faculty of reading and comparison of books. Many of these reviewers would never read these books except for some special motive, or to appear learned before their associates. Whether they purchase the work or not, they derive satisfaction in having measured their intellectual abilities with the author. Others are impressed with the teaching of the author, and like a free sample of a new drug, enjoy and fully endorse it always after. It will be a curious study in the future to know how far physicians will buy books which they read before purchasing. The books must have some attractions, which grow from an intimate acquaintance, or this method will be fatal. Few works bear long study by the owner, unless it be encyclopedic books of the day, and even these are usually read in part only. There is certainly more science and profit to the profession in this method of selling medical books than by those of the glib unscrupulous agents who force the sale often against the judgment of the purchaser. The reviews of general practitioners are often clearer and more accurate of many books, than the learned professional critic. So far as our JOURNAL is concerned, its limitations of space have prevented us from doing more than giving notices of books, with occasionally brief commentary. But in these notices we have always tried to give our readers an unbiased and truthful summary of the contents, and a correct idea of the scope and probable value of the work noticed. If in some way authors could reach the rank and file of the profession, and secure their endorsement, books of merit would not require business-pushing and effort to find purchasers.

MIRROR SPEECH.

In the "Bulletin" of the *Progrès Médical* of November 28, M. BAUDOUIN editorially calls attention to a curious fact of observation bearing on the disorders of speech, that, as he says, was liable to be lost in the literature of surgical procedures. A little girl of 12 years was trephined, apparently *in extremis*, for a supposed cerebral abscess. Great improvement followed the operation, but there continued for five weeks a peculiar disorder of speech, in which the child made use of incomprehensible utterances, with an evidently intelligent purpose. For example, the following is given: "*Te-tan-ma; Yen-do sieur-mon, chaut-me; le-quil-tran-ser-lais-me-vous-las-vous.*" This was uttered with evidences of great anger, and similar sounds were repeated with increasing rapidity. Close attention to these utterances revealed that the child was really using the French language in a way clearly resembling the back-slang of the criminal, she was syllablizing backward all her words. The above thus interpreted, became: "*Ma tante; Monsieur Doyen, méchant; voulez-vous me laisser tranquille.*" This was first discovered by making her write down what she wanted to say, and it was seen that she simply wrote the syllables backward without making the slightest error. Subsequently her normal power of speech returned to her with otherwise marked improvement.

There is an important suggestion in this observation that possibly the unintelligible utterances of individuals suffering from brain disease with aphasia, and which are not at all infrequently observed, may be cases of this kind. The patient evidently tries to say something which is not understood, and is annoyed and excited because of this fact. It is, moreover, one of the first cases, if, indeed, it is not actually the first, as M. BAUDOUIN supposes, where anything analogous to the well-known "mirror writing" that has been so fully studied by many authors, has been noticed as occurring in the speech of aphasic patients. M. BAUDOUIN proposes for it the name, "mirror speech," as indicating this relation and describing as nearly as can be done by a simple designation, the special feature of the phenomenon.

AN IMPORTED CUSTOM.

A custom which, although said to be common enough in Europe for many years, has only lately reached America, is that of hotel "privilege" as applied to doctors. It has always been the case in the larger hotels that the boot-black, the proprietor of the news stand, and the cigar man, paid the hotel for the privilege of conducting their business. The custom has now been extended to the hotel doctor.

The doctor attached to one of the newest and largest Chicago hotels lately left it, and it is said owed the hotel some $1,500. The proprietor was apparently not backward in taking steps to recover his loss, and as there were several applicants for the vacancy, he placed the privilege at $500 a year, for not less than five years; the $2,500 to be paid in advance. As the place was not put up at auction, the first comer, a pleasant young gentleman, procured the funds and became installed in the hostelry, and now watches with complacency the mild envy of his less fortunate rival. It is to be hoped that the leveling tendency of the times will not progress so far that the social standing of the hotel doctor may be placed on the same footing with that of his privileged associates, the boot-black and the cigar vendor.

CORRESPONDENCE.

Foreign Bodies in the Auditory Canal.

ALBION, MICH., Dec. 14, 1896.

To the Editor:—Mary B., aged 5 years, of German parentage, was brought to my office by her father recently. He gave a history that the child had complained for several months of ear trouble, and especially of the left ear, and at times suffered with ear ache. An examination with speculum and reflected artificial light, revealed what was first supposed to be hardened cerumen. Copious syringing and douching failed to dislodge it and a closer examination and contact of the substance with the ear spoon disclosed a hard, smooth surface, and the conclusion was reached that a foreign body had become impacted. The surfaces were so smooth the forceps could not maintain their purchase, the parts so tender that a tenaculum was with difficulty passed behind and the body removed. It turned out to be a round, dark, smooth marble of the full diameter of the canal. Next to the tympanum was a small wad of newspaper. The right ear was next examined. This was found to be filled also; the forceps removed two paper wads, a small piece of chewing gum and a small sized pebble. The canals were considerably ulcerated and the tympana inflamed, but no evidence of perforation. It was a new experience to find the auditory canal a toy and plaything repository.

HENRY DENNY THOMASON, M.D.

Hydrophobia.

CHICAGO, Nov. 24, 1896.

To the Editor:—What can be done by the profession, the public, or the authorities to prevent hydrophobia?

Two cases of dog bite, one followed by rabies with fatal termination, that have come to my notice recently, have urged me to bring this subject before the medical profession. If these lines open up discussion and stimulate the readers to some activity in the matter, they will have fulfilled their mission.

For the history of the case of rabies I am indebted to Dr. J. Johnston Bell. On October 6 of this year the child of F. R., 19 months old, was severely bitten by a strange dog, while playing around its mother in a lot adjoining their home on N. Oakley avenue. Dr. Bell attended to the surgical treatment of the child. As the identity of the canine was not established and no mad dog was located by the police after diligent search, the Pasteur treatment was not suggested. The little one made a good recovery, although one cheek was torn through so as to expose the teeth. On Monday, November 16, six weeks after the bite, the child developed symptoms of hydrophobia and died early Wednesday morning, November 18. Dr. Bell was kind enough to call in Dr. Bruning and myself to see the case on Tuesday. After getting the history of this case, it occurred to me that I had attended a case of dog bite in the neighborhood at about the same time that this child was bitten. Reference to my books and personal inquiry developed the fact that on October 6 I had attended a child, aged 7 years, at N. Robey street and Clybourne avenue, within a few blocks from Dr. Bell's case. The description of the dog given by the parents of both children tallied. This and the coincidence of time urged us to insist upon the Pasteur treatment for my patient, to ward off if possible the dread disease. The parents, although very poor, consented to put their child under treatment with Dr. Lagorio at the Chicago Pasteur Institute.

Cases of this kind are not rare instances in large cities. The question then is, what can we do to prevent fatalities? I see no way, except to anticipate the worst and subject every case of dog bite to the Pasteur treatment, unless we have the dog and know him to be free from rabies. So far, so good, but the treatment is not in reach of every one, because of the limited number of institutes and the expense of treatment. Dr. Lagorio has been conducting the Chicago Institute at his own expense for the past six years and has treated 532 patients up to October 1. Many of these patients were unable to pay, quite a number dishonest, so that his services were but poorly paid. He has, on several occasions, applied to the municipal and State authorities to assist him in his grand work, but without success. In view of the fact that hydrophobia is fatal in practically all cases, after symptoms develop, and since the Pasteur treatment is an absolute and safe preventive in all cases treated at once, it is the duty of the community to place this boon within the reach of all. If the State and municipal authorities can not be roused to do their duty, I would suggest the formation of a Pasteur society, a national society, with the aim of organizing and maintaining institutes in every State for the treatment of every case of dog bite sent by physicians. Enough fees could be collected to make the institutes self-sustaining or nearly so. While looking to the prevention of rabies, the dog, cat and other dangerous animals should not be lost sight of.

LOUIS F. MAY, M.D.

191 E. Fullerton Ave.

An Explanation.

ST. PAUL, MINN., Dec. 14, 1896.

To the Editor:—Your columns are hardly the place for a literary controversy, but I can not refrain from sending a line in answer to the courteous (?) letter of Dr. B. H. Putnam in your last issue. If he will read my first letter he will see that I made no attempt to translate the Latin of Cordus' Epigram, but simply called the attention of "R. M. W.," who sought for information, to the fact that the lines he quoted were originally translated (by whom I do not know) from the Latin, as stated by me. My authority for this statement may be found in Baas's History of Medicine, page 369. The translation, although more liberal is also I think more poetical than that given by Dr. Putnam.

Yours truly, BURNSIDE FOSTER, M.D.

PUBLIC HEALTH.

Plea of Ignorance as to Infectious Diseases.—Dr. Woodforde, Medical Officer of Health for Berkshire, England, in *Public Health*, October, makes the following observations on this difficult subject: "During the period that the Act (of notification) has been in operation in the greater part of the district it has worked satisfactorily and with uniform smoothness so far as notification by the medical attendant is concerned, and the fears that were entertained by some of its operation involving such publicity as would often be likely to be injurious to the parties concerned has not been justified by the result, while the decrease in the mortality of some of the notifiable diseases has been very marked. The Act does not, however, as yet confer all the benefit on the community that it might do; first, because its adoption in any given district is optional, and secondly, because it is so drawn that the 'dual' notification for which it provides is practically a dead letter in the district, and I can not entertain a doubt but that a large proportion of mild attacks, where a doctor has been called in, are never notified at all, nor are the proper precautions taken to stop the spread of infection. This arises from the fact that, while the Act requires the head of the family or other responsible person to notify *as soon as he becomes aware* of the nature of the illness, it does not require him to take any steps to obtain such information, and the plea of ignorance is consequently set up with much success, when the case has not had medical attendance, as a bar to proceedings before the Justices for failure to notify. This difficulty would be removed if the Act was amended by

the addition of a clause enacting that the plea of ignorance of the nature of the complaint should not be held to be a valid one unless it was shown to the satisfaction of the Justices that the person charged with neglect to notify had taken proper steps to inform himself, either by obtaining medical advice or in some other sufficient manner."

Antiquated Methods in Vaccination.—There has been no essential advance for nearly thirty years, in England, in the legislation regarding official vaccination. The Local Government Board do not officially know that bovine lymph exists, and in fact have at times refused the city or county health authorities permission to supply it for the use of their public vaccinators. No objection has been raised to the use of calf lymph, provided the vaccination is done directly from calf to arm, but any prepared or preserved lymph is open to objection by the Board. The freshness of the vaccine is, according to the *Lancet*, November 14, the point of first consideration. The tenor of all English laws from 1867 downward is directed to secure to the utmost that vaccination should be performed with fresh lymph from arm-to-arm; and hence the system of awards which the Act of 1867 provides for, carries with it compliance with that law and the regulations made under it. The Local Government Board are therefore tied to this law just as the public vaccinator is, and they can not sanction departures from that law until it has been repealed, however much they desire so to do. For some time past they have raised no objection to a public vaccinator using calf lymph; but since this departure from the regulations involves loss of award they feel bound, when the matter is put before them by letter, to explain that they have no power to authorize any change pending fresh legislation, and they issue a warning as to the chances of the loss of the award, which they can only grant under the existing law. If guardians could have instituted calf stations, then vaccination with fresh lymph from calf to arm could have been carried out in the provinces just as it is at the Government calf stations in London. From a letter which the Local Government Board have recently sent to the Cardiff guardians it appears that they have consulted the law officers of the crown as to whether this could be done, with the result that it had been decided that "the guardians of a union or parish can not themselves supply calf lymph to their vaccinators, unless, indeed, under some special emergencies involving an actual or anticipated outbreak of smallpox, such as are contemplated in Section 28 of the Vaccination Act of 1867. The Local Government Board are even more averse to the supply by guardians of preserved calf lymph, for they hold that it is the public vaccinator, as a medical practitioner, who must be held responsible for the character and source of any lymph which he uses, and that no guardians, whether individually or collectively, can by supplying him with lymph relieve him from this responsibility. Where, notwithstanding these considerations, boards of guardians still insist that the public vaccinator shall use calf lymph and where that officer is himself ready to do so, although under the present regulations he would in consequence lose his award, there have been cases in which the guardians have raised the fee for vaccination, so as to cover the cost incurred by the public vaccinator in procuring a trustworthy supply of calf lymph; and we believe we are correct in saying that the Local Government Board have consented to such increase of fee. Where this is done, the public vaccinator should to the utmost endeavor to secure that the vaccination shall be successful in not less than four places, and that his results shall not fall short of those which he obtains with fresh lymph from arm-to-arm. The objections which have been raised to the effect that an equally efficient protection against smallpox is obtained by vaccination in, say, two places, must be regarded as having been set at rest by the conclusion at which the Royal Commission on Vaccination have arrived, when they say: 'There is a very marked contrast between those with four or even three marks as compared with those with either one or two.'"

Description of the Disinfecting Station in Paris.—The following is a copy of a report in the *Annales de Microscopie*, Nos. 7 and 8, 1896, regarding the municipal service of disinfection for the city of Paris:

In 1889 the city of Paris placed at the disposal of the people the municipal disinfecting stations attached to the stations of the municipal ambulance service. There exists in Paris, four disinfecting stations: 6 Rue Recollets, 71 Rue Chateau des Rentiers, 21 Rue Chaligny, and one in the Rue de Stendhal. These establishments contain complete outfits for disinfection, both at the stations and at the houses. The service is in charge of special agents who occupy position under the Director of Municipal Affairs, and under the supervision of the Inspector General of Public Health. The study of the scientific problems of disinfection and the best mode of application of different methods is under the care of special agents, and is referred to a committee composed of some of the best men in France. (Drs. Proust, Charrin, Leon Colin, Gormil, Landowski, Ledé, Martin, Miquel and Vallin. The principal station is the one in the Rue des Recollets, which is also the most centrally located. This station has recently been enlarged by the addition of one more oven, making three in this station alone. All of the four stations are operated every day, and an immense quantity of goods are thus disinfected. The different stations are all built alike, two parts, entirely distinct from each other, are separated from each other by a partition wall, and in the rooms where the goods are handled by a metal partition up to level with the doors of the ovens. The left of the building is the infected side, the right the clean or disinfected side, and between the two and on the front of the building are the rooms of the General Superintendent. There exists no communication between the infected and the disinfected sides, except a passage which leads through wash and shower rooms and the doors of which are so arranged that the opening of any one door shuts all the others. The construction of this station was begun in September, 1890, and it was opened for work in July, 1891. It occupies an area of 960 square meters, and the building occupies an area of 600 meters. The cost of its construction was about 125,000 francs. The system of receiving the infected goods, of preparing them for the disinfecting chamber, the process of steam disinfection, the discharge of the disinfected goods, the method of separating goods soiled with pus and blood, those containing grease spots and those infected with organisms highly resistant to heat, are all most perfect. The disinfecting station in the Rue des Rentiers has annexed to it a night refuse for men, and contains two ovens. That in the Rue de Chaligny, connected with the city ambulance service, has one oven, and the station in the Rue de Stendhal, connected with the refuge for women, one large oven, four meters long and one and three-quarters meters in diameter. This makes, in all the stations, seven ovens having steam under pressure. The methods of disinfection employed in the municipal service are: 1, the ovens having steam under pressure; 2, atomizers for the delivery of antiseptic fluids; 3, tubs of wood for the preparation of antiseptic solutions; 4, the portable outfit for house disinfection.

The personnel of the service consists of one controller, four chiefs of stations, four engineers and seventy-six disinfectors, ten of the first class, ten of the second class and fifty-six of the third class. Thus eighty-five persons are permanently employed, making the total from 100 to 110 persons in all. The men employed in the service have two uniforms; one, intended for a fatigue uniform, is composed of a vest, trousers and jacket of cloth, with silver buttons and an overcoat with a winter cape. The other, intended for a working uniform, consists of a linen cloth pantaloons and coat, having a drawing string both at the top of the pantaloons and the bottom of the coat, and a cap with a neck cover and visor. They also have a special form of footwear. When they arrive at the station in the morning to go to work, they leave all their clothing in a special ward-robe, and then put on their working uniforms. They must have their nails cut short and their hair and beards also trimmed short. Before they dine they must go into the dining hall of the station and carefully wash their hands and faces with a solution of corrosive sublimate. Every evening, before they resume their proper clothing for returning to their homes, they take a shower bath and wash themselves with antiseptic solutions.

Goods for disinfection are brought to the stations either by private individuals or by the regular collectors of the service on the demand of the administration. If the goods are brought by private individuals, the station is obliged to accept anything that is brought, mattresses, clothing, rugs, furniture, hangings, carpets, rubber goods, stuffed goods and utensils of all kinds. If the goods are brought by the regular collectors of the service, a selection is made; articles of furniture, glassware, trunks and glued wood are left in the house, while bedding, woolen goods, hangings, rugs, carpets, clothing, etc., are taken to the station. A book is kept in which an account is kept in duplicate of the name of the owner, the address, the items of goods, the condition in which the goods were received, the day of deposit and delivery, etc. The wagons which have served to transport infected goods are not allowed to leave the station

until they have been cleaned and disinfected by means of the atomizers or by the aid of washing with the solutions commonly employed in the station. In collecting infected goods for transportation to the disinfecting station, the following rules are rigidly carried out: Upon leaving the station, each wagon is accompanied by a driver and two disinfectors. The wagons are closed with a glossy, impervious covering, and contain a sufficient number of canvas covers and sacks for carrying all the objects of bedding, clothing, carpets, etc., one or more atomizers, bottles to contain disinfectants to charge the atomizers holding 12 liters of a 1 to 1000 sublimate solution, a box of packages of sulphate of copper, each package containing 750 grams, one can of cresyl, rags, brooms, sponges, etc., and bags of sail cloth containing the working clothes of the men. For the transportation of very fragile objects, large wicker baskets are provided. The wagon goes direct and without delay to the house indicated by the chief of the station. Upon arriving at the house, they put on their working clothes and then proceed to the infected apartment. They then spray with an atomizer the place on the floor, and lay down the sail cloth covers, sacks and baskets. In these are placed all the objects to be transported to the station, after which they are hermetically sealed. After getting these articles out of the room, they load the atomizers and proceed to disinfect the walls, ceilings and wood-work, all articles of furniture left in place, picture frames, tables, glassware, etc., are all subjected to the action of the atomizer or are rubbed with rags wet with the solution.

The vases and utensils with which the sick have been served, also the water closets, commodes and toilet tables are washed without stint with a solution of sulphate of copper, 50 per cent. The disinfection with the sulphate of copper is practiced in all cases of intestinal diseases and for diphtheria and croup, the solution being jetted into the closets, sinks and sewer pipes. For very large surfaces, such as court-yards, school room floors, stables, etc., a 5 per cent. solution of cresyl is used. When the disinfectors are through with the premisss, they place themselves before the atomizers and are thoroughly sprayed off. They then wash their hands and faces with the sublimate solution, place their working clothes in a sack and return to the station. They first give a receipt to the owner for all goods which they remove. Upon arriving at the station they unload the wagon in the hall on the infected side of the building destined to receive infected goods. The unloading finished, the wagon is disinfected both inside and outside with a solution of sublimate. The sacks are opened by a second set of men attached to the station and the articles sorted out. Those soiled with pus, blood, fecal matter, etc., being washed and rinsed in a tank of disinfecting solution before being placed in the steam oven. The arrangement of the articles to be disinfected on the car which carries them into the steam oven is a matter of importance; all metallic parts are covered with sail cloth and each object of bedding is extended on the screen and wrapped in sail cloth. These objects are not folded closely, but laid out with care. Those made of wool or feathers and which are liable to swell are placed on top. When the car is loaded it is rolled into the oven and the door closed. The routine of handling the oven is as follows: Introduction of steam at a pressure of seven-tenths of an atmosphere for five minutes, a delay of one minute, and this is repeated three times. The oven is then opened on the disinfected side, the goods taken off the carriage and immediately shaken in the air to dry them and they are then laid on the drying screens, care being taken not to pile them up, and then a forced draught of hot air is sent over them and they are dry in fifteen or twenty minutes. The degree of pressure is indicated by a manometer and the steam is cut off automatically at the end of five minutes. The steam disinfection having been successfully carried out and the goods removed without damage, they are returned in wagons which are used only for this purpose and handled by men who never come into contact with infected goods. Upon the delivery of the infected goods the receipt is taken up by the driver of the delivery van. Goods of vegetable texture or bad colors which are liable to run or fade are generally treated by spraying, or with as little steaming as possible.

Disinfection of the sick room during the course of the disease is often done, but the agent does not enter the sick room unless requested to do so. They disinfect the clothing of the sick person, the commodes, closets and utensils. They carry away for steam disinfection the bedding and soiled articles and leave a bag for the reception of those articles soiled during the course of the disease, and exchange this bag for another as often as occasion requires. In 1895 there were 8,215 of these disinfections performed, and in 1896, up to date, there were 9,875.

The appropriations accorded to this service for the year 1895 was 362,012 francs. Of this, 353,000 francs were for the general service and 9,000 francs for the disinfection of schools. The first of these items is disbursed in the following manner:

	Amount in francs.
1 Controller, 2,400 francs	2,400
4 Chiefs of stations, 2,368 francs	9,472
4 Engineers, 2,260 francs	9,040
10 Disinfectors, first class, 2,153 francs	21,530
10 Disinfectors, second class, 2,046 francs	20,460
56 Disinfectors, third class, 1,939 francs	108,595
Substitutes for those who been taken sick	2,000
Extra work and express	500
Total	174,012
Horses, wagons and salaries of drivers	95,000
Chemicals and disinfectants	20,000
Fuel and light	12,000
Wear and tear on wagons	3,000
Wear and tear on atomizers	10,000
Wear and tear of material	5,800
Blouses and replacing the same	7,700
Contributions, taxes and sundry expenses	1,000
Printing and postage	4,500
Car fare	3,000
Clothing of the disinfectors	8,400
Breakfast for the employes	8,600
Grand total	353,012

The Regulations of the Indiana State Board of Health.—The Indiana State Board of Health has issued the following Health Circular (No. 5): Special rules governing physicians and health officers when visiting persons sick of contagious and infectious diseases, and directing the proper conduct of quarantine. Passed Oct. 6, 1896.

Explanation.—It will be admitted that not a few practitioners are careless, and that there are some who do not understand or do not appreciate the care they should exercise in their own person when visiting patients sick with contagious and infectious diseases.

Quarantine, too, seems not to be thoroughly understood; for instances are not rare when the posting of a flag or a red card constituted all that was done, the flag being relied upon as a fetish. In such instances the physician takes no precaution against infecting himself, neghbors call and return to their homes at will, and the members of the stricken household are not restrained. Under such circumstances, contagious diseases will surely be spread in all directions. The laity frequently ask: "How do doctors keep from spreading disease?" They do spread disease in some instances, and to prevent the carrying of contagion by physicians and others is the object of these rules. Example will materially aid in instructing the people, and so these rules carefully set forth the conditions under which practitioners shall visit patients when they know them to be sick with diphtheria, scarlet fever and other infectious diseases. The conditions imposed are not difficult to fulfill and are not burdensome, and even if they were, no objection could be reasonably advanced against them if they were really necessary. An instance may be given which will fully illustrate the need of these rules.

In a village smitten with diphtheria a health officer visited, with a local physician, one of the cases. A card was upon the door and it was discovered that that constituted the quarantine. Two women and a young girl were within attending the sick child. One of the women was a neighbor who had kindly offered her aid, and she held the child in her arms, its head upon her shoulder.

From here this good woman was soon to return to her home to prepare the evening meal for her family. For depressing the tongue the same spoon had been used without washing or sterilizing since the beginning of the disease. The mother of the child grasped the spoon by the infected handle and offered it to the visitor. A soiled handkerchief lay upon the bed. This was handed by one of the ladies to the other who proceeded to wipe the mouth and nose of the child and then toss it onto the bed. With hands and clothing reeking with poison these good women infected everything they touched. Flies were abundant and busily at work aiding in the transmission of the disease. The attending physician preferred to have the child upon his knees when he took its temperature and pulse. The drops of saliva which passed onto his coat sleeve were wiped off with his handkerchief and he went forth to pay another visit. The health officer perceived a smile upon the face of his companion when before entering the sick room he removed coat,

cuffs and hat, produced a clean, glossy linen duster and skull cap from a glazed hand bag, and donning the garments announced himself as ready to see the patient. Another smile was provoked when upon leaving the sick room a bowl of water was called for, the hands and face washed with the aid of a cake of carbolic soap taken from the bag, and a disinfectant freely used.

The above facts impelled the passing of the following rules, and it is hoped they will be obeyed to the letter that humanity may be served and the medical profession honored.

The use of diphtheria antitoxin is recommended in all cases of diphtheria, and it is especially recommended that all persons who have been exposed to diphtheria be promptly immunized with it.

The justice and propriety of Rule 6 is plain when we remember it has been proved beyond any question that many simple red throats are really caused by the true diphtheria bacillus. A recent writer tells of a trained nurse who observed that wherever she went to nurse, diphtheria broke out. She had taken every precaution against carrying the disease, having had several Turkish baths, used antiseptics and made an entire change in her clothes, yet the disease followed her. Investigation showed her mouth to be alive with diphtheria bacilli. She was quarantined and given thorough antiseptic treatment. After the bacilli disappeared diphtheria did not again show itself in her track.

Rule 1. When visiting patients known to be sick with smallpox, scarlet fever, diphtheria or other contagious or infectious disease, physicians shall clothe themselves in a specially provided clean linen duster, oil-cloth or rubber coat and a tight-fitting cap made of silk, linen, oil-cloth or rubber. The cap shall well cover the hair. Before leaving the house, physicians shall cleanse hands and face with antiseptic soap and water, and use a disinfectant upon hands and face. The coat, cap, antiseptic soap, bottle of disinfectant, etc., shall be carried in a special glazed leather valise, together with a pad of cotton, which is to be kept wet with formaldehyde.[1]

Rule 2. Physicians shall give full and explicit instructions to parents, nurses and attendants concerning every precaution to be taken against the spread of infectious disease. When possible, patients shall be placed in a room which, for the time, shall not be entered by others than those who nurse, and only the physician and nurses shall be admitted. Every article of tableware or of apparel used by the patient shall be sterilized or destroyed by fire as soon as possible. Pieces of old soft cloth shall be used for wiping the mouth and nose of the sick. They shall be used but once and then immediately destroyed by burning, or sterilized by boiling for one-half hour or more in water.

Rule 3. Physicians shall promptly report to the proper health officer all cases of contagious or infectious diseases, to which they are professionally called.

Rule 4. Health officers shall, upon receipt of any reliable information of a contagious or infectious disease immediately flag the house and establish *rigid* quarantine, and shall distribute printed rules concerning the sanitary management of the household during the continuance of the quarantine.

Rule 5. When there is doubt whether or not the disease is diphtheria, physicians and health officers having the case in charge shall send to the State Board of Health or to other competent authority for serum tubes, that cultures may be made and the case immediately decided. The work will be done without cost by the State Board of Health.

Rule 6. When diphtheria prevails in a community it will be necessary to consider every case of sore throat diphtheria until the contrary is proved, and rigid *quarantine shall be maintained in mild as in severe cases.*

Rule 7. In all cases of death from diphtheria, membranous croup, scarlet fever and other contagious or infectious diseases the funeral shall be strictly private, and the corpse shall be buried within twelve hours after death. No public or church funeral shall be held, or any person permitted to enter the house containing the remains except the undertaker and his assistants, unless by permission of the county or local board of health or their officers. Health boards and officers shall enforce this rule.

Rule 8. The room in which there has been a case of contagious disease dangerous to the public health must be immediately disinfected following the recovery of the sick or the removal of the remains, as follows, to-wit: All surfaces should be thoroughly washed with a solution of corrosive sublimate of the strength of 1 part in 1,000 parts of water. The walls and ceiling, if plastered, should be brushed over with this solution, after which they should be whitewashed with a lime wash. Especial care must be taken to wash away all dust from window ledges and other places where it may have settled, and to thoroughly cleanse crevices and out-of-the-way places. After this application of the disinfecting solution and an interval of twenty-four hours or longer for free ventilation, the floors and woodwork should be well scrubbed with soap and hot water, and this should be followed by a second more prolonged exposure to fresh air, admitted through open doors and windows. School books or books from a circulating library shall not be taken into or removed from any house during the prevalence of any contagious disease dangerous to the public health, and if such books have been in such houses during the prevalence of said diseases, they must be destroyed by the owner or library authorities, or be properly disinfected before being returned to schools or put in circulation. Health boards and officers shall enforce this rule.

Rule 9. Any person or persons failing or refusing to comply with either or any of the foregoing rules, shall be subject to the penalties provided in Section 9 of an act establishing a State Board of Health, passed Feb. 19, 1891.

D. C. Ramsey, M.D., President. J. N. Hurty, M.D., Secretary.

[1] The disinfectant recommended is a 1 to 5,000 solution of corrosive sublimate, a 5 per cent. solution of carbolic acid or 1 per cent solution of lysol. A cake of sublimated or carbolic soap may be conveniently carried in a traveler's soap box. The cotton pad is kept in the case or bag to absorb the formaldehyde. This chemical is our greatest antiseptic and its vapor will destroy all germs.

It will be well to add to the above outfit a roll of paper napkins and a bundle of small flat pine sticks to be used as tongue depressors. The paper napkins are suggested because towels can not sometimes be found at the houses of the poor, and if they were found might be infected. Having one's own napkin gives perfect independence. The wooden tongue depressors may be whittled out of pine, or better, obtain from seed dealers the flat pine markers for flower beds which gardeners use. They cost seventy cents per thousand.

The outfit here described may be obtained complete, or in parts, from the When Clothing Store, Indianapolis.

BOOK NOTICES.

Transactions of the Colorado State Medical Society, twenty-sixth annual convention. By-laws and list of members. Denver, June, 1896. Cl., 8vo, pp. 448. Published by the Society.

This excellent volume contains forty-seven papers read before this Society. Many of these have made their appearance in the various medical journals.

The Colorado Medical Society has a membership of 300, and is taking an active interest in the organization of a *united* medical profession.

A Text-book of Physiology. By M. Foster, M.A., M.D., LL.D., F.R.S. Sixth American edition. Thoroughly revised, with notes, additions and two hundred and fifty-seven illustrations. Cl., 8vo, pp. 930. Philadelphia: Lea Brothers & Co. 1896.

The editor of this edition says that in its preparation "every page has been subjected to careful scrutiny and considerable liberty taken with the text. Useless verbiage has been omitted, obscure sentences have been revised or entirely rewritten, a large number of typographic errors have been corrected, histologic details (except of the nervous system) have been materially abridged, etc."

This promise of a thorough revision has been faithfully carried out, as an inspection of the text shows, and there is no doubt Foster will retain the preëminence accorded him by the profession in the past. As a scientific text-book it is one of the best.

Reference Book of Practical Therapeutics. By various authors. Edited by Frank P. Foster, M.D., editor of the *New York Medical Journal*, Foster's Encyclopedic Medical Dictionary. In two volumes. Vol. I (A—Myrtol). Cl., 8vo, pp. 652. New York: D. Appleton & Company. 1896.

This book is as its name implies a *reference book* of practical therapeutics. It might have truthfully been called a dictionary of therapeutics, for the topics are arranged alphabetically, and are treated with the conciseness and exactness of an encyclopedia. "The leading idea," writes Dr. Foster, "in the preparation of this work has been to make it preëminently serviceable to the practicing physician. It is not intended to take the place of treatises on materia medica or pharmacy."

The work is not confined to a description of the method of

preparation and use of official articles and remedies recognized by the pharmacopeia, but as well includes various proprietary remedies in use by the profession. There can be no two opinions of the usefulness and great merit of the work, but it is greatly to be regretted that the editor has adhered to the old sytem of dosage throughout. It is possible, however, that a posologic table may be contemplated for the second volume, in which event the omission would call for less comment. But in this period, when our own pharmacopeia long ago adopted the decimal system, and twenty years after its formal adoption by the AMERICAN MEDICAL ASSOCIATION, and when the Committee of Revision of the British Pharmacopeia are themselves about to adopt it, when every modern chemistry and nearly every modern work on physiology has adopted it, when the American Association for the Advancement of Science has adopted it, and every English speaking society of chemists has adopted it, it looks like a backward step to adhere to the obsolete English system, and we trust that the forthcoming volume may join the decimal procession.

The general plan adopted here is bound to meet with favor, and the book may well be placed on the most convenient shelf, for we predict that few books will be consulted more frequently by the busy practitioner; and the editor has added to his literary laurels by the conception and prosecution of a work in every way so useful.

There are thirty-three contributors to this volume, and their work is marvelously well done.

The publishers have given it handsome type and good paper, and in that respect there can be no criticism.

A Text-Book of Bacteriology, including the etiology and prevention of infective diseases and a short account of yeasts and moulds, hematozoa and psorosperms. By EDGAR CROOKSHANK, M. B. Professor of comparative pathology and bacteriology, and fellow of King's College, London. Fourth edition. Reconstructed, revised and greatly enlarged. Philadelphia: W. B. Saunders, Chicago agent W. T. Keener. 1896. 8vo, cloth, pp. 712. Price $6.50 net.

The present edition of Crookshank has so many changes in the text that it is essentially a new work. Twenty-six chapters have been added. The chapters are divided as follows: 1, historical introduction; 2, morphology and physiology of bacteria; 3, effect of antiseptics and disinfectants on bacteria; 4, chemical products of bacteria; 5, immunity; 6, anti-toxins and serum therapy; 7, the bacterial microscope; 8, microscopical examination of bacteria; 9, nutrient media and cultivation; 10, experiments upon living animals; 11, examination of air, soil and water; 12, photography of bacteria; 13, suppuration, pyemia, septicemia, erysipelas; 14, anthrax; 15, quarter evil, malignant edema, rag-picker's septicemia; 16, septicemia of buffaloes, deer, rabbits, pleuro-pneumonia, swine-fever, fowl cholera, grouse disease; 17, pneumonia, infectious pneumonia, influenza; 18, plague, relapsing fever, typhus fever, yellow fever; 19, scarlet fever, measles; 20, smallpox, cattle plague; 21, sheep-pox, foot-and-mouth disease; 22, horse-pox; cow-pox; 23, diphtheria; 24, typhoid fever; 25, swine fever; 26, swine measles, distemper in dogs, epidemic disease of ferrets, epidemic disease of mice; 27, Asiatic cholera, cholera nostras, choleraic diarrhea from meat poisoning, dysentery, choleraic diarrhea in fowls; 28, tuberculosis; 29, leprosy, syphilis, rhinoscleroma, trachoma; 30, actinomycosis, madura disease; 31, glanders; 32, tetanus, rabies, louping-ill; 33, foot rot; 34, foul brood, infectious disease of bees in Italy, pébrine, flacherie, infectious disease of caterpillars; 35, classification of species. Appendices: 1, yeasts and moulds; 2, hematozoa in man, birds and turtles; hematozoa in equines, camels, fish; hematozoa in frogs; 3, psorosperms or coccidia, ameba coli; 4 apparatus, material and reagents employed in a bacteriologic laboratory; 5, bibliography, supplementary appendix, extracts from the final report of the royal vaccination commission.

The work has always been a favorite in England, and in this country it has only had a limited sale, but it is one of the best works on the subject and should be welcomed to every laboratory. The complaint urged against the former edition that the plates were so highly colored as to be unnatural is an objection that has now been removed. The mechanical execution is all that could be desired.

The Practice of Medicine, a text-book for practitioners and students with special reference to diagnosis and treatment. By JAMES TYSON, M.D., Professor of clinical medicine in the University of Pennsylvania, etc. Illustrated. Philadelphia: P. Blakiston, Son & Co. 1896. 8vo, cloth, pp. 1184. Price, $5.50.

This work not only represents the work of a practitioner of great experience, but of a careful culling of the facts set forth in contemporary literature by one who well understands the art of separating the true from the false. The chapter on typhoid fever is excellent but it contains no reference to the blood diagnosis of typhoid, nor to the antiseptic method of treatment.

In malarial fever the method of blood diagnosis is fully described; indeed, this is one of the most satisfactory chapters in the book.

In cholera the value of M. Haffkine's protective inoculations are conceded. Cantani's method of enteroclysis is approved and DaLand's experiments thereon at Swinburn Island are quoted at length.

In diphtheria the author says there are three principal indications, "*first*, to prevent constitutional infection; *second*, to support the system, and *third* to combat the toxin." These indications according to the author are met by the local use of germicides and disinfectants; by 2, resolving supporting treatment; and by 3, serum therapy. The constitutional treatment is mainly by bichlorid of mercury (.002 to .005 gm). There is an interesting chapter on "the intoxications" which here has reference to alcoholism, morphinism, cocainism, chloralism, lead poisoning, arsenic poisoning, ptomain poisoning and grain poisoning.

Section 15 is devoted to a summary of the symptoms following overdoses of various poisons, which are given in detail; a table giving the minimum dose which has caused death and the maximum dose followed by recovery accompanies this section. The appendix contains useful tables for conversion of Fahrenheit into centigrade scale, for reducing the metric system into English et cet.

We are pleased to note that the metric system has been used throughout the work, which is certainly in every way admirable.

ASSOCIATION NEWS.

List of Presidents of the American Medical Association.

To answer inquiries and for the information of the members we have compiled a list of the Presidents of the ASSOCIATION from the beginning:

Dr. Jonathan Knight, (President of the convention).	
Dr. Nathaniel Chapman	1847-48.
Dr. Alexander H. Stevens	1848-49.
Dr. John C. Warren	1849-50.
Dr. Reuben D. Mussey	1850-51.
Dr. James Moultrie	1851-52.
Dr. Beverly R. Wellford	1852-53.
Dr. Jonathan Knight	1853-54.
Dr. Charles A. Pope	1854-55.
Dr. George B. Wood	1855-56.
Dr. Zina Pitcher	1856-57.
Dr. Paul F. Eve	1857-58.
Dr. Harvey Lindsley	1858-59.
Dr. Henry Miller	1859-60.
Dr. Eli Ives	1860-63.
Dr. Alden March	1863-64.
Dr. Nathan S. Davis	1864.

Dr. Nathan S. Davis, (held over) . . . . . 1865.
Dr. D. Humphreys Storer . . . . . 1866.
Dr. Henry F. Askew . . . . . 1867.
Dr. Samuel D. Gross . . . . . 1868.
Dr. William O. Baldwin . . . . . 1869.
Dr. George Mendenhall . . . . . 1870.
Dr. Alfred Stillé . . . . . 1871.
Dr. D. W. Yandell . . . . . 1872.
Dr. Thomas M. Logan . . . . . 1873.
Dr. Joseph M. Toner . . . . . 1874.
Dr. W. K. Bowling . . . . . 1875.
Dr. J. Marion Sims . . . . . 1876.
Dr. Henry I. Bowditch . . . . . 1877.
Dr. T. G. Richardson . . . . . 1878.
Dr. Theophilus Parvin . . . . . 1879.
Dr. Lewis A. Sayre . . . . . 1880.
Dr. John T. Hogden . . . . . 1881.
Dr. J. J. Woodward . . . . . 1882.
Dr. John L. Atlee . . . . . 1883.
Dr. Austin Flint . . . . . 1884.
Dr. Henry F. Campbell . . . . . 1885.
Dr. William Brodie . . . . . 1886.
Dr. E. H. Gregory . . . . . 1887.
Dr. A. Y. P. Garnett . . . . . 1888.
Dr. W. W. Dawson . . . . . 1889.
Dr. E. M. Moore . . . . . 1890.
Dr. Wm. T. Briggs . . . . . 1891.
Dr. Henry O. Marcy . . . . . 1892.
Dr. Hunter McGuire . . . . . 1893.
Dr. James F. Hibberd . . . . . 1894.
Dr. Donald Maclean . . . . . 1895.
Dr. Nicholas Senn . . . . . 1896.

NECROLOGY.

Thomas S. Orr, M.D., of Alexandria, Ky., aged 56, died December 7. Dr. Orr was graduated from the Medical College of Ohio in 1869, and he was probably the best known practitioner in northern Kentucky. He had been suffering from mental disease for some time. He leaves a large family.

Henry Gasset Davis, M.D., formerly of New York city, and latterly of Everett, Mass., died recently at the ripe age of 89 years. He was a native of Trenton, N. J., born there Nov. 4, 1807. He was a descendant of Dolor Davis, one of the early settlers on Cape Cod. The *Boston Medical and Surgical Journal* has a biographic note showing how Dr. Davis came to take up the study of orthopedic surgery. In the year 1835, he visited a sister, who was under treatment for lateral curvature of the spine, and became impressed that the plan of treatment, although the best then known to the practitioners in charge of the case, was susceptible of improvement. This led him to take up the study of medicine and to devote especial attention to this branch of surgery. In the winter of 1835-36 he attended lectures at New Haven, and was under the instruction of the professor of surgery. The next spring he went to Bellevue Hospital. He graduated from the Yale Medical School in 1839, practiced in Worcester a short time, and then went to Millbury, where he treated a large number of patients from the surrounding towns. In 1855 he left Massachusetts for New York city. Here he treated patients from all parts of the United States and from abroad, and also wrote a book on diseases of the thigh and hip. He was the inventor of several ingenious appliances. He was a man of ideas rather than of scholastic attainments, and as such disregarded erroneous traditions of the past and opened a way to the great advance made in America, especially in the study and treatment of hip diseases.

Dr. Vialle, one of the editors of the *Actualité Médicale* of Paris. He left his entire fortune, about $50,000, to the benevolent institution known as the Hospitalité de Nuit.

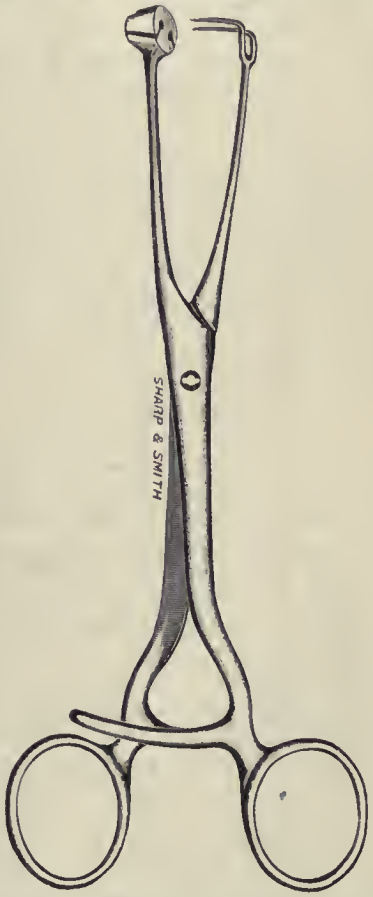
Dr. Hertzog of the University of La Paz, Bolivia, whose works on hygiene and medicine have won him a national reputation. He was assassinated for some political reason just after his election to Congress. His funeral was made a national affair.

NEW INSTRUMENTS.

A NEW INSTRUMENT FOR STEADYING THE UTERUS DURING CURETTEMENT, TRACHELORRHAPHY, ETC.

BY A. L. CORY, M.D.

I think most gynecologists will agree with me that we need a better instrument for steadying the uterus in curettement, trachelorrhaphy, etc. Formerly we used a tenaculum. Its hold is but slight, and during late years most of Chicago's operators have used a pair of the American bullet forceps; its hold on the cervix is not much greater than that of the tenaculum, and if handed to an unskilled assistant to hold while the operator inserts and spreads the dilator or needles, he is very apt to pull too hard and tear out the instrument. I have seen quite extensive lacerations or tears from this cause in my own and in many other operators' cases. An improvement was



the use of two bullet forceps, one on either side of the cervix, the assistant putting the fingers of one hand through the loops in the handles of both pair, but even then one pair would tear out. For the last year and a half I have been using a small volsella which was made to hold ovarian tumors. This has three hooked teeth on each blade, and with a strong assistant, the injury from its use is frequently more than I am pleased with. Some time since, while in the store of Messrs. Sharp & Smith, surgical instrument dealers of Chicago, Mr. C. E. Clare called my attention to a newly imported French tongue holder. It occurred to me that here was what I was looking for to steady the cervix. I procured a pair and have had great satisfaction in their use. The lower blade has two round, strong needles set at right angles to the blade, about one-half inch apart. The upper blade has a piece of metal attached, with sockets in it to receive the needles. I can grasp the cervix with this instrument and have no fear of its being torn out, and when the operation is completed and the forceps removed

there remains only two small punctures such as would be made by passing two good-sized round needles.

4101 State Street, Chicago.

THE PNEUMATOPHOR.

This apparatus is designed to carry a large supply of air to breathe in places where it is impossible to breathe otherwise, in mines, fires, etc. It consists of a large bag suspended from the shoulders, with a mouthpiece as large as the trachea, so that there is no effort in breathing, and a spring that fits over the nose and closes it. The compressed oxygen (100 atmospheres), and the solution of soda to absorb the carbonic acid gas, are each contained in a receptacle opened automatically from without. Nitrogen is omitted as unnecessary ballast. The entire apparatus weighs only 4.5 kilograms, and folds up in a small pocket when not in use. It supplies air enough to sustain life for two hours in repose, and for over half an hour with the most violent exercise. It is described in full and illustrated in the *Therap. Woch.* for November 22, and has already rendered valuable services in mines, etc. Certain scientific investigations hitherto impracticable, in regard to the amount of oxygen consumed, etc., have been made possible by this invention, and in cases where it is advisable for the patient to inhale oxygen or medicines without effort, it promises to be of great assistance. It is the invention of Gärtner of Vienna, and has already been adopted by the fire department there after severe tests. The superintendent of the mines at Wittkowitz states in a technical journal that it far excels any other apparatus of the kind by its small bulk, its light weight, and its easy and rapid "in-operation-setting." which render it the rescue apparatus *par excellence* in mine explosions and fires.

MISCELLANY.

Mental Fatigue and Exercise.—It has been generally accepted that muscular exercise, gymnastics, was beneficial after continued mental effort, and school children are often put through a course of gymnastics to dissipate their mental fatigue after the morning's study. But Bum and others now declare that recent tests have demonstrated that fatigue from mental exertion is increased by muscular exertion, and that nothing will dissipate this fatigue but physical and mental rest, viz. sleep. —*Therap. Woch.*, November 22.

Case of Intoxication from Scopalamin.—Valude describes a case of intoxication with vertigo and delirium in a woman of 65, after the instillation of three drops of a solution containing one gram of hydrobromate of scopalamin to 200 grams of water. The instillation was made twice, to dilate the pupil for ocular examination. It resembles atropin in its effect for this purpose, and Valude has frequently used it where atropin was contraindicated on account of possible glaucomous complications. The delirium passed away the next day, but the patient retained a certain volubility of speech and her mouth remained parched and eyes abnormally bright. As she was of an extremely nervous temperament, with previous attacks of hysteria, he ascribes the intoxication to some exceptional nervous susceptibility, as scopalamin has always hitherto been well received by his patients.—*Journal de M. de P.*, November 22.

One Location for Oregon Insane Asylums.—Under the provision of the constitution of the State of Oregon "that all the public institutions of the State, hereafter provided for by the legislative assembly, shall be located at the seat of government," the supreme court of that State holds unconstitutional, in the case of State v. Metschan, Nov. 9, 1896, the act of the legislature (Laws 1893, p. 136) authorizing the establishment and maintenance by the State of a branch insane asylum at some point in Eastern Oregon. That an insane asylum is a public institution of the State within the meaning of the constitution it thinks is too clear for argument, though educational institutions are considered otherwise. All such institutions as come within this construction, of being strictly governmental in their character, must be located at the place designated in the constitution, although it may now seem desirable to do otherwise, until the consent of the people is obtained in the form of a constitutional amendment.

Must Not Go out on Car Steps to Vomit.—While it may be said, in the sense of decency, that it would be proper for a boy nearly 15 years of age, who is a passenger on a crowded excursion train, when admonished of the fact that he is about to vomit, to make an effort to avoid befouling his fellow passengers and soiling the car, yet, even under this view, the supreme court of Indiana says that the law would not justify him in exposing himself to peril, or excuse or mitigate his negligence when he seeks redress in an action for injuries sustained. To further illustrate: The court holds, in Cleveland, C., C. & St. L. Ry. Co. v. Moneyhun, decided October 21, 1896, that it is a clear and undoubted case of contributory negligence, which can not be controverted from any legal standpoint, for one under such circumstances to go out through the door of the vestibule and down on the lower step of a car in rapid motion to vomit, even though he may try to hold on to the railing.

Acetabuiotome.—It is a difficult matter to make a correctly shaped acetabulum with the ordinary Hoffa or Lorenz spoon, in the operation for congenital luxation of the hip. Jagerink of Rotterdam has invented a special instrument for the purpose which scoops out the correct cavity almost instantly, and with no danger of cutting too deep. It also leaves it perfectly clean, as all the scraps and bone dust are taken up in the center of the instrument. It is described and illustrated in the *Ztsch. f. Orth. Chir.*, No. 4, and consists of a hollow ball augur. The ball is in two vertical halves and is also cut down to the center, thus dividing the upper half of the ball into quarters, with a narrow space between. Each quarter is sharpened to a knife edge on the side toward the right, and curves slightly inward around to the other side. As the handle is turned the screw within turns the ball; the four knife edges cut into the bone and scoop all the scraps into the center. The instrument is made in three sizes of balls, respectively 2½, 3 and 3½ cm. in diameter. There are also patterns of the holes made by the balls, so that it is easy to fit the head of the femur in them, and determine the exact size required. J. C. Trompert, Rotterdam, is the manufacturer.

Consent to Abortion no Bar to Action for Damages.—A complaint charging that all of the defendants save one entered into collusion with that one to perform upon the body of the plaintiff a criminal operation and an abortion, the supreme court of Wisconsin holds, in Miller v. Bayer, Oct. 13, 1896, clearly charges the defendants with entering into an unlawful combination to injure the plaintiff by performing upon her an abortion. Nor does the court consider it necessary, where the action is brought to recover damages, that the complaint should negative justification on the ground of necessity of saving life, for the reason that if the act was justifiable, the facts in that regard are a matter of defense. In this case it was further contended that the plaintiff could not recover, because she submitted to the operation performed upon her. Such, however, the court holds is not the law. It says that consent by one person to allow another to perform an unlawful act upon such person does not constitute a defense to an action to recover the actual damages which such person thereby received.

Anthropology as a Positive Science.—Dr. Hrdlicka, one of the numerous expert medical witnesses in the Barberi murder trial at New York, is reported to have put in the following strong claim as to the position of anthropology and criminology: It is remarkable, to say the least and mildest, with how much irony

and even sarcasm such a positive and important science as anthropology is treated by men, lay and even others, who ought to know better. It should be made clear that, far from reposing on the presumptions and hypotheses, anthropology has for its greatest basis, and may be demonstrated to mainly consist of, the facts and nothing but the facts of the most positive of all medical sciences, namely, anatomy, and that its deductions are not guessing, nor even inductions, but simple, authorized judgments, of no less value than many every day purely medical and surgical opinions. Anthropology and its daughter, criminology, are sciences whose value will be manifested, whatever obstructions ignorance may pile in their roads, and that in the not far future.

Prophylaxis of Insanity.—On account of the importance of heredity in the production of insanity, it has been suggested that applicants for a marriage license should be required to present the certificate of a life insurance company, but as this is not practicable, Parisot (*Journal de M. de Paris*, of November 22), appeals to physicians as the only guardians possible in such cases to realize their responsibility and exert all their influence to prevent marriage on the part of those whom they know to be mentally unsound. He also urges the necessity of legislation to secure pure liquors, as long as it is impossible to prevent their consumption, stating that drunkenness, or even being drunk at the moment of conception is sufficient to engender idiot, epileptic or insane children, quoting Bautru's remark that the saloon is a place where insanity is sold by the bottle. He demands police regulations to prevent the spread of syphilis and adds that in cases of syphilis with mental complications, the rôle of the physician in interfering to prevent marriage is especially important.

Culpability of Mediums in Suggested Crimes.—An article of over forty pages in the October *Archives Cliniques de Bordeaux* calls attention to the serious consequences that may ensue when persons more or less predisposed to nervous or mental troubles, consult the frauds known as magnetic healers, mediums, somnambulists, etc. Numerous examples are described in full, presenting a dark picture of the evils that follow in many cases, ranging from hysteria to insanity and murder. It is surprising that the real culprit in many cases—the medium—is not prosecuted, and as in the Jean Fort murder case, the murderer is condemned to penal servitude when all experts agree that he is not responsible in any degree for the crime, while the medium who suggested it, continues her baleful practices unmolested. It states also that the number of insane criminals who would have been sent to an asylum instead of to the galleys if their mental condition had been understood, amounts to more than five hundred in the last five years alone in France.

May Give Opinion as to Nearness of Shot.—It is well settled that medical experts may give an opinion as to the means by which a wound was inflicted. But the supreme court of Kansas goes farther, and holds in the homicide case of State v. Asbell, November 7, 1896, that a medical expert, qualified by study and experience, who examined the body of the deceased shortly after the wound was received, may give his opinion as to whether it was produced by a near shot or one fired from a distance. The reason which it gives for this is that the characteristics of the wound, such as the color and condition of the skin around it, the coagulation of the blood mixed with powder, the depth of the wound, and the disturbance of the tissue throughout, can not easily be communicated to the jury, and some of the indications which would mean much to the expert could not well be described to an inexperienced person, the symptoms and characteristics of near wounds not lying within the range of common experience or common knowledge.

How to Change Linen into Silk for Surgical Purposes.—Linen threads are not much used in surgery on account of their tendency to twist and knot and the difficulty of threading them. A Russian physician, Professor Gubaroff, has invented a process which imparts to linen all the properties of silk and, as it is much less expensive, promises to supersede silk in military surgery. The ordinary "English" linen, made in Saxony, is first cleaned of grease by boiling in a soda solution, and after being well rinsed and sterilized in a vapor bath, is dried again. Then it is dipped dry into a 5 per cent. solution of photoxylin or celloidin (which is a concentrated form of collodion), with alcohol and ether in equal parts. It is then stretched on a frame to dry, when it will be found to have all the properties of silk thread. To transform the linen into silkworm gut it is dipped again and again into the celloidin, carefully drying between the dips, and finally polishing with a piece of cotton dipped in alcohol, to which a little ether has been added. This thread is strong enough to be substituted for the silk in sutures destined to be removed later, and it resembles the silkworm gut in all its desirable features. The addition of one-half of one per cent. of castor oil to the celloidin solution imparts an extra flexibility. It is best to keep it in a dry state, although it will stand a sublimate solution, but alcohol must be avoided.—*Cbl. f. Chir.*, October 31.

Money Paid for Partnership not Recoverable.—It is alleged in the case of Herrington v. Walthal, decided by the supreme court of Georgia Aug. 18, 1896, that one physician paid another $1,000 to be taken into partnership with him for a term of two years, and that the latter inconsiderately departed this life and thus dissolved the partnership a little more than three months after the partnership was formed. After the former had failed to recover the whole $1,000 from the administratrix of the latter, his petition being adjudged fatally defective in asking for the full amount and setting forth no facts upon which an apportionment could be made, he amended his complaint and asked for an apportionment on a time basis, or for seven-eighths of the $1,000. But the court declares that it would require but little reflection to show that an apportionment upon this basis would be entirely arbitrary, and says that the truth is that it does not believe it possible in a case like this to set forth any facts upon which a just and equitable apportionment could be made, and it accordingly affirms a judgment for the defendant. If the purchaser was introduced to the community as the partner of a physician in good repute and enjoying a remunerative income, it says that it would seem from the standpoint of conjecture, that he must have derived more benefit than the sum of $125 from this association, especially in view of the fact that by the death of his partner he in all probability succeeded to a practice which he might not have been able to build up in years.

Pliny's Botanic Gardens and Some Later Attempts.—The *Popular Science Monthly* for December has an article on botanic gardens, in the course of which it says that after the discovery of the medical properties of plants, it must have followed, in course of time, that representatives of the species to which remedial properties were attributed should be collected and grown in some place conveniently and readily accessible as need demanded. The last step did not immediately follow, however, since among the conditions which were earlier supposed to influence the potency of medicinal herbs, the locality in which grown, and the mysteries attending their collection were of the greatest importance. The first authentic record of the introduction of medicinal plants into cultivated plots of ground dates no farther back than the time of the elder Pliny, (23–79 A. D.) who writes of the garden of Antonius Castor, at Rome, in which were grown a large number of medicinal plants. This step may have been taken much earlier by the Greeks, Chinese or Mexicans, however. Later the Benedictine monks of Northern Italy paid great attention to the growing of remedial herbs, and devoted an important proportion of

the monastery gardens to this purpose. This practice was also carried beyond the Alps, and in 1020 a garden was in existence at the monastery of St. Gall, in Switzerland, a few kilometers distant from Lake Constance, which contained sixteen plots occupied by medicinal plants. A garden of this character was founded in 1309, at Salerno, and another in Venice in 1330. In 1309 the Benedictine monks founded an academy called "Civitas Hippocratica" at Monte Cassino, in Campania, which appears to the writer to be among the earliest, if not the first school of medicine, and established in connection with it a "physics garden." Within a week the plans for New York's botanical gardens will probably be adopted by the Board of Managers of that institution and the project got properly under way. The plans have been submitted to the Board. The gardens when finished will rival the famous gardens of the old world. They will be located on the Bronx River and the museum building, which will be one of the main features, will cost a quarter of a million dollars. Beautiful driveways, plants and flowers of all kinds and artificial lakes will be features of the landscape.

Evidence of Cause of Death.—In an action to recover upon a policy of life insurance where the plaintiff testified that in the past her husband had suffered from diarrhea, and had used spirituous liquors by the advice of a physician and to relieve his sufferings, the New York court of appeals insists, Hanna v. Connecticut Mutual Life Insurance Co., Oct. 27, 1896, that fact was not at all incompatible with the possibility that his death was eventually caused by intemperance, so as to invalidate the policy in question. And if it was inferable from the evidence that, although death may have been caused by the use of spirituous liquors, nevertheless such use had been under the advice and direction of a physician, it holds that the jury should have been permitted to pass upon the question of whether the immediate cause of death was not alcoholism. The court also holds that while the plaintiff was not concluded by the proof of death which she had presented to the insurance company, still the company had the right to rely upon the certificates which she delivered to its agent when making her demand of payment of the policy, as her representations, unless and until explained, their operation being that of admissions by her of a material fact. Prima facie, they were true statements, though it was open to her to give evidence changing or correcting the facts therein appearing to have been stated by or for her. Had she shown by some evidence that the cause of death was or could have been other than as stated in the certificates, and an inference been permitted that the statements in the proofs as to the cause of death were incorrect, the court says a question would have been presented for the jury to determine.

The Charcot-Leyden Crystals.—Dr. D. Riesman, in the *Philadelphia Polyclinic* narrates some clinical experience with cases having the Charcot-Leyden exhibit more or less marked and gives the following description and history drawn from a dozen French and German treatises or journals. These crystals appear to have been seen in sputum by Charcot in 1856, in a case of catarrhe sec with emphysema. Similar crystals had been observed by him and Robin, in 1853, in the spleen and the blood of the right ventricle of a case of leukemia, and later by Charcot and Vulpian in the same disease. Neumann also found them in the blood of a patient dead of leukemia, and, at a later period, in leukemic and normal bone-marrow. Lewy found crystals resembling those of Charcot Leyden in polyps and papillomas of the nose; Forster found them in a maxomatous tumor of the optic nerve and in the thickened mucus of a dilated gall-duct; and Leyden in the sputum of asthma and, more recently, in the nasal mucus of a patient with acute rhinitis, in whom neither nasal polypus nor asthma existed. Cohn observed them, among other places, in the lymph-glands in malignant lymphoma, in mucous polyps of the nose, and in the bone-marrow of cases that had died of chronic nephritis and of pulmonary tuberculosis. The chemic nature of the crystals is not definitely known. Salkowsky long ago thought they were a crystallized mucin-like substance. Later writers identified them with Bottcher's sperma-crystals, which, chemically, consist of phosphoric acid and an organic base. But the crystallographic studies of Cohn have proved that Charcot-Leyden and Bottcher's crystals are not identical; aside from this they differ also in their simpler physical characters, Bottcher's crystals being usually spindle shaped, with curved planes and blunt edges. Their significance is not known. Leyden originally maintained that they caused the asthmatic attack by irritating the mucous membrane of the bronchioles, but their occurrence in so many other localities, as well as in non-asthmatic bronchial affections weakens this theory. The presence of the crystals in nasal polyps, which are known to be at times responsible for asthmatic attacks, is very interesting. In regard to the two patients in whose sputum the crystals were found, I may add that the man was not materially helped by treatment, but the boy, when last seen, was almost entirely well. The treatment in his case consisted in gymnastic exercise, potassium iodid, and arsenic, together with an anti-spasmodic for use during the attacks.

The Mercantile Marine Medical Service of Great Britain. The London *Lancet*, September 5, gives the following digest of the duties of the medical officers of the mercantile marine: An act, known as the Merchant Shipping Act, passed in 1894, requires that every foreign-going ship having 100 persons or upward on board shall carry a duly qualified medical practitioner. Ship's medical officers, however, are more often appointed under the part of the same act relative to "emigrant ships." For the purposes of the act an emigrant ship is defined as one which carries more than fifty steerage passengers, and a steerage passenger is defined as one who is not a cabin passenger. Section 303 provides that a medical practitioner shall be carried on board an emigrant ship where the number of steerage passengers exceeds fifty, and also where the number of persons on board (including cabin passengers, officers, and crew) exceeds 300. A medical practitioner shall not be considered to be duly authorized for the purpose of this act unless he is authorized by law to practice in some part of Her Majesty's dominions, or in the case of a foreign ship in the country to which that ship belongs; and his name has been notified to the emigration officer at the port of clearance, and has not been objected to by him; and he is provided with proper surgical instruments to the satisfaction of that officer. If any person proceeds or attempts to proceed as medical practitioner in any emigrant ship without being duly authorized, he shall be liable to a fine not exceeding £100. Surgeons in charge of passenger ships should keep a record of any sickness that occurs on the voyage, whether among saloon passengers, emigrants or crew, and they are requested to report the same to the emigration officer at the end of the voyage. The remuneration for these appointments is extremely variable, ranging from a free passage to the port of destination to a salary of £10 a month during continuance in the service. The appointments are made by the various firms of shipowners and the applicants are sometimes numerous.

Necessity for Keeping Books.—There is a hint for the doctor in the decision of Plummer v. Weil, which the supreme court of the State of Washington handed down Nov. 5, 1896. This was an action brought to recover for professional services alleged to have been performed by a law firm, at the instance of the defendant, during the years 1892, 1893 and 1894. It was alleged that they were reasonably worth the sum of $1,000. A so-called bill of particulars was furnished upon demand, and, this not proving very satisfactory, a motion was made asking

the court to direct that an amended bill be furnished, and the supreme court holds that it was proper to dismiss the case when this was not furnished in accordance with the order therefor. In the bill of particulars furnished it was stated that no account was kept of the transactions with the defendant, and, further, that it was impossible to comply with the order of the court any better than had already been done, or to make said bill of particulars any more specific on the points directed in the order of the court. This bill of particulars the supreme court holds insufficient, and it says that its insufficiency could not be excused upon the ground that the plaintiff kept no books and could not specify the services or state their value. He assumed the burden of so doing when he brought his action in this form. Yet it is suggested that, under the circumstances stated, he might have maintained an action to recover an annual retainer. All of which would seem to be as pertinent and suggestive to the doctor as to the lawyer.

The Pan-American Congress.—From the souvenir number of the Mexican *Revista Quincenal:* "As the train draws into the station innumerable rockets soar upward to the sky, flinging down showers of brilliant hues upon the crowds below, while the strains of the national hymn float on the air. The multitudes throng forward and cheer with enthusiasm, the whole scene evidencing the delight and excitement of a people animated by some extraordinary occurrence. Who is it, thus arriving at the capital of the Anahuac, received with such rejoicing? Is it some mighty potentate whose friendship, whose alliance is solicited? No. It is a company of humble missionaries of the Galenic science, soldiers of scientific progress, whose motto is: To live and die for suffering humanity. The populace receive them with grateful homage, realizing the honor of such a visit from the representatives of the medical sciences throughout this vast American continent." The rest of the number after the address of welcome is devoted to illustrated biographic sketches in both English and Spanish of the officers of this and the preceding Congress, with historic notices of the medical and scientific institutions of Mexico, and a history of medicine in the country.

The Effect of Stretching on the Negative Variations of the Muscular Current.—Fick's hypothesis is confirmed by the results of some experiments by Schenck described in *Pflüger's Arch. f. Phys.* lxiii, page 317. He conducted the current from a frog's isolated gastrocnemius or sartorius through electrodes applied at the center and at a "thermic section" (produced by dipping one end of the muscle into water at 45 to 50 degrees) to the electric capillarimeter, whose threads were magnified and thrown into the opening of a Kries tachograph, and photographed on the revolving drum. The cotton threads leading to the electrodes were moistened with a 6 per cent. solution of sodium chlorid. He found that the negative variation was a trifle less in isometric tetanus than in isotonic, which confirms Meissner's and Cohn's statements, and that it seems to be diminished by stretching the muscle during isotonic tetanus to its length when in repose, and increased by removing the weight. But in the case of fatigued muscles the reverse frequently occurs. Agreeing with du Bois-Reymond, Schenck states that stretching the quiescent muscle diminishes the current. In several experiments the extent of a single negative variation was increased during tetanic contraction by stretching, and decreased by removing the weight, as was shown by the photographed curves. In most of the experiments, however, it was impossible to see the actual top of the curve, owing to the manner in which the experiments were conducted. Schenck also investigated the continuous contraction induced by stimulus with ammonia and veratrin. He found that in excitation of the sartorius with ammonia the negative variation was preceded by a positive variation in most cases, and that stretching generally made the negative variation less. In excitation of the gastrocnemius with veratrin, the negative was followed by a positive variation which continued throughout the period of contraction. During this positive variation tetanizing and stretching produced the opposite effect from that produced during the negative variation. A similar positive variation was noticed in unpoisoned preparations with a special tendency to contract, and this occurred in tetanic excitation as well as with a single stimulus. Schenck concludes by advancing an original hypothesis to explain these positive after-variations.—*Cbl. f. Phys.*, November 14.

The Extent of the Glycogenic Function of the Liver.—Mosse has recently published the results of his study of this subject, which contradict those obtained by Seegen. He states that they demonstrated a glycogenic function in the liver, but not to such an extent that the sugar can be the only, or under any circumstances the most prominent source of energy for the organism. He refers also to the Cavazzani experiments with electric excitation of the plexus celiacus, which resulted in an increase of sugar in the liver, remarking that this may explain the larger amounts of sugar obtained by Seegen in the liver, which may have been due to mechanical excitation. Seegen replies in the *Cbl. f. Phys.* of November 14, suggesting that Mosse's experiments were limited in number, seven in all, and inferring that they are scarcely to be compared in reliability with his own laborious investigations. He states that the facts established by the Cavazzanis were that electric excitation of the plexus celiacus was followed by a decrease in the amount of glycogen and that the surplus of sugar found in the livers of dogs immediately after death, is in direct proportion to this decrease of glycogen. They conclude, therefore, that the liver-sugar is derived from the glycogen. Seegen queries whether we are justified in accepting postmortem facts as applicable to living beings, but adds that their experiments confirm his own experience as to the notable decrease of glycogen in a muscle after electric stimulation of it or of its innervating nerve. This loss is scarcely in proportion to the work performed by the muscle, as it is so great that even a very small portion of it would have sufficed for the muscular effort. Seegen experimented with the inductive current, also with curarized animals and with tetanic stimulation. He refutes the possibility of mechanical excitation during his experiments by describing his extremely cautious and round-about method of obtaining the blood and queries, also, whether mechanical excitation alone would be sufficient to provoke any reaction of the kind, which nothing has demonstrated up to the present time. The most important result of Mosse's investigations, he concludes, is that the difference between the amounts of sugar found in the portal veins and in the hepatic vein during narcosis is collectively much smaller than in non-narcotized animals, which fact was established long ago by Abeles, as also by Seegen himself.

Importance of the Chemistry of the Respiration in Diagnosis and Therapeutics.—Robin has been studying for a couple of years the chemistry of the respiration in the normal condition, in infective fevers and under the influence of cold baths. This means of investigating the changes occurring in the organism, has not been utilized to any extent, but Robin considers that he has established its importance and practical value in diagnosis, prognosis and therapeutics of disease. His investigations have been conducted on over a hundred subjects, and with more than a thousand analyses. The points studied were not only the variations in the pulmonary ventilation, the percentage of CO_2 and of O_2 in the air expired, the respiratory quotient, and the quantities of CO_2 and of O_2 exhaled and absorbed per hour, but also the relations between the weight of the subject during a unit of time (kilogram-minute) and the CO_2 and O_2 as well as the amount of O_2 absorbed by the tissues. It is this last point which he considers of paramount importance as a new indication for

therapeutics. The details of his experiments and analyses are given in the *Bulletin of the Académie de Méd.* October 27. They prove that the acts of oxidation are defensive processes of the organism in its struggle with bacteria, and therefore that the physician should favor in every possible way the absorption of oxygen in every infection, especially when there are typhoid complications. He made a special study of the effect of cold baths on the chemistry of the respiration, which they greatly accelerate, but their chief value lies in the fact that they promote the absorption of oxygen. To this he ascribes their marvelous effect in infective diseases, which he explains as follows: Cold baths reduce the temperature by diminishing the acts of hydration and segmentation, the first stage in cellular disintegration, and of the production of certain toxins which are important sources of febrile elevation of temperature. Cold baths also exaggerate the processes of oxidation, which transform the bacterian toxins and those which develop in the course of the morbid disintegration of the tissues into soluble products, easily eliminated and but slightly toxic. They also increase the arterial tension, invigorate the action of the heart and increase the diuresis, thus facilitating the sweeping out and expulsion of the waste products. These effects are accomplished through the mediation of reflex action on the nervous system, as is proved by the increased proportion of phosphoric acid in the urine to the total amount of nitrogen. The larger amount of oxygen absorbed by the tissues while under the influence of cold baths, seems to be one of the means by which the economy promotes the processes of oxidation. When cold baths do not promote respiratory changes, they are useless, and a chemical study of these changes will determine henceforth the cases in which they are beneficial and those in which they are not, which will prove an important factor in the prognosis.

Experts Charged with Not Telling the Truth.—In the personal injury case of Hall v. Incorporated Town of Manson, which the supreme court of Iowa decided Oct. 29, 1896, the plaintiff contended that by reason of a fall caused by the defendant's negligence several of the ligaments of the second and third toes were ruptured and her ankle severely sprained. Several medical men testified for her that they had just measured her foot at various places, and her leg six inches above the ankle, and found it considerably larger than the other foot. At the point above the ankle they said that the leg was smaller than the other leg at the same point. An equal number of doctors, who had just measured the injured foot at the same places, swore, for the defendant, that it was the same size as the other foot, except in the measurement of the leg above the ankle, which was one-sixteenth of an inch larger than the other leg at the same point. It will not admit of a doubt, says the supreme court, after making this statement, that this array of medical men were not all telling the truth. Either the injured foot and leg were, at the points where measured, the same size as was the other foot and leg at corresponding points, or it was larger or smaller at some or all of said points of measurement. Now, clearly, it continues, when such skilled men differ so radically touching a matter of mere measurement, as to which, it thinks, any number of men lacking in skill, but possessed of ordinary good sense, ought to substantially agree, because relating to a fact capable of exact ascertainment, it would be proper to resort to the practical plan of taking these measurements in the presence of the court and jury. In other words, after expressing its opinion of the veracity of some of the experts in language admitting of no misunderstanding, the court lays it down as law that there is nothing indelicate in the measurement of a foot or arm or ankle in a proper case. Yet in this connection the court hedges a little by stating that it does not hold that in all cases, as a matter of right, one party may require the injured party to expose the injured part of his person to the jury. But when such exposure is in no way indelicate, and seems to be essential in order that the jury may be properly and correctly advised as to the material fact which is in dispute, it is not only the right of the court to order such exposure and examination or measurement of the injured part of the person on the request of a party, but its duty so to do. Again, it says that while he would be a bold man who would assert that the evidence of experts is in all cases valueless, the testimony of medical men in this case touching these measurements, a matter not resting in opinion at all, but capable of physical demonstration, being in direct contradiction, is well calculated to shake one's faith in the reliability of experts. Mr. Justice Robinson, it should be added, vigorously dissents from what he styles the holding of the majority that the district court has no discretion, and that in all cases similar to this the defendant may, as a matter of right, require a woman whose injuries are in question to partially disrobe herself in the presence of the court, jury, members of the bar and possibly a court room full of bystanders, and raise her garments sufficiently high to permit each of the twelve jurors to see her legs measured six inches above the ankles, and this done even though other evidence is at the command of the defendant, and at hand, which may show that the exhibition is wholly unnecessary.

Some Statistical Gleanings.—Only 906 persons in 1,000,000 die of old age.——Twelve Englishmen in every 10,000 die of gout.——Of every 1,000 sailors 84 have rheumatism every year.——Epilepsy is most frequent in England, 51 deaths to 10,000.——The death rate of the French army is 107 to 10,000 men every year.——Of every 10,000 deaths in St. Johns, N. F., 2,230 are of bronchitis.——Liability to death from heart disease is greatest between 30 and 40.——There have been 196 visitations of the plague in Europe since 1500.

THE PUBLIC SERVICES.

Army Changes. Official List of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from Dec. 5 to 11, 1896.

Major William C. Shannon, Surgeon (Fort Custer, Mont.), is granted leave of absence for one month on surgeon's certificate of disability, with permission to leave the Dept. of Dakota.

First Lieut. James M. Kennedy, Asst. Surgeon (Ft. Missoula, Mont.), will proceed to Ft. Custer, Mont., and report for temporary duty at that post.

First Lieut. Paul F. Straub, Asst. Surgeon (Angel Island, Cal.), is granted leave of absence for one month.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending Dec. 12, 1896.

Asst. Surgeon H. F. Parrish, resignation accepted from Jan. 1, 1897, Dec. 9.

Surgeon E. H. Marsteller, ordered to the "Raleigh."

Surgeon H. G. Beyer, detached from the "Raleigh" and ordered to the "Newark."

P. A. Surgeon H. B. Fitts, detached from the "Essex," ordered home and placed on waiting orders.

P. A. Surgeon C. D. Brownell, detached from the Puget Sound naval station and ordered to the "Petrel" Dec. 16.

LETTERS RECEIVED.

Alden, C. H., Washington, D. C.; Alexander, L. C., Philadelphia, Pa.; Allport, Frank, Minneapolis, Minn.

Bailey, Wm. Curtis, Las Vegas, N. Mexico; Baker, F C., New York, N. Y.; Bardon, Fred, Keokuk, Iowa; Beissel, Dr. Aachen, Germany; Beman's General Newspaper Agency, Ann Arbor, Mich.; Brattain, G. E., Payne, Ohio; Burns, R J., Freeport, Ill.; Burton, H. G., San Diego, Cal.

Coale, R. Dorsey, Baltimore, Md.; Colgan, J. F. E., Philadelphia, Pa.; Cullen, G. I., Cincinnati, Ohio.

Dodds, F. S., Anna, Ill.; Doherty, David J., Chicago, Ill.

Elchberg, L. R., New York, N. Y.

Flint, Austin, New York, N. Y.

Gerhard, G. S., Ardmore, Pa.; Gibbs, M. D., Hartford, Mo.; Gotthell, Wm. S., (2) New York, N. Y.; Gould, George M., Philadelphia, Pa.

Hubbard, G. M., Nashville, Tenn.; Hummel, A. L., (2) New York, N. Y.

Inglis, David, Detroit, Mich.

Jenkins, J. F., Tecumseh, Mich.; Jerry, J. A., Chicago, Ill.

Keen, W. W., Philadelphia, Pa.; Koechl, Victor & Co., New York, N. Y, Lippincott, J. B. Co., Philadelphia, Pa.; Luckey, J. E., Chicago, Ill.

Medical Examiner The, New York, N. Y.

Noble, H. E., Toledo, Ohio; Northwestern Christian Advocate The, Chicago, Ill

Parke, Davis & Co., Detroit, Mich.; Pollock, M. D., Decatur, Ill.; Prewitt, T. F., St. Louis, Mo.

Reed, R. Harvey, (3) Columbus Ohio; Ridlon, John, Chicago, Ill.; Rohe, George H., Sykesville, Md.

Sattler, Robert, Cincinnati, Ohio; Schering & Glatz, New York, N. Y.; Seibert, W. H., Steelton, Pa.; Stearns, Frederick & Co., Detroit, Mich.; Subscription News Co., Chicago, Ill.

Victor, Koechl & Co., New York, N. Y.

Watson, F V., Keokuk, Iowa; Way, J. Howell, Waynesville, N. C.; Williams, Chas., Syracuse, N. Y.; Wood, E. S., Leavenworth, Kansas; Wyckoff, R. M., New York, N. Y.

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ORIGINAL ARTICLES.

THE AUTUMNAL FEVERS OF THE SOUTHERN ATLANTIC STATES AND THEIR TREATMENT.

Read before the Pan-American Medical Congress, Mexico, 1896.

BY BEDFORD BROWN, M.D.

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ALEXANDRIA, VA.

Fever of a malarial origin is an annual visitant, from August to the middle of October, of all that vast section comprised within the Southern Atlantic and Gulf States, and also of a large portion of the interior, comprising the Middle, Western and Southern States. The large number of cases occurring within the vast area comprised within these borders, the distress of mind and body, the loss of time by sickness, the additional expense incurred, the impairment of health and the greatest of earthly evils, the mortality resulting, combine to render this one of the most important and interesting subjects in our profession, and how successfully to prevent malarial infection and to correct it after it enters the human system, become questions of paramount importance.

While this subject has for years received the closest attention from scientific and practical minds, it never loses interest or grows trite and in all probability it never will.

As already stated autumnal fever is an annual visitant in the eastern section of the United States and in certain cases passed under the name of malarial fever and in certain other cases under that of typhoid fever. I find that this fever makes its appearance in our section about August 10 or 15 and continues to prevail until killing frost or freezing temperature begins and then it as suddenly disappears as it appears. I find also among the profession and among the people that this fever in its simple, uncomplicated state goes under the name of malarial fever, while in its complicated state and in its advanced stages it is denominated typhoid fever. Hence, in all cases of malarial fever, characterized by symptoms of malignancy, as a dry tongue, delirium, jactitation, insomnia, tympanites, frequent pulse and general prostration are always miscalled typhoid, and by some typho-malarial fever. These misnomers and misunderstandings of the proper character of autumnal fever are very misleading in relation to our proper conception of the treatment and management of the disease.

In this fever which annually visits our section I do not believe that there is one case in twenty which is genuine typhoid or enteric fever, for these autumnal fevers, however they may in certain cases simulate true typhoid, disappear from our country at the first heavy frost, to return again at the next autumn. This is not the course, or a part of the history of true typhoid fever. Typhoid fever does not come in hot seasons and go in the cold, when frost and ice begin to make their appearance. Typhoid fever does not come when the temperature goes up to 80 or 90 degrees and disappear when it goes down to 32 degrees. But rather typhoid is a disease prevalent in low temperatures, in the late months of winter and early months of spring. On the contrary, malaria thrives, flourishes and grows in high temperatures and moist seasons, in flat, low localities. Typhoid fever has its favorite homes in high, cool localities in northern and mountainous sections.

Etiology of autumnal fevers.—The question of the origin of malaria, which is the true cause of our autumnal fevers, and of its peculiar nature, is now so well settled by scientific investigation it is unnecessary to discuss. The plasmodium malariæ of Laveran, so clearly described by that careful investigator, its parasitic nature, its vegetable origin, its entrance into the circulation, its fastening itself on the red blood corpuscles as any other parasite, its growth and development in those corpuscles, its nourishment and sustenance on the material of the corpuscles, and finally its destruction of the red corpuscles, as any other parasite would do when fastened on an animal or vegetable body. This destruction of the red corpuscles of the blood explains many, if not all, of the pathologic changes resulting from malaria, as organic changes in the liver, spleen, blood and venous tissues. It explains the chills, the fevers, the congestions and irregularities of circulation of malarial fever. The circulation can not pursue its regular course through the round of the vascular system with disorganized, broken down blood corpuscles. They lodge somewhere in the capillaries and cause local congestion in the lungs, liver, spleen or brain. This is the true secret of those terrible congestive or pernicious fevers found in malarial regions. The corpuscles of the blood have been either partially or wholly disorganized and are unfit for circulation through the capillaries. The fever that follows the chill is a bold and determined effort of nature to assert itself and relieve a congested circulation. The chill is a partial cessation or suspension of circulation from partially disorganized blood structure. The fever that follows is necessary to correct that suspension and restore the equilibrium. If there was no fever to follow the chill of malarial fever, the circulation in its integrity and equality could never be restored and in every case there would remain local congestions of the great central organs as the brain, liver, lungs, spleen, that would inevitably produce disorganization of that organ and certain death. The pernicious fever is an example in point. Here there is no reaction, or only a partial reaction, and the result is almost certain death. After the seven days' battle around Richmond, in 1862, I saw cases of this

fever, contracted in the Chicahominy swamps, die within fifteen hours after the first chill.

The plasmodium malariæ of Laveran is probably the most certain diagnostic of malaria when found in the blood.

Another very interesting question in this connection is the channel through which the malarial plasmodium is carried and conveyed into the system, whether through the atmosphere, or water, or both. Formerly it was the professional opinion that the air was the channel through which it was conveyed. At present the trend of professional opinion tends to the view that water is the principal channel. Experiments instituted by many observers in many localities go to show that water certainly is a common carrier of the malarial parasite. These experiments show that in malarial regions persons using surface water, as that of spring or wells or streams, are exceedingly subject to malarial poisoning, while the same persons when made to use water from the deep reservoirs of the earth, as for instance from artesian wells, are entirely free of all malarial infection. In other words, that it is the water from the earth's surface saturated with the debris of vegetable decomposition that contains and carries the malarial parasite.

The importance of these facts elicited by scientific investigation can not be overestimated in a sanitary point of view. But I must think that there is certainly some truth also in the idea that was entertained for so long a time, that the air is a carrier of malaria.

I believe that there is some ground for the opinion that there are different forms of the plasmodium malariæ to account for the different types of malarial fever and that these different types of disease are not simply due to a difference in quantity of the dose.

Forms of malarial fever.—The time honored division of malarial fever into three distinct forms of the disease, the intermittent, remittent and pernicious or congestive, still holds good. But there is a subdivision of the remittent form into two distinct types, the acute, sudden and violent, and the slow, progressive and insidious type.

This division of the remittent form into two distinct types I consider of so much importance that I shall, when I come to consider that form, dwell upon it at some length.

Intermittent fever or fever and ague.—Fever and ague usually runs a distinct course, and is rarely disposed to run into the remittent. At certain seasons it becomes unusually prevalent in the section of the Southern Atlantic States. Then again it may disappear and scarcely be seen for several years.

It is rarely seen in the thickly settled or central portions of towns and cities or thickly populated, well watered, and well drained countries. Its favorite localities are the suburbs of towns, low, swampy regions, supplied with bad drinking water from shallow wells, springs and streams containing vegetable matter. Persons using boiled water, cistern water, artesian water, or well filtered water rarely suffer, if at all, from fever and ague.

The plasmodium of fever and ague appear to have a positive tendency to infect the liver and spleen. And it is after a time very certain to fasten itself on the red corpuscles of the blood. The habitual subject of fever and ague ever presents an appearance highly characteristic of the disease. The complexion at once combines the jaundiced appearance of hepatic disease, and the extreme pallor of profound anemia, showing the poisonous action of malaria on the structure of the liver and at the same time the disorganizing action of the plasmodium on the blood corpuscles. Thus we have in these cases a combination of jaundice and anemia.

There is a peculiarity about fever and ague that has never been accounted for, which differs entirely from the remittent and that is a constant tendency to recur, even long after the subject has ceased to reside in a malarial region. The question is, does he get a new dose of the poison, or does the malarial germs possess the power of generation and multiplication within the system, similar to other ferments and spores? I myself take the latter view of the case. Otherwise I do not see how this peculiarity can be accounted for.

The acute type of remittent malarial fever.—The acute form of malarial fever begins suddenly while the patient is in his usual health. It has no premonitory symptoms. The victim may be in a perfect state of health and be stricken down within a few minutes. It is almost invariably ushered in by a distinct chill or chilliness. The temperature after reaction begins, rises rapidly, advancing to 103 or 104 degrees, even to 105 degrees, within a few hours. Then in the course of ten or twelve hours remission commences. There is a diurnal rhythmic movement of fever. In all of these malarial fevers, there will be observed a rhythmic element except the pernicious, in which it is absent.

In pernicious fevers there is no well defined or regular rhythmic movement in febrile action whatever. Rhythm in fever is a conservative action and an effort of safety and is designed on the part of nature as a protective measure to the patient. It is an alternation of rise and fall of corporeal temperature, solely brought about by the conservative forces of nature. Deprived of this rhythmical tendency in fever we would either have a continual high temperature or low temperature. In our treatment of fever we attempt to imitate the rhythmic action of nature by medical agencies. Chill in fever is a partial suspension of nerve force by the action of certain poisons on the blood and tissue, whether from malaria, sepsis or other causes, in which the circulation is partially and in fatal cases wholly suspended, and for the time the blood-making and heat-generating powers are also in partial suspense. Chill, whether slight or grave, means blood poisoning. The fever that follows, which we term *reaction*, is an effort of nature to restore nervous and circulatory action and throw off the offending cause and is therefore a conservative movement. The chill, the fever and remission, constitute the rhythmic movement of malarial fever, and when we see in our cases of malarial fever this rhythmic action carried out in perfection, we prognosticate a favorable result. But when on the contrary we observe an absence of regular rhythmic action in our cases we argue unfavorable result, provided we can not restore the rhythm of fever by artificial means. Rhythmic movement of temperature is peculiarly characteristic of malarial fevers and is generally known under the term periodicity. But it is not confined to those forms of fevers. We see it in typhoid to a certain extent, but much less defined. We see it clearly defined in hectic and pyemic fever. Here it is again evidence of a poison acting on the blood, depressing the nervous system to an extreme degree, lowering the temperature and reducing the circulation, which we

term a chill. Then follows febrile reaction, which is a vain effort of nature to reassert itself and throw off the effects of blood poisoning, and failing in this then comes the copious perspiration in the further vain effort to get rid of the poison, and finally comes after all this the blessed calm of remission, when the rhythm of fever for a time has been accomplished, with its delightful sensations of relief from the torture and suffering of fever.

Prolonged malarial fever.—This is a distinct type from the acute form of malarial fever. It differs in having a well marked, well defined premonitory stage, which the other has not. This premonitory stage may be developing for a week or more and consists in general sensations of malaise. There is impairment of appetite, some daily headache, some painful sensations in the back and limbs. These symptoms are particulary apt to return toward evening. The victim always feels more or less relief in the morning. Toward night if the pulse and temperature are tested it will be found that they are slightly above, the pulse may rise to 85 and the temperature to 99.5 degrees. Nevertheless the patient continues to be up and about, though he feels there is a loss of physical strength and mental activity, and that he is incapable of much exertion. Toward evening the patient has sensations of chilliness. There is rarely diarrhea present.

These prodromic symptoms resemble very decidedly those of typhoid fever, except that of diarrhea, which is almost invariably present in the latter. But if closely observed it will be found that the prodromic symptoms of prolonged malarial fever increase in severity daily until the full development of the case. There is a daily but very slight increase of temperature and pulse rate, while the patient grows weaker and more indisposed to exertion of any kind.

Finally, there is entire loss of appetite; then there is an evening chilliness and fever, and toward morning a remission, when the patient feels better and stronger during the morning, but as certain as evening approaches there is a return of chilliness, feverishness and decline of strength. It will be observed that at this early stage the rhythm of fever is present and this is characteristic of this fever until it reaches the adynamic stage, when the type of fever assumes a more continuous form and loses the rhythmic character. I regard a proper conception and knowledge of the prolonged form of malarial fever as of exceeding importance, as it is often confounded with genuine typhoid fever. A mistake of this kind is exceedingly unfortunate, as the treatment of the two diseases is entirely distinct.

At the meeting of the Pan-American Medical Congress held in the City of Washington, some years ago, a most instructive and interesting paper was read by Dr. Lobos of Carraccas in Venezuela, on the subjuet of "Prolonged Malarial Fever" as observed by him in the Tropics, where typhoid is rarely found.

He states that this type of malarial fever, which he regarded as a distinct form, prevailed annually in his section of Central America. The development and progress of the disease are so graphically described by him were eminently slow. It is a fever, while characterized by frequent changes, subject to extreme exacerbation and extreme increase and decline of temperature, often continues for three or four months.

The prolonged malarial remittent fever of our Southern Atlantic States, as witnessed by me for many years past, has three distinct stages, the premonitory preceding the development of fever, the simple febrile stage and finally the true adynamic stage. This is the form of fever we so commonly meet with from July to October in our Southern States, which prevails annually during that period and suddenly disappears when the temperature falls to 32 degrees.

The curves of temperature in the acute and prolonged forms differs widely. In the acute they are sudden, sharp, abrupt and extreme. In the prolonged forms they are slight, gentle, moderate and never sudden, sharp or abrupt. The rise of temperature is gradual and slow and never reaches suddenly a high point. In neglected or improperly treated cases there is a gradual increase daily in temperature until the case reaches the true adynamic stage, when it may attain 105 or 106 degrees. But these high degrees are never attained in the early stages of prolonged fever, but only in the advanced or adynamic.

The premonitory stage.—The premonitory stage is characterized by a decline in physical strength and mental activity. The victim suffers from languor of mind and body. There is a decline correspondingly in appetite. There are neuralgic pains in the limbs, back and head, due to the action of malarial poison on the great nervous centers, the brain and spinal cord.

The premonitory stage of prolonged malarial fever is always characterized by neuralgic manifestations, and these neuralgic symptoms bear out the rhythmic habits of malarial disease. They have their exacerbations and remissions with much regularity. These neuralgias of the premonitory stage of malarial fever are not infrequently mistaken for muscular rheumatism, the effects of cold or simple neuralgic pains. In this stage neuralgic symptoms are often of so marked a character as to obscure all other morbid indications. They may appear in the head, neck, back and limbs. From an early period the poison of malaria makes a marked impression on the sensitive centers of the spinal cord. Its effects on these centers is to produce a state of hyperesthesia or increased sensibility running into neuralgic forms. Whereas the poison of typhoid exerts a contrary effect by producing rather a state of anesthesia of the nervous centers. Nervous sensibility in typhoid is always impaired, blunted and below par. Hence the poison of typhoid exerts a marked sedative on the brain and spinal cord. The premonitory stage of prolonged remittent fever usually continues from five to ten days before the development of the febrile stage.

Secondary or febrile stage.—The appearance of chilliness and fever decides the import of the premonitory symptoms. It decides that they are the prevailing symptoms that usher in an attack of fever. Fever of this type is rarely ushered in by a decided or marked chill, but rather by chilliness at evening. Following this chilliness there is a slight rise of temperature, at first usually 100 or 101 degrees. Toward morning this declines to 99 or 99.5 degrees. For a week or ten days there is an evening chilliness, then a slight rise of temperature, continuing during the night, which declines toward morning. This is the true rhythm of fever constituting exacerbations and remissions. The curves of temperature at this stage are never abrupt, sharp or extreme, but gentle, gradual and slight. The rise will rarely exceed 102 degrees or the fall decline to 99.5 degrees.

The simple febrile stage, if unrestrained, about the third week usually begins to assume a decidedly aggravated form. Then during the febrile exacerbations the temperature rises, the pulse becomes more frequent, the tongue dryer, the appetite is lost, the sleep is disturbed and less refreshing, the mental powers are less clear. These symptoms all denote the approach of the adynamic stage. This is the stage of mortality in prolonged malarial fever. I have never known a case to terminate fatally in the simple, uncomplicated febrile stage. This is the stage in which question of the life or death of the patient are to be determined. The case must reach and pass into the adynamic stage before a fatal termination. Hence the infinite importance of averting this stage. So long as we can avert the adynamic stage our patient is safe. Insomnia, restlessness and delirium constitute early indications of adynamia, that should enlist our attention. In adynamia the blood and nervous system are profoundly affected, there are degenerative actions at work in both, calculated to destroy life. I am persuaded the great system of sympathetic and vasomotor nerves participate in this degenerative action, which explains many of the morbid phenomena of circulatory irregularities of fever.

In the adynamic stage the rhythmic movements grow less and less daily and are less defined. The febrile type gradually loses the remittent form and assumes the continued. Delirium becomes a constant feature. The rest of the patient is seriously impaired and marked insomnia sets in. The tongue becomes dry, crusty, red or dark brown. In place of tympanites there is often retraction of the abdominal walls and in very protracted cases the spinal column may be detected through the abdomen. The pulse increases in frequency and the temperature from 104 to 105 degrees. By the end of the fourth week the temperature will range at about 105 degrees, and the pulse rate at 125 or 130. Hence the extent and gravity of adynamia in this form indicate the degree of degenerative action in the blood and tissues. After the adynamic stage sets in then recovery can only take place after such changes or their effects have been repaired by nature. It is this stage of adynamia which all cases of prolonged malarial fever when neglected or ill treated pass through, that induces the belief in many that it is true typhoid fever, while others regard it as a combination of typhoid and malarial fever or what is termed by many typho-malarial fever, which is evidently a misnomer, as there is no such disease. It is simply a case of prolonged malarial fever that has passed into the adynamic stage.

The habitat of prolonged malarial fever.—As we advance from the more temperate climates toward the warm and tropical regions this form of disease becomes more prevalent, until we reach a point where it is the endemic of the country, and this is in the region of the Central American States. Dr. Lobos tell us in his very interesting paper that it is endemic in Venezuela, and as witnessed by him it assumes a very protracted form, often continuing three or four months. The idea which I desire to inculcate here is that as we advance toward the tropics, the tendency to the prolonged form increases until we reach a point where the protracted form is the prevailing type of malarial disease.

In the Southern Atlantic States the disease usually runs a course of from three to six weeks. In the tropics from three to four months, according to Dr. Lobos.

Pernicious or congestive fever.—This form of fever is not infrequently seen in the lower Atlantic and Gulf States during the autumn months. It is noted for the suddenness of its onset, the rapidity of its course and termination. Its chief characteristics are sudden chill protracted over many hours, either without reaction or followed by very imperfect reaction. In this imperfect reaction the head and body may be intensely hot while the extremities have the coolness of death. I have seen cases of this fever in which the extremities and surface were icy cold, while the thermometer in the rectum denoted 106.5 degrees.

Malarial coma is a frequent feature of these cases. The pupils are widely dilated; the tongue is cold and very pallid. In some cases there is intense nausea and vomiting. At times the pulse is slow, at others rapid and very feeble. The cardiac sounds are very indistinct and scarcely audible. Hematuria is not an infrequent symptom, and albumin is often found in the urine.

The degree of malignancy of pernicious fever must be regarded as the measure of the extent to which the corpuscles of the blood have been disorganized or destroyed by the plasmodium malariæ. It is difficult to say what proportion of these corpuscles may be disorganized without producing fatal results, whether a fourth or a third or a half. But in pernicious fever a very large proportion of blood corpuscles must speedily be rendered unfit for circulation and purposes of life. It is altogether probable that the peculiar phenomena of this fever are due to this pathologic fact. The prolonged chill, the extreme reduction of temperature, the imperfect reaction, and finally the intense and extensive congestion of the internal organs, are all due to the fact that the blood corpuscles to a large extent have been disorganized by the malarial parasite or have lost their amebic characteristics and find fixed lodgment in the capillaries of the internal organs, as the lungs, liver and spleen, and in these organs cause irremediable congestion. In those cases where reaction and restoration took place, what becomes of the débris of those broken down corpuscles is an interesting question. They exist in the congested organs as effete material that must be gotten rid of before there can be a restoration to health. To convert this effete matter into new forms, fitting it for elimination from the system, becomes the work of that potent agent, oxygen. By the action of this wonderful agent, the débris of broken down corpuscles is converted into urea, uric acid, creatin and creatinin, forms perfectly adapted for elimination by the renal organs.

True congestive fever, like cholera, is a disease rapid in its incipiency, rapid in its onset, rapid in its course and sudden in its termination when fatal, and treatment, to avail anything, must be prompt, as every minute counts for much in arresting its progress. A marked feature in pernicious congestive fever is malarial coma. This symptom usually sets in when the algid stage is at its climax. It is often impossible to arouse the patient. The pupil refuses to respond to light. The powers of sensation are often lost. You may handle many of these patients rudely and roughly, you may prick them with a sharp instrument, and the nervous system fails to respond. The nervous centers are profoundly intoxicated with the malarial poison. Yet the coma of malaria resembles neither the coma of apoplexy or of uremia. It is wanting in the stertorous breathing and hemiplegic symptoms of the

former and the convulsive features of the latter. The patient is in an apparent profound, quiet sleep. The breathing is slow and labored.

The prognosis of pernicious congestive fever is always bad. A certain proportion of these cases die and never react, after the first chill. Another proportion die during the second and third chill. But as a rule, these latter cases never fairly and fully react. If the patient only partially reacts after the first chill and suffers a second chill, he generally succumbs in the second. In many of these cases such is the extent of disorganization of blood corpuscles from the first onset, the case is fatal from the beginning and is beyond the reach of remedies.

The rate of mortality is always very high. It ranges from 30 to 60 per cent.

Differentiation between the symptoms of typhoid and prolonged malarial fever.—In differentiating between the symptoms of the two diseases, the curves in the temperature of the two forms are really almost if not in perfect resemblance. The prodromic symptoms, while alike in some particulars, are dissimilar in others.

During the prodromic stage of prolonged malarial fever there are always present decided neuralgic features common to malarial poisoning. These are almost invariably absent in typhoid fever.

In typhoid, diarrhea is invariably present. In malarial fever the opposite is usually the case. In typhoid fever there can usually be detected on pressure in the right iliac region, distinct gurgling. The rose-colored eruption over the abdomen is usually present in typhoid, and absent in malarial fever. Tympanites is invariably present in the second stage of typhoid and absent in malarial fever. In the latter a state of retraction of the abdominal walls usually exists throughout its progress. Hemorrhage is a not infrequent occurrence in typhoid fever, and is never present in malarial fever.

But the most characteristic difference is found in the presence of the malarial parasite. The presence of this body at once is sufficient to determine the nature of the case.

It will not do in these cases to depend upon the curves of temperature as a means of differentiation. I see cases of prolonged malarial fever every season in which these curves resemble perfectly those of typhoid. They possess all their gentleness, their slightness, their evenness, slowness, similar to typhoid fever. They have none of the sharpness, suddenness, abruptness or extreme character of acute malarial fever. The rise and fall of temperature is moderate, never sudden, abrupt or extreme throughout. In this way the curves of temperature in the prolonged variety are often deceptive and misleading.

A large majority of medical men of my acquaintance, as a matter of differentiation between prolonged malarial fever and typhoid depend largely on the character of the curves of temperature.

Another feature very much depended on for diagnosis is the continued form of fever assumed by malarial fever in the adynamic stage. These are all deceptive and fallacious tests. I regard the proper differentiation between the prolonged form of malarial fever and typhoid as a matter of infinite importance, as the treatment of the two diseases is entirely distinct, and as a question that can only be settled by the microscope.

TREATMENT OF AUTUMNAL FEVERS.

I know of no subject in the practice of medicine, with the exception of typhoid fever or tubercular phthisis, of more importance and that merits our careful and scientific consideration more closely than that of the treatment of the autumnal fevers of our country. These forms are not only an annual visitant of the Atlantic States of the South, but their visitation always brings distress, trouble, suffering and too often death, and may ever be regarded in the light of a calamity.

Prophylaxis.—It is conceded by all authorities that malaria enters the human system either by means of the air we breathe or the water we drink, or through both of the channels. For many years it was the accepted opinion that the air was the only common carrier of malaria. More recently carefully conducted experiments go to prove that water is the true carrier of malaria. If this be true it is obvious that we have at hand a far greater command of the situation in instituting measures for the protection of the human system against malarial poisoning. Frost and malaria are deadly enemies. When water sinks in its temperature to 32 degrees F. all malarial germination and life ceases, and after that water in the most malarial districts may be imbibed with impunity. Our water supply, according to the latest and most reliable scientific experiments, is to be the field of future hygienic investigation and operation in regard to the question of malaria and its entrance into the human system. Formerly drainage, the clearing up of swamp lands, tillage and improvement of the soil were the only hope of those residing in malarial districts. Since the discovery that water, if not the chief, is a common carrier of malaria, another and a renewed hope has arisen for those who are yearly subject to malarial influences and that hope lies in a supply of purified water. If this be true, and all the evidences point in that direction, those who reside in the most deadly malarial districts may not despair, for by a little expense and not much labor, they can command the situation. It is very well established that malarial infected water is confined to that on or near the surface of the earth. The deep reservoirs of the earth, which can only be penetrated by artesian wells, are free from malaria. But the expense of this resource renders it impracticable in many sections. But a resource available for the poorest and humblest in malarial regions is that of *sterilized water*, which has been subjected to the boiling point. But sterilized water, while its malarial parasites have been killed by the action of heat, nevertheless contains a certain amount of dead organic matter. From this objectionable element sterilized water can be made free by filtration.

Certain products of cinchona undoubtedly possess prophylactic power in addition to their curative properties. Quinin, its most important product, must be regarded, in addition to its multiplicity of medicinal properties, as an antidote to the malarial poison. And it has a claim to be ranked among the chemic antidotes. It arrests fungoid generation and growth by arresting all fermentative action in the blood. If the article quinin possesses the chemic property of accomplishing these objects it is entitled to be ranked among the antidotes for fungoid growth and fermentative action in the blood.

Its well-known antipyretic powers in fevers are no doubt due to its remarkable antifermentative action.

But regardless of all theory on the subject, well-

attested experiments in its use as a prophylactic in all malarial regions, as the Southern Atlantic and Gulf States, East and West Indies, have established beyond a doubt its prophylactic powers. Ten grains of the bisulphate taken in a glass of sherry wine before breakfast and previous to all exposure, when combined with the systematic use of sterilized water will ensure protection.

I think in filtered sterilized water we have the ideal non-malarial drinking water for common use by residents of malarial districts when other resources, as artesian wells, are impracticable. However much water may be impregnated with the malarial parasite, in sterilization and filtration we have a certain means of purifying it and rendering it fit for human use. By the process of sterilization the vitality of the parasite is destroyed. But that does not remove the dead organic remains from the water. That can only be accomplished by a thorough process of filtration. Hence safety lies in a combination of sterilization and filtration.

The rate of mortality in the prolonged form of malarial fever or the so-called typho-malarial fever, is about equal to that of true typhoid fever. The rate of mortality of pernicious congestive fever is very high. It not infrequently reaches 50 or 60 per cent.

In the treatment of these diseases the important question arises, can we by any known means modify the types of these fevers, by rendering them milder, and at the same time reduce their rate of mortality?

These are questions of paramount importance. I believe that by proper treatment these objects can be accomplished.

Quinin is the only certain and acknowedged antidote to the parasite of malaria.

But its efficiency as such depends absolutely upon the manner of its administration. Given according to rules it is a remedy of great precision. Given according to other methods it is entirely insufficient. There is much in the manner of giving remedies, and even the most valuable and potent may fail if given without proper method or system.

Forty years ago it was the custom to give quinin in malarial fever in doses of one grain every hour, or two grains every two hours, or three grains every three hours. Well do I remember the utter inefficiency of the remedy in modifying the type or reducing the rate of mortality. By this method the system failed to get sufficient of the antidote to destroy the parasite. In giving this antidote it becomes somewhat a question of mathematical calculation. We must gauge the quantity of our antidote to the amount of parasite in the system and the gravity of the case. Not only this, but the remedy should be given in large doses at longer intervals, rather than in small doses at shorter intervals. Thirty grains given in ten-grain doses three times a day is far more efficient in the remittent forms of fever than the same quantity given in two-grain doses every two hours. Twelve-grain doses morning and evening act more decidedly than twenty-four grains divided into broken doses every two hours. In decided forms of fever quinin should never be given in small doses, however often repeated. I have repeatedly seen cases in which one or two grains were given every one or two hours, without the least effect, when the same quantity per diem given in three equal parts three times a day changed the entire aspect of the case promptly.

For many years I have taken every opportunity to experiment with quinin in malarial fevers with a view of ascertaining in each form and stage of fever the quantity of quinin that was necessary to act as a destructive antidote to the malarial parasite.

I found by experiment that in the treatment of intermittent fever fifty grains (gm. 3) of quinin given within thirty-six hours preceding the chill, was the maximum quantity required to arrest the disease. Thirty grains (gm. 1.80) given within twenty-four hours preceding the chill in a majority of cases would arrrest it, but not invariably. I found that five grains (gm. .30) of acetanilid given just before the chill invariably modified the chill and resulting fever. In regard to chronic chill and fever, I found 10 grains (gm. .60) of quinin given in sherry wine before breakfast and Warburg's tincture in full doses after dinner and supper, almost invariably acted as preventives.

Quinin should never be given in pill form as they are slow to dissolve and frequently do not dissolve in the stomach at all. It is preferable to give it in solution or powder as the bisulphate, or lastly in fresh capsules. I am satisfied that a certain proportion of cases are lost because of the insolubility of pills. I have repeatedly seen in my practice cases grow worse daily under the use of the quinin pill, that improved rapidly when the solution or powder was substituted. Then again in cases of great emergency where we desire prompt action, in my experience, the bisulphate is the most certain form in which it can be given.

In the application of this remedy as an antidote to the malarial plasmodium, we must be governed by fixed laws and practical rules, or failure will be the result.

It is certainly true that we have all grades and types of malarial disease from the mildest to the most malignant, and we must adapt our measures to these different grades or we can not have success. I found in my experience in the past thirty years, in about one hundred and seventy-five cases of malarial fever beginning suddenly, with a decided chill and followed by a temperature running up rapidly to 105 or 106 degrees, with intense neuralgic pains, 60 grains (gm. 3.60) of quinin per day of twenty-four hours given in divided doses of 10 grains (.60) every four hours would invariably arrest the attack in seventy-two hours and frequently less time. Thirty grains per day would prolong the attack to five or six days, especially if given in three grain doses every two hours. Twenty grains (gm. 1.20) per day would prolong the attack between one and two weeks, and 15 (.90) per day would prolong it from three to four weeks.

These facts teach us the important lesson, that to obtain the full antidotal effects of quinin, we must saturate the system with the remedial agent promptly in quantities sufficient to kill every malarial germ in the system. Otherwise if a single germ is left in a living state it becomes the nucleus for rapid germination and multiplication, and our work must be done over again.

The question arises whether in these violent types of high temperature, we have any means at hand to facilitate or promote the action of quinin. I can answer this question emphatically in the affirmative. I find that during the febrile exacerbation when the temperature is high, the skin is very dry, the pulse frequent, 5 grs. (.30) of phenacetin, and 3 (.18) of acetanilid given every two hours act charmingly in lowering temperature, composing excitement, and inducing perspiration and in this way aiding the action of qui-

nin. Then there is the additional means of sponging the surface with cold water and alcohol. But in those cases of hyperpyrexia with a temperature of 106 or 107 degrees threatening a speedy termination of life the cold poultice enveloping the chest, abdomen and spine, and changed every two or three hours has done me most excellent service. Then we have in this class of cases numerous and valuable resources in aiding and facilitating the action of quinin in doing its work.

Next in order to be considered is the treatment of the prolonged variety of malarial fever.

The prolonged form of malarial fever, if neglected or improperly treated, is certain about the third or fourth week to pass into the adynamic stage.

The questions arising in treating this form of fever are, whether its type can be modified, its progress curtailed, and the adynamic stage be averted.

I can with the utmost certainty answer this question in the affirmative. But in our treatment we have persistent disease to contend with, and our treatment must be systematic, constant and active, and as sure as we lapse into an expectant method, or relax our efforts, the progress of the case gains on us every hour and it will pass into the adynamic stage, there will be increase of temperature, of pulse rate, and the rhythm of fever will disappear and it will assume a continued form, and then the stage of delirium appears, with all other toxic symptoms. If we expect success in our treatment the antidotal treatment must be commenced from the earliest stage, and never relaxed to the end. Twenty grains (1.20) of quinin divided in three equal parts given three times a day will maintain the case in its simple type, keep the temperature down to 101 degrees in the morning and 102 degrees at evening, prevent typhoid symptoms, or other complications and finish up the case about the third or fourth week, but 30 grains (1.80) per day will do much better.

A very interesting fact will be noticed in the therapeutic action of quinin here in its power to preserve the case in its simple rhythmic forms of fever and uncomplicated state, with moderate temperature, with clear mental faculties throughout. Ten grains of bisulphate of quinin three times a day in a case of this kind will usually carry it through a course of two weeks and finish it up in that time.

I am convinced of the importance of the patient having every night for restful sleep. It will be observed that in all of these cases the medicine and nourishment are administered during the day. If signs of insomnia appear the patient invariably has at night a hypodermic of morphia and atropia.

The percentage of mortality in the cases treated by this method did not exceed 2 per cent. In regard to the treatment of the pernicious form of congestive fever, I will briefly cite the history of a case for the purpose of illustration.

Case 1.—Adult aged 30, robust constitution, had a chill which lasted twelve hours before signs of reaction. He was in a profound state of coma. The pulse was exceedingly feeble and very rapid, the temperature under the arm was 90 degrees, in the rectum 106 degrees. The extremities and surface were deathly cold, pupils dilated. Sixty grains (gm. 3.60) of quinin in a half pint of milk punch were injected in the rectum; the fiftieth of a grain (.0012) each of strychnia and glonoin were injected under the skin. Dry heat was abundantly applied to the surface. These remedies were repeated by hypodermic every two hours. In twelve hours signs of reaction began. Consciousness was gradually regained, reactive fever set in, followed by perspiration. The patient had two drams more of quinin, which prevented effectually a return of chill.

I desire here more particularly to mention the action of glonoin in connection with quinin in these cases. Those who have observed the course of pernicious congestive fever have noticed that the blood almost entirely recedes from the surface and extremities to the internal organs. Probably three-fourths of the circulating blood has accumulated in the brain, lungs, liver, spleen and intestines, while the arterioles of the surface are in a state of contraction.

The action of the glonoin is to promply dilate these vessels to invite the circulation back to the surface and extremities and to preduce reaction.

The prolonged chill of pernicious fever, and the difficulty of reaction mean the destruction or disorganization of a large proportion of blood corpuscles, and the intense internal congestions mean that these dead or disorganized corpuscles have lodged in the capillaries of the internal organs and are in a state of stasis. Unless nature can again throw these dead and disorganized corpuscles back into the general circulation; which we term reaction, where they may be disintegrated and converted into urea, uric acid, creatin and creatinin, and in this form eliminated from the system the result must be fatal.

Hence all of our endeavors in these cases are to produce speedy reaction, and to destroy the life of the parasite of malaria, and finally to eliminate them from the system.

Tolerance of quinin.—It is surprising how the system comes to tolerate these full doses of quinin when long continued and which are followed by no evil results. I have given continuously for a month 10 grains (.60) three times a day, and after the first few days all unpleasant effects on the nervous system would cease, when there would be a complete state of tolerance, and the remedy would act as a pleasant sedative tonic and antipyretic.

THE RELATION OF THE MEDICAL PROFESSION TO THE PUBLIC.

Annual Address delivered before the Chester County (Pa.) Medical Society, January, 1896.

BY U. GRANT GIFFORD, M.D.

AVONDALE, PA.

The stream rises no higher than its source, the fabric partakes of the color and character of its component fibers; and the medical profession is no exception to this rule.

Certainly it is not to be denied that medicine stands sponsor for much that is intimately associated with human progress, happiness and well-being. We look with satisfaction at the record of medical science and point proudly to her achievements in the relief of human suffering and in the prolongation of human life. Vaccination, anesthesia and antiseptics compare well with any of the discoveries that grace the annals of human progress in any field. Pathology and bacteriology have thrown beneficent light on many of the hidden problems and have placed some of the older tenets of medical faith on a scientific basis. In the virgin but fertile field of preventive medicine a few furrows have been turned, some seed scattered, and the fruit already gathered gives token of an abundant harvest when the field shall have been well tilled. Sanitary measures have been studied and applied,

corrected and classified, until we may speak indeed unblushingly of sanitary science. In addition to these achievements the medical profession dispenses the most abundant (and in the fact that it helps the recipient to help himself) the most wholesome charity of our age.

But while we may be justly proud of the progress of the profession along scientific lines, and of the position it holds in the rapidly advancing civilization of the day, it is by no means without blemish. Evils that should not have an existence in a liberal profession are all too prevalent, and even the most superficial observer must recognize conditions that are a discredit to the profession and that should be corrected. It appears to me that the rattling pace of our closing century civilization exerts a deleterious influence on the *morale* of the profession. It may be because of the increased cost of maintaining a social position suitable to the dignity of the profession, or it may be in sympathy with the general spirit of gold worship and greed that characterizes our times, but for some cause or combination of causes too many members of the profession have lost sight of its true object, and have bowed before a golden idol. There appears to be a growing tendency to measure a man's success in medicine by the size of his income. There could be no greater fallacy, indeed it is more than a fallacy, it is in many cases the diametric opposite of the truth. In too many cases money-getting is the result of the adoption of methods that are contrary to the ethical spirit of the profession, the prostitution of its high office, and the substitution of conscienceless tact for conscientious talent. That a competence is sometimes the reward of honest, conscientious toil in the field of medicine is not to be denied, but when money-getting is the primary aim and motive of a doctor's life, the true interest of the profession must necessarily become a subservient force. In a profession where commercialism has no rightful place, gold may be a result, it can never be a legitimate motive.

There is no question that the laborer in this field is worthy of his hire, nor is it to be denied that the fee may be in proportion to the skill of the laborer and the ability of the employer, but when the physician sees nothing higher in his services than his prospective fee, the transaction is brought down to a purely commercial basis, and it is to be regretted that a man who has no higher incentive should not have entered a field where barter and gain are the recognized purposes. In those cases in whieh honor and riches have alike crowned the closing years of a doctor's life, it is generally observed that his earlier years were spent in arduous scientific work that brought little monetary recompense. In poverty and toil such men have laid the foundation of a success that is not tarnished by mercenary motives nor dimmed by a greed of gold. It may be that the extension of the course of study in the leading medical colleges will in a measure correct this growing evil. The average income of a medical man will scarcely justify, from a commercial standpoint, the investment of from two to three thousand dollars and four years of the most active period of life. At least it is to be hoped that the commercially inclined aspirant for the medical degree will so view the situation. Let us hope that in raising the scientific, the ethical standard may also be improved and that the time may speedily come when we might, without absurdity or incongruity, paraphrase Holy Writ and ask what will it profit a man if he gain wealth and lose his professional honor.

Certainly it would be improper to speak of quackery as a vice of the medical profession, possibly it would be unkind, but candidly have we a better name by which to designate certain practices that we all know are too common. For instance, the habit of exaggerating the importance and gravity of a case, with the result of being credited with a rapid and radical cure of a condition that never existed. It is true that the laity is at all times a willing partner in such deception and lend active ear and tongue to its completion, but the ease and facility with which it may be practiced and the gluttonous gulp with which it is accepted by the public, makes it none the less reprehensible and all the more dangerous. It must be a fascinating study to the psychologist to discover the origin of that form of vanity that finds its gratification in personal abnormalism, or a departure from the accepted standard of physical condition; but who has not heard individuals describe their experience in illness or accident with all the pride and exultation that an old veteran infuses into his account of battles fought and won.

It is said that one of the famous consultants of London was at one time summarily dismissed by a society lady for making in her case a diagnosis of boils and prescribing rest and iron; his professional neighbor receiving profuse thanks and a liberal fee for calling the disorder furuncles and giving directions that the patient at once cancel all social engagements and retire to a fashionable watering place while she should receive a course of ferruginous tonics. The plebeians may have boils, but for the patrician they lack dignity. Tact won the day, plain simple honesty was at a discount. Nor was this an isolated or exceptional case; in some form or other this condition manifests itself in every walk of life and in every grade of society. Dishonest desire loves its dishonest gratification. But in such a compact the physician is accessory only at the expense of honesty and the sacrifice of the high sense that should characterize every member of the profession. "There are no tricks in simple faith." Probably very few of us indeed have not been annoyed at the lack of discrimination on the part of the public in matters pertaining to professional standing, character and ability. To have a patient in whom one is deeply interested, suddenly and without cause leave his care and consult a recognized quack is, to say the least, not very edifying. But there is something in human nature that craves the mysterious. To the laity mysticism and medicine have always had a close affinity and the elimination of the former from the latter has been noted as an index of the advance of human knowledge, but the emancipation is as yet by no means complete. In ancient days, when the priests of the Temple ministered alike to disease of body and soul, we can not marvel that an ignorant populace ascribed all virtues of the healing art to mystic or supernatural causes, but that one hundred years ago the wand of Mesmer could agitate all Paris is more difficult to comprehend and, more difficult still to comprehend, that in our own day the shoemaker Schlatter should be to thousands the efficient embodiment of all that is potent in the healing of human ills. This can only be explained by the existence of a blind, unthinking, ignorant and superstitious credulity on the part of the public. It presents the paradox of the absolutely incredible being the most credible. A willingness to prey upon this has ever been the distinguishing fea-

ture of quackery and desire to turn it to personal gain is always its underlying motive. However this should be the special province of quackery, on which the regular profession has no right to encroach and a privilege we should leave to its exclusive use. But is it? Does the regular profession as steadfastly refuse to invade this territory as the dictates of honor and the dignity of the profession would direct?

If we employ methods that to the untutored mind are scarcely more successful and are prompted by motives no higher, if we prey upon the ignorant credulity of the public as does the irregular and profit by the same deceptions, wherein lies the difference between medicine and quackery? Certainly there is a vast difference in the scientific standing, but this is not enough. In medicine the scientific and ethical should be inseparably blended and if a gullible public fails to discern the difference between science and superstition probably it may find a distinction between honesty and dishonesty. If our methods fail to merit the approval of the masses, probably our motives will make a more successful appeal.

CHAIRMAN'S ADDRESS.

Address of the Chairman delivered in the Section on Dental and Oral Surgery at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5–8, 1896.

BY R. R. ANDREWS, D.D.S., F.R.M.S.

CAMBRIDGE, MASS.

Permit me at the outset of our meeting, to thank you for the honor you have seen fit to confer upon me. We are here, not for the consideration of the various kindergarten processes which go to make up the ordinary technique of our every-day affairs, but rather for the consideration of the higher themes in the realms of scientific research. Our aim should be to search a little further into the borders of the unknown. Some of the theories of yesterday have crystallized into the facts of today, and the knowledge gained benefits our whole professional brotherhood. One of the evidences of advancement is a growing tendency, particularly in the larger cities among our leading men, who are not wholly satisfied with the average society proceedings, to band themselves together in the formation of the various stomatological associations for the consideration and discussion of questions purely scientific, and their proceedings thus far warrant excellent results. The year has also given us a most valuable and brilliant series of experiments conducted on an accurate scientific basis, by which we know more of the physical properties of the teeth and of the various filling-materials. These are to be noted as added treasures to our common knowledge.

There has also been much thought given to the subject of electric medication. By the latest cataphoric methods extremely sensitive teeth are completely obtunded and those badly discolored are successfully bleached.

Our special schools are constantly advancing their standards, and the graduates are taking a higher ethical and professional standing wherever they go. We look forward to the time when our students shall become the students of a medical university, where all the specialities of the healing arts are taught, and where a common degree shall be given to all. Surely the surgical and medical care of the mouth and its associate parts is as important as that of the ear or eye or other parts requiring medical specialists; and this recalls to my mind the words of an ancient writer, one Apuleius, who, writing in the second century, says: "The mouth requires more sedulous attention than all the rest of the body, seeing that it is the vestibule of the mind, the gateway of speech, and the outer court of the thoughts."

It has been said that a man speaks best when speaking of a subject that is familiar to him. I shall therefore call your attention to the consideration of the finer processes which take place in the building up of enamel. To this subject I have given much thought and original research.

In the February number of the *Dental Cosmos* of the current year was an original communication on the formation and structure of dental enamel, by J. Leon Williams, of London. The paper was read in substance before the Royal Society of Great Britain on December 12, 1895. In this article he advanced new ideas in regard to the finer processes of enamel-formation, and illustrated his paper with reproductions of his photo-micrographs, which are the finest that have ever been shown, or rather the finest that I have even seen.

While fully recognizing the worth of Dr. Williams' investigations in this field, I propose to criticise, in a friendly way, some of his theories, as they differ somewhat from my own conclusions arrived at after giving this subject a good deal of time and careful investigation, while writing my Berlin paper in 1889. In the article to which I have referred, Dr. Williams makes this statement: "The stratum intermedium performs a much more important function in the process of enamel-building than has heretofore been supposed." He calls the reader's attention to the fact, well known before, that between the enamel-cells and the stratum intermedium is seen a narrow band which is clear, sharply marked, and differentiated line separating these two layers of cells which have heretofore always been represented as closely connected. He says that writers of acknowledged authority speak of the ameloblasts as being constantly renewed from the stratum intermedium. He also states that the other end of the ameloblast lying next the forming enamel is also bounded by a similar line. These appearances are not new; they are familiar to all investigators. They have been constantly seen when studying the earlier stages in the growth of the enamel.

The band, or, as he names it, the membrane between the stratum intermedium and the enamel-cells, is not constant. This is clearly seen in several of the illustrations. During the time of my own investigation of the enamel, I gave considerable attention to the consideration of these appearances, and was then led to believe that they were merely stages in the growth of the young tissue. Some sections would show it; in others it was absent, each section showing the picture at the point where death left it. In many of my sections the enamel-cells were in direct contact with the cells of the stratum intermedium; some of them seemed to be actually passing down into the enamel-cells as though they were to become ameloblasts, and there was no appearance of any tissue between them. This is why I think the enamel-cells are supplied from this layer. Others have noted the same appearance.

In a paper read at Chicago, at the late Dental Congress, I demonstrated that there is in the devel-

oping enamel, as had already been found in the developing dentine, a fibrous substructure. I there clearly demonstrated by my photo-micrographs that this fibrous substructure originated either in the cells of the stratum intermedium or from the embryonic connective tissue just beyond. My photographs showed this fibrous tissue bridging the space where I had teased a layer of enamel-cells from the cells of the stratum intermedium. I do not believe there is any such tissue as the membrana preformativa, as described by the earlier investigators. At the inner surface of the enamel-cells toward the enamel, this tissue, under the microscope, has the same appearance as that which is found between the odontoblasts and the formed dentine. It is a layer of a semi-solid gelatinous tissue which investigators have named "border-land tissue," always to be found between the calcified tissue and the cells that form it. This band is so narrow at times that it is scarcely to be seen, and sometimes it is as wide as the layer of cells. As I have stated, these different widths indicate stages in its growth. In the dentine layer are to be found numerous connective tissue fibers, first noticed by Mummery, of London, and into it the matrix-forming material is deposited.

With my present knowledge, I can not consider the layer between the enamel-cells and the enamel a membrane, and indeed Dr. Williams considers it doubtful, for he states that it is impossible at present to speak definitely in regard to its origin, exact structure, or function; but he considers it plays an important part in the elaboration of material for enamel-building. As this is a partially calcified layer composed of globules and cement substance, lifeless material, I fail to see the important part it plays in the elaboration of materials for enamel-building. It is a tissue that has been elaborated by the enamel-cells. Dr. Williams now passes to consider another feature of the enamel-forming organs—the stratum intermedium. He states that these cells have heretofore been supposed to perform no particular function until the formation of the enamel-prisms was completed, when, it is believed, they undergo some modification of form and become calcified as the outer cuticular layer of enamel known as Nasmyth's membrane.

In explaining the origin of this membrane I can not agree with this supposition. Nasmyth's membrane is formed from the layer of ameloblasts left after the enamel is completed.

Dr. Williams says that he is able to show that the cells of the stratum intermedium constitute a no less important factor in the formation of enamel than the ameloblasts; indeed, he says it would appear that they are the more active of the two so far as concerns the selection of the proper material for enamel-building. Again I can not agree with him. The secretion of the proper material, the lime salts, comes from the blood supply everywhere found against the stratum intermedium after calcification commences. This calcific material is absorbed by and only detected in the ameloblast, near its nucleus, as a microscopically minute globule, calco-spherite. The evidence under the highest powers, is, that its formation and growth is within this cell.

As I stated in my Chicago paper, I believe that the cells in the stratum intermedium are the origin of the fibrous substructure which serves as a scaffolding to build up the young enamel. There is a possibility that this fibrous tissue, which I believe I have clearly demonstrated to be present, may originate from the connective tissue of the jaw which is against this layer; in fact, I have been somewhat in doubt whether or no the cells of the connective tissue of the jaw did not take the place of this layer after calcification had advanced, for in many sections it is difficult to distinguish anything but connective tissue cells against the ameloblasts.

Dr. Williams continues, "It has for many years seemed clear to me that the enamel-organ, and more especially the stratum intermedium, should be classed among the true secreting tissues." He states, "I am not able to understand how so many good observers have failed to see the intricate plexus of blood vessels which is very early developed in this layer of cells. Wedl, Magitot, Legros and Sudduth say that they have uniformly failed to detect a blood supply within any part of the enamel-organ proper. And yet in a large majority of my photographs it is as plainly evident as the ameloblasts or the stellate reticulum." Dr. Williams can not mean that there is an intricate plexus of blood vessels developed from the cells of the stratum intermedium, these cells having their origin from an epithelial source. The enamel-organ proper is a closed organ of epithelial tissue, with its central mass of stellate tissue, having lime salts enough within it to form the first layer of enamel. No intricate plexus of blood vessels is ever seen within this epithelial organ at this time. Indications of a blood supply are to be seen just without, but never in or against the stratum intermedium, until the main mass of epithelial cells have disappeared and the connective tissue of the jaw is against the true enamel-forming layers. Dr. Williams' photographs do not show this intricate plexus of blood vessels in the enamel-organ proper.

I can not believe Dr. Williams agrees with Heitzmann and Bödecker in their idea that the stratum intermedium of the enamel-organ is a kind of connective tissue. No, this intricate plexus of blood vessels has its origin in the true connective tissue of the jaw.

I have never studied tissue from the jaw of the mouse or rat, consequently I have never seen the appearance which Dr. Williams illustrates; nor do I believe the tissue of the stratum intermedium, as shown, to be glandular tissue. This vascular network in the stratum intermedium of the rat was seen and described by Professor Rowes and Mr. Poulton, two English observers, some years ago, but they said nothing about its being glandular tissue. In the jaw of the rodent, where the enamel is being constantly supplied as it is worn away, it would seem necessary that there should be a larger blood supply, and but natural that these numerous capillaries take the form of papillæ, being so constantly active; but I fail to see that this implies that the tissue of the stratum intermedium filling up the spaces between the papillæ should necessarily be glandular.

Dr. Williams continues, "Several observers of distinction, notably Dr. R. R. Andrews and Professor Spee, have described the development of enamel as a process in which the tissue is formed by the deposit of droplets or spherules of calcoglobulin. This view is undoubtedly correct, but, as stated by the authors mentioned, it does not include all of the phenomena that may be observed. The first important fact to be mentioned concerning the appearance of droplets or masses of "calcoglobulin" in the ameloblasts is that the

process is an intermittent one. Sometimes the cells on one side of a developing tooth will be full of these masses, while on the opposite side there are none to be seen." "The ultimate structure of completely formed enamel shows that it is built up by the deposit of bodies, which are of very nearly uniform size. There is, as we shall see, no uniformity in the size of these masses of "calcogobulin," neither is there anything in their structure which corresponds with that of formed enamel; in fact, under the finest lenses that are made they show as highly refractive masses without definite structure. Although they are usually more numerous at the inner ends of the ameloblasts, next to the forming enamel, they may be seen throughout the entire length of these cells, and I have often seen them lying close up to the membrane which separates the ameloblasts from the stratum intermedium. Occasionally I have espied them when they seemed to be actually in or emerging from this membrane. It is possible, and I think highly probable, that this substance ("calcoglobulin"), although appearing in the ameloblasts, is really formed in the secreting cells of the stratum intermedium."

If the stratum intermedium, which is an epithelial product, plays so important a part in the formation of the material that Dr. Williams takes to be calcoglobulin "for enamel matrix," why do we not find the same stratum intermedium in the dentine germ, where this so-called "calcoglobulin" is in the process of being constantly formed for dentine matrix?

The calco-spherites, which I believe to be the only matrix formers, are but partially formed in the protoplasmic fluids of these cells. Their origin is from the blood supply. This alone gives the lime-salts, which, passing through the fluids of the cells to the ameloblasts, become the calco-spherite, probably in the identical way as do the salts of lime in the presence of organic fluids as was seen in the brilliant experiments of Mr. Rainey, Dr. Ord and Professor Harting.

Dr. Williams forgets that calcoglobulin is a substance formed of these calco-spherites, and only formed at the point of union with calcified tissue, where a further calcifying process gives it a texture impossible to destroy with acids. Such a substance is not formed "in the secreting cells of the stratum intermedium."

It will be remembered that the contents of the ameloblasts were always spoken of as granular until I called attention to the fact that the contents were globular, not granular, as early as 1878, and as they pass down into the ameloblasts they are so minute as hardly to be seen with our best lenses. It is only when they are within the ameloblasts below the nucleus that they are easily seen as minute globules. At the ends of the cell nearest the enamel they take the shape they assume, probably by coalescing. They are somewhat larger than the rod they are to form, but seem to be drawn into the size of the enamel-rod by compression. My photo-micrographs illustrate this beautifully. The large masses of what Dr. Williams calls calcoglobulin seen in some of Dr. Williams' photographs are, I think, postmortem changes where many globules have coalesced, forming the large abnormal masses. I have seen them coalesce from pressure on the cover-glass while examining specimens. It is only when the globules are against the enamel and fixed by partial calcification that they show their real size. My investigation teaches me that it is probably impossible that there can be two sets of globules, each of a different nature, forming in the enamel-cells, as stated by Dr. Williams. His statement that almost every different method adopted is certain to produce a greater or less modification of conclusions I have found to be true, and it was only after working over hundreds of sections and finally finding a way to prepare the tissue very near the life of the animal that I came to the conclusions which I gave in my Chicago paper.

Speaking of the appearance of fibers in the young enamel he says, "The ameloblasts are raised from the developing enamel, and, projecting into the space thus formed, we see strings of the albumin-like material which sometimes extend quite across the clear part of the field. In several places these strings are seen to be drawn out from the transparent droplets. Whether these strings be drawn out from the interior of a calcifying enamel-rod, as described by Mr. Charles Tomes, Dr. Graf Spee and others, or are merely an extension of one of the transparent droplets, they are evidently always produced by the same material and substantially in the same manner, viz., by the drawing out or extension of an albumin-like product of the enamel organ." In this Dr. Williams loses sight of the fact, which I then clearly demonstrated, that there are fibers and many of them appearing like the fibers of connective tissue, passing from the cells of stratum intermedium through and among the ameloblasts. He further remarks, "But whether in the form of droplets or strings this substance is probably "calcoglobulin," an albumin-like material holding the calcific material, or at least some portion of it, in solution."

I think I have proven conclusively that these strings are not calcoglobulin. They have a fiber foundation. Allow me to quote from my paper: "Appearances of calcified fibers projecting beyond the line of calcification I had already seen in forming enamel, and I commenced a series of investigations to see if I could find out what these appearances indicated.

"I commenced by trying to tease apart enamel-cells; after some little experimenting I am quite sure I found evidence that processes from the cells of the stratum intermedium of the enamel-organ pass down through and among the ameloblasts to the forming enamel beneath. And I judge that these are the processes which Mr. Tomes saw and described as processes connecting the enamel-cells with the cells of the stratum intermedium. I then commenced a series of experiments, trying to separate slightly the layer of enamel-cells from the stratum intermedium. The parted edges had the appearance of broken processes, and in several specimens there are processes crossing from the enamel-cells to the stratum intermedium." And further, "Connecting with the fibrous net-work and running to the formed enamel beneath, we find innumerable thread-like processes, appearing like fibers. To sum up my conclusions: I am led to believe that there probably exists in developing enamel, as has already been found in developing bone and dentine, a fibrous sub-structure on and between which the enamel is deposited. After the enamel is wholly formed, its existence seems to be wholly blotted out in the dense calcification of the tissue."

Dr. Williams' strings of "calcoglobulin" are really these fibers coated with an albumin-like product.

This I think I have proven to my own satisfaction. When coated with this material, as they most always are, they look as if they were pulled out of a semi-solid substance. These matrix-forming globules laid against the enamel already formed, but not wholly calcified, are, by compression, drawn into the form of the future enamel-rod and there fully calcify, as do also the fibers which serve as their scaffolding, and the albumin product that becomes the inter-enamel-rod substance. This I believe to be the process of enamel calcification, stated in few words. The enamel-rods are, as Dr. Williams says, built up by the successive rhythmical orderly deposit of these bodies of uniform size. The larger, more transparent irregular masses which he describes and which I have often seen, are only an aggregation of these same orderly deposits of uniform size which have for some unknown reason become fused or coalesced into the irregular mass. They are, I believe, postmortem changes, and of this fact I feel assured, because I have seen so many evidences of it, not only in studying the enamel, but while studying dentine calcification, where the proof seems absolutely conclusive.

In his paper, Dr. Williams has added a substantial contribution to our knowledge in showing us for the first time, that the so-called stellate reticulum is simply an intercellular substance which is left after the removal of the cell contents. I had thought with Dr. Sudduth, that the cells of this tissue must be a modified form of those cells composing the middle layer of the oral epithelium, changed from the polygonal to the stellate form, yet I never understood how the change was brought about; but Dr. Williams explains it. He says the cells undergo some change which renders their contents more watery, and thus they are easily washed away in preparing the sections. He clearly shows the cell contents, in his recent photo-micrographs, filling in the spaces between the stellate tissue. They are perfectly nucleated cells lying in the so-called stellate reticulum, which is really the slightly modified cell wall. He says that certain methods of treatment of the oral epithelium will produce appearances closely resembling the usual illustrations of the reticulum of the enamel-organ. He shows that what has been called the nuclei of the stellate reticulum are simply the corners of other polygonal cells which have been cut across in making the section.

In closing, I would say that I fully realize the good work Dr. Williams is doing for his profession in writing this series of papers. I know something about the self-sacrifice that such investigation costs. By the use of the finest modern objectives, he has given to us photo-micrographs that are wonderfully clear in every detail—photographs that would show the reticulum of Heitzmann and Bödecker if it were there. After carefully studying sixty or more of these pictures, I see no reason to change my views expressed in my Chicago paper. I do realize their beauty, and know something of the skill required to perfect them. In these finer points in the development of the dental tissues, especially of the enamel, there must necessarily be a good deal of obscurity which future investigation will probably clear up. I shall try to do something toward this end, and shall always welcome the views of other workers. I feel assured the best results will be brought about by a comparison of ideas on the different points in question, and I stand ready to change my views when I am convinced that I am in error.

COLD BATHS; THEIR USE AND ABUSE.

Read before the Clinical Society of Washington.

BY JOHN D. THOMAS, M.D.

WASHINGTON, D.C.

I do not intend to go into elaborate detail as to the history of the ablutions of man from the time Adam and Eve in their pristine bathing costumes, plunged into the cooling waters of Eden to the present era, when their descendants are carrying the rage for everything antique to the point of fashioning their bathing costumes as nearly as possible after those of their good old father and mother.

Suffice it that the cold bath maintains its right to belong to the D.A.R. of therapeutics by tracing its ancestry back to the fountain head of medicine, Hippocrates. Musa, Galen, Paulus Ægineta, one of the Savonarolas, Van Helmont, Blair, Huxham, Floyer, Hoffman, the Hahns, Wright, Currie, Priessnitz, Fleury, Brand, Jurgensen, Winternitz, Baruch, thus runs the pedigree, long and distinguished enough to have it fare better in this generation; and certainly should procure a hearing for it from any collection of medical men.

One reason for my choosing this subject was the seeming lack of interest displayed (except in connection with typhoid fever) by the profession of this country in a question of so great weight in many dangerous diseases. My remarks will deal only with one phase of hydrotherapeutics, namely, the cold bath. For hydrotherapeutics in general is too broad and massive a subject to be discussed in one paper. And further I do not wish to be classed with the water curists; but the wheat can be separated from the chaff only by discussion, and I trust we will be repaid by the amount of wheat we garner at the end.

As the realm of the physician includes the *preservation* as well as the *restoration* of health, a fact too often lost sight of not only by the laity but also by the profession, I wish to embrace in this discussion the use of the cold bath as a conservator of health as well as a therapeutic agent in disease; and also the abuses of the bath.

In order to recognize pathologic conditions in the human economy, it is of paramount importance to first become acquainted with the normal. So in therapeutics, it is necessary to first know the effect upon the healthy body of the agent you desire to use in disease. I have never forgotten the principle drilled into me at college by that great teacher, the late Dr. Wm. B. Towles, of the University of Virginia: "Never prescribe empirically if you can help it. Study and know the physiologic action of your agent, and you put yourself upon a scientific basis from which you can not be routed." But how soon do most of us depart from this good maxim, as from many others learned at the feet of such Gamaliels, especially when we get into the swing of dispensary practice. So the more thoroughly to comprehend the effects of the cold bath, let us study its physiologic action, through the skin upon the system.

Histologically the skin consists of epidermis, cutis vera, subcutaneous fatty tissue, sweat glands, blood vessels, and nerve terminals. The blood vessels ramify in the papillæ and in the subcutaneous tissue around the sweat glands and hair follicles. The nerves terminate in fine fibrils between the cells of the epidermis. *Physiologically* the skin is a mechanical protection to the internal organs of the body; it is an eliminative

organ; it is the great regulator of the body temperature, the principal channel of the loss of heat in man, the other great factor being the lungs. The subcutaneous fatty tissue acts as a non-conductor of heat, thus helping to retain the body temperature at normal. The body temperature is regulated through reflex action, by vaso-motor control, control of heat production, of respiration, circulation and of sweat glands. The skin is the telegraph instrument which sends messages of warning and command to all the centers of the complex nervous mechanism of the system. Such is the normal function of the skin. And it is only one step further to know the action of cold water upon the system, when applied to the surface of the body.

It has been discovered by Blix and Goldscheider that there are in the skin special nerve terminals for heat, cold and pressure. And that those for cold act with lightening-like rapidity, while those for heat act more slowly. When cold water is first applied to the skin there is momentary contraction of all the capillaries by reason of the stimulation of the vaso-motor constrictor nerves. But this is followed by a dilatation, according to the physiologic law that muscle recovers from stimuli as slowly as it acts. According to Baruch, "the sphygmograph demonstrates the fact that the dilatation of the peripheral vessels which ensues upon reaction is not accompanied by a loss of tone and is not passive, but is probably due to an excitation of the inhibitory nerves." The opposite effect is shown when hot vapor baths are given. It is a demonstrated fact that cold raises, while heat lowers the tone of the vessel walls. But if there is a *continuous* application of cold to the surface the vessels contract again permanently, having no reactionary dilatation.

The impression of the cold water upon the thermic terminals in the skin is carried direct to the centers in the brain and cord, and reflexes are sent to the heart, to increase the rapidity and force of its beats, and to the respiratory center to deepen, accelerate and strengthen the inspirations, demonstrated by throwing cold water in the face of a fainting person; and also by the sudden plunge into the cold bath, the effort to inspire being so pronounced as to abort, because the muscles can not respond quickly enough. The respirations then become regular and deep; and this deepening and strengthening of the respirations counteracts upon the circulation, helping and strengthening it, demonstrating very prettily the interdependence and community of action of the physiologic functions of the system. This general stimulation to the nervous system has the effect of a tonic upon it, and the whole economy feels the benefit—the secretory, excretory, circulatory, respiratory, motor, reproductive—all.

There is an increase in the *amount* of urine eliminated, but of lower specific gravity. The circulatory changes and temporary checking of perspiration are no doubt accountable for the increased amount, and other things being equal, increased volume means decrease in specific gravity.

A very important effect of the cold bath upon the system—the reduction of temperature—is considered by a great many physicians, especially in this country, the *only one*. This fallacy should be eradicated. The real benefits to be derived from the cold bath rightly applied have been so lost sight of, and in fact so little known by the profession at large, that when the looked for great reduction in temperature was not forthcoming in a case in which they used the much vaunted cold bath, but used it ignorantly and unscientifically, they have cried "anathema, maranatha" upon all hydrotherapeutics.

The pivotal point of all good effects to be got from a reduction of temperature by the cold bath is that there *must be* a good cutaneous circulation during the bath. The skin itself being a bad conductor could not eliminate much of the body heat by simple contact with the cold water. And the action of the continuous cold upon the surface would contract all the vessels and force the blood into the internal organs, thus causing a rise instead of a fall of temperature. Fleury of France has shown that a person dipped into a bath of 48 to 52 degrees F. for thirty minutes reduced the surface temperature; but the internal temperature not in the least. Thus the object is to overcome the contraction of the arterioles of the skin caused by the continuous cold necessary in a bath of from ten to thirty minutes. Brand of Stettin has found the remedy in simple mechanical friction of the surface either with the hand or a rough cloth. The constriction of the vascular walls is inhibited; the tone of the walls not being lost as in the hot bath, and the accelerated heart action sends the warm blood to the surface where it is cooled and returns to the internal organs, while more warm blood takes its place, and thus a continual interchange going on soon cools the whole body.

Upon tissue metamorphosis also is the beneficial effect of the cold bath shown, especially in phthisical patients. The increased circulation increases the functional activity of all organs and hence the tissue changes. "And Liebermeister has proven that oxidation is increased by the external application of cold shown by the execretion of carbonic acid so long as the body temperature is not much disturbed." (Baruch). So much for the physiologic action. If we understand that thoroughly, the mastery of the technique will be easy, for we will know the reasons for every move—not be working empirically.

Great stress is laid upon the exactness of the technique by those who are authorities upon hydrotherapeutics; but if they would spend the same amount of energy and exhortation upon impressing the importance of a thorough knowledge of the physiologic action of the agent to be used, the different steps in the technique would be so thoroughly appreciated that any omission or error would at once be perceptible.

The cold morning bath in health is a good thing if properly and judiciously performed, and *not abused*. For those beginning its use it is well to first stand in about eight or ten inches of warm water and sponge off with water gradually cooled until they can with comfort take a plunge bath at 80 or 75 degrees F. for the first two or three days; the temperature of this being gradually lowered to 60 or 50 degrees F., which is easily borne, producing a healthy reaction and glow. It accelerates the blood flow; raises blood pressure, thus flushing the eliminative organs after their night's work, and starting them on their day's duties fresh and invigorated. Just as we exercise the voluntary muscles and nerves by gymnastics, so are the involuntary muscles of the cutaneous vascular system exercised by the gymnastics of contraction and dilatation. The great temperature regulator of the body is kept in order. It stimulates the nerve terminals and gives tone to the whole nervous mechanism. By keeping the normal functions of the

skin at par it aids and relieves the other eliminative organs of the body. Thus as an aid in the preservation of health it has a distinct and useful place in our armamentarium.

A form of bath which appears to have many advantages as a therapeutic agent, but which I have never seen used, is the half bath. The technique is briefly as follows; eight or ten inches of water at a moderately warm temperature in the tub; patient sits in the water with cold towel around the head; patient and attendant rub the body well while attendant pours and dashes the cold water over the head, shoulders and back. This is continued from ten to thirty minutes, friction being kept up all the time. A most excellent thing in this bath for some conditions, especially respiratory affections, is the affect gained by dashing the cold water on the body. The after-treatment is the same as in the full bath which is given below.

The full bath is typified in the Brand bath. I will run over rapidly the main points as described by Baruch in Hare's System of Therapeutics: Patient is prepared by giving a stimulant just before being put into the bath (one-half to two ounces of brandy). Preparations are screened from patient because of psychic disturbance. Tub is rolled up to the side or end of bed, and patient after having face and chest bathed with ice-water (I have found serviceable a towel soaked in cold water applied to the head) is lowered into the water which is at the required temperature, according to the condition of patient. The whole body, up to the chin, is immersed in the bath, and immediately the attendant or attendants, two are preferable, begin applying *gentle friction* to the surface of body with the open hand. Patient will complain that he is freezing and can not breathe, but reassure him and keep him in the bath for at least fifteen minutes, continuing friction all the time. The best guide to the safety of the bath is the condition of patient. Cyanosis of lips or face is a signal that circulation is failing and we must remove the patient at once. Another sign of collapse is a thready and rapid pulse. After remaining in bath about fifteen minutes, lift the patient up gently, letting the water drip off for a minute, and lay him over on a linen sheet spread over a blanket. The sheet is wrapped around him, being tucked between arms and chest and between limbs. If temperature had been high, above 103 degrees, the blanket is also wrapped snugly around him, and he is left with hot bottles at his feet to sleep, but if temperature was below 103 degrees when he was put into bath, he is rubbed dry with the sheet and towels and put to bed. [At this stage I have always found it a good plan to give a little stimulant (one-half to one ounce of whisky). Osler recommends the same in his "Practice."]

The bath which is most used I think, especially in private cases, and which I found gave splendid results, was the so-called "graduated full bath." It is simply a cooling of the water gradually after the patient is in the full bath, by adding either cold water or ice. The same methods are followed out as in the Brand bath, except that the length of time in the bath is increased to double. The patient does not undergo the intense shock of being suddenly plunged into ice-cold water.

The therapeutics of the cold bath may be summed up as follows; 1, as antipyretic; 2, as a general nervous and muscular sedative and tonic. Osler thus sums up the good effects in typhoid fever; 1, the reduction of fever; 2, clearing the intellect, lessening stupor and disappearance of muscular twitchings; 3, general tonic action on nervous system, especially the heart; 4, insomnia lessened; 5, most important of all the mortality is reduced to a minimum. Hare in the Boylston Prize Essay on "Fever; its Pathology and Treatment," says: "Cold bathing is a power for good before which every other measure must stand aside."

The idea is quite prevalent in this country among the laity, and indeed to a deplorable extent among the profession, that the use of the cold bath is restricted, if used at all, to typhoid fever. I wish to draw your attention more particularly to its use in other diseases than typhoid. The brilliant results achieved in this disease can be found by referring to almost any recent work on the "Practice of Medicine." And the erstwhile unknown and unsung Brand of Stettin has floated, and justly so, into the realm of fame in his tub, as did Diogenes of old.

Its use in the exanthemata is sometimes of great advantage. In *typhus* it was used by Currie in an outbreak in Liverpool in 1792. He used cold sea water a 60 degrees F., and poured it "over the naked bodies of those whose strength was not greatly reduced, and whose heat was steadily above the temperature in health." He had great success with this disease. Jurgensen recommends it in his work "Pathologie und Therapie." Osler says it "should be thoroughly and systematically employed as in typhoid. Strümpell says, "besides good nursing a judicious employment of baths is certainly our chief reliance for lessening the severity of many of the symptoms, such as febrile, nervous and pulmonary disturbances, as well as for averting many dangerous complications." Manuel Dominguez, Professor of Therapeutics in Medical School of City of Mexico, writing in Hare's System of Therapeutics, speaks in the highest terms of the use of cold baths in this disease; but personally prefers to use the tepid bath.

Scarlet fever.—Again let me quote that great pioneer in hydrotherapeutics, Currie, in his experience with this terrible disease in his two boys, showing his perfect confidence in the efficacy of the cold bath to do all that could be done. "I shut myself up with these boys, and with plenty of pump water and a pocket thermometer prepared, not without anxiety, to combat this formidable disease. As soon as the sensation (of heat) was steady in my eldest boy, I stripped him and poured four gallons of water over him of the temperature of 64 degrees. The usual good effects immediately appeared, but at the end of two hours he was as hot as ever; the remedy once again applied, and repeated as the return of heat indicated. By the time the eldest was ready for his third affusion, the youngest was ready for his first. The heat rose in the eldest to 109 degrees, in the youngest to 108 degrees, and the pulse in each was upward of 150. In thirty-two hours the first had the affusion fourteen times; eight times cold, twice cool, and four times tepid; twelve affusions sufficed in the case of the youngest, of which seven were cold. The fever in both was completely subdued. On the morning of the third day they were both evidently safe." He also reports 150 cases treated by the cold bath.

Osler says on this disease, "In cases of high and and rapidly increasing fever the graduated bath

should be used." Strümpell says the same thing. Dr. Hiram Corson of Pennsylvania says, "rarely has any one made a more careful trial of any remedy than I have made of this, in a practice of fifty-nine years, under the daily watch of intelligent physicians, anxious no doubt for my success, but doubtful of the propriety of my practice, and too timid to resort to measures to them so heroic. And now in closing my career as a practitioner, and looking back on the countless fights I had with death in hovel and in palace, I can truthfully declare that no means ever used by me, or which have ever been known to me as used by others, in scarlet fever, have so successfully warded off its blows and shielded patients from harm and restored them to health as the use of cold water and ice." Dr. Alexander Goldstein[1] reports from the Buda Pesth epidemic of 1891, 231 cases of scarlatina in which cold baths were chiefly used. When they needed an antipyretic the baths were used in preference to all others, and his testimony is, they "acted excellently." The good effect was not only in lowering the temperature, but also in improving respiration, innervation and cutaneous action. They used a form of the graduated bath, pieces of ice moved back and forward in the water causing waves of cold to impinge upon the body. Dr. Reimer, who treated over 3,000 cases of scarlatina by various methods, has the following to say about cold baths: "The efficiency of full cold baths was undoubted in scarlet fever, if they were used methodically and with proper precautions. The patient is plunged into a tub half filled with water at a temperature of from 57 to 54 degrees F. After removing him from the water, he must be rubbed briskly and wrapped in a woolen blanket. The temperature frequently drops several degrees; patients are much relieved and desire a repetition. In scarlatina the indications for hydrotherapy vary with the progress of the disease." His experience with the gradually cooled bath is that it is pernicious in this disease. Ziemssen also adds his testimony to the good effects of the cold bath in scarlet fever, putting it before antipyretic drugs.

In *smallpox* the use of the cold bath is limited. Currie and others used it to some extent. Strümpell recommends it in the initial stages to reduce fever. Osler says the cold bath at 70 degrees F., repeated every three hours in cases of pyrexia combined with delirium and subsultus is much preferable to the medical antipyretics. But the general concensus of opinion does not recommend it as a routine practice, the warm or tepid bath being preferable in the eruptive stage.

The other exanthemata rarely demand the use of the cold bath, but if the fever rises very high, there is no better remedy than the cold bath to equalize it.

Rheumatic fever. For the very high fever sometimes encountered in this disease we have a most valuable remedy in the cold bath; and in fact the only agent which has proved of any use in combating the extreme hyperpyrexia. The results obtained, the reduction of temperatures which had reached the flood-tide mark of 110 F. are certainly remarkable, and stand as an incontrovertible argument for the efficacy of the cold bath as an antipyretic.

Neither Strümpell nor Osler in their text-books on practice have much to say upon the treatment of hyperpyrexia in rheumatism, but both recommend the cold bath or cold pack as the best agents to use. Stewart of McGill University, Montreal, says: "When hyperpyrexia has set in, it is useless to employ drugs of any kind to reduce it. It is only wasting valuable time, the only measure of real value is cold, and it is clear from the general experience on this point that the sooner it is employed the better are the patient's prospects for recovery. The general cold bath is certainly the most effectual way of carrying out the antipyretic action of cold; in some cases a single bath is all that is necessary." In others as many as twenty-six have been given. Wilson Fox collected a series of twenty-two cases from 1867 to 1871; temperature from 106 to 111.7 degrees; eighteen were treated by ordinary means, without cold, and all died. The other four were treated by the cold bath, three recovered, highest temperature being 110 degrees. Dr. Male collected in the ten years ending 1890 sixteen cases; temperature from 106 to 110.4 degrees. The pack was used in eight, with two deaths; and the bath in the other eight with one death. Baruch reported a case, temperature 106 degrees; cold bath given and ice applied to joints; recovery. Medley, Murchison, Ringer, Charcot and others have reported cases with temperature reduction of from 5 to 8 degrees. The Committee of the Clinical Society of London made the following report on sixty-seven cases from the ten years ending 1879. Synopsis given by White in his "Text-book of General Therapeutics." "Of the cases that were not bathed only one in which the maximum temperature exceeded 106 degrees recovered; of the cases that were bathed, fifteen (or five-eighths of the total) in which the maximum exceeded 106 degrees recovered. Again six out of eleven fatal cases which were not bathed, the maximum was under 106 degrees but in only three out of the twenty-two fatal bathed cases was it so low. Often the treatment is of no avail; but on the other hand it frequently turns the scale toward recovery, when the temperature has not reached an extreme height. In a considerable number of deaths, recourse to bathing has been too tardy to be effectual. The treatment must be begun without any delay whatever, directly hyperpyrexia, however slight, is detected, and must be perservered in unremittingly so long as the temperature remains high. The committee truly says that a strict watch must be kept for the prodromal signs; two, which are most noteworthy, are delirium and a cessation of the articular pain. Cold bathing not only reduces the temperature, but also allays the delirium, brings down the frequency and increases the strength of the pulse and promotes sleep even in the most desperate cases. If it were made a rule to put the patient in a cold bath whenever the temperature reaches 105, the mortality in rheumatic hyperpyrexia would greatly fall." But great care must be taken in these cases for they are all in a very precarious condition when they reach the point of needing the bath. And the true rationale of the cold bath as an antipyretic must be borne in mind—do not literally swamp the internal organs with the hot blood by driving it all away from the surface. Especially watch the weakened heart in the cases that are treated late.

Insolation.—In this condition where high fever exists the cold bath is the only efficient remedy to combat it. In this as in rheumatic fever extreme temperatures are often successfully reduced, the patient being brought from a state of gravest collapse to a condition of comparative safety. I have seen

[1] Baruch: Uses of Water in Modern Medicine.

cases brought in unconscious with temperature from 107 to 109 degrees F.. recover with bath treatment.

Anemia.—In 1878 M. Thermes demonstrated with Hayem's hemometer that the judicious application of cold to the periphery increased the number and improved the quality of the red blood corpuscles. And Winternitz has demonstrated an improvement in the oxyhemoglobin constituents, by Fleischel's hemometer. And to these Baruch adds his testimony of numerous cases of anemia and chlorosis yielding to hydriatic measures after iron treatment had proved futile. Professor Shattuck of Harvard University (in Hare's Syst. Ther.) also recommends for this disease, after vigorous frictions of the body in the mornings, the cold affusions while seated in a few inches of warm water.

Phthisis.—Winternitz says in a recent article in the *Deutsche Medicin. Wochenschrift* that cold water is the best means to fortify the system against phthisis by reason of the general tonic influence on the system. And further in cases already advanced the cold water decreases the fever, increases the body weight, decreases the night sweats, lightens and diminishes the cough and expectoration, and other subjective complaints; there is an improvement of the local conditions, lessening and disappearance of the bacilli; and these statements he has proven by clinical work.

Pneumonia.—Before the Tenth International Medical Congress in Berlin, Dr. A. H. Smith read a paper in which he showed the true rationale of heart failure, which is the fatal element in pneumonia, to be the overwork of the right heart in trying to force blood into the consolidated lung tissue. And as a remedy for this he proposed to dilate the blood vessels of the remainder of the body so they could hold some of the blood that was flooding the right heart. To accomplish this he advocates medicinal remedies. But have we not most efficient and rational aid to the fulfilment of the indications in the cold bath? Medicinal agents can not maintain for any length of time the dilatation of the cutaneous vascular system unless the tone of the vessel walls is assured. The cold bath while rendering this necessary aid, at the same time gives tone to the whole nervous system, strengthens the respirations, stimulates the heart, quiets delirium, reduces the temperature, and gives the patient a much needed rest and sleep. All this I have seen accomplished by the cold bath. And while my personal experience has been limited to one case, that one was so markedly benefited by it that a lasting impression was made upon me. The case came into Gouverneur Hospital, New York, one morning with a temperature of 100 degrees F., and fine râles in one lung. By evening the temperature had risen to 106 degrees F., pulse 130, respiration 45, rapid consolidation going on in lung, and patient getting delirious. There was a typhoid patient in the same ward being bathed every three or four hours, and everything being convenient and patient almost *in extremis*, I had him given a plunge both at 79 degrees F. which was gradually reduced with ice to 40 degrees. It lasted about ten minutes. This bath did not reduce the temperature very much, but the general effect upon the patient was good. Delirium disappeared. The following morning, temperature still being quite high, another bath was given at from 72 to 44 degrees F., and from that time the temperature continued to fall until it reached normal on the fourth day of the disease. The patient had a rise of temperature on the ninth day, but nothing in the lungs to account for it. It went up to 102.6 degrees suddenly on the evening of the twelfth day, and as suddenly down again below normal the next morning. For six days these remissions occurred when temperature went to normal aud stayed there, patient soon afterward recovering perfectly. I saw patient some weeks later and found lungs normal and healthy.

The percentage of mortality has been, and still is so high in pneumonia, that any means of lowering it should be received with favor by the profession, and especially when this means is based upon a rational physiologic foundation, proven by thousands of trials sanctioned and conducted by the best clinicians of the day. And yet so great is the timidity, or shall I say conservatism, of the profession at large, that I doubt if one practitioner in a thousand could be found to give the cold bath a trial in his private practice; or even the cold pack, for which neither the patient nor doctor seem to have the same horror.

Since the old adage that "figures can't lie" has been reconstructed to read "nothing is such a convincing liar as figures," I will not attempt to give you the record of thousands of cases from some of the best men of this and other countries, but will content myself with presenting to you some of the opinions of these men, formed from large experiences.

Strümpell recommends the cold baths in severe cases, not for the pyrexia simply, but for their effect upon the respiration and nervous system. Jurgensen advocates the very cold baths, preceded by stimulants, and he confirms his recommendations with wonderful results obtained. Penzoldt says after treating 2,200 cases: "If the indication is, beside reducing temperature to improve the circulation, respiration and cerebral activity, and further expectoration, preference should always be given to a cautious bath treatment." Fismer reduced the mortality almost half in 230 cases treated by baths as against the same number treated without. Vogl (Baruch, "Uses of Water in Modern Medicine"), chief of Munich Military Hospital, has found the bath, as in typhoid, of great value in pneumonia. Dr. Boardman Reed of England, says in a paper on pneumonia "that water locally applied either by wet pack or in the form of baths, after the Brand method, is the most efficient single remedy or therapeutic measure for acute pneumonia." In our country we find Osler recommends it in very high fever. Pepper says of pneumonia in children that when high fever is present recourse may be had to strong antipyretics "but hydrotherapic measures are more efficient." He recommends cool and cold sponging, cold pack and baths. Graham of Jefferson Medical College says that pyrexia often reaches a dangerous height in pneumonia, and "undoubtedly the safest and most reliable means of reducing this pyrexia or hyperpyrexia is by the external application of cold." "The cold bath has," he says further, "notwithstanding its advocacy by many prominent American physicians, and the lessened mortality following its use, never become popular in this country" This he attributes to the necessity of portable tubs and attendants. And finally Simon Baruch says: "We have every indication in the treatment of pneumonia fully met by the properly adopted bath, namely, 1, to reduce the temperature; 2, to tone up the action of the heart; 3, to refresh the failing nerve supply of the heart and lungs; 4, to deepen the respiration; 5, to enlarge the surface of the blood; 6, to restore the lost tone of the capillaries." I can

not agree with Baruch in his sweeping statement that "every indication is fully met by the bath." But this point I wish to emphasize, if used judiciously in conjunction with other remedies its value is of unmeasured worth.

Abuses and contra-indications.—It is certainly a fact that one disastrous case from cold bathing will do and indeed has done, more toward creating a feeling of antagonism to the method than 1,000 cases of undoubted success will do toward forwarding it; and that, in spite of the fact that it was done ignorantly, or in direct disregard of all physiologic laws. Baruch mentions a case in point. A young hospital physician and teacher expressed abhorence of the cold bath treatment of typhoid; and when asked why, he said he had seen a nurse killed by it, and this is the description of their method as given by him: "We endeavored to reduce her temperature by wrapping her in a sheet, placing her on a Kilbs cot, and sprinkling her with ice water." Do you wonder that it proved to be her winding sheet? And Baruch gives another instance of the same method being used in one of the hospitals of a large city. Another way in which the cold bath is brought into ill repute is by not exercising the proper amount of care in selecting the cases for baths. Patients with atheromatous vessels, with organic heart disease, with hearts which are already on the verge of disolution from some exhausting disease, should never be put in the cold bath. Indeed, I am of opinion that there are some nervous organisms which can not stand the cold plunge even in health. lacking the one desideratum, namely, the ability to react quickly and completely. While mentioning the abuses of the cold bath in therapeutics, it will not be out of place to give a very striking instance of the extent to which their fervor will carry some in using it as a hygienic measure. I was told by a young man who had been in the habit of taking a cold bath every morning, that he was in the country and arising early and having no means handy for taking his accustomed cold bath, he went down to the river. and breaking a hole in the ice, jumped in. He was fortunate to escape serious results; but it demonstrates the folly of carrying any measure to extremes. The one cardinal point always to be borne in mind in health and disease is *to get reaction.*

And now in closing let me emphasize the point, that although the cold bath is a great aid in the battle against disease, it is not a specific for the germ disease, nor in fact for any disease. It is only one of the agents to combat the symptoms, but *a powerful one.* And if used rationally, understandingly, conscientiously, I think you will agree with me in giving it its rightful place among the foremost therapeutic agents of the day.

The Cairo Flats.

THE URINE IN DIABETES MELLITUS.

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While diabetes mellitus is not a disease of the kidney, it finds its chief clinical expression in certain profound alterations in the character of the urine. This fact renders the study of that secretion of primary importance in the diagnosis and management of the disease. The great practical value of urinary analysis in these cases is generally recognized, but the importance of painstaking and frequently repeated examinations is not so extensively appreciated. An analysis which includes only the detection of sugar and the estimation of the specific gravity and reaction is rudimentary and neglects many valuable considerations. Close observation of the urine will help us to a more perfect understanding of the progress of the case and its prognosis, and will result in the early detection of developing complications.

I have been impressed by the comparatively casual manner with which the urinary changes of this affection are considered in special and general text-books, and the following detailed description of the urine in this interesting condition is inspired thereby. In no disease are the urinary changes more profound. Hardly a single character, physical or chemic, escapes some alteration. Most marked are those affecting the physical characters of the urine. Usually the first symptom to attract the attention of the patient is the polyuria. Impressionable and nervous patients become immediately much alarmed on this account. The quantity of urine in nearly every case of true diabetes mellitus is greatly increased, the average range being from eight to fifteen pints daily. It has been known to exceed thirty-two pints, and Bence Jones reported a case in which the daily excretion reached seven gallons. The quantity, while constantly increased, varies greatly from day to day and at different times of the day. It bears a pretty constant relation to the excretion of sugar, the polyuria diminishing with improvement in the glycosuria and consequent diminution of thirst. No more water is excreted by the kidneys than is ingested, as was formerly alleged. Polyuria is one of the most constant urinary signs of diabetes, and if a high specific gravity be associated with it, is of considerable diagnostic importance. In rare instances the disease is not attended by polyuria. Frank has named this exceptional form "diabetes decipiens." Such cases are generally considered less serious than those in which the urine is abundant. The color of diabetic urine depends much upon the degree of dilution. Typical diabetic urine is a pale amber, but when not attended by marked polyuria it may be of dark color. When heavily charged with sugar it may have a greenish hue. The quantity of urine secreted during the night is as a rule less than during the day, contrary to the general rule in pathologically induced diuresis. Diabetes is often ushered in by a pre-glycosuric diuresis lasting for a considerable time. Likewise a post-glycosuric polyuria attends convalescence when a cure of the disease takes place. This latter is probably accounted for by the polydipsia which persists for a considerable period after the sugar has disappeared from the urine.

The urine in this affection constitutes a marked exception to the general rule that increase in quantity is attended by a diminution of specific gravity, for notwithstanding its large volume, the density is high. This is due to the presence of sugar and to the augmented excretion of urinary solids. The specific gravity has been noted as high as 1070, although the average range is between 1028 and 1045. It is not invariably increased, however. Saunby, Flint, Cameron and others have reported cases of undoubted diabetes mellitus attended with low specific gravity. Such cases are rare, and when met with should be regarded with suspicion, appeal being made to the phenylhydrazin or fermentation tests to prevent error, as faulty reduction of the cupric oxid tests by non-

saccharine reducing substances may have taken place. In addition the urine should be submitted to careful microscopic examination for casts and be tested for albumin, as an incipient interstitial nephritis may coexist.

Urine heavily charged with sugar may have a diminished consistence. When shaken such urine forms an abundant froth. This does not subside as quickly as does that of normal urine, but is less creamy and permanent than the froth of highly albuminous urine.

The transparency is not usually altered. Indeed, in this condition the urine is notably clear and free from sediment, as a rule. Occasionally, however, and most frequently is this the case in gouty subjects, the urates may be precipitated. Upon standing, the urine may assume a bright and opalescent hue, and if exposed to warm air for a time, a white flour-like deposit of yeast fungus forms in the bottom of the vessel. If indican be present in excess, as it frequently is in this condition, the urine becomes red upon standing, from oxidation of that product. Blood has been noted as a deposit in advanced cases.

The odor of diabetic urine frequently resembles that of hay, but in advanced cases may possess the peculiar chloroformic order of acetone. This often precedes the development of diabetic coma and when present should excite apprehension. The urine has a distinctly sweet taste from the presence of sugar. In certain rare cases air is voided with the urine. This pneumaturia arises from a formation of gases in the bladder consequent upon fermentation changes in the urine.

The chemic reaction is invariably acid unless complications exist, and, as a rule, more sharply so than in health. This acidity persists apparently undiminished during the "alkalin tide" after meals, and is not affected to any degree by the administration of alkalin remedies. Upon standing the urine becomes more acid, alkalin fermentation being long delayed. On the other hand, alcoholic fermentation quickly supervenes, the specific gravity at the same time being lowered from the conversion of sugar into alcohol. Derignac has pointed out that the acidity is increased with the acetonemia of diabetic coma. The total daily excretion of urinary solids is increased.

A brief glance at the condition of the normal urinary constituents will develop some important and significant facts. The elimination of urea is almost invariably increased, and this is the case throughout the disease. Occasionally we notice a fall in the excretion of urea without assignable cause, and such an event frequently presages diabetic coma. The increase of urea is brought about by a variety of causes. They are briefly, 1, largely increased ingestion of nitrogenous food rendered necessary by the anti-diabetic dietary; 2, increased tissue metamorphosis; 3, great functional activity of the liver; 4, to some extent to the washing out of the tissues by the diuresis. This increase in urea bears a direct relation to the severity of the disease.

Other urinary solids are also affected, although to a less extent. The excretion of uric acid is slightly increased as a rule, although it is seldom seen as a deposit. The reason for this is that the largely diluted urine exercises an increased solvent power in proportion to its dilution, and keeps the uric acid in solution when it would otherwise appear as a deposit. Occasionally, in gouty subjects, a precipitate of urates is observed. Frequently an improvement in the patient's condition and a diminution of the polyuria is attended by a deposition of urates and uric acid crystals.

The inorganic constituents of the urine, the chlorids, phosphates and sulphates, are as a rule somewhat augmented. This is partly due to the diet and partly to the washing out of the tissues. It is well to bear in mind that this increase in the urinary solids is not a relative one, but an absolute increase. The large dilution of the urine may result in their proportionate diminution, while in the aggregate they are increased.

Indican is found in excess in diabetic urine, and when exposed to the air such urine becomes deeply red. The increase is greatest just before and during coma, probably the result of the constipation and intestinal fermentation accompanying that condition.

According to Stadelmann, Von Norden, Wolpe and others, ammonia is frequently present in large amount, but is neutralized by the beta-oxybutyric acid present and the urine remains acid. An increase in hippuric acid and creatinin has also been noted.

While the foregoing facts are important clinically, it is upon the presence of sugar in the urine that the diagnosis rests. The mere presence of sugar or copper-reducing substance will not suffice for a diagnosis of diabetes mellitus. It is necessary to establish beyond doubt its presence as a constant product in the urine, and also the fact of its excretion in some considerable quantity in order to distinguish from other and less serious forms of glycosuria. The average range of sugar excreted is over 4 per cent. not uncommonly rising to 7 or 8, or even 12 per cent. The total daily excretion may be but a few drams or may reach a pound or more. It fluctuates greatly from day to day, varying with the diet and physical condition. An intercurrent attack of fever or some grave disturbance of the general system will sometimes result in a diminution or total disappearance of the sugar for a time. It is also diminished before and during diabetic coma. Starchy foods, mental worry, over-exertion, biliousness, are among the causes which increase the glycosuria.

The tests most commonly used for the detection of sugar in the urine are the cupric oxid tests, and of these Fehling's method has been for years the one most generally employed. In common with the others of this class, it depends for its reaction upon the power which glucose possesses of reducing cupric oxid to lower forms of oxidation with the formation of a yellowish or red precipitate soluble in ammonia. For the detection of large quantities of sugar in the urine, Fehling's test is a reliable method. When, however, but a small quantity is present, its results can not be depended upon. In its application we are directed to add the urine to the boiling test drop by drop until reduction takes place or until as much urine has been added as we have test solution. The quantity of solution employed is usually one dram.

There are certain non-saccharin substances present in the urine which reduce cupric test solutions, and they constitute a fertile source of error when but slight reduction takes place. Of these substances the most misleading, because present in normal urine, are uric acid and kreatinin. With Fehling's solution concentrated normal urine will almost invariably produce a reaction closely resembling that due to small quantities of sugar. This pseudo-reduction is owing to the presence of these two substances in excess, their proportions being raised by the concentration of the

urine. The large quantity of urine used in the application of Fehling's test renders it very susceptible to this error. If a smaller quantity be used its delicacy is impaired. It is with urines of high specific gravity and increased acidity that we exercise the greatest care in testing for sugar. A high specific gravity does not by any means always indicate the presence of sugar, for very frequently we see concentrated urine with a density of 1025 to 1032 which contains no sugar. Such urine produces false reduction of Fehling's test solution, consequently in cases where discrimination is essential this method is most unreliable and misleading. Glycuronic acid is another possible cause of error. It is present in excess in the urine after the ingestion of camphor, chloral and chloroform, and gives rise to a reduction of the copper tests closely resembling that produced by glucose. The smaller the quantity of urine that is used in testing the less likely is this mistake to occur. In addition to these sources of error in using Fehling's test, its instability, the influence which the presence of albumin has in interfering with the reduction, and its well-known tendency under certain circumstances to undergo spontaneous reduction, are other objections to its use.

It is important to be able to recognize minute traces of sugar in the urine, for while such may give rise to no appreciable symptoms, they are indicative of a tendency which may at any time, unless corrected, develop into diabetes mellitus. This can not be accomplished with certainty by Fehling's method for reasons already recited. In striving to accomplish this end and at the same time overcome the disadvantages of the methods in common use, I have evolved the following method,[1] which has thus far in my hands given most satisfactory results. It is delicate, recognizing with certainty as small an amount of sugar as .1 per cent., while requiring the employment of but a very small quantity (8 drops) of urine, thus possessing the two great essentials of a perfect test for sugar. In addition it is simple, easily applied and accurate, and its reaction, even with the smaller quantities of sugar, is easily distinguishable. It is prepared and applied as follows. Solution No. 1:

Cupric sulphate C. P.	grs. xxvij.	1	60
Glycerin pure.	ʒiij.	12	
Distilled water	ʒiiss.	10	
Liquor potassæ	ad ʒiv.	128	

Dissolve the copper sulphate in the glycerin and water. Gentle heat will facilitate its solution. When cold add the liquor potassæ, mix thoroughly and filter.

Solution No. 2 is a saturated solution of chemically pure tartaric acid in distilled water.

These solutions, when carefully prepared, are quite stable and with ordinary care will keep unimpaired for months.

Into a test tube pour one dram of the cupric oxid solution (No. 1) and gently boil over a spirit flame. Then add two or three drops—never more—of the tartaric acid solution and boil again. The solution remains perfectly clear and transparent and is of a beautiful blue color. Now add the suspected urine drop by drop, boiling and shaking the test between each drop until reduction takes place or until eight drops of urine have been added. If no reduction follows the addition of this amount of urine, sugar is not present. The end reaction is a yellowish-red deposit of cuprous oxid which is marked and unmistakable. The reaction deepens when allowed to stand for a few moments.

Applied in this manner this test will detect one part in 1,000 of urine, or less than one-half grain to the ounce. If the percentage of sugar be large, a single drop of urine will promptly develop the reaction. The addition of three drops gives a marked reduction with two grains, and four drops will detect one grain to the ounce of urine. In applying the test care must be taken not to use a larger quantity of the tartaric acid solution than three drops to the dram of copper solution. If more than this be used the character of the reaction is affected, a discoloration rather than a precipitate being produced, and the delicacy of the test is also somewhat impaired. A greater quantity of urine than eight drops should not be used. By so doing greater delicacy may be obtained, but reliability will be sacrificed for increased sensitiveness, and the special value of the method destroyed. The presence of albumin in the urine does not act as a deterrent to this reaction.

Glycuronic acid, when present, gives rise to considerable confusion in testing for sugar. It is found in normal urine in such small quantity as to be considered practically absent, but after the administration of certain drugs it may appear in considerable amount, in which event it throws down a heavy precipitate with copper test solutions, indistinguishable from the reduction produced by grape sugar. This condition was erroneously considered a form of glycosuria by the older observers. If its presence misleads, certain discrepancies in the urine such as low specific gravity, absence of polyuria, together with absence of the physical symptoms of diabetes and a history of the taking of one of the drugs mentioned, will excite suspicion of error, and an appeal to the fermentation or phenylhydrazin test will clear away all doubt. The latter is the most reliable qualitative test for sugar, as that substance is the only urinary product which produces the characteristic reaction. It is an excellent appeal test when the indication of the copper reduction method is doubtful. Its application, however, consumes some time, and the phenylhydrazin is inconvenient to handle and very irritating to the skin. Havelburg's modification will be found much easier to carry out than the original method of Von Jaksch. It is applied as follows. Place 20 grs. (gm. 1.20) of phenylhydrazin hydrochlorate and 30 grains (gm. 1.80) sodium acetate in a test tube and fill almost half full of distilled water and slightly warm. An equal quantity of the urine is now added and finally a little chloroform, and the mixture shaken. If the test tube be allowed to stand the chloroform soon settles to the bottom, and if sugar be present a layer of fluid forms above it, containing the crystals of phenylglucosazone. Some of this layer of fluid is gently withdrawn by a pipette and mounted on a slide, and examined under the microscope for the characteristic crystals.

Having established the fact of the presence of sugar in the urine it remains to determine its quantity. This should be invariably practiced in cases where sugar is found in the urine, for by the knowledge so gained we are assisted to a definite understanding of the disease and its prognosis. Repeated estimations will enable us to closely watch the progress of the case and observe the effects of treatment. It is not now the unsatisfactory procedure that it once was. Modern methods have done much to simplify the process and now with inexpensive apparatus and the expenditure

[1] New York Medical Journal, July 27, 1895.

of a few minutes of time the knowledge so essential to the conduct of the case can be gained.

The methods most used are the fermentation method, optical saccharimetry. Fehling's method by titration and the ammoniated cupric tests, which include Pavy's and Purdy's methods. I have adapted my own method previously described for the detection of sugar so that it may be employed for quantitative estimation after the manner of the ammoniated cupric tests. A comparison of the different methods just enumerated will not fail to demonstrate the superiority of this class of tests. As they require but a few minutes for their application the estimation may be made without delay, indeed while the patient waits, an important practical advantage which the others do not possess. Furthermore the results are accurate, uniform and reliable.

The advantages which characterize my method as a qualitative test render it also especially applicable for quantitative estimation. It is a test which is easily applied and possesses a singularly clear and transparent end reaction. The principle of the method in common with the others of the ammoniated cupric class is that the cuprous oxid formed by the reducing power of the sugar is held in solution by ammonia which is added for that purpose, the test remaining clear and transparent throughout, the end reaction being the complete disappearance of the blue color.

The test is employed by taking 133 minims of the cupric oxid solution (No. 1) in a narrow necked glass flask and adding thereto 6 drops of the tartaric acid solution and 3 drams (cc. 12.) of liq. am. U.S.P. Mix thoroughly and add distilled water to raise the total volume to two fluid ounces (cc. 64). The resulting solution is perfectly clear and transparent. This amount of test solution so prepared represents in sugar value one-fourth grain of grape sugar, that is, it is reduced and decolorized by exactly that amount of sugar. The necessary apparatus is a glass flask with narrow neck, a retort stand, alcohol lamp and minim pipette. The reagent prepared as described is brought to the boiling point over a spirit flame and while smartly boiling, the urine is added from the pipette slowly drop by drop allowing a few seconds to intervene between each drop until the blue color has entirely disappeared from the test solution. As the color fades it is well to proceed more slowly with the addition of the urine. The addition must be stopped immediately the color has entirely disappeared and the number of minims employed should be noted. To facilitate observation of the progress of decoloration a white background may be used. If now 480 minims (cc. 32) be divided by the number of minims required to decolorize the test and the quotient be divided by 4 we obtain the number of grains of sugar to the ounce of urine. Knowing the total excretion of urine it is a simple matter to estimate the total loss of sugar for the twenty-four hours. If the urine be heavily charged with sugar greater accuracy may be obtained by diluting it before testing with 2 volumes of distilled water and multiplying the result by 3. There is no difficulty in determining the exact point of complete reduction. After decoloration the solution is clear and transparent with a slightly opalescent hue. In clearness of reaction this test excels all others of its class. This is due partly to its extreme delicacy and also to some extent to the fact that it is freshly prepared for each application. Notwithstanding their alleged stability the other tests deteriorate to some extent after being kept for a length of time and this detracts from the clearness of their end reaction. It is well to bear in mind the following precautions in applying this test. If the urine be dropped in too slowly and the boiling is thus much prolonged some suboxid may be thrown down because of evaporation of the ammonia before decoloration is complete. The test solution should be kept steadily boiling until reduction and decoloration are complete, as any interruption of ebulition will permit the entrance of air to the solution, thus producing possibly some reoxidation of the reduced oxid, which would render the result slightly fallacious. These accidents with a little care can be readily guarded against. Upon standing after decoloration the blue color gradually returns to the solution. This is owing to absorption of oxygen from the air and the reformation of the blue protoxid from the suboxid held in solution by the ammonia. The accuracy of the results of this method may be verified by the employment of a solution of known strength of chemically pure grape sugar in distilled water or normal urine.

Microscopically there is nothing characteristic in the urine of diabetes mellitus unless it be the presence of yeast plants (saccharomyces urinæ). These little cells when present may be takan as positive evidence of the presence of sugar. I have frequently observed that highly saccharin urine is very prolific in mucus cylindroids. These are due no doubt to irritation of the mucous surfaces by the highly acid abnormal urine.

In view of the frequent development of interstitial changes in the kidneys during the progress of diabetes and the important bearing which such have upon the prognosis it is well from time to time to submit the urine sediment to careful microscopic inspection for casts. The frequent association of casts and diabetic coma would furnish other reasons for care in this direction. The sediment of diabetic urine is as a rule very sparse. The high density of such urine greatly delays the deposition of the light hyaline casts in the sediment and thus renders their detection often very difficult. Since the introduction of the centrifuge into urinary work this difficulty has been overcome. In the sediment obtained by centrifugal force these casts if present can always be detected.

The irritation of the urinary passages by the highly acid abnormal urine and the lowered vitality and powers of resistance always present in these cases, result in the frequent occurrence of suppuration at some point of the urinary canal. If such be present the microscope will reveal the characteristic pus and epithelial elements.

Not the least among the advantages to be derived from analysis of the urine in this disease is the discovery of certain conditions which may develop during its course, which have an important bearing upon prognosis and treatment. For this reason frequent pains-taking uranalyses should be made; for by their early detection we are often warned of impending danger and may be enabled by instituting prompt measures to evert or postpone some grave complication. In this manner a sudden fall in specific gravity and the excretion of sugar and urea without corresponding amelioration of the physical condition should be regarded with apprehension as these phenomena frequently preceed diabetic coma. The urine should be at once submitted to the ferric chlorid test. Of the significance of this reaction Halliburton says: "What-

ever the substance may be that causes the reaction, its appearance is of grave import often foretelling the onset of coma and death." According to this authority ethyl-diacetic acid is the cause of the reaction. Von Jaksch also considers that it often forebodes diabetic coma, and Bouchard in his valuable work on "Auto-intoxication" ascribes to it considerable value as a prognostic sign. He says: "In nearly all cases of diabetic coma, perhaps in all, we find this color reaction of the urine. . . . In diabetes this reaction may serve as a basis of diagnostic and prognostic indication." Bouchard states his belief that the substances producing this reaction are the result of defective elaboration of matter by the human organism and are largely formed in the intestine. Among these substance are acetone, diacetic acid and oxybutyric acid, all of which are poisonous. From these statements we might expect that careful regulation of the diet and a course of intestinal antiseptics and digestants with measures to combat constipation if instituted early in the disease and persistently maintained would have a decided effect in postponing this fatal complication. With this color reaction, a fruity chloroformic odor of the breath and urine, an excess of indican and an increase in acidity of the urine are frequent accompaniments.

The appearance of renal casts is also significant of developing coma. In twenty cases of diabetic coma Sandmeyer found numerous casts in every instance. They were present both during the prodromal symptoms and when the coma was marked. Kulz more recently in observations conducted in 400 cases likewise found casts both before and during coma. No difference was noted in their number whether the coma terminated fatally or in temporary recovery. The latter event was followed by disappearance of the casts from the urine. A small amount of albumin was frequently but not invariably present. The appearance of casts would seem to be a prognostic sign of value in these cases. In this connection care must be exercised not to mistake for casts the cylindroids so commonly present in diabetic urine and which often bear a strong resemblance to light hyaline casts. It is also well to bear in mind the fact that casts are frequently present in the urine of diabetics due to interstitial changes in the kidneys brought about by prolonged irritation. Prognostic significance can only be attached to their appearance when the urine has previously been quite free from them.

Albuminuria is a symptom of frequent occurrence in diabetes and is therefore worthy of attention. Bouchard has pointed out that it is present in 43 per cent. of cases. Smitz found that in 1300 diabetics 824 were also subject to albuminuria. Marie alleges that such cases are principally arthritic diabetics. The albuminuria is usually slight, frequently but a trace of albumin being present, or it may reach one gram in the twenty-four hours, beyond which amount however it seldom goes unless complications exist. The prognostic importance of this sign depends upon the grade of the albuminuria and more especially upon the association of symptoms of Bright's disease. If the latter be associated with it the prognosis is grave. The following are some of the most frequent causes of albuminuria in diabetes:

1. Irritation by the sugar during its excretion, bringing about degenerative changes of a hyaline character in the small arteries and the epithelium of the renal tubules.

2. Suppurative conditions of the urinary passages to which diabetes are so predisposed.

3. The largely increased ingestion of albuminoid foods.

4. The increased liability of diabetics to various morbid changes because of poor nutrition and lowered resistence.

5. Derived albumin the result of dissimilation.

6. A coëxisting nephritis.

In rare instances the albuminuria and glycosuria may alternate. These cases Sir Dyce Duckworth considers of a gouty nature. The albuminuria has been known to substitute the glycosuria, sugar disappearing entirely from the urine. When albumin is present a microscopic examination should invariably be made. Occasionally a case is met with in which the degenerative changes in the kidney progress and assume the ascendency. The nephritis becomes in time the more threatening condition and may eventually prove fatal. In their management these cases present many difficulties to the physician, an exceedingly nice adjustment of the diet being necessary to hold in check the two diseases. Disappearance or marked diminution of the glycosuria upon withdrawal of starches from the diet is a favorable indication.

Lastly the longer the glycosuria persists the more unfavorable is the progress.

Auditorium Hotel.

SERUM THERAPY IN TETANUS—WITH CLINICAL REPORT.

BY T. A. DEWAR, M.D.
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August 2, I was asked to see a boy suffering with a sore neck and back, which his father regarded as being myalgic in nature. On arriving at the bedside at 10 A. M. my attention was at first attracted to a sore foot protruding from beneath the bedclothes. On inspection the wound proved to be an ugly laceration on the sole, over the base of the fifth metatarsal bone, which was carefully sealed up with court plaster, care being taken that none of the pus should escape. I at once tore off the plaster and pushed my thumb deeply through the foul wound, preparatory to sterilization. While scraping out the wound with my thumb the boy, to my surprise, suddenly assumed the position of opisthotonos, no part of the body touching the bed except his heels and the back of the head, the body being arched almost to the extent of a semicircle. I recognized the clinical picture of tetanus; tetanic spasms, spastic masseters with trismus, retraction of the head, the risus sardonicus, rigidity of the cervical, dorsal and lumbar muscles, with intense constitutional disturbance; pulse 135, respiration 21, temperature 100 degrees F.

I at once stayed proceedings and took his history, which I present as follows: H. McD., male, age 11, family and personal history excellent. July 24, patient stepped on some broken glass, receiving the lacerated wound described above. No attention was paid to it, except to apply court plaster, and patient made no complaint and appeared as well as usual till July 31, when slight impairment of mastication and deglutition was noticed. The following day he became progressively worse and complained repeatedly of intense stiffness of his neck and back, which in fact were in a spastic condition. At this time mastication was impossible and deglutition very dangerous.

The following day, the third day after the development of the spastic condition, I was consulted. Recognizing the gravity of the situation, I quickly summoned Dr. E. M. Houghton, and after making a confirmatory diagnosis and giving a decidedly unfavorable prognosis we agreed that in the matter of treatment our only hope lay in the use of tetanus antitoxin (antitetanic serum), combined with full doses of chloral, together with absolute isolation in a quiet, dark room, with only one attendant. At 11 A. M., the first injection of serum was made (10 c. cm.) under strict antiseptic precautions, it being necessary to give a whiff or two of chloroform to allay the spasm during the introduction of the needle. At this time pulse was 140, temperature 100 degrees. The slightest noise or touch threw the patient into violent spasms; teeth were set tightly; patient suffered extreme pain and absolutely refused all nourishment.

Patient was next seen at 5 P. M. Nurse reported nine spasms since last visit. Patient did not complain of pain; was willing and able to talk, and the effort did not excite spasm; said he was comfortable and suffering very little compared with his condition six hours previous. While we were present he took one ounce of milk which he swallowed with comparative ease. We were able to touch patient at this time without exciting spasm. Pulse was fuller, of the same frequency; temperature 98.4 degrees. Injected 10 c. cm. serum without using chloroform and without exciting spasm. It was noticed that perfect absorption of the first injection had taken place, leaving no soreness. Giving instructions to the nurse to allow milk freely, we left him in comparative comfort. Next seen at 11 P. M. Six spasms reported, indicating much less frequency. Patient asked for milk and drank a glass with ease; also asked for water; appeared inclined to take nourishment. He was asked to separate his jaws, which he did sufficiently to admit a lead pencil. Attendant first noticed the ability to separate the jaws about 7 P. M. Dr. C. T. McClintock, of the University of Michigan, accompanied us at this time and after careful deliberation expressed a hopeful prognosis. Patient appeared more cheerful. Pulse 140, temperature 98.4 degrees. Injected for the third time 10 c. cm. serum. Left patient at midnight, both physicians and friends very hopeful of results.

Just at this point our hopes were suddenly blasted by the adverse attitude of the patient's father to us. The father had spoken to another professional friend of his, a man with ancient methods. This physician disparaged our methods and that "stuff," the serum, to such an extent as to secure our immediate discharge, he promising to "pull the boy through all right." We offered to furnish serum gratis that our treatment might be continued, but it was declined. Under the new management treatment was commenced at 2 A. M. At 2:30 A. M. the patient instead of having from two to three spasms an hour, suddenly began having spasms at the rate of 200 per hour and ten hours later died.

In reviewing the above case one can not but be impressed with the favorable course the case was assuming. Among the most desirable and prominent results of the serum treatment we might mention the relaxation of the trismus eight hours after the inception of treatment; the reduction of the temperature (axillary) from 100 degrees to 98.4 degrees; the reduction in the frequency of the convulsions; the return of the patient to comparative comfort; his desire and ability to take nourishment; and above all the rapid increase in frequency of the convulsions from three per hour under the serum treatment, to 200 per hour a few minutes after our methods were supplanted by those of more ancient date, and the death of the patient ten hours after the older methods were commenced. Our experience with this case was short, but sufficient to warrant us in coming to the conclusion that the antitetanic serum exerted a powerful influence for good. While awaiting further statistics we wish to emphasize the importance of early treatment and strongly advocate the serum as a prophylactic in cases of suspicious looking wounds.

281 Meldrum Ave.

THE BACTERIOLOGIC CONTAMINATION AND THE PRESERVATION OF VACCINE LYMPH—GLYCERIN AS A BACTERICIDE.

Read before the Chicago Pathological Society, Oct. 12, 1896.

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The present communication is the outcome of observations made during the past two years, at the request of vaccine propagators, regarding the best methods of preserving vaccine lymph. It is our purpose to refer briefly to the contaminations by bacteria occurring in bovine vaccine lymph with their effects and to the measures which have been found useful in preserving the virus. No reference will be made to humanized lymph, as the danger of syphilitic infection through its use has practically stopped its employment.

The bacterial contaminations may be divided into two classes: The saprophytes or non-pathogenic, and the parasites or disease-producing. The former are of moment, because by their presence and growth the virus is decomposed and by some at least is robbed of its specific property. The pathogenic variety may cause various disease processes in the human subject when virus containing them is employed for vaccination.

Abundant observations have shown both of these varieties to be present almost constantly in the lymph dried upon ivory points, as well as in fluid lymph to which no preservative has been added. The cloudiness of such vaccine lymph after keeping a short time has been found to be due to the growth of saprophytic bacteria. Fütterer examined seventy-five ivory points from different sources and found the staphylococcus aureus in about fifty-five, the staphylococcus albus in about the same number, and the streptococcus of erysipelas and phlegmonous inflammations in ten. The pyogenic staphylococci have been found frequently by other observers (Woitlow, Grigoriew, Straus, Copeman and Crookshank). The streptococcus has been found less frequently (Copeman, Woitlow). Reed examined vaccine points from six vaccine farms and found the staphylococcus albus and aureus in all the plates. We have made cultures from four different makes of ivory points which are sold in largest numbers in the Chicago market. They were obtained as fresh as possible in the original packages. In every instance they proved

to contain large numbers of bacteria, and in those from each source the pyogenic staphylococci were found. Fluid lymph from a prominent firm was cloudy and contained innumerable bacteria.

The culture you see here was made from an ivory point purchased in the Chicago market recently. It was removed from the original package with sterile forceps, dropped into the liquefied nutrient agar-agar at 45 degrees C., and after standing a few moments the agar was poured into a sterile Petri dish. You see the large numbers of colonies of bacteria present.

The almost universal presence of pyogenic bacteria in virus furnishes a reasonable explanation of the common suppurative, phlegmonous and erysipelatous inflammations following vaccination. Whether other varieties of pathogenic bacteria are at times present in vaccine lymph is not certainly known. Abundant cases of tetanus following vaccination have been reported in medical literature. It is not difficult to imagine that the tetanus bacillus may gain entrance to the lymph where proper precautions are not taken in its collection, as it is so commonly found in the dust and refuse about stables. It is not known whether the tubercle bacillus can enter the lymph from a tubercular animal. E. Peiper refers to the report of Toussaine, in which he claims to have produced tuberculosis in a rabbit by inoculation with virus from a tubercular cow. Peiper vaccinated sixteen phthisical persons and could not find tubercle baccilli in the lymph after most careful search. Josef Acker concludes that no tubercle bacilli are found in the vaccine vesicles of tubercular individuals before or after the seventh day. It is hardly fair to conclude from these observations on human subjects that the same would hold good in the cow. However this may be, the danger from tubercle bacilli can be eliminated by using animals only after the absence of tuberculosis has been demonstrated by the use of tuberculin. We have not been able to find any cases recorded of infection with anthrax or glanders by vaccine lymph.

Knowing of the frequent presence of certain pathogenic bacteria in vaccine lymph, we naturally demand a preparation in which they are not found if we expect to have typical vaccinations and to avoid severe if not fatal sequelæ. Evidently it would be desirable to obtain sterile lymph, unmixed with any preservative or foreign material. To learn whether this was practical, we made inoculations on 5 per cent. glycerin-agar-agar from the surface of vaccine sores of six cows on the fifth day, after they had been thoroughly cleansed by washing with soap and water, followed by solution of $HgCl_2$ and sterilized water. The inoculations were made by scraping the surface with a heavy platinum needle. From two cows, cultures of the staphylococcus aureus were obtained with an unidentified bacillus, from two a streptococcus corresponding in all its cultural properties to the streptococcus pyogenes, from one an unidentified bacillus, and one was sterile. All the sores were typical. These observations convinced us that it was useless to hope to obtain primarily sterile lymph, especially as the operators are not usually well skilled in antiseptic technique. Surgical wounds when managed according to the most careful antiseptic and aseptic principles have been found at the end of operations to contain a few bacteria. In a healthy wound these are destroyed by the wound secretion or tissue cells. In vaccine lymph, however, this is not the case, but a good nutrient material is furnished for their growth.

Various measures have been employed, at first empirically and later for scientific reasons, to preserve the activity of vaccine lymph. It was found by Carsten and Coert, in 1875, that sufficient heat to destroy the bacteria in lymph was also enough to destroy the vaccinal principle.

The method of Reissner was to obtain lymph, dry it over sulphuric acid and reduce it to a powder. The dry powder was found to preserve its properties up to twenty-nine days, and in later observations for a much longer time. The drying effectually prevented the growth of saprophytic bacteria, but did not injure the specific agent of vaccinia. This method became very popular and yielded good results.

Pissin pulverized the crusts and made a mixture with glycerin and salicylic acid water, which he stored in capillary tubes. This remained virulent as late as three weeks, as long as tested. Other observers have found it active for much longer periods.

Attempts have been made to preserve the lymph by adding various chemicals. R. Pott experimented with salicylic, boric and carbolic acids, and thymol. He concluded that after a time they injured the virus and did not in any way conserve the lymph.

The use of glycerin was placed upon a rational basis by the observations of Copeman, Chambon and Ménard and Straus. They found that the lymph diluted with glycerin at first contained more or less numerous bacteria of various kinds, but that the glycerin prevented their multiplication and in a few days lead to the death of most of them. Lymph from the same source to which no glycerin was added and which contained only the same proportion of bacteria primarily, in a few days was swarming with bacteria. With the growth of the bacteria the vaccinal properties of the lymph was destroyed. The addition of glycerin did not in any way lessen, but rather enhanced the activity of the virus. Chambon and Ménard found that while fresh lymph might produce bad results, if kept two weeks and later typical pustules were produced.

King obtained with lanolin similar results to those with glycerin.

We have repeated these examinations in a series of twelve samples of lymph. In each case lymph was obtained as soon as possible after being taken from the animal, with all precautions to prevent contamination. It was placed in capillary tubes, part in the pure state, part after being mixed with pure glycerin or equal parts of glycerin and distilled water. The pure lymph always contained a few bacteria in a few hours (three to six in a tube) and in from three to five days became cloudy and contained innumerable bacteria. In the lymph diluted with glycerin a few bacteria were also found at first, but as it was kept they became gradually fewer and disappeared in from eight to thirteen days. An exception occurred in one lot of lymph in which the bacillus subtilis was obtained in cultures after twenty-four days, but it did not increase in numbers. The glycerin lymph always remained perfectly clear and transparent as long as kept. Whether pure glycerin or equal parts of glycerin and water were used did not appear to alter the results. Virus from several of the lots was tested as to its vaccinal properties after it had become sterile up to as late as one month, with the result that it produced typical pustules. The percentage of glycerin did not appear to modify its effect.

There are here a series of cultures made from lymph

taken Sept. 18, 1896. The lymph was placed in capillary tubes, part in a pure state and part after diluting with glycerin. We have made cultures from each at intervals, and you see the results. Those from the pure lymph show a few colonies in the culture made thirty-six hours after the lymph was taken from the animal, and the colonies rapidly increase until on the seventh day they are innumerable. The earlier cultures from the glycerin lymph also show a few colonies, but these become less in number in the later cultures, until on the fifth day none are found. You will also note the difference in the appearance of the lymph in the two capillary tubes; the pure lymph has become cloudy; the glycerin lymph remains perfectly transparent.

A series of experiments was also undertaken to determine the action of glycerin upon pure cultures of various bacteria. The forty-eight hour growth upon agar-agar of the bacteria in question was introduced into test tubes containing sterile glycerin and equal parts of glycerin and water. Control tubes containing a sterile solution of sodium chlorid were employed, the same cultures being introduced at the same time. All the cultures of pathogenic bacteria were virulent. At intervals inoculations were made from these upon nutrient agar-agar. The effects of the pure glycerin and glycerin and water did not differ. The staphylococcus aureus was dead in from five to twenty days. Where the longer time was required a very large amount of culture was introduced into the glycerin. The streptococcus pyogenes was dead in five days, even if introduced in considerable quantity. The bacillus mallei was dead in two days. There was little or no effect upon spores. The subtalis bacillus grew for a month (as long as tested), and the anthrax bacillus was viable and virulent after five months.

From these experiments we may conclude that glycerin has a distinct germicidal action upon many free bacteria, destroying most of those of a pathogenic nature likely to be found in vaccine lymph inside of two weeks, but having little or no effect upon spores. Copeman, in 1893, states that he found that while some pathogenic organisms remain active in admixture of broth and glycerin, or even pure glycerin, for longer or shorter periods, other pathogenic and, so far as his experiments go, all saprophytic organisms, are killed out in from three or four days to as many weeks. The practical application of these facts and observations are easy. Until we know what the active agent of vaccinia is, and can obtain it in pure cultures, we must depend upon the cow for propagation of our virus. If we can procure a virus which is free from bacteria, it is our duty to use it. Such a virus is found in the glycerin lymph, and is being offered to the profession by many vaccine propagators. One objection urged against it is that it is slow to dry, but the element of time is of no vital moment. How much time is lost by persons going about with an arm in a sling for days? It would be as consistent to object to aseptic surgery from the same standpoint. With a sterilized field of operation and a proper protective dressing, secondary infection in the vaccine-wounds would be extremely rare.

The ivory point, as at present prepared, should be discarded. They can not be obtained free from bacteria. The practice of supplying vaccine points to druggists to retail and handle with septic hands is especially pernicious.

It is not our purpose to discuss the technique followed in vaccinating cows and in obtaining the serum. It is sufficient to state that the lymph used to inoculate the cows should be preserved as if to be used for human vaccination; that the operating room should be cared for in the same way as one used for surgical purposes; and that the seat of inoculation, the hands of the operator, and all instruments and vessels used should be carefully rendered aseptic. The vaccine sore should be made as nearly free from bacteria as possible before the lymph is collected, and the vessels in which the serum is received and the capillary tubes in which it is stored should be rendered sterile by heat. We may briefly summarize as follows:

1. Vaccine lymph in a fresh pure state almost always contains bacteria, and often pathogenic forms.

2. Pure vaccine lymph after keeping in a fluid state, or dried upon ivory points as now prepared, is unfit for use and often dangerous.

3. Vaccine lymph diluted with pure glycerin or equal parts of glycerin and distilled water, becomes sterile in about two weeks, and should not be used sooner.

4. All animals used for propagating vaccine lymph should be tested with tuberculin before being used.

5. All vaccine establishments should be regularly inspected by properly qualified officials, and samples of virus from each lot of vaccine examined bacteriologically by a competent person and the result certified before it is placed upon the market.

6. Each package of vaccine lymph should be so marked that the date on which it is taken, and, if fluid, what has been added to it, shall be shown.

In conclusion, I desire to express my thanks to Prof. Walter S. Haines for valuable suggestions and to Dr. E. M. Wood for kindly furnishing material for carrying out part of these experiments.

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SOCIETY PROCEEDINGS.

Chicago Academy of Medicine.

Regular meeting Nov. 13, 1896.

(*Concluded from page 1297.*)

Dr. E. T. Dickerman, continuing the discussion, said:

In regard to the treatment of empyema of the frontal sinus and also of the ethmoidal cells, there is only one treatment wherever there is pus, and that is to evacuate the pus and establish drainage. How can this be done in these cavities? For the frontal and ethmoidal cells there is practically but one method, namely, the internal, removing the anterior third of the middle turbinated body. Sometimes you will find along the processus uncinatus a thickening which will have to be curetted away. By so doing you will establish free drainage. You can not expect in these cases to effect a cure in two weeks or three months. In some instances it takes a long period of time to bring about a cure, and this will depend largely upon the perseverance not only of yourself but of the patient also. It requires thorough cleansing on part of the patient and thorough irrigation of the cavities by yourself, together with the removal at any time of granulation tissue which is continually springing up wherever you have pus running over a mucous surface. If your treatment is thoroughly carried out, undoubtedly your cases will get well. The recoveries are not only brilliant from your standpoint, but they are eminently satisfactory to the patient.

In regard to the effect of this disease, we have symptoms of pain which is referred to the trigeminus. It may be local, or may be projected to any part of the head. We also have the constant presence of secretions or of pus; there may be occlusion of the naris. There is another important symptom, and that is, during sleep there may be a purulent or muco-purulent discharge which is continually flowing backward. The patient at night unconsciously swallows this, and then we get not only toxemia from absorption of the pus, but we establish in the gastro-intestinal tract of the patient a catarrhal condition which is manifested by various digestive disturbances. A certain amount of this purulent matter is deposited on the posterior pharyngeal wall, which very often brings on vomiting. These patients lose flesh very rapidly, but under treatment and the thorough cleansing of the parts and getting rid of the discharge, I have seen them gain as much as twenty pounds in a month. This is a subject upon which I feel very strongly, and is one that should always be considered in all cases of indigestion in which there is vomiting in the morning. After the discharge has stopped, the patient will make a good recovery.

A few words in regard to the treatment of the antrum and I have done. Opening through the alveolar process has never proved satisfactory with me, only in those cases that we might call subacute, in which the patient has either lost a tooth or the infection has been through the mouth, or the disease has followed some acute exanthematous affection, pneumonia, or something of that sort, then opening through the mouth with thorough washing two or three times and allowing it to heal, you get a complete recovery.

There is another way to treat these cases which is equally as satisfactory. It is not by the method of Krause, but a method recently devised by an American, Dr. Walter Freeman, of Philadelphia. It is a method which to me seems most rational. There is very little inconvenience to the patient in resorting to it. Dr. Freeman enters the antrum through the inferior meatus anteriorly with a drill, then introduces a trocar and canula which is allowed to remain, followed by a thorough irrigation. This treatment is not irritating to the patient as a rule, and he is able to wear the canula easily. In the method of Krause the introduction of the trocar causes considerable pain and discomfort to the patient, while with Freeman's treatment I think the majority of cases will do equally as well and not be inconvenienced nearly as much.

Dr. William L. Ballenger—I shall not speak of the infectious diseases which cause disturbance in the accessory sinuses, except one that has not been mentioned. I refer to ozena. My observation has led me to believe that some of the cases of obstinate ozena are not cured, for the reason that we do not enter the accessory cavities and thoroughly rid them of the bacillus of ozena. Ozena is undoubtedly due to a bacillus, and it is a cause of disease of the accessory cavities. This being the case, our method of treatment must in some cases extend to the accessory cavities, or else we will fail in getting the proper results. I have been making some investigations along this line and hope at some future time to make a report on this subject. Exploring the antrum with a curved syringe point is certainly preferable to making an exploratory puncture through the alveolar process. I find it is very essential to treat the acute cases for fear that they may become chronic, as they do in many instances. I do not agree with Dr. Gradle where he said that it was probably not best to attempt any treatment in the acute cases. As has been said by Dr. Dickerman, the natural openings of the accessory cavities are closed by swellings or hypertrophy of the middle turbinated body, or by hypertrophy of the tissues thereabout. This hypertrophic process continues simply because the openings are occluded. By using some simple remedies, such as aromatic and astringent washes, cocain, antipyrin, etc., we can render these cavities patulous and thereby establish aeration and drainage, a cure will oftimes follow as a result. I think that it is very essential that we should resort to some simple method of treatment in the acute cases In catarrh of the frontal sinus we may have a persistent headache, which is sometimes immediately relieved by washing out the nasal cavity thoroughly, applying cocain, and antipyrin to maintain the effect of the cocain longer, and then by inflations of chloroform vapor with a Politzer bag, we enter the cavity at once and relieve the patient of a very distressing headache.

I must protest against non-interference in the acute cases. The main part of the paper I agree with and heartily endorse.

Dr. W. L. Baum—I would mention one affection which I believe is frequently associated with disease of these sinuses, and in so doing I would ask Dr. Gradle in closing to answer the question as to whether erysipelatous conditions are not intimately related to sinus disease. Within the last two years I have frequently noted the fact that in recurrent erysipelatous conditions of the face, particularly where the infection seems to arise from the neighborhood of the nose, that patients have been subsequently operated upon for diseases of the sinuses, not, of course, during the erysipelas attack, and the operation resulted in a cure of the erysipelatous infection. This is a subject of great interest, not only to rhinologists, but also to the general practitioner, because all of us see more or less frequently cases of recurrent erysipelatous infection. I do not believe we have an erysipelatous condition which is idiopathic, and if we look for it we will find pus in every case. I have seen a number of cases of this kind in the Cook County Hospital complicated by disease of the frontal sinus, because the patients complained of long and persistent headache, the headache becoming more aggravated at the beginning of the erysipelatous infection.

Dr. E. S. TALBOT—A few thoughts have come to me that have not been touched upon by any of the speakers. In the preparation of the chapter of my book[1] on the subject of deformities of the nose and antrum, about 11,000 skulls were examined, 3,000 of which were broken sufficiently so that I could examine the antrum, making about 6,000 antra altogether, taking both sides. I do not understand how a person can intelligently treat disease of this cavity without first knowing something about its anatomy. You would be surprised to see how few of these cavities are uniform in their development. Gray speaks of the cavity as being a triangular cavity, its apex directed outward; its base the outer wall of the nose. I venture to say that less than one-third of these antra possessed that shape. Some of them were very small, much smaller than the average antra mentioned by Gray. One of these antra may be divided into a number of cells, and you can see how absurd it would be to examine an antrum of that kind with a light, because of the fact of its being filled up with bony cells. Sometimes these little cells are located below the orbit and the lower part of the antrum is entirely filled up. In a larger number of cases there were one or two, or possibly three septa, dividing the antrum in three or four parts. In some cases the floor of the nose would be found extending over the alveolar process. I have seen them frequently extending half way and again across the alveolar process. In these cases the antrum would be small in size.

In the last ten years I have had two patients come to me who have had openings drilled from the palatine root of the first molar tooth into the floor of the nose. I thought that the person who operated upon these jaws must have had a poor knowledge of the anatomy of the parts. When I came to examine skulls and saw how many of those were deformed and the floor of the nose extended over the alveolar process, I could readily see how any man by making an opening through the palatine root of the first molar tooth would penetrate the floor of the nose. In examining these 6,000 antra I found the lowest point was invariably situated between the root of the second bicuspid and the first permanent molar; that this cavity extended forward and upward. Therefore, the proper place, according to the examinations made would be just midway between the root of the second bicuspid and the first permanent molar on the outer side of the alveolar process. Dr. M. H. Fletcher, of Cincinnati, in 1893, after examining 1,000 antra, arrived at the same conclusion. I do not see how it is possible for a man to treat the antrum by making an opening through the middle meatus of the nose. You would strike the antrum about midway, and therefore you do not get the lowest point for drainage.

I was pleased with the remarks of the essayist in regard to the etiology. Many dentists and some physicians are of opinion that antrum troubles are in most cases due to abscessed molar teeth. Dr. Fletcher and myself are not of that opinion, but agree with the essayist that most troubles are due to infection through the opening in the nose. Dr. Fletcher says: "In 1,000 antra I find 252 upper molars abscessed, making 25 per cent. of antra which have abscesses in this locality for every fourth antrum. This per cent. is probably smaller than it should be, since many teeth were lost and the alveolar process absorbed away, and undoubtedly some of these lost teeth have been abscessed. Out of the 252 possible cases perforation into the antrum was found only twelve times, thus showing over 4½ per cent. or about one in every twenty-one of the abscessed teeth in this locality which are connected with the antrum." In the treatment of 367 cases of pulpless molar teeth I found only 3 per cent. of diseased antrum. Dr. Fletcher found in 224 cases of pulpless molar teeth treated by him only one case of pus in the antrum. Dr. Bonwill, in a practice of forty years, has only had two or three cases of pus in the antrum. It will be observed then that the teeth rarely cause antral disease.

In the treatment of the antrum I should never think of flushing or draining it without having the patient lie with the head down in order that the fluid might be carried over the septa and out of the opening at the lowest point in the floor of the cavity. This should be done in all cases, since we are unable to define the shape of the cavity in living subjects.

Dr. HENRY GRADLE (closing)—I stated in the beginning that my paper was not by any means formal or dogmatic, but rather a rambling discussion of personal experience. Perhaps that accounts for the manner in which I have been misunderstood in reference to some points. I did not say that there should be no interference in acute cases. I only said, as a rule, I would not favor surgical interference. First of all, in treating such patients they are generally too sick with some other disease to stand much manipulation. Many of the cases are self-limited. On the other hand, I have favored the use of douches, provided due care be exercised in guarding against danger to the ear. Furthermore, in all of those cases where pain exists and can not be controlled by antipyrin, which is generally sufficient, I should favor a temporary opening into the antrum or an attempt to syringe through one of the natural openings. When it comes to the ethmoidal or frontal cavities, syringing through the natural opening is difficult, and I can not succeed in doing it in 50 per cent. of the cases, as has been mentioned by Dr. Dickerman. Engelman tried it on cadavers after making a counter-opening, and found that the frontal and maxillary sinuses can be irrigated only in a small percentage of cases. The question of ethmoidal diseases I barely touched upon. It is a noteworthy fact, however, that Fraenkel found not a single instance of ethmoidal disease, although he examined the ethmoid in every case. Zuckerkandl and others also speak of ethmoiditis as not being very frequent. Cases of necrosis of the ethmoid bone have been reported, but are not very common. I remember within the past year to have had a case in which I felt sure there was necrosis in the anterior cells. It seemed so with a probe. There was certainly suppuration from the cells. But on examining the middle concha after amputation I found no evidence of bone disease. Examination with the probe is not absolutely trustworthy as a guide in disease of the ethmoid cells.

The importance of attention to the infundibulum I can endorse. It requires the closest attention to this region to remove all polypi and granulation tissue, to irrigate with fine tubes, not necessarily with the intention of reaching into the sinus, but simply to clean the region between middle turbinal and the external nasal wall. I have been misunderstood about my operations on the maxillary sinus. It seems there is as much discrepancy among the members of the Academy as to results and methods of operating in these cases as can be found in the published literature. Ziem has had over a thousand cases, and he says there are very few cases that do not get well if you open through the alveolar process and irrigate. Jansen of Berlin, on the other hand, never saw a single cure of maxillary empyema by any method until he resected the front wall of the antrum, and then it took from one to two years before the patients got well. There are cases which do not get well with any method of treatment, except in the course of years, after extensive resection of the anterior wall of the maxillary sinus. Other cases get well in six weeks to three months, after irrigating through the alveolar process. I would not condemn this method simply because it fails in some instances. Any method will fail in some cases. Formerly I had a prejudice against the operation from the mouth. In operating through the canine fossa my results were not as good as now. Sometimes at the anterior wall of the canine fossa, at its thinnest point, you can penetrate with a needle. In other patients the wall is thick. There is no natural drainage through the antrum, because pus is too thick to flow. I have made openings large enough to insert the small finger through the canine fossa, and still when I irrigated I would find pus after a few hours. It would not flow out. You can draw it out by means of gauze packing, and the patient feels very well while the packing is there. You can make him feel comfortable by applying the packing once in four or five days, but without extensive resection of the anterior wall gauze packing will rarely lead to a permanent cure.

[1] Osseous Deformities of the Head, Face, Jaws and Teeth.

Chicago Pathological Society.

Regular Meeting, October 12, 1896.

(Concluded from page 1299.)

Dr. JAMES B. HERRICK read a paper on

TRICUSPID STENOSIS,

Reporting two cases and exhibiting a specimen from the second case.

Case 1—A woman, 26 years of age, with no symptoms indicating heart disease during infancy or childhood, first noticed swelling of the feet, shortness of breath, palpitation, cough, two months after giving birth to a healthy child, and seven months before admission to the Cook County Hospital. The physical examination revealed an enlarged right and left heart, a presystolic thrill over the apex, accentuated pulmonic tone, systolic apical murmur, systolic murmur over xiphoid, small, weak pulse. Died in one week.

Clinical diagnosis: Mitral stenosis and regurgitation, relative tricuspid insufficiency. Autopsy showed a heart hypertrophied and dilated in all its cavities. Mitral stenosis, the opening admitting one finger tip. Tricuspid stenosis, opening

admitting two finger tips. No defect of the ventricular or auricular septa.

Case 2—Female, aged 24, bookbinder, rheumatism at 18; two years later a diagnosis of heart disease by physician. Four days before admission to County Hospital gave up work on account of weakness and shortness of breath. Death in one week.

Clinical diagnosis: Difficult on account of feeble action of heart. Autopsy revealed greatly hypertrophied heart, all the chambers enlarged. Muscular structure of the right auricle in particular shows extreme hypertrophy. No defects in the septa. Mitral valve admits one finger tip, tricuspid admits one and one-half finger tips.

In commenting upon these cases the essayist referred to the extreme rarity of tricuspid stenosis. Following Leudet, he made two classes, the congenital and the acquired. The two cases reported evidently fell into the latter class because of 1, the absence in infancy and childhood of symptoms of cyanosis; 2, the history in the one case of childbirth, in the other of rheumatism with subsequent development of cardiac symptoms; 3, the complete closure of the inter-ventricular and inter-auricular septa. The cases resembled the majority of cases of tricuspid stenosis in being found in women and in being associated with diseases of the valves of the left heart. In Leudet's series of 114 cases, with autopsy, only 11 showed tricuspid disease alone. The symtomatology and diagnosis of the affection were also discussed. The study of Case 2, where there was the enormous hypertrophy of the muscular tissue of the right auricle, showed that even the auricle could in a measure compensate for the obstruction at the auriculo-ventricular valve. This helps to explain why the prognosis is not so uniformly bad as one would think, and how it is possible for patients to live even to old age, one of Leudet's cases reaching the age of 64.

DISCUSSION.

Dr. JOSEPH M. PATTON—The interesting case reported by Dr. Herrick is certainly of sufficient moment not to be passed by in silence. The rarity of the lesion itself makes it of great interest. The difficulty of diagnosis adds to the interest as does the uniformity with which tricuspid stenosis is associated with mitral stenosis, and this is admitted by nearly every author. A great many authors say, among them Hayden, that tricuspid stenosis rarely or never occurs except in association with mitral stenosis. Today this is not regarded as a fact, because in the last few years a number of cases have been observed where the postmortem proved that tricuspid stenosis does occur alone. A good many of the text-book authors tell us that the murmur of tricuspid stenosis will be a presystolic murmur. I think that is based in part on theory, simply because of the presystolic mitral stenotic sound. The fact is that the murmur of tricuspid stenosis is at times not presystolic, it may be, but it is at times a diastolic murmur. It is very difficult to place the time exactly of a tricuspid stenotic sound. I have only heard one such murmur where a postmortem of the patient was obtained and that murmur was diastolic, or, at least, that portion of it which might be called presystolic was so covered by the associated sounds that it was impossible to demonstrate it clinically as a presystolic murmur. Hayden points out that, on account of the association of tricuspid stenosis with mitral stenosis, a strong diagnostic point may be made of two presystolic murmurs that are heard, one being heard in the mitral area, and the other in the region of the xiphoid, and between these two an open area in which no sound can be heard. That appears to be also largely theoretical, because the area of transmission is usually not so definitely limited as to give us such an open area. It seems to me, that from the history of the first case recited the clinical diagnosis might have been modified, from the fact of there being so much dullness transmitted far to the left, and so high, in connection with an apex beat within the fifth space. Such an area of dullness would tend to exclude aortic disease as a factor in the production of the cardiac condition. The specimen is a particularly beautiful one in that it shows well marked and uniform stenosis of tricuspid and mitral openings, and also in the unusual degree of hypertrophy of auricular wall and of the musculi pectinati.

Dr. R. H. BABCOCK—Dr. Herrick has covered the field so fully and admirably in his discussion of this subject, that it seems difficult to say anything which would not be a mere repetition of what has already been said; yet it seems to me, that something more might be added with reference to the prognosis in these cases. It is a matter of very great interest and astonishment that a case of tricuspid stenosis could live to the age of 64 years, and it would be instructive if we could know some of the attendant circumstances pertaining to that patient's life, as well as of some of the associated conditions within the heart. I would ask Dr. Herrick to tell us in that particular instance what other lesions, if any, were associated with the tricuspid stenosis.

Dr. HERRICK—I could not tell without referring to Leudet's thesis.

Dr. BABCOCK—I am interested in this because Bacelli gave an elaborate paper in 1894 on "The Prognosis of Cardiac Lesions," which were of a similar nature. He made the statement that where stenosis of two separate orifices existed, or where insufficiency of two separate sets of valves existed, as, for instance, insufficiency of the aortic valves and insufficiency of the mitral valves, the prognosis, other things being equal, was better than where there was a combination of stenosis and insufficiency, as, stenosis of the aortic orifice and insufficiency of the mitral valves. It would be interesting to know whether in this case there was such a condition as stenosis of the pulmonary orifice and stenosis of the tricuspid orifice. Furthermore, the conditions of the patient's life must intimately affect the prognosis. Under normal conditions the right ventricle is relatively as adequate to its work as the left, yet in any disease which affects the right side of the heart it is much more likely to break down in its compensation than the left. If tricuspid stenosis exists in a congenital case, or if tricuspid stenosis and pulmonary stenosis should concur, the prognosis would be affected not only by these respective conditions but by the circumstances of the patient's life as to daily exercise, physical exertion, etc. If the patient led a particularly quiet life, one not calculated to send the venous blood too rapidly to the heart, the heart might adjust itself to the condition of stenosis and the backward stasis in the other viscera, as the abdominal, would not be so great as to materially affect life. Yet even under the most favorable circumstances it would seem as if the condition were one likely to render long life impossible through the general nutrition, brought about by the condition of the chylopoietic viscera.

The diagnosis is so difficult that, it seems to me, anyone would be exonerated from all reproach who was unable to make a diagnosis. When, however, such is made the practical interest consists in the prognosis and treatment. Let us take, for instance, the case which the doctor has reported and exhibited the specimen from tonight. The patient was a bookbinder, an occupation which if not laborious and not very difficult, yet required the very kind of exercise (arm movement) which would favor a too rapid flow of venous blood to the right auricle and produce disastrous results in the way I have pointed out.

Dr. JOHN A. ROBISON—Personally, I desire to thank Dr. Herrick for calling our attention to the fact that cases of disease of the right side of the heart are perhaps more frequent than we have been led formerly to believe. I think statistics will show that there have been placed on record about one hundred and thirty cases of tricuspid insufficiency. Dr. Herrick's records, I believe, include cases in which there have been found about one hundred and nineteen or one hundred and twenty cases of tricuspid stenosis, would it not?

Dr. HERRICK—Yes. There are about one hundred and thirty cases of this class now on record.

Dr. ROBISON—The recital of one of Dr. Herrick's cases brings to my mind a case which I had a few years ago in which the result was appalling, and in which I was somewhat at a loss to account for the rapid onset of the symptoms. An Englishwoman, 30 years of age, became pregnant. At about the sixth month of her pregnancy she developed alarming symptoms of valvular disease of the heart. There was a loud systolic murmur heard at the apex. The heart was considerably enlarged on both sides; then dropsy came on suddenly, disappeared, and she then had all the signs of rapid failure of the heart. Fortunately a miscarriage took place and she lived through it. As time went on a second pregnancy occurred. At about nearly the same period of pregnancy the same symptoms again manifested themselves, and the result this time was not the same as on the previous occasion. The symptoms became rapidly worse and the woman died. If we had been positive in regard to our diagnosis that it was not simply a case of mitral regurgitation, but perhaps one of tricuspid regurgitation as well, it is possible we might have advised that woman to avoid, if possible, the possibility of a second pregnancy, and her life might have been prolonged a considerable number of years. If we made diagnosis of disease of the right side of the heart more frequently than we do, we could prolong the lives of the unhappy victims.

Dr. A. M. CORWIN—In regard to the diagnosis of these cases, at first sight it seems strange that we have not more certain data; yet, as Dr. Herrick has said, cases of tricuspid stenosis are usually complicated with other lesions. We have several murmurs, not infrequently an aortic regurgitant murmur, dias-

tolic in time, and this is often heard most distinctly in the area in which we would expect to hear the presystolic murmur of tricuspid stenosis. This may be one of the reasons why an accurate diagnosis has seldom been made in these cases of tricuspid stenosis. We know from experience that where the heart beats over 90, and two murmurs occur, both diastolic, one in the first part of diastole, as is the case with the murmur of aortic regurgitation, and the other in the latter part of diastole—presystolic, it is not always an easy matter to make out their specific character.

With regard to the area of intensity of this murmur of tricuspid stenosis, over the lower part of the sternum, it suggests the question why we hear so frequently the murmur of aortic regurgitation loudest in this same area. Some authors, like Loomis, say that it is due to transmission down the sternum. The sternum undoubtedly transmits to its lower end loud sounds produced at its upper extremity. I think, however, those who have had much experience in examining the heart, know that while in many of these cases the diastolic murmur of aortic regurgitation is heard loudest at the lower part of the sternum, it may be in such instances heard with very little intensity at the upper or middle part of the sternum. In not a few instances, I have noticed that it is not only heard at the root of the appendix sterni, but along the costal arch for an inch and a half to the left. This I have explained with most satisfaction by the theory of its propagation along the diaphragm. As the murmur is produced in diastole the left ventricle is in close contact with the diaphragm at that time, and the murmur is therefore transmitted down to and along this to its attachment at the end of the sternum. The left heart being also enlarged in such cases, we can readily see why the transmission should take place in this manner. I have dwelt upon this point tonight because the murmur of tricuspid stenosis in question occurs in diastole and has its seat in the same region over the lower end of the sternum.

Dr. JAMES B. HERRICK—I will merely say a word or two in closing with regard to the prognosis. Leudet, whose name I have used frequently tonight, makes the statement that it is only by the complexus of symptoms and by the careful study of the entire condition of the patient that one can make the prognosis in these cases. And it seems to me also, that a study of this specimen, where we observe great hypertrophy of the auricle, will show how it is possible for some of these patients to live as long as they do. The statement is made by some writer with regard to this lesion, that auricular compensation is practically *nil*. But if we look at this postmortem specimen with the greatly hypertrophied auricular structure we can realize how there can be good auricular compensation.

With regard to the length of life in cardiac disease, particularly with the two lesions of insufficiency, or the two of stenosis, I recall that a few years ago I was called to see a patient, the father of a physician, and his history leading me to suspect cardiac disease, I started to place my ear to his chest, when he said, "Doctor, I have heart disease. Skoda told me so in Vienna thirty-five years ago." At the time I made the examination he was about 67 years old, and had been told thirty-five years previously by Skoda that his heart was diseased. The lesion, as I remember, was mitral regurgitation with aortic regurgitation, bearing out the statement of Bacelli which was referred to by Dr. Babcock.

(To be continued.)

SELECTIONS.

The Medical Profession Under the Roman Empire.—A writer in the *Practitioner* has sketched some interesting views of medical practice in later Rome from Dr. R. Briau's "Archiatrie Romaine" and Dr. Vercutre's learned article, "La Médecine Publique dans l'Antiquité Grecque," published in the *Revue Archéologique*.

"Under Alexander Severus, and especially under Diocletian, physicians who had the good luck to bask in the sunshine of the Imperial favor could hope for almost any dignity and for any privilege. The Court physicians and their children were exempt from all taxes and public duties; they were placed in the highest ranks of Diocletian's hierarchy—among the Egregii, the Spectabiles, the Illustres, the Eminentissimi. The baronetcies and knighthoods half contemptuously flung to one or two members of the profession nowadays show poor indeed beside these titles and dignities. The highest offices in the state were not beyond the reach of the lucky doctor. Vindicianus, a medical practitioner, was Proconsul of Africa; and another member of the profession, Ausonious, father of the poet, was Prefect of Illyria. Nor were these isolated instances of the height to which medical men in those days might climb by Imperial favor. As regards public appointments held by medical practitioners, it is not till the time of the Empire that we find evidence of their being in the direct employment of the state as regular officials, with a definite place in the hierarchy of civil and military administration.

"Under Augustus there were medical officers to the circus, the amphitheater, the training school for gladiators, the public libraries, the Imperial Estate, the public gardens, etc. Both the army and the navy had regular medical services; the surgeons had a good position immediately after the senior officers. Their titles were—in the army *medicus mititum*, *medicus cohortis*, *medicus castrensis;* and in the navy, *medicus ex triremi*, etc.

"In the provinces each town of any importance had several medical functionaries, who seem to have combined the duties of Poor Law medical officers and medical officers of health. They were paid out of a local rate to look after such of the inhabitants as needed their services, and generally to give advice as to sanitation. This was an old institution borrowed from the Greeks, but, though officially recognized, and even administered under state control, as far as the funde were concerned, in the provinces, it was not introduced into Rome itself till A.D. 368. In that year the Prefect Prætextatus issued a decree (*De Archiatris popularibus Urbis Romæ*) enacting that each of the fourteen districts of the city should have an *archiater* or chief medical officer. These officers are enjoined "honorably to tend the lesser folk rather than shamefully serve the rich" (*honeste obsequi tenuioribus malint quam turpiter servire divitibus*). They were allowed to accept the offerings of those in good health for services rendered, but not such as were promised for cure by persons in danger of death. On the death or resignation of one of these officers his successor was to be chosen, not by the favor of the great, nor by the legal authority, but by the votes of the other *archiatri populares*. It is hardly necessary to add, however, that the head of a despotic government could not long allow the right of election to any public appointment with a salary attached to it, to be independent of his control. Accordingly we soon find the Emperor interfering with the appointment of *archiatri*, and we find the refusal of the officers to recognize the appointment of a colleague by Imperial authority described as "a kind of sacrilege." By-and-by we hear of a *Præsul archiatrorum* placed over the others, and charged with the supervision of their official conduct.

"It is hardly necessary to add, however, that the head of the despotic government could not long allow the right of election to any public appointment, with a salary attached to it, to be independent of his control. Accordingly we soon find the Emperor interfering with the appointment of a colleague by Imperial authority described as a kind of sacrilege. By-and-by we hear of a Præsul archiatrorum placed over the others, and charged with the supervision of their official conduct.

"These old Roman practitioners knew little anatomy or physiology, and nothing of microbes; yet, no doubt, they were useful members of society. The superior scientific person of today looks on the past with a feeling of Pharisaic self-glorification, and the gibes of the Roman satirists might be taken to show that the medical practitioners of ancient Rome were not only impostors and quacks, but villains and profligates of the worst kind. It is impossible to receive this as a true picture of the whole profession. The evidence of witnesses like Cicero, Horace, and others—men of the world not likely to be imposed upon by ignorance or pretension—has already been cited. Another illustrious witness in favor of the doctors of Seneca,

who, after a glowing description of the devoted care which a good physician gives to his patient, says, 'Such an one is not merely a doctor, but a friend. Although I may pay his fees, I shall always remain his debtor; the debt of the heart remains undischarged,' *pretium operæ solvitur, animi debeter.* Evidently there were physicians worthy of the name, as well as grateful patients, in those days."

Etiology of Infectious Diseases.—After discussing at some length the etiology of infectious diseases, Surgeon-General Sternberg says in the *American Journal of the Medical Sciences* for December, 1896, that . . . it is surprising that any well-informed physician should entertain the vague and unscientific notions with reference to the epidemic prevalence of influenza which formerly passed current in attempts to explain epidemics of cholera, typhoid fever, typhus, etc., but in regard to the malarial parasite he considers it to be well established that it may be carried by currents of air to a considerable distance and gain access to the blood by way of the respiratory passages, but when applied to cholera or influenza it receives no support from facts or physical laws, for the epidemic may occur in a direction opposite to prevailing winds. . . . This brings us to speak of a classification based upon the mode or channel of infection. From this point we may have: *a*, traumatic infections; *b*, infection by contact (direct contagion); *c*, infection through ingesta; *d*, infection through the respiratory tract. Under the heading "infection by contact," *b*, we should have to include venereal diseases and contagious skin diseases. . . . . Another method of classification which presents certain advantages is one based upon the nature of the infectious agent. This would give us the following principal groups:

I. Diseases due to infection by vegetable parasites: *a*, schizomycetes (bacteria); *b*, hyphomycetes (microscopic fungi); *c*, blastomycetes (yeasts).

II. Diseases due to infection by animal parasites: *a*, protozoa; *b*, nematodes, *c*, trematodes; d, cestodes; *e*, acari. . . .

Finally, we may base our classification upon the special tissues or organs involved in the infectious process. From this point of view we have:

I. General blood-infections (septicemia), including malarial infection, relapsing fever, streptococcus infection, etc., in man; and anthrax, swine plague, cattle plague (rinderpest), Texas fever of cattle, etc., in the domestic animals.

II. Localized infections: *a*, of the integument and subcutaneous connective tissue, including scabies, the dermatophyti, erysipelas, furuncles, etc.; *b*, of mucous membranes, including diphtheria, influenza, glanders, bronchitis, rhinitis, conjunctivitis, otitis, gonorrhea, cystitis, enteritis (?), cholera Asiatica, cholera nostras, etc.; *c*, of serous membranes, including pleuritis, pericarditis, peritonitis, meningitis and synovitis; *d*, of glands, including typhoid fever, bubonic plague, parotitis, mastitis, adenitis, etc.; *e*, of the lungs, including pulmonary tuberculosis, croupous pneumonia, etc. It is evident that under several of the subdivisions the diseases mentioned would require a subheading to designate definitely the nature of the infectious process. Thus we would have, for example, to specify whether a peritonitis was tubercular or due to streptococcus infection or to some other known microörganism; an adenitis might be due to syphilitic or tubercular infection, or to one of the pus cocci; a conjunctivitis to gonococcus infection or to some other pathogenic microörganism, etc. It will be noted that, both in our classification on the nature of the infectious agent and in that based upon the special tissues or organs involved in the infectious process, we have not included the eruptive fevers. It is hardly necessary to say that this omission is due to the fact that as yet we have no positive knowledge to guide us in placing these infectious diseases in the classifications suggested, which are, therefore, necessarily incomplete.

PRACTICAL NOTES.

Permanent Success of Two New Methods of Treating Hernia.—The five children cured of congenital inguinal hernia by Prof. Lannelongue last July with local injections of one-tenth solution of chlorid of zinc (about 30 drops in all), as mentioned in this JOURNAL at the time, page 270, were exhibited at the French Surgical Congress in October, and the permanent success of the treatment announced. There have been no relapses, and coughing produces no disturbance. The inguinal ring is entirely obliterated, with an indurated plastron, continuous with the pubis. Notwithstanding the existence of this fibrous plastron, the elements of the cord and testes have remained normal. Poullet of Lyons also extolled the fine results obtained with his simple and effective autoplastic tendon method with which he cured over 83 cases last year. He obliterates the external ring by sewing it up without any ligature, catgut or silk, but with a piece of the patient's own fibrous tissue, still attached at the other end, which soon adapts itself to its new position and continues to grow as before. He first makes an incision over the ring, parallel to Poupart's ligament, 4 cm. in length, divides the stricture and separates the hernia from the cord. A wire thread is then passed through the stricture four or five times and the ends brought outside, through all the strata of the abdominal walls, thus separating the peritoneal cavity entirely from the field of operation. He enters through the external ring, which he never incises, consequently the operation is necessarily extra-abdominal and absolutely benign. The next step is an incision where the right anterior muscle of the thigh crosses over, 15 cm. from the anterior superior iliac spine. A ribbon of fiber, 1 cm. wide, is then detached from the inner surface of the tendon. Flexing the limb to relax the muscle, brings this tendon into prominence, and it is cut at the middle of the thigh. The finger insinuated under the sartorius creates an intercellular passage, and with a long pair of forceps, the tendon is drawn through it into the inguinal wound. With this tendon now the hernia is obliterated. With a large needle it is passed through the anterior wall of the canal, 2 centimeters outside of the external pillar, and then brought around the internal pillar of the internal ring. The 4 or 5 centimeters left are then run into a muscle, where they become ingrafted in a few days. The end is fastened with two fine wire stitches brought through to the skin and removed in a week. The results of the operation are very simple, the union by first intention taking place within eight days. In a few exceptional cases a serous discharge occurred for a little while, showing that part of the tendon had become necrosed, and had not grown in perfectly, but this did not interfere with the ultimate cure of the hernia.—*Bulletin Méd*, October 25.

The Best Treatment of Scabies.—Jullien describes in a recent article his surprise a few years ago when on a visit to Italy he saw in the consulting rooms patients stripped naked and being painted by the attendants with a brownish fluid from head to foot. He was informed that this method of treating scabies by painting the body with Peruvian balsam without friction, was the most effective. Since then he has adopted it in his own practice, and recommends it in high terms as simple and inexpensive, while much more effective than sulphur treatment, etc. He speaks with an experience of 300 hospital cases, besides those in his private practice. The odor is agreeable, and it kills the acarus and its eggs very rapidly. No preparation is necessary, the grease of the skin facilitating the action of the remedy. It is applied with a brush and gently rubbed over the entire surface of the body. At night is the best time, and a bath follows in the morning or later. He adds that he considers it "imperiously indicated" in all cases of extensive pyodermia; impetigo, ecthyma and boils, for persons with eczema, debility, cardiac troubles, albuminuria, certain cases of pregnancy, for

women in the menstrual period, and for every one who is unable to take baths for any reason, especially for infants with such delicate skins that any friction is followed by dermatitis or strophulus. It never causes any inconvenience, even when used for a long while.—*Province Med.* November 21.

Artificial Serum.—The *Gazette Méd. de Liège* of November 26, gives various formulas for artificial serum as follows: Surgical serum to use in post-operative peritoneal septicemia, in collapse, puerperal eclampsia, in severe typhus and uremia, in cholera and in infective diseases: Chlorid of sodium 7.50 grams; sterilized aqua dest. q. s. ad 1,000. Hayem's formula is: Sterilized water 1 liter; sodium sulphate 10 gr.; sodium chlorid 5 gr. (50 to 100 c.c.) Luton's formula: Sodium sulphate 10 gr.; crystallized sodium phosphate 5 gr.; aqua dest. 100 c.c. (5 to 25 c.c.) Cantani: Sodium chlorid 4 gr.; sodium carbonate 3 gr.; aq. dest. 1,000 gr. (30 to 40 c.c.) Samuel: Sodium chlorid 6 gr.; sodium carbonate 3 gr.; aq. dest. 1,000 gr. (From 2 to 500 c.c.) Schiess: Sodium chlorid 0.75 gr.; aq. dest. 1,000 gr.; sodium bicarbonate 0.50 gr. (For collapse in pneumonia, 10 c.c.) Vignesi: Sodium chlorid 50 gr.; water 100 gr. (20 to 30 c.c. in grave anemia.) Chéron: Sodium sulphate 8 gr.; sodium phosphate 4 gr.; sodium chlorid 2 gr.; phenic acid in flakes 1 gr.; sterilized water 100 gr. (5 to 10 c.c. every other day.) Huchard: Ster. water 150 gr.; phosphate 10 gr.; sodium sulphate 2.50 gr.; sodium chlorid 5 gr.; phenic acid in flakes 1.50 gr. (5 to 10 c.c.) De Renzi: Aq. dest. 1,000 gr.; pure iodin 1 gr.; potass. iodid 3 gr.; sodium chlorid 6 gr. (200 to 300 c.c. in pulmonary tuberculosis).

Beta-naphthol Inhibitory of Intestinal Fermentation.—Dr. David D. Stewart of Philadelphia, in the *Polyclinic*, takes up the subject of the treatment of cases wherein there is an excessive excretion of hydrochloric acid. He holds the opinion that it is very important for the relief of intestinal symptoms in these cases that full doses of alkalies be administered at the period of height of digestion of the meal, in order that the too acid gastric contents, in passing into the intestines, do not inhibit or entirely destroy the pancreatic ferments. To further prevent fermentative processes in the bowels he prescribes, as by far the most useful agent, beta-naphthol. This he gives in doses of 5 grains either in capsules combined with cannabis indica and such other drugs as may seem required, or he exhibits it in tincture of ginger, a dram of which dissolves the required dose. To this is added one to two drops of oil of cajeput. The last method of use, although not the most elegant, he regards as the most efficient. It is taken in a small quantity of water and followed by a draught of a few ounces. The naphthol which is thus first dissolved in ginger, on being added to water, in process of taking becomes reprecipitated in very minute crystals, less irritating than when prescribed in the form of powder and administered in wafer or capsule.

New Method of Radical Cure of Inguinal Hernia without Sunken Threads.—An article in the *Semaine Méd.* of November 11, signed by Professors Duplay and Cazin, illustrates a way by which the hernial sac is tied without threads which frequently produce trouble later. The sac is first opened and explored with the fingers, all adherences detached, and a portion of the omentum resected if necessary. The sac is then completely dissected, and an assistant draws out the base with a pair of forceps as far and as long as possible, with that portion of the peritoneum normally situated 2 to 3 centimeters above the internal inguinal ring. The operator then seizes the end with another pair of forceps and draws it around and through to make a knot, as high up as possible. The ends remaining above the knot are then split and one end is drawn around and through in the same way, to make another knot, or passed through a slit in the other half, and this is repeated as often as the length of the sac will allow. In one case the sac was so short that it was split in four pieces and the four ends tied in knots two by two. A strong fastening is thus made without the introduction of any foreign substance, remarkably simple and perfect in its results. When the traction ceases it sinks out of sight immediately, as in the classic operation. It was always found that the highest part of the knot remained 2 or 3 centimeters above the internal inguinal ring. The operation is then completed in the usual manner. If the sac is too thick to be tied in this way, it can be split and knots made in each half separately.

Vaccinia Remittens.—Mr. C. F. Sutton of Cheshire, in London *Lancet*, October 24, reports an anomalous case of vaccination as follows: "In March last I vaccinated a child with calf lymph, and on the eighth day it had taken exceedingly well without the least sign of inflammation. The vaccination ran its usual course and the scabs having come off left four perfectly healed marks, but to my astonishment a month afterward the same places began to rise again and resembled in every respect a newly vaccinated arm. It ran the usual course again, becoming quite well. The same thing occurred again early in June and late in July. Much to my surprise, I was called to see the child on October 5 last, and I then found the arm again taking precisely as it did in the first instance and running the usual course, and any one not knowing the circumstances of the case could not have seen any difference between it and one freshly vaccinated. The child is perfectly healthy and has suffered no inconvenience beyond the slight irritation due to vaccination. I called the attention of the vaccination inspector to the case in September last and he informed me he had never either seen or heard of such a case."

Operation and Cure of a Case of Addison's Disease.—A malignant retro-peritoneal tumor was diagnosed in the case of a woman presenting all the symptoms of Addison's disease. When removed it was found to be a suprarenal capsule in a state of tuberculous degeneration. All the various symptoms disappeared completely after the operation, and the patient has enjoyed fine health ever since. There were no organic lesions except this tumor and an old tuberculous focus in the lung. It must be evident therefore that the condition of the capsule was responsible for the development of the disease. Hence the removal of one or both capsules in Addison's disease seems to be indicated. The operation is not difficult as a tubercular capsule is more easily separated from neighboring organs than a sound one.—Oesterreich in the *Ztsch. f. Klin. Med.*, No. 2. *Bulletin Méd.*, November 15.

Tannosal.—Kestner has administered this preparation of creosote and tannic acid (3 to 2) to seventy-five patients this year and reports the benefits equal to those derived from other creosote preparations, while there were no inconveniences from its use, except in three cases of intestinal tuberculosis when it produced colic. It is better tolerated by the digestive apparatus than any other creosote preparation and produces an intensive diminution of the bronchial secretions, fully equalling, if not surpassing, terpin in this respect, while it increases the appetite and weight. Its effect was more marked in children than in adults. His dose was three tablespoons a day of the aqueous solution (never more than six) and for children as many teaspoons as they were years old.—*Therap. Woch.*, November 22.

Hysteric Deafness.—Before commencing a more serious course of treatment, Cipriani advises treatment by suggestion when any unusual case of deafness presents itself, with a record of intermittency. He describes a case of this kind in which he secured permanent cure by simple suggestion, although every indication pointed to rheumatic deafness from exposure, and the patient, a healthy farmer of 44, seemed absolutely free from neurotic tendencies.—*Gazzetta degli Osp. e delle Clin.*, November 22.

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SATURDAY, DECEMBER 26, 1896.

EARLY AMERICAN PHARMACOPEIAS AND THEIR AUTHORS.

The recent International Pharmaceutic Congress at Prague dealt with the history of pharmacopeias but devoted almost no attention to the evolution of pharmacy in the United States. The first attempt at a pharmacopeia in the United States resulted at Lillitz, Pa., from the endeavors of Dr. JAMES TILTON of Delaware to secure an official standard as a check on the rapacity of the contractors supplying Washington's army. Dr. TILTON was the first president of the Delaware State society organized in 1789. He was graduated from the University of Pennsylvania in 1771. In 1777 while in charge of the General Military Hospital at Princeton he exposed the "boodleism" and brutality which naturally resulted from laymen having charge of the medical department of Washington's army. Through Dr. TILTON the service was reformed. Relatively inexpensive, readily ventilated, log hospitals took the place of the old mansions previously used. The wounded did not suffer so much from unnecessary travel. Mortality decreased and the health of the convalescent was much improved. Dr. TILTON, like most physicians of the time, took an active part in modeling the statesmanlike measures characteristic of the American Revolution. He was several times a member of Congress. During the war of 1812 he was made Surgeon-General U. S. A. He was a man of great executive ability and an excellent sanitarian. He died in 1822 at the age of 77. Among his contributions to medical literature was one advocating the sea-air in cholera infantum.

The first edition of Dr. TILTON's pharmacopeia appeared in 1778. It was based on the Edinburgh Pharmacopeia and went through a second edition in 1781, Dr. WILLIAM BROWN editing it.

The next pharmacopeia in the United States was issued by the Massachusetts Medical Society. At the Oct. 3, 1805, meeting Drs. JAMES JACKSON and JOHN C. WARREN were appointed a committee to prepare a pharmacopeia, which was adopted June 5, 1807, and issued from the press Dec. 17, 1807. Various other State and local medical societies adopted different official standards, but the need of a common standard was widely felt. In 1815 the physicians and surgeons of the New York Hospital had prepared by Drs. S. L. MITCHELL and VALENTINE SEAMAN, a pharmacopeia for that institution. This for several years was of more than local authority (U. S. Pharmacopeia, 1890).

In January 1817, Dr. LYMAN SPALDING of New York City submitted to the New York County Medical Society a project for the formation of a National pharmacopeia. Dr. SPALDING's plan was as follows: The United States to be divided into four districts, northern, middle, southern and western; the New England States to form the northern district; New York, New Jersey, Pennsylvania, Delaware, Maryland and the District of Columbia, the middle district; and the States south and west of these borders to constitute the other two districts.

The plan provided that a convention should be called in each of these districts, to be composed of delegates from all the medical societies and schools situated within each of them. Each district convention was to compile a pharmacopeia, and appoint delegates to a General Convention to be held in Washington. To this General Convention the four district pharmacopeias should be taken and from the material thus accummulated a National Pharmacopeia should be compiled.

Dr. SPALDING's plan was approved by the committee to which it was referred and subsequently through the agency of the New York State Medical Society was carried into effect. This society issued circulars requesting the coöperation of the several incorporated State Medical Societies, the several incorporated colleges of physicians and surgeons or medical schools or such medical bodies as constituted a faculty in an incorporated university or college in the United States; and in any State or Territory in which there was no incorporated medical society, college or school, voluntary associations or physicians and surgeons were invited to assist in the undertaking.

The following organizations approved the plan of forming a National Pharmacopeia and appointed delegates to district conventions: Massachusetts Medical

Society, June 2, 1818; New York College of Physicians and Surgeons, June 25, 1818; Maryland Medical and Chirurgical Faculty, June, 1818; Rhode Island Medical Society, September, 1818; Medical Society of the District of Columbia, Oct. 5, 1818; Connecticut Medical Society, Oct. 15, 1818; Yale College, Oct. 28, 1818; Vermont Medical Society, October, 1818; Board of Physicians and Surgeons of the First Medical District of the State of Indiana, November 3, 1818; College of Physicians and Surgeons of the Western District of the State of New York, January, 1819; College of Physicians of Philadelphia, February 2, 1819; Medical Faculty of Brown University, March 15, 1819; Medical School at Lexington, Ky., April, 1819; New Hampshire Medical Society, May 5, 1819; New Jersey Medical Society, May 11, 1818; Delaware Medical Society, May, 1819; Georgia Medical Society, May, 1819.

The Medical College of Ohio and the Medical Society of New Orleans approved the formation of a National Pharmacopeia but did not appoint delegates. The district convention for the New England States was held in Boston June 1, 1819, and a district pharmacopeia was adopted. The district convention of the Middle States was held in Philadelphia June 1, 1819. Two outlines of pharmacopeias submitted by the delegates from New York and Philadelphia were by a committee there chosen, formed into one, which was adopted as the pharmacopeia of the middle district.

There were no conventions held in the southern and western districts, but measures were taken by those concerned to secure a representation of the southern district in the General Convention at Washington. The General Convention for the formation of a National Pharmacopeia assembled in the Capitol at Washington January 1, 1820, and elected SAMUEL L. MITCHELL, M.D., President, and THOMAS T. HOWSON, M.D., Secretary.

The two pharmacopeias prepared in the northern and middle districts were submitted to examination, compared in detail, and their contents, with such additions as were thought necessary, consolidated into one work, which after full revision was adopted by the General Convention and ordered published by a committee, of which Dr. LYMAN SPALDING was chairman. It was published in Boston December 15, 1820, in Latin and English. A second edition appeared in 1828.

Before adjourning, the General Convention of 1820 made arrangements for the future revision of the work. It instructed its president to issue, January 1, 1828, writs of election for the several incorporated State medical societies and incorporated medical colleges and schools in the northern district requiring them to ballot for three delegates to a General Convention to be held at Washington on Jan. 1, 1830, for the purpose of revising the American Pharmacopeia; and that these several institutions be requested to forward to the president on or before April 1, 1829, the names of three persons thus designated by ballot, and the president of the convention was requested on the said day to assort and count the said vote and to notify the three persons who should have the greatest number of votes of their election; and in case there should not be three persons who had a greater number of votes than others, then the said president was desired to put a ballot into a box for each of those persons who had an equal number of votes and draw therefrom such number of ballots as should make the number of delegates three, and notify as before directed. This resolution was to apply in like manner to the middle, southern and western districts. There were to be three delegates from each of the four districts, the convention thus to consist of twelve delegates.

Excellent as were these arrangements for the convention of 1830, a serious misunderstanding occurred, with the result that there were two pharmacopeias published, one in New York and one in Philadelphia. The convention of 1840, however, was practically unanimous. The later conventions have been held along the lines indicated in that convention.

Among the pharmaceutic developments along the same line as the pharmacopeia were the dispensatories. The most interesting of these are the American New Dispensatory and the American Dispensatory. The American New Dispensatory, compiled by Dr. JAMES THACHER, was endorsed in 1809 by a committee of the Massachusetts Medical Society, composed of Drs. JOHN WARREN, AARON DEXTER and JOSIAH BARTLETT. The last was one of the medical signers of the Declaration of Independence. This dispensatory was based on the Massachusetts Pharmacopeia. The American Dispensatory, based on the Edinburgh Dispensatory, was issued by Dr. JOHN REDMAN COXE of the University of Pennsylvania. It summarized all contemporary dispensatories of the continent of Europe.

The matter of most interest in the Massachusetts Pharmacopeia and these Dispensatories, is materia medica. Most articles on which much stress is laid by the sectarians of today are found enumerated therein. The materia medica includes aconite, æsculus, apium, arctium, bryonia, asclepias, blessed thistle, juglans cinerea, lobelia, rhus toxicodendron, xanthoxylum, rhododendron, actæa spicata, geranium maculatum, hamamelis virginiana, iris, podophyllum, scutellaria, and many other remedies which are claimed as discoveries of the sectarians. These early American pharmacologic investigators seem to have been very keen sighted. The recent onslaughts on sarsaparilla appear eighty years previous in the Dispensatories to which reference has been made.

THACHER, for example, observes that sarsaparilla is a very inert, mucilaginous substance. He gives an account of Dr. CURRIE'S treatment of typhoid fever with what is practically the cold water method of BRAND. CURRIE adopted this method a little over a hundred years prior to BRAND. The method was independently used in the New York Hospital by Drs. BARD and D. HOSACK in 1793. THACHER gives the following exceedingly interesting accounts of thermometry at a time when the procedure was not supposed to be employed by practitioners:

"What thanks would not be due to him who should teach with certainty when to employ and when to avoid blood letting, and especially should he give so accurate a guide as the thermometer and the feelings of the patient as to heat when confirming each other?

"The thermometer indeed can not always be used by the country physician to whom we shall soon suggest a substitute; but to others, who can more easily obtain this useful assistant we address the following information.

"JOHN HUNTER in the London Philosophical Transactions for 1778 (see also those for 1779) describes one of his own invention and of Mr. RAMSDEN'S workmanship which was short, slender and with so small a bulb that he could put the whole into a peacock's quill, even including the scale, which was movable and of transparent ivory, being in the form of a hollow tube and nowhere touching the bulb. The results of this thermometer differed from those of others used by JOHN HUNTER and even from his own expectations. It was this sort of thermometer which Dr. CURRIE employed with his patients, taking care to make the stem bend backward in order to admit of his standing behind the sick, to avoid infection from their breath. Dr. CURRIE recommends as a further improvement a gauge like that used by Mr. SIX in his thermometers made upon the plan of those invented by Lord C. CAVENDISH (see London Philosophical Transactions for 1782 and 1757). But a thermometer with spirits of wine (which sufficiently corresponds with one of mercury in the high temperature here in question) would probably be visible enough to answer every purpose were the spirits as usual colored. It does not appear why excessive diminutiveness is so necessary a quality in mere medical thermometers.

"We have hinted that country practitioners must often be content, and may do sufficiently well, without thermometers, and especially in these parts of the United States where thermometers are so seldom found corresponding with each other, and where even if good they are with difficulty replaced in case of accident. The uses of the thermometer in Dr. CURRIE'S system of practice were two; one to show the heat of the patient and the other the temperature of the water to be applied to him.

"Let us begin with the latter subject. It is known to every practitioner that boiling water is always of the same heat in the same state of the atmosphere. Next it will soon be shown that water can always easily be found at hand at certain other known degrees of temperature. Lastly, rules may be given for producing any intermediate temperature between that of boiling water and water of any other known temperature, merely by mixing in certain proportions and with certain precautions. We shall now show that water may generally be found of several temperatures which are easily ascertained without the aid of thermometers. In winter, water which has remained a certain time filled with ice or pounded snow, after it is poured off, will stand at the freezing point or at 32 degrees of Fahrenheit's thermometer. Water will also stand at the freezing point when taken from underneath a surface of thick ice formed upon it in winter in a vessel of moderate size. The average temperature of the air throughout the year may be known for any place and this temperature is one and the same with that of the springs of the place when first issuing from the ground and also of the earth of the place at a few feet below the surface. The average temperature of each month also may easily be known for any place, and when known it will commonly nearly mark the temperature of the water accidentally found in any considerable vessel placed under shelter from the wind and sun but exposed to the open air, especially upon making certain obvious allowances.

"Enough then has been said as to the fixed points of heat at which water may be found and the methods by which it may be tempered by being mixed in different proportions at different temperatures for the purpose of bathing, aspersing or moistening the bodies of different patients according to their respective cases. Happily very great nicety is not found to be requisite, and perhaps the guess of the practitioner will always abundantly suffice. In this case what has been said on these subjects will not be lost, since it will find its place with those attentive to meteorology and other branches of natural philosophy.

"As to calculating the patient's heat without help from the thermometer, in general we may depend on the patient's feelings and rapidity of the pulse, the precedence of the cold stage of fever, the color of the skin, the freedom from perspiration, the fullness of the face and the marks of universal heat to the touch of the observer. That the practitioner may not be misled by the remains of heat which the bedclothes may have kept in the patient from a preceding hot fire, let the bedclothes be thinned with judgment and for a short time, if the patient still remain hot, he will offer a new criterion as to his temperature.

"If other rules are wanting the following are some which present themselves: Take a short tube of glass exceedingly thin, and with a very small bore, having one end open and the other closed. Having first heated it gradually by placing it outside in heated water, plunge its open mouth into a small quantity of spirits colored with cochineal, or of aquafortis made blue by vitriol or copper, or if quicksilver is at hand, put it into a little quicksilver. As the air cools in the tube, fluid will rise into it, and when a very short column (amounting only to a drop or two) has been taken up, we have an instrument suited to our purpose. A cork may be placed in the open end when this instrument is not in use to prevent dirt entering or the evaporation of the spirits or water; but the cork must be carefully withdrawn to preserve the connection with the atmosphere, when the instrument is employed. Let the practitioner place it during some time under his arm pit when at the sick bed, and marking the spot then occupied by the column of fluid, let him wipe the instrument and place it under the arm pit of his patient. If the patient's heat is greater than his own, the air behind the column of fluid confined by the closed end of the tube, will now be most rarefied, and drive the fluid farther out than with himself; if the contrary, the reverse will happen. This instrument must at some one time be compared with the thermometer merely to show how its scale of variation agrees with that of the thermometer, unless this can be guessed at by other methods. But the degree in which an instrument of this sort will be affected by the changes in the weight of the atmosphere (for it is a species of barometer) render it necessary that the comparison of it with the heat of a healthy person should always take place. An object to be further attended to is that the patient's heat be not only greater than natural, but at a high pitch even for fever heat.

"Perhaps chemists may invent some compositions which by their melting or effervescence may indicate fixed degrees of heat, which may be contrived to serve as standards for the heat of fever.

"With respect to the standard heat of the human subject, taken internally in a state of health, it varies with age, constitution, exercise, fulness from meals, and other circumstances independent of disease. The usual average temperature is perhaps at 97 degrees, but eating, for example, increases it one or more degrees. In disease, according to Dr. CURRIE'S observation, it sometimes in extraordinary cases sinks as low as 92 degrees, and sometimes in cases equally extraordinary it rises to 105 degrees. Repeated doses of the purple foxglove have reduced the heat to 89 degrees and the pulse to 32 in the minute."

These directions, it must be remembered, were written long ere clinical thermometers became common. They indicate, as has been repeatedly pointed out in the JOURNAL, that all medical discoveries take a long time to become established. The Dispensatory of Dr. COXE was more extended as to pharmacy and chemistry than that of Dr. THACHER. It gives all the synonyms of the coexisting dispensatories of Holland, Denmark, France, Germany, Italy, Portugal, Poland, Russia, Spain and Sweden, and contained an extended posologic and prosodial table.

On the whole, pharmacy at the beginning of this century occupied the place it deserves to occupy in American medicine, and the Pharmacopeia had a respect which does not obtain today, but which it should have, for the sake of uniformity if for nothing else.

THE AMBULANCE SHIP.

Even non-nautical readers of sea tales and naval history, up to quite a recent date, had become tolerably familiar with the various classes of the white-winged creations of the naval architect. They knew that a sloop-of-war had three masts and a brig only two; that a frigate had two gun-decks and a line-of-battle ship three or four; but their knowledge avails them little in reading of the battle ships, armored cruisers, commerce destroyers, coast defenders, monitors, torpedo boats and torpedo catchers that constitute the navies of the present decade. Today, another craft has been baptised—the *ambulance ship*—even before her keel has been laid, though it is by no means certain that she will have a keel.

The Surgeon-General of the Navy, more than a year ago, had outlined the functions of a contemplated ambulance ship, and in his annual report of this year, which has just been published, he reverts to the subject and urges with greater earnestness and with the countenance and support of the Navy Department, the importance of a vessel, whose designation indicates her special office—literally a floating ambulance, which like the vehicle on shore is to gather the sick and wounded from the site of conflict and conduct them to a place of safety. The ambulance ship must needs also be a temporary hospital ship, equipped with appliances and apparatus that may be required for even capital operations, but precisely how she is to be rigged, outfitted, equipped, officered and manned is yet a matter of future development. "Considerable attention," says the Surgeon-General, "is now being paid to the construction of such vessels abroad, and it is universally conceded that they should be designed and built for this particular duty, and considered an essential part of the fleet of war." "These relief ships should be fast steamers, fitted with comfortable beds, and equipped and conducted by the officers of the medical staff and men of the hospital corps, who have been thoroughly trained in time of peace in the duties of nursing and caring for the wounded." "The plans suggested for such vessels provide large wards for officers and men on the spar deck for treatment of serious cases, and additional wards, affording ample space, on the main deck and lower deck. Natural ventilation is assisted 'by a steam spray extracting apparatus, as well as by a steam fan blast that pumps in an abundant supply of fresh air.'"

Hospital ships have existed for years. The U. S. Hospital Ship *Idaho* was established at Nagasaki, Japan, in 1868. At the same time the British Navy had the Hospital Ship *Actæon* stationed at Shanghai and the *Princess Charlotte*, an old four-decker, at Hong Kong. This class of vessels has not, however, been considered satisfactory or desirable by our own medical officers, except in insalubrious or inaccessible localities, where it was absolutely impossible to properly care for the sick and wounded on shore. Other things being equal, it is beyond question that a hospital on shore is better than one afloat. There is healing balm in the mere touch of the earth, in the scent of vegetation, the odor of the flowers; this, without contesting the marvelous recuperative effect of ocean therapy in chronic disorders, nervous exhaustion, tardy convalescence, etc., as shown after long sea voyages over smooth seas, in temperate climates, on board spacious, well-ventilated, dry, clean ships. Hospital ships of this sort would be of the utmost advantage, and it is to be regretted that they exist only as the dream of enthusiasts.

The stationary Hospital Ship for general purposes is only of value in malarial localities, where it is unsafe to remain on shore especially after sundown; but a hospital ship, which can accompany fleets or squadrons and be anchored in a safe harbor, with close communication with the fleet or squadron, from the several vessels of which their invalids can be quickly transferred, is undoubtedly "an essential part of the fleet of war;" and it is just here that the fast steaming ambulance ship comes into service as the feeder for such a hospital ship, primarily, or for the station hospital ashore when the latter is accessible. Such a ship must be able to approach near enough during an engagement to receive the wounded, care for them temporarily and transport them to a place of safety and be provided with steam hospital launches to run alongside combatant vessels in action, when the risk of exposure of the larger vessel would be too great. With all this, however, the need for proper hospital establishments on board the individual vessels will still exist. The speedy removal of every serious or protracted case of illness, such as fever, phthisis and chronic dysentery will relieve the local requirements; but, however, admirable the provisions for the expeditious transfer of the wounded may be in time of battle or in squadron evolutions, there must be no relaxation of the demand for proper quarters for the sick and disabled on board each vessel, on which the present Surgeon-General has positively and persistently insisted. The "Sick-bay" or *Ship's Hospital*, as it is more appropriately termed, should be located in that part of the vessel, where air-space, ventilation, absence of disturbing causes and isolation can be best secured. It should never be where, it has been heretofore uniformly established, in the restricted narrow space on the berth-deck, at the extreme bow, directly under the chain cables and over the paint-room. The dispensary, so-called, ought rather to be the medical office, with a cabinet dispensary and surgical outfit, but primarily an office where men can be examined by the medical officers, without interruption or exposure. The large proportion of the sick who are not bed-ridden, after treatment in this office are better on deck in the open air, the Geneva Cross

brassard identifying them as well to prevent their being called upon for duty as their interference with the ship's routine work. For bed-ridden patients, a limited bulk-headed hospital of rigid dimensions is less desirable than one which can be contracted or enlarged by screening off a designated space of the gun-deck by canvas partitions attached to brass sockets in the deck below and by hooks to the beams over-head, permitting, when there are no sick requiring isolation, the whole deck to be thrown open for the general ship's purposes. There must be, however, a positive provision in the naval regulations for the assignment to hospital purposes, of an indicated portion of the deck, shown on the ship's plans and conspicuously marked by brass sockets on the deck, whenever, in the opinion of the medical officer this shall be necessary; otherwise, as occurred some years ago, when the medical member of the Naval Board of Inspection recommended that one of the two bulk-headed hospitals of a newly built vessel might be reserved for this very purpose, the part of his recommendation abandoning one of the bulk-headed hospitals was adopted, and the apartment surrendered occupied as a gunnery store-room.

A large, commodious, well-lighted apartment, as far aft as possible on a gun-deck, where it will be away from coal chutes, dynamos, steam capstans and the like, should be assigned to the exclusive use of the medical department for the examination of the sick, inspection of recruits, performance of operations, administration of remedies, preparation of official records and care of instruments and apparatus, with bathing facilities and cots for a limited number of patients; but we doubt whether the Surgeon-General of the Navy is ever taken into council in the building of a vessel as to the proper location and dimensions of its medical establishment, any more than he is invited to say what shall be the cubic air-space for the commanding and other officers or the men of the crew. It is by no means certain that he has any voice as to the nature and quantity of the food supply, or its preparation and distribution, or whether he is ever consulted as to the arrangement of meals and the hours of labor; yet all this is legitimately the duty of the health officer of the community, which is the primary function of his office as preserver of the efficiency of the human element of the fighting machine.

It is to be hoped that the energetic incumbent of the office of Chief of the Bureau of Medicine and Surgery of the Navy Department, Dr. TRYON, may not only successfully accomplish his proposed construction of an ambulance ship for every squadron, but succeed in locating and equipping the hospital on board every naval vessel in commission as thoroughly as he has the naval hospitals on shore. He has replaced the disreputable market wagons heretofore used for the transportation of the sick by modern ambulances, and has instituted operating rooms that are not surpassed by any in the world. There is no fault to be found with the supply-table except on the score of too great liberality. All this done, hospital ships constructed and ships' hospitals perfected, there will still remain the subject of a naval hospital corps, to make the Medical Department of the Navy of the United States, on shore and afloat, all that it should be in *matériel;* legislation by Congress can alone make it what it ought to be in *personnel.*

THE OBSTETRIC SIDE OF HYSTEROPEXY.

The current literature of the last three years has been teeming with reports of complications in pregnancy and labor subsequent to, and directly traceable to, a previous operation of ventral or vaginal fixation of the uterus for retrodisplacement or prolapse of that organ. So frequently have these unfortunate results occurred, especially after vagino-fixation, that the latter operation has already been practically abandoned, even by its originators, and the most earnest advocates of the ventral operation have modified their technique in various ways in an endeavor to avoid as far as possible the difficulties alluded to. The variety and comparative frequency of the complications after hysteropexy have recently been presented by DORLAND of Philadelphia, in a comprehensive paper on the subject, and the deductions that he has drawn from his investigations are well worthy of a few moments' consideration.

In the first place, he ascribes all of the ill results noted not to the operation *per se*, which, he rightly claims, is the most suitable cure for the uterine displacements in question, but to some defects in the technique. The truth of this statement is amply proved by a comparison of the results obtained by the German and American operators. In the hands of the former the operation becomes no longer that which was intended by its originators—namely, a true *suspension* of the uterus, whereby that organ is freely mobile—but an absolute *fixation* of the uterus to the anterior abdominal wall, rendering its growth and development in a subsequent gestation either an utter impossibility or a matter of extreme difficulty. The American gynecologists, on the other hand, who have studied the problem most assiduously, have concluded that the suspension is best accomplished by including in the grasp of the sutures—which should not be placed on the posterior surface of the uterus, but upon the fundus just posterior to the transverse median line—the peritoneal surfaces only of the uterus and abdominal wall. All scarification of the apposed surfaces is carefully avoided, and the uterus remains practically free to move in any direction. The great majority of the complications reported have followed the German method of operating, thereby demon-

strating the undoubted superiority of the method practiced in this country.

Another defect in the technique of the operation is to be found in an improper implantation of the sutures into the abdominal wall. If they be placed too far above the symphysis pubis, the uterus is lifted out of the pelvic cavity and becomes an abdomino-pelvic organ, or the entire structure, cervix included, may lie above the pelvic brim; while if the sutures be inserted too low on the anterior abdominal parietes there results a sharp anteflexion of the uterus together with an anteversion, the cervix being carried far back and up toward the promontory of the sacrum, where it may be entirely out of reach. In addition to this unfortunate state of things, the tendency of the fundus uteri to return to its normal position results in serious traction upon the bladder with various functional disorders of that viscus.

The obstetric sequels of the operation as demonstrated by DORLAND'S researches are intensely interesting. Transverse presentations of the fetus occur with an astonishing frequency, such being noted in 3.35 per cent. of the reported cases. This, as stated by the author, is due to the inability of the uterus to develop in its longitudinal axis as a direct result of the fixation, a compensatory growth occurring in the transverse axis, which thereby becomes the longer and most readily accommodates the growing embryo and fetus. Painful traction upon the site of fixation; a marked aggravation of the normal nausea and vomiting of pregnancy; improper placental implantations (placenta previa); inflammatory affections of the deciduæ and other membranes; and varying degrees of uterine inertia, rendering delivery by nature difficult or an impossiblity or favoring the occurrence of postpartum hemorrhage and puerperal sepsis, are other anomalies recorded after the operation. In over half of the cases, or more accurately in 62.01 per cent. of the pregnancies, some abnormality was noted, either in gestation, in labor, or in both. Version was performed nine times; forceps were employed eleven times; in four instances Cæsarean section has been performed; retention of the placenta occurred three times; the fetal mortality was 17.87 per cent. and the maternal mortality 1.11 per cent. These statements are quite sufficient to indicate the truly serious results that may follow the apparently harmless operation of abdominal hysteropexy, and the question now arises, Are we justified in performing that operation in young women, or in those in whom the possible occurrence of pregnancy may exist? It may be that a strict observance of the proper technique as already suggested, may largely do away with subsequent complications, but this has not been positively demonstrated as yet.

Let us have a Department of Public Health!

THE MILWAUKEE-CHICAGO DIPLOMA MILL.

Many readers of the JOURNAL have been active in sending to the editor copies of the circulars of the Wisconsin Eclectic Medical College, an institution to which we have several times referred in no complimentary terms.

The first step taken by the JOURNAL was to place all the information in its possession in the hands of the Attorney General of the State of Wisconsin, with a view to having the charter annulled. That officer, keenly alive to the disgrace being placed upon his State by this institution, very promptly took steps for the annulling of the charter, a petition for which was printed in full in the JOURNAL, June 20, 1896.

Within the last month we have been in communication with the postoffice authorities of Chicago. Postmaster HESING very promptly referred the papers to the postoffice inspector, Captain STEWART, who has been after the diploma mill for fraudulent use of the United States mails.

A reporter for the *Chronicle* of Chicago undertook the hunt of "Dr." FRED RUTLAND, whose office purported to be at 1001 West Congress St., in Chicago. He found a small two-story brick house, without a sign on the door, and on ringing the bell his ring was answered by a Chinaman, who said that no one was admitted, that Dr. RUTLAND lived in Milwaukee, and the mail of the "college" was sent there. The *Chronicle* man says:

The Wisconsin Eclectic Medical College has on its printed matter no reference to its Milwaukee address, although its office is by charter compulsorily in Milwaukee. Until recently it did business there, but since August the business has been transacted from Chicago. The circular addressed to Dr. Brown was sent to him because his name was starred in the *Medical and Surgical Register*, a publication of R. L. Polk & Co., the directory printers. Referring to that publication the Wisconsin Eclectic Medical College is found to have headquarters at the home of Dr. Rutland at 1809 Fond du Lac Avenue, Milwaukee. It is said to have been organized in 1884 and to have graduated its first class this year. It is said to have three professors, three lecturers and two demonstrators. Referring to another portion of the book, Dr. Fred Rutland, the president of the college, is found to be a graduate of the Illinois Health University. This institution, it is stated in another part of the *Register*, issues diplomas that are not recognized by the Illinois State Board of Health. Dr. Rutland's graduation from that institution was quite recent. When he obtained his degrees of S.D. and Ph.D. that appear in the circulars is not told by the *Register*. It is further stated in the *Register* that he was surgeon and medical officer of the Wagga Wagga district of mounted police, New South Wales, and that he is a member of the National Union Medical Society of Chicago. As to his associates, Dr. Podmore and Dr. A. Neve Rutland, the *Medical Register* is silent.

Manager Denser of R. L. Polk & Co, said that they had had inquiries about the Wisconsin Eclectic Medical College and that several of the queries had come from insurance companies that had applications for positions as examiners from holders of the college's diplomas.

Among the JOURNAL'S esteemed correspondents we are happy to number Dr. PAUL R. BROWN, Surgeon of the United States Army, now stationed at Fort Hamilton, who sends a letter he has received, together with his reply, which we herewith reproduce:

CHICAGO, November 16, 1896.

Dr. Paul R. Brown, Fort Hamilton, N. Y.—Dear Doctor: We notice your name in a medical and surgical directory, but

with a * appended. This usually means (although not necessarily so) that the person so designated is not a graduate of a medical school and has no diploma. If, however, it should be that you are a graduate and have a regular diploma then we can but tender our most sincere apologies for troubling you on the matter. But, on the other hand, if you are not a graduate and have no regular diploma then the perusal of the inclosed prospectus can not fail to be of the most primary importance and interest to you. We would also desire to draw attention to the fact that to practicing physicians our fees are much reduced from the regular rate. To this class our fees are $35, all inclusive.

As proof of our legal standing and right to confer the degree of M.D. we can supply certified copies of our charter at 25 cents each, simply covering the cost of certifying officer's fee.

Trusting soon to hear from you and standing ready to answer any or all questions you may wish to submit, we are, yours, very sincerely.

WISCONSIN ECLECTIC MEDICAL COLLEGE,
FRED RUTLAND, PH.D., M.D.

To the circular Dr. BROWN replied as follows:

FORT HAMILTON, N. Y., November 23, 1896.

Fred Rutland, Chicago, Ill., Sir: I have never known nor heard of an instance of more unadulterated impudence than your action in daring to address a graduate in medicine of twenty-nine years' standing and a surgeon in the United States army for the last twenty-three years, and offering to sell him one of the products of your diploma manufactory.

As advertising seems to be what you most desire I shall take great pleasure in forwarding your communication to the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, published in Chicago, which will undoubtedly advertise the institution with which you are connected in a manner well adapted to show up the dirty, mercenary business it is engaged in. With the most profound contempt for you and yours, I remain, your obedient servant,

PAUL R. BROWN, M.D.
Major and Surgeon, United States Army.

The worst feature of the matter is that this circular by RUTLAND, which has been sent broadcast all over the United States, from Maine to Texas, has been sent in thousands of cases to prescribing druggists, many of whom have been gulled into purchasing the alleged diplomas.

A recent issue of the Detroit *Journal* states that there are about a dozen "graduates" of this diploma mill in that city, and from all accounts it would seem that Philadelphia, some years ago the home of the notorious Buchanan diploma mill, will now have to yield the unenviable precedence for number of this sort of graduates to the Milwaukee-Chicago concern. There, however, we believe the parallel ceases, as Pennsylvania sent BUCHANAN to prison, whereas, unless the Federal Government deals with the interesting "Dr." RUTLAND, he is likely to suffer no worse mishap than the loss of his State charter.

Mr. R. L. POLK, of the *National Medical Register*, stated in a recent interview:

"That man Rutland has been carrying on this diploma business for about a year. He and his wife figure as president and secretary of the Wisconsin Eclectic Medical College, respectively. Some time back Rutland was in the habit of referring to our medical directory by name. But we stopped that and now he only mentions a medical and surgical directory, of course referring to ours, as there is no other published.

"I believe Rutland also did business in Chicago, and have a strong suspicion that he was connected with the defunct 'health university' of that city, the charter of which was recently annulled by the courts of Illinois.

"The *modus operandi* at the 'college' is said to be as follows: Students arrange for the examinations before a notary public of their town and if the examiners of this college can be 'satisfied' they can be legally and lawfully graduated, receiving the diploma of the college conferring the degree of doctor of medicine without attendance at the college.

"Last spring we received a letter from the secretary of the State Board of Health of Wisconsin, informing us that the Wisconsin Eclectic Medical College of 1809 Fond du Lac Ave., Milwaukee, is a diploma mill, and stating that the attorney general of the State would attempt to have the charter annulled in court. A letter recently received by us from Walter Kempster, Commissioner of Health of Wisconsin shows that the charter has been annulled and that the parties who carried on the institution have left Milwaukee. I believe they make their headquarters in the Garden City now."

In response to a telegram sent December 19 to the Attorney General of Wisconsin, we were informed that the case was still pending in the court, and that the charter of the institution has therefore not yet been annulled.

CORRESPONDENCE.

NEW YORK, Nov. 25, 1896.

To the Editor:—In your issue of October 31, page 968, is contained a communication signed Charles Graef & Co., in which that firm, endeavoring to make a correction of a former article in your esteemed paper, take occasion to say that: "The numerous Hungarian bitter waters coming from Buda-Pesth which are called 'Hunyadi' this or that, are strictly medicinal," and then refer to a high eulogy paid to a water recently introduced by them in the market, "'Apenta' from the Uj Hunyadi Springs in Ofen."

I desire to correct an apparent misconception contained in these statements which, if left unchallenged, can not fail to do great harm to the business of the undersigned. As a result of a protracted litigation carried on by Mrs. Emilie Saxlehner, widow of Andreas Saxlehner, against the Uj (new) Hunyadi Company, Limited, before the Royal Hungarian Minister of Commerce, a decision was rendered by him in August, 1896, by which the sole right of the firm of Andreas Saxlehner to the use of the word "Hunyadi" in connection with bitter waters was finally and authoritatively recognized on account of the prior adoption of this name by him in the year 1863 and its continuous use for his "Hunyadi Janos" bitter water ever since that time.

I beg to send you enclosed herewith an abstract of the lengthy decision, from which you will see that the trademarks or names "Uj Hunyadi," "Uj Hunyadi Company Limited," and "Apenta" "Uj Hunyadi" registered by the defendant company in Buda-Pesth, have been canceled as conflicting with the exclusive rights of the firm of Andreas Saxlehner to the word "Hunyadi." Similar decisions have been made against all the various bitter waters which had adopted the word "Hunyadi" as a part of their names.

Without quoting at length from the decision against the Apenta (Uj Hunyadi) Water, I will only call your attention to the concluding sentence, in which it is said:

"The trademark forming the subject of these proceedings, while avoiding as much as possible exterior figural similarity, yet with respect to the designation of the article, evidently aims at identifying itself with the Hunyadi bitter water and at securing for itself by means of using this name that commercial position which the Hunyadi water has gained in the trade for thirty years."

The undersigned intends to protect his exclusive rights to the name "Hunyadi" water by appropriate action in court against all imitators of his labels or trademarks, but as proceedings of this kind are necessarily slow, I ask that you accord space in your valuable paper to this necessary correction. Respectfully yours, ANDREAS SAXLEHNER.

BLINDNESS is very common in Finland and other districts of the extreme north. It is attributed to smoky huts.

PUBLIC HEALTH.

The French National League Against Alcoholism.—One of the measures of the league is a public meeting occasionally on Sunday afternoons, when the dangers of alcoholism from a physiologic and medical point of view are presented by well known experts and the actual state of alcoholism exposed.

Lepers Flocking to Bogota.—Carrasquilla's announcement that he had succeeded in curing leprosy with his serum therapeutics has attracted great numbers of lepers to Bogota where he lives, until the Colombian government is dubious whether his alleged discovery may not be a calamity, especially as he stated that after the first injection the disease was arrested. This was assumed to mean that it ceased to be contagious and hence, the lepers and the people no longer take precautions against the spread of the disease. The government and the Academy of Medicine are now investigating the permanent results of the treatment in a scientific and thorough manner, to determine whether it is best to continue the Carrasquilla Institute at its present capacity, which requires a monthly outlay of $6,000, or to reduce it and establish a great national leprosorium to exterminate the disease by isolation.—*Revista Médica de Bogota*, August.

Liability of City for Acts of Health Physician.—In the absence of a statute, the court of civil appeals of Texas says, in the case of Bates v. City of Houston, decided Sept. 17, 1896, that the liability of a city depends upon whether or not, in the acts complained of, its health physician was its servant or its agent engaged in the doing of an act for the private corporate benefit of the city, or was a public officer in the discharge of public governmental duties, in which latter event the city would not be liable. Here the city had been sued to recover damages alleged to have been sustained by reason of the acts of its health physician in quarantining the plaintiff's family because they were supposed to be afflicted with smallpox. The powers conferred upon the city council were ample enough to authorize an ordinance providing for the isolation and quarantine of persons infected with dangerous and pestilential diseases, and the court says that there can be no difficulty in placing this case clearly in the category of those in which the city is exercising a governmental duty for the general benefit of the public at large, and so it affirms a judgment in favor of the city.

Shall a Wet Nurse be Employed for the Child of a Cured Syphilitic?—Fournier's lecture on this subject is going the rounds of our exchanges, appearing in full in several languages. He decides the question most positively in the negative, except in mild cases that date from at least ten years back and received effective treatment at the time, with no manifestations for several years; otherwise, not. Even if the father has been cured for years, and whether the child shows traces of syphilis or not, the disease may be communicated to the nurse, and the physician should never lend his countenance to such an immoral proceeding, even if the nurse is willing for extra compensation to assume the risk. No one but a physician knows what that risk is. The mother should by all means nurse the child herself if possible, as such children need a mother's tender care more than others. She is protected by that strange provision of nature that the mother is never infected by her syphilitic child after birth. In all his extensive experience he has never known this law to fail. If it is impossible for the mother to nurse the child, it must be brought up on sterilized milk—"milk changed from a poison to a food by that great man whose name is recorded by some benefit to humanity on nearly every page of pathology."—*Presse Méd.*, November 25.

Premises that Menace Public Health.—In the case of Egan v. Health Department of the City of New York, where it was sought to obtain an injunction restraining the health department from enforcing an order requiring a tenement house to be vacated as unhealthy, affidavits were offered upon the part of the defendant to the effect that the sink in the yard was filthy, emitting offensive odors, and sour-smelling; that the cellar of the building was only five and one-half feet high, was not cemented, but damp through want of ventilation; that many of the rooms of the tenement in question were ventilated from a narrow space, at the bottom of which there were accumulations of dirt and filth which rendered the air foul, impure and unhealthy; and that the whole building was in a very offensive condition from dirt and vermin, was unfit for human habitation, and endangering the health of the occupants of the other houses in the vicinity. If the premises in question were in the condition sworn to, the appellate division of the supreme court of New York holds, Oct. 23, 1896, they were a public nuisance, which the board of health were justified in summarily abating. Its continuance would be a menace to the public health. And the foregoing allegations being in no way met by the plaintiff, who relied upon general allegations that no pestilence or contagious disease had ever occurred in the building; that all the sinks and drains were in perfect sanitary condition, and had been continually kept in that condition; that the entire plumbing and drainage of the premises were in perfect condition, and that the heights of the ceilings were seven feet seven inches, the court holds that the court below was justified in refusing to interfere, as a court should not, even if it had the power, except upon good cause shown, interfere in the measures taken by public officials to protect the public health. If the health department had acted without justification, the court points out that the plaintiff had her remedy at law, under laws 1882, chapter 410 (Consolidated Act), section 599, which provides that any person whose property may have been unjustly or illegally destroyed or injured pursuant to any order of a board of health, may maintain an action against it for damages.

The Health Report of the City of Chicago for November, 1896, contains the following extracts from a paper on the relation of the medical profession to the water supply of Chicago, read before the Chicago Physicians' Club, Nov. 30, 1896, by F. W. Reilly, M.D., Assistant Commissioner of Health:

The history of the efforts to secure a pure water supply for Chicago is inseparably connected with that of the medical profession of the city. Forty-seven years ago Dr. N. S. Davis arrived in Chicago in the height of the cholera epidemic of 1849. Before the epidemic was over he had traced the relationship between the greater incidence of the disease in certain localities and the use of water from surface wells, and at once began an agitation for pure water from the lake. During the summer of 1850 he delivered a course of lectures on the sanitary conditions of the city and pointed out the means for their improvement. The plans he then suggested for a pure water supply and for its necessary complement—the proper disposal of the sewage of the city—are the basis of all that was done toward these ends during the subsequent forty years.

Only the merest mention may be made of those who followed the initiative of Dr. Davis and persistently pointed out the evil effects of impure water and urged measures for preventing the pollution of our source of supply. The roll would include the names of almost every man prominent in the profession in the early days, Brainard, Egan, McVickar, Boone, Paoli, Ross, Lyman, Holmes, Byford and their colleagues, among whom may be especially noted Dr. James Van Zandt Blaney, who, while the writer was an assistant in his laboratory in "Old Rush" in 1855-56, made the first chemic analysis of Lake Michigan water; Dr. Hosmer Allen Johnson, subsequently a sanitarian of national reputation, and Dr. Edmund Andrews, whose report on the erysipelas epidemic of 1863 was a scathing indictment of the municipal indifference which had allowed the river to become an open cesspool, with here and there an independent pollution, which he describes with grim humor, as answering "every purpose for the increase of medical practice in general and of erysipelas in particular."

To no other member of the medical profession, however, if to any other citizen, does Chicago owe so much in this connection as to the late Dr. John H. Rauch. Indefatigable as were his labors in the cause of medical education and far-reaching as were their results during his lifetime, his efforts toward the

solution of the sanitary problems of Chicago were of even greater and more direct importance to the prosperity and the health of this community. The work that he did lives after him in the parks and boulevards of the city; a direct result of his monograph on "Public Parks; Their Effects upon the Moral, Physical and Sanitary Conditions of the Inhabitants of Large Cities, with Especial Reference to Chicago." It lives after him in the suburban cemeteries which now receive the city's dead, without offense or menace to the living; the result of a paper read before the Chicago Historical Society in 1858, entitled "Intramural Interments in Populous Cities and Their Influence upon Health and Epidemics." His work lives after him in the present drainage and sewerage system, which he so persistently urged, and concerning which, in his report to the Chicago Board of Health in 1869, when the average death rate for twenty-five years had been over thirty in the thousand—he wrote as follows:

> From the results of drainage and other sanitary measures carried on in this city, it may be inferred that the judicious expenditure of money for sanitary purposes is a sound maxim of municipal economy, and from past experience I am satisfied that the mean annual death rate can be reduced to 17 per 1,000 by continuing in force the present sanitary and drainage regulations, thereby making Chicago one of the healthiest cities in the world.

In his presidential address before the American Public Health Association he cited this prediction, together with other passages from his reports and papers, with the following comment:

> I introduce these quotations simply to show that sanitary science has made sufficient progress at the present time to admit of the supreme test which science falsely so-called can never endure—that of verification by subsequent experience.

Dr. Rauch fortunately lived to see the verification of his prophecy "by subsequent experience." The year before his death, in March, 1894, the mortality rate of the city was only 16.9 per 1,000 of its population—a fraction less than that which he had asserted, twenty-four years before, was attainable if the plans originally formulated by Dr. Davis in 1850 should be carried out.

And Rauch, too, was a prophet not without honor—save among his own people.

He lived, however, to see the fruition of his efforts for the protection of the water supply of the city in the advanced stage of work on the great sanitary waterway and drainage channel. He foreshadowed in a general way, the plan, now in progress, for the ultimate disposal of Chicago sewage and consequent protection of the water supply, in his annual report for 1869, and from that time until work on the sanitary waterway was actually begun he continued to accumulate facts and present arguments which were finally successful. Probably no other one demonstration had more weight in determining the adoption of the present plan than that developed in the study and collation of the results of Prof. J. H. Long's analyses of the sewage contents of the Illinois and Michigan Canal and of the waters of the Illinois River as far south as Peoria, made in the summer of 1886. These analyses were part of a plan projected by Dr. Rauch, and carried out under the direct supervision of the writer, for an investigation of the water supplies of the State, with especial reference to the progressive decomposition of sewage in running streams, first between Chicago and St. Louis and subsequently in other Illinois water courses.

My collation of Prof. Long's analyses between Bridgeport and Peoria showed that more than one half the sewage pollution of the canal disappeared before reaching Lockport; nearly one-third of the remainder was lost in the next four miles, or 33 miles from Bridgeport; while at Channahon, 48 miles from the city, no trace of sewage was detected. These results were so unlooked for that Dr. Rauch hesitated to accept them. Water analysts had asserted that the self-purification of a polluted stream was impossible—as one phrased it, "no river in the world is long enough to purify itself after it has once been contaminated with organic matter."

The investigations were, therefore, repeated in the following winter, 1886 87, again in the summer of 1888 and still again in the spring of 1889, with substantially similar results in every case. Subsequently Prof. Pettenkofer caused a similar investigation to be made of the river Isar, which receives the sewage of Munich. Within a mile below the point at which the Isar receives the Munich sewage the *beggiotoa*, or sewage fungus, was found growing in abundance; but the last traces were found at Garching, less than ten miles below Munich. The chemic analyses gave corroborative results, while Pettenkofer himself reports that he found 198,000 bacteria to the cubic centimeter at the mouth of the sewer and only 3,600 at Freising, twenty miles below. He distinctly asserts that "*sewage is decomposed in running streams and is rendered harmless in the course of a few miles' flow.*" . . .

There is no scientific ground for believing that Chicago sewage ever reaches the Mississippi river; while as for the Illinois its waters are naturally not potable and have long since been abandoned by many of the valley towns as a source of water supply. It has its origin chiefly in marshy areas, whence it becomes highly charged with organic matter, is malarious, readily stagnates and has scarce enough free oxygen to support fish life. With the contribution, through the drainage channel, of from 300,000 to 600,000 cubic feet of water per minute from Lake Michigan with its excess of oxygen, not only the navigable and economic, but the sanitary conditions of the river will be immensely improved. Mr. Lyman E. Cooley, who has already addressed the Club on this subject, recently suggested to the writer that the profitable disposal of sewage may, after all, lie in this direction. Fish will not live in the Illinois above Morris, 60 miles from Chicago, nor for 20 to 30 miles below Peoria—beyond which distance the stream purifies itself so that fish are again found. U. S. Fish Commissioner Bartlett reports that in 1893 eleven million pounds of fish were taken from the other stretches of the river—a more profitable crop, as Mr. Cooley puts it, than any garnered from the prairies of the State, acre for acre.

Section 20 of the Sanitary District Act provides that the degree of dilution in the drainage channel shall not be *less* than 200 cubic feet per minute for every 1000 inhabitants, and it *must* be as much more as is found necessary to keep the waters of the channel in a condition "neither offensive nor injurious to the health of the people of the State." With this condition maintained it is believed that fish will live in its waters throughout, except at sewer mouths or in the vicinity of special pollution. It is certain that they will be restored to the full length of the Illinois river, to convert the wastes and refuse of every town upon its banks into a profitable food crop. . .

Such adverse criticism of the drainage channel as is still met with is generally found, on examination, to be due to misconception of its character and purpose. Its essential purpose is to keep Chicago's sewage from polluting Chicago's twenty-odd miles of lake frontage and the lake itself, from which its water supply is drawn. This is a sanitary necessity even though every drop of Chicago's drinking water should be filtered or otherwise purified—as it will have to be unless relief is speedily afforded through this channel and its essential complement, the intercepting sewers. In character, it is a new tributary of the Illinois river, with a less degree of organic impurity than any other of its tributaries, and destined to materially improve the sanitary conditions of the entire Illinois Valley—the "great malaria preserve of the State," as it has been called. . . .

Prefacing a chapter on the medical history of Chicago, a local historian has writen:

"When negligence permitted the condition of the city to become unhealthy in the extreme—an invitation to epidemics—the physicians persistently sounded the alarm that ultimately caused the citizens to demand of the authorities purification and the establishment of sanitary laws and officials. The system of sewerage adopted by the city was substantially a mode suggested by a physician. The method of drainage was that promulgated by a physician"—and in every effort for the betterment of the conditions of life in Chicago the physicians of Chicago have been the pioneers.

Disinfection of Infected Apartments by Vapor of Formaldehyde.—In *Hospital*, July 25, Dr. H. W. Jones gives an account of some of the latest work done with formaldehyde as a disinfectant of rooms and hospital wards. The experiments of Drs. Roux and Trillat have shown that the dust on the walls could be completely sterilized; in the case of dust on the floor the sterilization was not so complete. In one case, specimens of dust from the sweepings of a house were placed in twelve receptacles in different parts of an inhabited house of three stories. Ten liters of formalin were used, and the apparatus allowed to work for four hours. Half the specimens used for sowing on bouillon were washed in ammonia. The result was as follows: Ground floor, four specimens; bouillon cloudy after forty-eight hours in two cases. Room furthest away, three specimens; bouillon clear in all cases. Room on first floor, one specimen, all the bouillons clear. Room on second floor, four specimens, all clear. There was nothing extraordinary in the fact that two of the specimens on the ground floor were not sterilized, as they were near a very badly fitting door. "As regards penetrating power, the results are no less conclusive. Thus Dr. Bosc of Montpelier, found that staphylococci concealed in the pocket of a coat, and colon bacilli placed under a mattress folded on itself, were rendered absolutely sterile. Roux and

Trillat have discovered an ingenious method of testing this penetrating power. The action of formaldehyde on gelatin is to render it insoluble; to make use of this property as a test, little cubes of glass are coated with liquefied gelatin. When the gelatin has set, these are placed in various positions in the room which is being sterilized, and after the process is completed examined by immersion in boiling water. It is found that on those cubes which have been exposed to the action of formaldehyde, the gelatin coating is insoluble. Another test, used by the same observers, depends on the power which formaldehyde possesses of converting anilin reds into blues or violets. Bits of cloth dyed with fuchsin can be used in this way as tests, or a combination of this and the gelatin test can be used, the gelatin being dyed with fuchsin before the glass cubes are coated. Roux and Trillat further demonstrate that animals can live in an atmosphere that has been treated by formaldehyde vapor, if precautions are taken to first get rid of the vapor. This is done by washing first with a solution of ammonia, and then with sulphuric acid. This treatment would have no chemic action on any oxids of carbon that might have been formed during the disinfecting process, so that it may be taken as proved that the process is unattended by any risk for the evolution of carbonic oxid. There is yet another point which has been brought out by these experiments on formalin. It has been proved by Pottevin and also by Roux and Trillat that to obtain the best results a temperature of 35 degrees F. is necessary. Still, it was found by actual experiments in rooms that it is possible to completely sterilize walls, ceilings, floors, dust, air, and all contents at the ordinary temperatures. There can be little doubt that from the point of view of preventive medicine, this is one of the most important practical discoveries that has been made for many years."

ASSOCIATION NEWS.

List of Presidents of the American Medical Association.

To answer inquiries and for the information of the members we have compiled a list of the Presidents of the ASSOCIATION from the beginning:

Dr. Jonathan Knight, (President of the convention).
Dr. Nathaniel Chapman . . . . . 1847–48.
Dr. Alexander H. Stevens . . . . . 1848–49.
Dr. John C. Warren . . . . . 1849–50.
Dr. Reuben D. Mussey . . . . . 1850–51.
Dr. James Moultrie . . . . . 1851–52.
Dr. Beverly R. Wellford . . . . . 1852–53.
Dr. Jonathan Knight . . . . . 1853–54.
Dr. Charles A. Pope . . . . . 1854–55.
Dr. George B. Wood . . . . . 1855–56.
Dr. Zina Pitcher . . . . . 1856–57.
Dr. Paul F. Eve . . . . . 1857–58.
Dr. Harvey Lindsley . . . . . 1858–59.
Dr. Henry Miller . . . . . 1859–60.
Dr. Eli Ives . . . . . 1860–63.
Dr. Alden March . . . . . 1863–64.
Dr. Nathan S. Davis . . . . . 1864.
Dr. Nathan S. Davis, (held over) . . . . . 1865.
Dr. D. Humphreys Storer . . . . . 1866.
Dr. Henry F. Askew . . . . . 1867.
Dr. Samuel D. Gross . . . . . 1868.
Dr. William O. Baldwin . . . . . 1869.
Dr. George Mendenhall . . . . . 1870.
Dr. Alfred Stillé . . . . . 1871.
Dr. D. W. Yandell . . . . . 1872.
Dr. Thomas M. Logan . . . . . 1873.
Dr. Joseph M. Toner . . . . . 1874.
Dr. W. K. Bowling . . . . . 1875.
Dr. J. Marion Sims . . . . . 1876.
Dr. Henry I. Bowditch . . . . . 1877.
Dr. T. G. Richardson . . . . . 1878.
Dr. Theophilus Parvin . . . . . 1879.
Dr. Lewis A. Sayre . . . . . 1880.
Dr. John T. Hogden . . . . . 1881.
Dr. J. J. Woodward . . . . . 1882.
Dr. John L. Atlee . . . . . 1883.
Dr. Austin Flint . . . . . 1884.
Dr. Henry F. Campbell . . . . . 1885.
Dr. William Brodie . . . . . 1886.
Dr. E. H. Gregory . . . . . 1887.
Dr. A. Y. P. Garnett . . . . . 1888.
Dr. W. W. Dawson . . . . . 1889.
Dr. E. M. Moore . . . . . 1890.
Dr. Wm. T. Briggs . . . . . 1891.
Dr. Henry O. Marcy . . . . . 1892.
Dr. Hunter McGuire . . . . . 1893.
Dr. James F. Hibberd . . . . . 1894.
Dr. Donald Maclean . . . . . 1895.
Dr. R. Beverly Cole[1] . . . . . 1896.
Dr. Nicholas Senn . . . . . 1897.

SOCIETY NEWS.

The Northwestern Ohio Medical Society held its fifty-second meeting at Defiance, December 10 and 11. The following officers were elected: President, Dr. Joseph Sager of Celina; vice-presidents, Drs. James A. Duncan of Toledo and R. D. Dihle of Lima; secretary, Dr. J. P. Baker of Findlay; treasurer, Dr. L. M. Gehrett of Deshler. Dr. J. P. Baker of Findlay read an elaborate paper on "Treatment of Diphtheria by Antitoxin," in which he reported twenty-nine cases with the following results: Number of cases treated with antitoxin 23, number of cases of laryngeal invasion 6, number of deaths 1; 9 cases received antitoxin first day, 4 the second day, 4 the third day, 2 the fourth day, 1 the fifth day, 1 case, stage of disease indefinite; 13 cases received one injection, 6 received two injections, 1 received three injections, 1 received four injections. The antitoxin was supplemented by protonuclein combined with calomel enough the first day to act freely on the bowels. Protonuclein special was blown into the throat and after third or fourth day a tonic of iron, strychnia and calisaya bark was given.

Twelfth International Medical Congress.—Claudius H. Mastin, M.D., of Mobile, Ala., has been requested, and has consented, to serve as one of the members of the American National Committee of the Twelfth International Medical Congress to be held in Moscow, Aug. 19–26, 1897. The Central (Moscow) Executive Committee consists of the following gentlemen: President, Prof. I. F. Klein; vice-president, Prof. A. J. Kojewnikow: treasurer, Prof. N. F. Filatow; Secretary-General, Prof. W. K. Roth; Secretaries, Profs. P. I. Diakonow, W. A. Tikhomirow and I. I. Hoyding; members, Profs. S. S. Korsakow, J. F. Ognow and W. D. Chorwinsky. It is officially announced that preparations are being made for the reduction of Transatlantic steamer and European railroad fares.

A. JACOBI, M.D., Chairman Amer. Nat. Com.

The Western Ophthalmological, Otological, Laryngological and Rhinological Association will meet in St. Louis, Mo., the second Thursday and Friday of April, 1897, under the presidency of Dr. Adolph Alt. Physicians desiring to read papers are invited to send their subjects to secretary at once. Railroads will give us one and one-third fare on the certificate plan. Programs will be mailed Feb. 1, 1897. The profession are cordially invited to attend. HAL FOSTER, M.D., Sec.

NEW INSTRUMENTS.

A NEW OBSTETRIC FORCEPS.

BY A. B. SPÄCH, M.D.
CHICAGO.

Of the making of many instruments as well as "of the making of many books there is no end." This would appear especially true in the obstetric art, for there seems as many forceps as there are individual obstetricians. However, the forceps herein described and delineated is believed to possess advan-

[1] Inadvertently omitted in last publication.

tages heretofore not brought out in any other instrument. When it is considered that the primary object of the forceps is traction, Figure 1 will of itself indicate the merit claimed for this instrument.

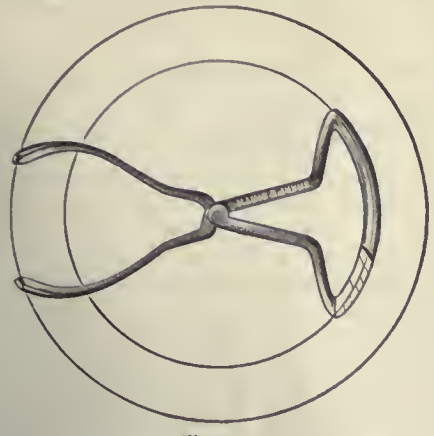


Figure 1.

It will be observed that the lock is at the center of two equal circles (the outer circle in the figure is not to be considered in the description), of which the handles are arcs, and which, at any angle made by the blades while grasping the fetal head,

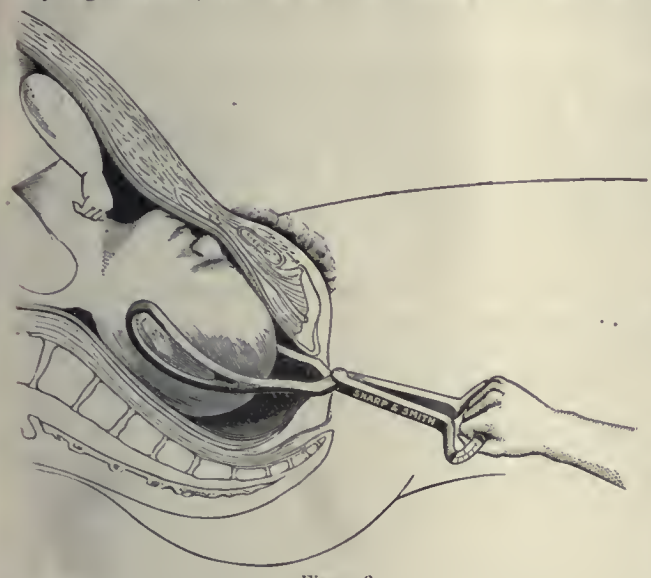


Figure 2.

constantly coincide (overlap). The lower arc is marked off in centimeters and inches, which continually measures the diameter of the fetal head. This will enable the intelligent obstetrician to avoid making undue compression of the child's head.



Figure 3.

Figure 2 represents the forceps in cases where it was recently employed in occipito-posterior positions, and Figure 3 when applied at the brim. There are no set screws and the instrument is aseptable. The two main advantages claimed, which are considered paramount, are traction and avoidance of undue compression of the fetal head. There are some minor features relative to the lock and curve of the blades that are new.

This instrument is manufactured by Sharp & Smith of Chicago.

BOOK NOTICES.

Twentieth Century Practice, an international encyclopedia of modern medical science by leading authorities of Europe and America. Edited by Thos. L. Stedman, M.D. In twenty volumes. Vol. vii, Diseases of the Respiratory Organs and Blood and Functional Sexual Disorders. 8vo. Cl. pp. 796. New York: Wm. Wood & Co. 1896.

The contributors to this volume are: Chas. W. Allen, M.D., New York; Jules Comby, M.D., Paris; C. G. Cumston, M.D., Boston; E. W. Cushing, M.D., Boston; James M. French, M. D., Cincinnati; E. Fletcher Ingals, M.D., Chicago; E. Main, M.D., Paris; Franz Riegel, M.D., Giessen; Alfred Stengel, M.D., Philadelphia; Herbert B. Whitney, M.D., Denver.

The topics include, 1, diseases of the pleura; 2, asthma; 3, hay fever; 4, diseases of the mediastinum; 5, diseases of the diaphragm; 6, diseases of the blood; 7, rachitis; 8, disorders of menstruation; 9, functional disorders of the male sexual organs; 10, chemic and microscopic exsmination of the urine.

The chapter on diseases of the diaphragm is by Dr. Main, and the difficulties under which the author labors in meeting the task assigned him, are about as great as if he had been assigned to write upon the diseases and injuries of the deltoid or of the gluteus maximus. However, the author frankly acknowledging the difficulties, has made a fairly readable article. He speaks of the traumatic affections, but does not mention hernia, and he writes of rheumatism and neuralgia, but does not refer to the assaults of trichinæ, although, as is well known, the diaphragm is very frequently the seat of trichinosis. The chapters by the other authors call for no special remarks, except to compliment them on making reliable and trustworthy articles on their respective topics. This system, when complete, if the accomplished editor keeps up the standard thus far kept, will be at once our most exhaustive and most authoritative book on practice.

The Medical Directory of the City of New York. Published under the auspices of the Medical Society of the County of New York. Price $1 00. New York: Press of Richard Herrmann, 232 William Street, 1896.

This directory contains the usual list of physicians corrected to date, beside many matters of interest to physicians, compilations of medical laws relating to the practice of medicine and pharmacy, benevolent societies, asylums and homes, extracts from by-laws of the Medical Society, etc.

Essentials of Physical Diagnosis of the Thorax. By Arthur M. Corwin, M.D., second edition, revised and enlarged. Cloth, pp. 199. Price $1.25 net. Philadelphia: W. B. Saunders, 1896. Chicago agent, W. T. Keener.

This little book, originally intended as an aid in the instruction of his own classes, has grown into national favor. Its scope has been somewhat extended, and practitioners wishing to refresh their memory on doubtful points in physical diagnosis of the diseases of the chest will find the work useful to them.

A Pictorial Atlas of Skin Diseases and Syphilitic Affections. In photo lithochromes from models in the museum of the Saint Louis Hospital, Paris, with explanatory woodcuts and text by Ernest Besnier, A. Fournier, Tenneson, Hallopeau, Du Castel and Henri Feulard. Edited and annotated by J. J. Pringle, M.B., F.R.C.P. Part v. 4o., paper. Philadelphia: W. B. Saunders, 1896. Chicago agent, W. T. Keener.

This magnificent pictorial work is issued with regularity and with great care. The contents of this section are: 1, agminate tricophytic folliculitis (Sabourand); 2, lupus pernio (Tenneson);

3, papulo-tuberculous syphilides (Hallopeau); 4, dermatitis vacciniformis infantilia (Hallopeau); 5, acute ecthyma of infancy (Hallopeau). The reproduction from the models in the Hôpital St. Louis continue to bring their faithful pictures to the eye of the profession generally, and the explanatory text is as a personal guide, without which many of the lesions portrayed in the museum would be but imperfectly understood.

NECROLOGY.

LEONARD J. SANFORD, M.D., died in New Haven, Conn., December 12, after a cardiac illness of two weeks. He was born in that city Nov. 8, 1833, and was a graduate of Jefferson Medical College, class of 1854. He began practice in his native place one year afterward. He received the honorary degree of M.A. from Yale in July, 1858, and was appointed professor of anatomy and physiology at Yale in May, 1863. Since that time he has given an annual course of lectures on these subjects, and also upon hygiene in the medical and other departments of the university.

CHARLES N. WOOLLEY, M.D., an ex-president of the board of education in Newburg, N. Y., died December 11, after a protracted illness, aged 58 years. He was born in Southampton, N. Y., was a graduate of Michigan University and ultimately of the Long Island Hospital Medical College in 1868.

GUIDO FURMAN, M.D., son of a Lutheran clergyman, born in Nassau, Germany, Jan. 17, 1831, was a graduate in 1856 of the New York University Medical College. He was elected in the earlier days Secretary of the AMERICAN MEDICAL ASSOCIATION, and subsequently held many positions in the medical societies and also appointments in the Sanitary Commission during the late war and in the New York Health Board. He was in the enjoyment of a profitable practice until failing health compelled a resignation of his duties for some years before his death, which occurred December 2, at his home in New York city.

COLIN J. HACKETT, M.D., died in LeMars, Iowa, aged 56 years, November 26. He was an alumnus of both the Medical College of Virginia (1860) and the New York University Medical College (1861). Beside being a member of the National Association of Railway Surgeons, he was long identified with the AMERICAN MEDICAL ASSOCIATION.

THOMAS A. FOSTER, M.D., Medical Director of the Union Mutual Life Insurance Co., of Maine, died November 27, aged 69 years. He was a member of the class of 1856, Pennsylvania Medical College, Philadelphia.

CHARLES S. FLOOD, of Austin, Pa., died at his home November 27. He was a graduate of the Jefferson Medical College, class of 1887.

MISCELLANY.

Scarcity of Physicians in Cuba.—There are only 51 physicians it seems for the 13,657 sick distributed in the hospitals, etc., throughout six provinces in Cuba, and the Inspector-General has appealed to the Spanish Government for more, according to the *Bulletin Méd.*, of November 11.

Personal.—Dr. Howard Kelly of Johns Hopkins Hospital has returned from his European trip, much improved in health. President Nicholas Senn of Chicago will spend the holidays hunting in the West. Dr. P. O. Hooper of Little Rock, Ark., has been appointed superintendent of the Arkansas State Insane Asylum. Dr. J. R. Pennington has resigned the Chair of Rectal Diseases in the Illinois Medical College, Chicago.

Some Statistic Gleanings.—In the Paris hospitals over 20 per cent. of the typhoid cases prove fatal.——Shanghai, China, is almost free from cases of infantile convulsions.——Over 50 per cent. of the cases of croup in Sweden and Norway are fatal.——One of every ten cases of sickness in England is due to rheumatism. ——Mulhall says that in 10,000 deaths in Missouri 750 are from phthisis.—Smallpox is more prevalent at Rome than in any other European city.——In the smallpox epidemic at Leipsic in 1871 the death rate from this cause rose to 12,700 per 1,000,000.

Sensibility of the Eye to the Roentgen Ray.—The Roentgen ray is invisible to the normal eye, but it has been found that ablation of the crystalline lens renders it visible. A child upon whom this operation had been performed was submitted to the ray, her head in a wooden box, on which the ray was directed from outside. She saw nothing but darkness with the sound eye, but with the other the space was filled with light and she could see clearly through the walls of the box the outlines of objects without, that intercepted the ray, which presented to her view the aspect of the radiograph with which we are all so familiar. —*Presse Méd.*, November 15, from the *Rev. Gén. des Sciences.*

Medical Aid for Cuba.—The physicians of several of the cities in the United States having been aroused by reports of suffering in the Cuban papers, have started subscription lists to buy medicines, etc. The movement was inaugurated by the physicians of St. Paul. A committee, consisting of Drs. Kelly, Wheaton and Boeckmann, have raised several hundred dollars for this purpose. It is expected, if necessary, that the supplies and medicines contributed can be sent under protection of the Red Cross Society, as no articles contraband of war will be sent.

Surgeon-extraordinary to Queen Victoria.—Americans who are familiar with Bryant surgery, will be pleased to learn that Thomas Bryant, F.R.C.S., has been appointed Surgeon-extraordinary to Queen Victoria, the place being made vacant by the death of Sir John Erichsen. Mr. Bryant is very popular with the College of Surgeons, and has held all the important offices, those of examiner, vice-president and president, the last-named title being held by him for three successive terms. At the present time Mr. Bryant is the college representative on the general medical council and at the last election of the college council he was elected at the head of the poll.

Indian Treatment of Smallpox.—Incidentally an interesting historic fact is brought out in the land title case of Reynolds v. Campling, wherein the supreme court of Colorado handed down a decision Sept. 21, 1896. The plaintiff sought to prove the death in 1862 or 1863 of the patentee, one Armama Smith, an Indian woman, whom the defendant contended was still living in 1894. In the oral argument before the supreme court, the latter says counsel called attention to the evidence of death, which he urged occurred under such peculiar circumstances as to leave no doubt of the time being as stated. These circumstances were as follows: She was suffering from smallpox and that, when the fever arose, she ran and jumped into a stream of water, as was the custom of the Cheyenne Indians, and that her death followed immediately. The court does not seem to doubt the correctness of the conclusion, if the premises are true, though it intimates that there may be some mistake as to the identity of the patentee, which can be cleared up on a new trial. It may be stated here that this practice was not confined to the Cheyenne Indians, but was the common practice of most of the northwestern Indians.

Relations Between the Motor Oculi and the Ciliary Ganglion.—While it has been assumed that the ciliary ganglion belonged to the motor oculi nerve, as also its sympathetic nature, physiologic investigation has never established this beyond a doubt, which Apolant has now succeeded in accomplishing by the application of Marchi's method. He experimented on young cats, as this ganglion is comparatively large in them, and the short ciliary nerves contain myelin. He announces that the fibers entering the ganglion from the motor oculi nerve end there, with their terminals blending with the fibrils of the ganglion

cells. The motor oculi nerve was cut before its entrance into the sinus cavernosus and only young animals survived the operation. They were killed from eight to fourteen days afterward, and the ganglion with the entire contents of the orbit, prepared and treated by the Marchi method. The ganglion of the sound side was also treated in the same manner. He never succeeded in tracing any of the degenerated fibers of the motor oculi past the ganglion to the periphery, consequently the cells of the ganglion are to be considered as the beginning of a new neuron. The experiments also furnished the proof that the ganglion can not be spinal, as in that case the sectioned fibers of the motor oculi would have degenerated toward the nucleus and not toward the ganglion.—*Cbl. f. Phys.*, November 14.

Influence of the Vagus on the Kidneys.—A series of experiments described in the *Gazzetta d. Osp. e d. Clin.* of November 22, have demonstrated that the vagus plays an important part in the innervation of the kidneys, contrary to what has been hitherto assumed. Section of the vagus on one side produced in animals marked renal disturbances and albuminuria. The frequency of nervous manifestations in diabetes, the numerous observations of lesions in the vagus in diabetes, the probability of a nervous origin for the disease, the possibility of producing not merely glycosuria, but an actual experimental diabetes by lesions of the nerves, and particularly by lesions of the vagus, all of these facts incline Boeri to query whether the albuminuria of diabetics may not be referable to the vagus and whether the renal lesions in diabetes may not be interpreted as a degeneration of the renal epithelium, a trophic disturbance. The albuminuria that accompanies a permanently slow pulse may also with all probability be ascribed to the vagus. The slow pulse and the other symptoms may be concomitant symptoms of the lesion of the vagus, instead of, as Comby supposes, that the lesion of the vagus is due to degeneration caused by the slow pulse.

Registration of Physicians in Massachusetts.—Chapter 230 of the Massachusetts laws passed in 1896, provides that all applications for registration as physicians or surgeons under the provisions of chapter 458 of the acts of 1894, shall be made upon blanks to be furnished by the board of registration in medicine, and shall be signed and sworn to by the applicants. It further requires that such board shall examine all applicants, and only such as are found qualified and shall give satisfactory proof of being twenty-one years of age and of good moral character shall receive certificates of registration as provided in said act: provided, however, that said board shall register without examination any applicant whom it may find to be of good moral character, of more than sixty years of age, and a graduate of a generally chartered medical college having power to confer degrees in medicine, and who has been a practitioner of medicine in the commonwealth of Massachusetts for a period of ten years next prior to the passage of this act (which was approved April 1, 1896), and who otherwise complies with the provisions of this act. Said board may by unanimous vote, after a hearing, revoke any certificate issued by it to, and cancel the registration of, any person convicted of any crime in the practice of his professional business, or convicted of a felony. Any person who shall practice medicine or surgery under a false or assumed name, or under a name other than that under which he is registered, or shall personate another practitioner of a like or different name, shall be punished by a fine of not less than one hundred dollars nor more than five hundred dollars for each offense, or by imprisonment in jail three months, or by both.

Good Tenements that Pay.—Dr. E. R. L. Gould of Johns Hopkins University says that "Of all the model tenement houses in cities of 100,000 and over in this country and the Old World, 88 per cent. are on a paying basis." It is relatively a modern idea that works of benevolence should be made to pay. The profits on them have generally been regarded as remote, if not contingent. The riches they might be expected to bring in were not susceptible of deposit in banks, but must be laid up elsewhere to await the claimant. The older idea has not wholly gone out, and never will, for all the scientific teaching of the time can not dispel the charm of free giving, even if the giving be practically useless and possibly harmful. But the modern idea has in it, nevertheless, an element of common sense, developed by long and varied experience and pregnant with great good to society. What is sought and got in the model tenement house may be said to be not charity, but beneficence; it does not simply relieve the suffering or allay the miseries of the poor, it aids directly and efficiently to remove the causes thereof and prevent their recurrence. It makes permanent conditions of life not merely easier but better, by making the scant earnings of tenants go further and bring in more. It promotes health and lengthens life by giving better air and light, and guarding against the sources of disease. These things add to the wage-earning power of the occupants of such dwellings. The moral gain is not less important. Apart from the demoralizing influence of dirt and crowding and discomfort, the unfit tenement saps self-respect, weakens the resistance to temptation, aggravates the evil passions and breeds the habit of unmanly and unwomanly conduct. The good tenement does exactly the opposite.—New York *Times*.

"Homeopathy" and Venesection.—Following the example of Hahnemann, whose powers of wandering from the hackneyed limits of the actual were unlimited, the average homeopathic fanatic perennially eulogizes homeopathy as the deliverer from venesection. The fact is, however, that long before the homeopathic fungus sprouted, a current was setting in against the abuse of venesection. Hahnemann assimilated quietly Störck's views concerning venesection without acknowledgment and distorted these just as he did other therapeutic stealings from Störck. Hahnemann (Chronic Diseases, page 177) remarks: "The homeopathist has dispensed with the necessity of employing the barbarous practice of bloodletting. Beginners and learners may be pardoned for using depleting processes, but if they dare to pride themselves on their pretended improvements and promulgate bloodletting and cupping as processes that are entirely homeopathic, then they make themselves ridiculous. They ought to be pitied for their dabbling and for their patients. It is laziness, or is it a foolish predilection for the pernicious routine of allopathy which prevents them from making themselves acquainted with the true 'homeopathic' remedy?" The New York homeopathists adopted this system. Dr. Gray, one of their leaders, remarks (*Homeopathic Examiner*, vol. iv, 845): "Bloodletting I have not ceased to employ during the eighteen years of my acquaintance with homeopathy; at first by advice of my learned and lamented predecessor, Dr. Gram, it was continued on purely empiric grounds, but now and for many years past I apply it upon the homeopathic basis, having acquired, partly by experiment partly by reading 'allopathic' authorities to that end, a tolerable pathogenesis of it."

Study of "Resultant Tones" and Their Acoustic Phenomena.—The Helmholtz theory in regard to the resultant tones, as the tones are called which accompany the simultaneous sounding of two harmonious notes, the number of whose vibrations is equal to the difference between the vibrations of the two primaries, scarcely explains them to our satisfaction, Meyer states in a recent article. After proving what some deny, that such notes really exist, he asserts that overtones are not necessary to their formation, as he established by experiment in which he neutralized the overtones by interference. He also found that two resultant tones can produce a new resultant tone (tuning

forks), as also occurs when to the resultant tone an objective tone wave is added, the number of whose vibrations is not too far removed from the other. With the rotating apparatus he also established the fact that at least five vibrations are necessary for a tone to be audible. He was unable to distinguish Hermann's hypothetic "interrupting tones." He also states that the theories of Wundt and Hermann do not satisfactorily explain the process of the production of resultant tones in the ear and advances a theory himself which does not supplant that of Helmholtz, but merely extends it. He first analyzes the tone wave and shows how perfectly a mathematical demonstration of it would correspond to what would occur in the case of a rod fastened at one end and free at the other. Its imperfect elasticity would cause any imparted wave arriving at the free end to be gradually deadened and finally die away altogether. If instead of the one rod he were to substitute a jointed rod, each joint supplied with a nerve (a certain length of the rod equals a certain number of ganglion cells), and assuming that chemic transformations correspond to every stimulus of the cells, depending qualitatively on the number of stimuli in a certain unit of time, he then applies the whole to the organ of Corti. Its membrane is set in motion by the objective sound wave in the same manner, and the whole wave is divided in the same way by the rods in all the Corti arches, which correspond to the rods described above. This theory does not harmonize with that which imputes a specific energy to the nerve cells, but is a return to the theory of the effect of the form of the curves on the auditory sensations, only instead of speculative we have a mechanical demonstration—*Cbl. f. Phys.*, November 14.

The Apotheosis of the General Practitioner.—The Rev. Dr. Watson ("Ian Maclaren"), the recipient of "Bonnie Briar Bush" ovations in our East, gave in one of his last readings his most charming tale, "A Doctor of the Old School." Regarding other medical matters in his writings he is reported as having said:

"I don't want you to think I am a mere ignorant layman, writing these things from my inner consciousness. You must remember that a clergyman sees a great deal of sickness, but in order to make sure that there should be no inaccuracies in my book I had my book revised by a physician whose name is known both in America and England. By his advice I shortened the time of Annie Mitchel's operation. I had allowed an hour and a half, but he said an hour would be enough, and I was so glad on Tammas's account. One reviewer was scandalized at my treating typhoid fever with cold water. I think he was writing without knowledge, and when I read such things I always have five minutes of absolutely sinless enjoyment."

Speaking of his Sir George's farewell to Dr. McClure, and his solicitude about the antiseptic dressings, Dr. Watson said that when his countrymen got very near the verge and were in danger of falling over, they always took "antiseptic precautions." Before beginning the reading the Doctor gave a little introduction, explaining the moral of the story.

"Immediately after the publication of this work of a new and unskilled writer," he said, "I began to receive letters, and am still receiving them, from people who are sure that they know the original Dr. McClure. These letters come from all parts of the world—from New South Wales, New Zealand and the Cape of Good Hope, from all parts of England, Scotland and Ireland, and from the United States. In fact it would appear that there is not a State in the Union where Dr. McClure is not alive today. I have just had a communication from one of the Western States declaring that all of my other correspondents are wrong, for they have the real, genuine Dr. McClure out there. Surely this unanimous testimony to the heroism and unselfishness of a great profession is a new proof that the goodness of the world is more than we have ever imagined or believed. It establishes our faith in man and in the Eternal, and this is the moral of the story."

Again touching the "crossing of the ford" incident, now so popular, the author said there was a foundation on fact. An eminent physician and a country doctor were the actors, and the former used language much plainer than anything he (Dr. Watson) had ventured to put into his book.

Medicated Electrolysis.—The favorable results secured by Boisseau de Rocher with electrolysis with sodium bromid, reported at a recent meeting of the French Society of Electro-therapeutics, are given in full in the *Presse Méd.* of November 25, with observations of several cases of local tuberculous affections completely cured by one or two applications in recent affections, when the improvement is evident at once, and by two to twenty-five applications in old tuberculous joint and osseous affections, when the patient showed improvement in about fifteen days and the final cure was definite in six weeks. The solution of sodium bromid is injected into the diseased tissues or the suppurating cavity, and then by means of a platinum trocar attached to the positive pole of a continuous current battery (20 to 25 milliampères, is sufficient), the negative placed near by, the solution is decomposed into oxygen, hydrogen, bromin and sodium. These substances generate oxygen compounds of bromin, which give up their oxygen readily in the form of ozone, forming finally hydrobromic acid and bromin, partially gaseous, with a small amount of sodic compounds. All of these substances are extremely powerful disinfectants, and in a form hitherto unused in therapeutics and impossible to use in any other way than by electrolysis, and all in the atomic state. In non-suppurated tuberculosis a warm 1 to 20 solution is sufficiently powerful, but a titrated solution at 1 to 10 is necessary with a suppurating cavity. There is no local nor general reaction from its use, and immobilization and compression are superfluous, simple repose in bed being all that is needed. We add one of the observations, protracted osteomyelitis with very extensive suppurated cavity in the femur. The patient, age 34, was treated surgically with curettement, transplantation of bone, etc., eleven operations in all, each accompanied by severe hemorrhage, and all were ineffectual. When the electrolysis treatment was commenced the lower quarter of the femur was mined with a large cavity, the walls so thin that any further intervention would have broken them in. Sixteen applications of the medicated electrolysis entirely arrested the suppuration and the cavity filled up completely in the course of twenty-five. The temperature remained 36.5 to 37 degrees C. throughout. Fourteen months have elapsed since and there are no indications of a relapse. Another serious case was cured with two applications and no relapse in the three years since.

Study of the Morphology of the Blood and Lymph.—Botkin has added to his studies of the alterations undergone by the colorless elements of the blood, lymph and chyle, in *Virchow's Arch.*, cxxxvii and cxli, still another in cxlv. He states in this last that if a fresh drop of lymph is examined in the thermostat, highly magnified, all the corpuscles are seen to be undergoing the liveliest ameboid movements, producing the most varied shapes and appearances. After awhile these movements gradually decrease, the corpuscles swell, assuming the most remarkable shapes, and finally in the course of fifty to sixty minutes they vanish entirely. A clearer view of these "dissolution forms," as he calls them, is obtained by fixing and staining them. While it is easy to determine the variations in the number of the colorless corpuscles in the blood, by counting them simultaneously with the red corpuscles (with the erythrocytes remaining at a constant figure), this method entirely fails the investigator in studying the lymph, as they change so much and the erythrocytes dissolve, thus depriving him of any point of comparison. An abstract of his article in the *Cbl. f. Phys.* of November 14, remarks that his demonstration of the presence of red corpuscles in the lymph is especially important. The proportion of the red to the colorless corpuscles is found to vary in a surprising degree from 0.15 : 1 to 131.4 : 1. Botkin was therefore restricted to purely morphologic investigations, in which he found that there are four different processes by which the colorless corpuscles can pass out of existence. The conditions that determine the particu-

lar process are still unknown, but it is interesting to note in his fine illustrations how it is the nucleus in one and the protoplasm in another that is first affected, all ending however in utter extinction, the complete dissolution of the corpuscle in the lymph plasma. He considers the commencement of the process an indication of the death of the corpuscle. As long as it retains its vitality it opposes a certain resistance to the lymph plasma. This is extinguished with the death of the corpuscle and the plasma then destroys it. Although we know that there is a constant destruction of the leucocytes going on in the normally circulating lymph as in the blood, yet this destruction rapidly increases when it is removed from the body, even when it is kept at the same temperature. The number of colorless corpuscles seen to be undergoing destruction then rises from 4 to 50 per cent. The fourth process of dissolution is especially interesting. The corpuscles swell and the small lymphocytes become transformed into large colorless corpuscles. This explains the large number of leucocytes found in lymph which has been removed from the body for any length of time. In reality they are nothing but the "dissolution forms" of the small lymphocytes, swollen to a large size.

The British Law as to Unqualified Oculists and Aurists.—An interesting decision was rendered by the stipendiary magistrate at Leeds, Eng., Sept. 1, 1896, according to a report in the *Law Times* in a case wherein complaint had been made by the British Medical Defence Union that a Mr. Thomas Ison had falsely described himself to be an oculist and aurist, implying that he was registered as a medical practitioner under the Medical Act; and, moreover, that he had held himself out to the public to be by profession a surgeon under one of the provisions of that act. The magistrate dismissed the first part of the charges. He said that the informant, the general secretary of the above society, had admitted on cross-examination, that he had never known a qualified medical practitioner describes himself simply as an "oculist and aurist," those terms being generally used by persons whom he designated as "quacks." This, in the magistrate's opinion, destroyed the whole fabric of the informant's case so far as the first point at issue was concerned. Nor did the magistrate think that the fact that the defendant called his place "The Leeds Eye and Ear Dispensary," was a representation that he possessed a legal qualification, as a surgeon, but only that he was an optician by trade, or an unqualified practitioner in the treatment of the eye and ear. But Ison had affixed on a wall in the public street a placard on which, under the arms of the city, were printed the words, "Leeds Eye and Ear Dispensary, established 1871, 52 Great George Street, Mr. T. Ison, oculist and aurist," and on an inner door at Great George Street there was inscribed, "Consulting oculist and aurist." Furthermore, Ison quoted in his advertisements from paragraphs which had appeared in the newspapers in praise of a previously existing charitable eye and ear infirmary. The inference the magistrate irresistibly drew from these circumstances was that the "Leeds Eye and Ear Dispensary" was a recognized medical institution, and that the defendant himself was a recognized medical practitioner who had no regard for the unwritten law of the profession as to advertising, which, after all, the magistrate said, was a mere convention of no obligation—a rule of etiquette. Except for the references in the newspapers and on the walls to the "Leeds Eye and Ear Dispensary," he should probably have dismissed this second point in the case also; but, with a view to the guidance of the defendant in the future, the magistrate imposed a fine of five pounds sterling and costs.

Urea in Therapeutics.—Urea taken internally in large doses, often increases the diuresis and holds uric acid in solution. These effects should ensure it a prominent position in therapeutics. Its value has not been generally recognized hitherto, as the doses given have been too small to be effective. Klemperer has been testing it extensively in large doses, and has found its action prompt and decided. The best results were attained in cases of ascites and pleuritic effusions. In a few cases of ascites with cirrhosis of the liver, the amount of urine rose to five liters in the twenty-four hours, and large effusions in the abdomen rapidly disappeared. He classified the cases he has been able to observe carefully: 11 cases of ascites with cirrhosis of the liver, 63 per cent. benefited; 7 cases of pleuritic effusion, 57 per cent. benefited; valvular insufficiency, 13 cases, 38 per cent. benefited; muscular cardiac troubles, 41 per cent. benefited: Bright's disease, 9 cases, none benefited. It has no effect in diseases of the kidneys, which confirms again the physiologic assumption that the urea acts directly upon the renal epithelium, which it incites to stronger secretion. Klemperer ascribes the varying results attained in cases of pleuritic effusion to pressure of the effusion upon the kidneys in the unsuccessful cases. The results in heart troubles were also varying, probably from the same cause. A few patients with severe compensation disturbances on whom all other remedies had proved unavailing, eliminated astounding quantities of urine and their extensive edema rapidly disappeared. He refers these discrepancies again to the state of the kidneys; where they are too much degenerated by stagnation, the urea can not take hold. Albuminuria is therefore a contra-indication to the use of urea, although there were cases in which it produced no effect even when the urine was free from albumin. He recommends it in all cases of hydrops and ascites of non-renal origin, when other remedies fail. The effect is usually perceptible by the third or fourth day. If there is no improvement by the fifth day, he advises its discontinuance. The doses he administered were: Ureæ puræ. 10.0; aq. dest. 200. One tablespoonful every hour. If possible the entire amount to be taken in one day. Two days later he prescribes 15 gm. to 200 gm. and two days later 20 gm. to 200 gm. It is almost always well supported by the patient. If disagreeable to the taste he orders it to be taken in a wine glass of milk or Seltzer water. He usually continues it for fourteen days, the total amounting to 200 to 250 gm. although in certain cases he has given more than this. The largest amount, 920 gm. in sixty-five days, was in the case of a patient with chronic myocarditis. He has also found it very effective in preventing the formation of renal calculi, supplementing the dietetic measures, etc. He has administered it for this purpose in forty-two cases, and in none has it failed to produce a marked favorable effect. He begins as with hydrops, with a 5 per cent. solution. He also recommends a powder: Natr. bicarb., calc. carb., ureæ pur. āā 25 gm. M. f. pulv. In the forenoon and toward evening half a teaspoon. This medication applies to patients who have just passed through a colic. As a preventive measure he orders 100 to 150 gm. urea. The same regulations apply to patients who have formerly passed urates, and are now troubled by rheumatoid pains in the back and lumbar region. Urea is unable to afford relief during a colic. Its effect is also slight when the calculi are already formed, or when there is hematuria. Its effect in gout is limited to increasing the diuresis. His article in the *Deutsche Med. Woch.*, of November 19, concludes by quoting Senator's remark that the introduction of urea is a distinct gain to our pharmacopeia.

Duty of Committee of Lunatic.—Judge Clearwater, of the Ulster county court, N. Y., does credit to his name in a decision he handed down Oct. 14, 1896, in the case of Knapp's Estate. He says that it is the paramount duty of the committee of a lunatic to attend to his or her personal wants and comforts, and to furnish him or her, so far as the funds in his hands will allow, with not only all the necessaries of life, but all the proper recreation and amusements consistent with his or her former habit of living. It is his duty, likewise, to avail himself of medical advice, and all other reasonable means that may tend

to the restoration of his ward or the amelioration of his or her condition. The care, health and comfort of the lunatic alone are to be considered; and this without reference to the interests of the next of kin, heirs at law and expectants. The maintenance of a lunatic is by no means limited to the amount of his or her income, but his or her whole estate may be expended for his or her support, should that become necessary. A committee may arrange for the maintenance of the domestic establishment of a lunatic to the same extent as before the beginning of lunacy. He may also provide for the payment of the lunatic's customary contributions to the church which the person had been in the habit of attending, and to the making of a proper allowance to the lunatic, to be expended by said lunatic for gifts to friends, servants, dependents or in charity. The duties of the committee of a lunatic, and those of an executor or administrator, differ so widely that the rules governing the conduct of the one have but scant application to the duty of the other. As before stated, the duty of a committee is to the lunatic alone, whose well-being and comfort are of primary consideration; while executors and administrators are trustees for the benefit of creditors, legatees and next of kin, their duty being to conserve with great economy all the estate coming into their hands. Causes are not infrequently brought to the attention of courts of justice, the judge goes on to say, in which a relative, who gave little attention to the living invalid when the latter was most in need of affectionate tenderness and care, proves the reverse of indifferent in efforts to obtain possession of an estate, with the creation and accumulation of which he or she had absolutely nothing to do. This is an attitude which does not especially appeal to courts of equity, nor is it apt to unduly influence them to be astute in the effort to discover evidence of misconduct in acts which are equally consistent with innocence.

Gastric Ulcer with Perforation; Recovery.—In the *London Lancet*, October 10, Dr. Claude Taylor reports a case of the above nature as follows: A male aged 50 years, with good previous history, had for a month or more had vague symptoms of gastritis, such as a little pain after food and occasionally slight sickness. He had never vomited any blood, and having enjoyed such good health all his life he was unwilling to accept much in the way of advice or treatment. On July 14 he had his dinner as usual at 1 o'clock, consisting of a mixed diet of meat, etc., and afterward returned to his work out of doors. He was lifting barrels about, when at 4 o'clock he was suddenly seized with a violent pain in the epigastrium, which was so severe as to render him helpless; he was put to bed and poultices applied to the abdomen. He brought up a quantity of green, bile-stained vomit, but was only sick this once. "As I was visiting in another direction when sent for, I did not see him till 9 o'clock that evening. Then I found him pale and sweating, with the pulse somewhat quickened and the temperature slightly raised. The epigastrium and right hypochondrium were the seat of great pain and tenderness, especially below the tip of the ninth rib. The whole abdomen was very rigid. At no time was anything of the nature of a tumor to be felt. He had passed urine without much difficulty, and his bowels had been slightly moved. Suspecting the real nature of the case I ordered that he should have nothing by the mouth and should continue the hot fomentations. I saw him early next morning, when he said that he had slept fairly well and was feeling less collapsed, but the pain and tenderness remained, his temperature was 99 degrees F. and the pulse was 72. At 8:30 P.M. the temperature was 101 degrees, the pulse 72, full and soft, and the tongue was a good deal coated and dry. He had had two or three teaspoonfuls of weak milk in the afternoon by my direction as a test. His bowels had been again moved; as I have mentioned there was no further vomiting. The abdominal wall was less rigid and the pain was less severe, but diffused over the whole abdomen; the very tender area remained, but now the important sign of resonance over the liver area was present and I felt pretty confident of the diagnosis. Thinking that an operation would probably be the only means of saving the patient's life, I consulted Dr. George Findlay of Brailes on the matter, and he kindly came over to see him. By this time it was midnight and the patient feeling better, being hardly persuaded that the matter was serious, we decided to wait till the morning and even then to postpone operation so long as the improvement was maintained. I may say that the improvement did steadily continue, the pulse remained good but dropped to about 60 per minute, the pyrexia subsided, and at the end of five days from the onset the resonance over the liver had disappeared and the pain and tenderness nearly so. I thought an abscess would form, but there has been no sign of one. I have recently seen the man and though he feels rather weak still he gets about, sees after his business to a certain extent, and except for some flatulence has no gastric symptoms. Of course, he was fed entirely by the rectum, only moistening his mouth with a little water which he spat out again. Enemata of milk and egg were injected every four hours and the rectum was irrigated once a day with plain alkalised water. Though pepsin and hydrochloric acid had to be used for the enemata for the first three days (till I obtained some liquid pancreaticus from London) only one dose was rejected and the patient seemed to do well on them. The mixture was allowed to digest for a full half-hour and was then given him without being boiled, to allow peptonization to proceed in the bowel. This, then, was a case in which, if it had occurred in a hospital I should have advised immediate operation according to the opinion at present held by at least many surgeons. Operative measures, however, having failed in so many instances (three of which I have seen myself) the question arises: What is the best method to pursue, and particularly should an attempt be made to sew up the ulcer immediately its perforation is diagnosed, or should one refrain so long as the patient seems to be getting better rather than worse? I submit this account as indicating that the last course may be the best, but the surgeon would hold himself ready to operate at once if the symptoms were progressive. In my case I believe the absence of the necessity to move the patient more than a few yards after the onset had a considerable influence on his recovery."

Sea or Mountain Air Supplied at the Residence.—According to the *Gaz. d. Osp. e d. Clin.* of Nov. 19, a new process invented by the chemist Linde, compresses air until it contains 70 per cent. oxygen instead of the usual 25 per cent. A bottle of this air put up in the mountains or at the seashore will supply you at your residence with the healthiest and purest air in the world.

THE PUBLIC SERVICE.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending Dec. 19, 1896.

Surgeon L. B. Baldwin, detached from the "Newark" and ordered to the "Puritan."

P. A. Surgeon S. G. Evans, detached from the "Pinta" on reporting of his relief, and ordered to the naval hospital, New York.

P. A. Surgeon G. Rothganger, detached from the "Patterson" Dec. 25, and ordered to the "Pinta" per steamer of Dec. 29.

Change of Address.

Rodgers, J. D. F., from Ottawa, Kan., to Rooms 416-418 Deardorf Building, Kansas City, Mo.

Taylor, A. D., from Chicago to Williamsville, Ill.

Von Rehm, E., from 59 W. 105th St. to 1 W. 106th St., New York, N. Y.

LETTERS RECEIVED

Allport, Frank, Minneapolis, Minn.; Alden, C. H., Washington, D. C.; Abbey, C. D., Chicago, Ill.

Brown, Bedford, Alexandria, Va.; Biddle, J. G., Philadelphia, Pa.

Carter, E. C., Fort Harrison, Mont.; Coe, Henry W., Portland, Ore.; Caldwell, W. S., Freeport, Ill.

Elliott, A. R., New York, N. Y.

Ferguson & Goodnow, Chicago, Ill.; Furay, Charles E., Chadron, Neb.

Munn & Co., New York, N. Y.; Mountain Valley Springs Co., Hot Springs, Ark.

Pettingill & Co., Boston, Mass.

Richardson, H., Baltimore, Md.

Schering & Glatz, New York, N. Y.; Sharpe, N. W., St. Louis, Mo.; Souchon, Edmond, New Orleans, La.

Woody, Samuel E., Louisville, Ky.

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